

### **Course information:**

|                     |                          |
|---------------------|--------------------------|
| Course title        | Clinical Skills Course 1 |
| Course number       | 0111500101               |
| Credit hours Course | 1                        |

### **Course description:**

The aim of this course is to help students to acquire clinical skills through the integrated basic science module which will ultimately help in better patient care.

Through emphasis on communication skills between health care provider and patients and between different medical staff, we are hoping to prepare our students for their future career, also it will help students to integrate their knowledge of basic sciences with clinical practice.

The Clinical Skills Course 1 incorporates basic medical history taking and basic physical examination.

### **Consultation Skills:**

In these sessions, students learn the elements of effective communication. This involves satisfactory interviews with simulated patients and volunteers, initiating the medical interview and eliciting the medical history appropriately. The exercises include role plays with simulated patients and team members. Students will be given opportunities to view real videos of patient history taking.

- a. Eliciting the medical history and gathering information from patients related to:
  - Presenting problems with special emphasis on understanding, analysis and interpretation of symptoms
  - Patient's perspective, including ideas, concerns, expectations
  - Past medical history, drug history, family history and social history with special emphasis on relevance to presenting complaints

- b. Developing specific communication skills to aid the process of initiating the medical interview and gathering information
- c. Obtaining consent from a patient before performing a basic medical or invasive procedure

### **Physical Examination Skills:**

Conducting appropriate general physical examination to elicit physical signs related to:

- ? General appearance and complexion of the patient
- ? Tongue and hands as reflectors of systemic disorders
- ? Patient hydrational status
- ? Vital signs

### **Procedural Skills:**

Performing appropriate techniques on manikins or simulated patients for:

- ? Assessment of pulses, respiratory rate and temperature
- ? Blood pressure measurement
- ? Relief of choking
- ? Cardio-Pulmonary Resuscitation (CPR)

### **Learning outcomes:**

The course objectives are divided into three categories. These are: Knowledge, Skills, and Attitudes/ Behaviors.

### **Knowledge:**

At the end of the Clinical Skills Education and Testing Centre (CSETC) Course 1, the students shall be able to:

- ? Understand the items of a medical history, in relation to the Calgary-Cambridge framework, including:
  - presenting problems
  - analysis of the presenting problems
  - patient's perspective
  - past medical history
  - drug history and allergies
  - family history
  - personal and social history
- ? Interpret their general clinical examination findings based on their basic science knowledge

### **Skills:**

By the end of the CSETC Course 1, in relation to general history taking and general examination, the students shall be able to:

- ? Obtain an accurate medical history with all its items

- ❑ Demonstrate effective communication skills including:
  - attentive listening
  - screening
  - open to closed question cone
  - summarising
  - signposting
  - verbal and non-verbal cues
- ❑ Demonstrate the ability to obtain consent from a simulated patient before any intervention
- ❑ Perform effective, accurate, comprehensive, and appropriate general physical examination using simulated patients
- ❑ Demonstrate the ability to accurately assess pulses, respiratory rate, temperature and measure blood pressure
- ❑ Demonstrate the ability to perform appropriate procedures for the relief of choking and basic life support with the help of manikins

#### Attitudes / Behaviors:

At the end of the CSETC Course 1, the students shall be able to:

- ❑ Display a professional attitude when dealing with patients / simulated patients
- ❑ Demonstrate a good understanding of the sensitive nature of the doctor / patient relationship and the importance of patient privacy and confidentiality.
- ❑ Demonstrate a proper professional demeanor by willingly and consistently using appropriate personal safety devices when handling patients, hazardous material or instruments.

#### Instructional methods:

The course is taught through interactive lectures and practical sessions. Instructional methods include:

- ❖ discussions
- ❖ brainstorming
- ❖ group work
- ❖ pair work or triplet work
- ❖ role play
- ❖ simulation
- ❖ audio and video feedback
- ❖ presentations
- ❖ demonstrations

### **Textbook and material:**

| Author                                | Title                                  | Published Year |
|---------------------------------------|----------------------------------------|----------------|
| Douglas, Nicol and Robertson Elsevier | Macleod's Clinical Examination         | 12th, 2009     |
| Silverman, Kurtz Draper               | Skills for Communicating with Patients | 2004           |
| Ford, Hennessy, and Japp Elsevier     | Introduction to Clinical Examination   | 8th, 2005      |
| Dacre and Kopelman                    | Handbook of Clinical Skills            | 1999           |

### **Grading Policy:**

Multiple Choice Examination: 40%  
Objective Structured Clinical Examination: 40%  
Class attendance/participation/evaluation: 20%  
Total Points 100

### **Course Policies:**

#### **Late Assignments**

Students must give an explanation to the course instructor for any assignment which is submitted late. It will be at the course instructor's discretion if marks will be deducted for late assignments.

#### **Missed exams**

If a student misses the multiple choice examination then they will have to take part in the resit examination. Due to timetabling constraints, if a student misses the OSCE then they will not be able to take the OSCE at another time and they will be given 0% for the OSCE component of the final grade.

#### **Absence**

If a student is absent for a practical session then they must discuss this with the course instructor and it is the student's responsibility to attend the practical session at another time. If a student is absent for more than 25% of the sessions then they may be liable to fail the course.

#### **Cheating**

Cheating is forbidden in any form. Any students who are caught cheating will be reported to the Medical Dean and further action taken as necessary.

### **Classroom Protocol:**

Students are expected to attend all sessions and to arrive on time for lectures and practical sessions. It is each student's responsibility to know their timetable and which session they should attend on which day. Students are expected to behave respectfully towards all

members of staff and each other. Mobile phones are to be switched off during teaching sessions and eating, drinking and smoking are forbidden.

### **Important Dates to Remember:**

Lectures will begin the first week of the semester.

Practical sessions will begin the second week of the semester.

The OSCE is usually timetabled for the last week of teaching in the semester.

The MCQ Examination is timetabled during the examination period.

### **Students rights and responsibilities:**

These are as detailed in the University Regulations

### **Course Schedule:**

|                                |                                                                                  |
|--------------------------------|----------------------------------------------------------------------------------|
| Lecture 1                      | Introduction                                                                     |
| Lecture 2                      | Initiating the Medical Interview                                                 |
| Lecture 3                      | Physical Examination                                                             |
| Lecture 4                      | Gathering Information in the Medical Interview                                   |
| Lecture 5                      | The Patient's Perspective                                                        |
| Lecture 6                      | Building the Relationship in the Medical Interview                               |
| Lecture 7                      | Revision and Examination Instructions                                            |
| Consultation Session 1         | Initiating the Medical Interview                                                 |
| Consultation Session 2         | Gathering Information in the Medical Interview                                   |
| Consultation Session 3         | The Patient's Perspective and Building the Relationship in the Medical Interview |
| Consultation Session 4         | Providing Structure and Closing the Medical Interview                            |
| Physical Examination Session 1 | General Physical Examination                                                     |
| Clinical Procedures Session 1  | Hand washing, Pulses, Blood Pressure                                             |
| Clinical Procedures Session 2  | Respiratory Rate, Temperature, Relief of Choking, Cardiac Arrest                 |

### **Course information:**

|               |            |
|---------------|------------|
| Course title  | First Aid  |
| Course number | 0111501108 |
| Credit hours  | 3          |

### **Course description:**

This course introduces the basics of emergency first aid treatment. Topics include issues in providing care, primary assessment and basic life support, secondary assessment, circulatory emergencies, respiratory emergencies, soft tissue injuries, bone & joint injuries, environmental illness & injury, medical conditions, advanced topics. Upon completion, students should be able to demonstrate skills in providing emergency care for the sick and injured until medical help can be obtained.

### **Learning outcomes:**

By the end of the course, participants will be able to

- Deal with emergency situations
- Know the limits of basic first aid
- Familiarize themselves with First Aid regulations
- Be aware of the duties of the employer as to First Aid.

### **Instructional methods:**

- lectures
- Group discussions and case scenarios between students
- Handouts
- Audio visual material
- Electronic resources
- Guest speakers

### **Textbook and material:**

See Instructor's Addendum

### **Grading Policy:**

The School believes that evaluation is a vital part of the learning process and indicates whether the objectives have been met and to what degree.

The Faculty of Medicine has adopted the following grading scales:

| Items       | Grade                     |
|-------------|---------------------------|
| First exam  | 25%<br>for the two groups |
| Second exam | 25%<br>for the two groups |
| Final exam  | 50%                       |

### **Instructions for the required exams:**

The students must attend the first, second, and final exam. The exam will measure the cognitive, attitude (affective), and the psychomotor dimensions. The questions include multiple choice questions, matching, and true or false questions. To help you doing better in the exams, all the objectives of each exam will be given to the students prior to the date of the exam.

### **Course Policies:**

- **Plagiarism/Academic Dishonesty:** Plagiarism, cheating and/or fabrication will not be tolerated. They are serious offenses in this course.
- **Attendance:** In the outside world, attendance is not optional; therefore, in this course, attendance is mandatory, and we expect you to arrive on time to class.

We will abide by the University attendance policy, which can be found in the Hashemite University Undergraduate book 2007-2008 (p. 49).

- **Absences may be excused under the following conditions:** You must provide acceptable, written documentation of the reason for your absence within three days of the absence. Some examples of acceptable documentation include a dated physician's note, a dated traffic accident report, a dated hospital bill, etc. Providing documentation does not guarantee an absence will be excused. Work that will be missed for a known, excused absence must be turned in prior to the absence in order to receive credit. Any unexcused absence will affect your grade because you will not be allowed to make up the work missed. If you miss an exam or a scheduled in-class activity you will earn a zero (0) regardless of whether the absence is excused or unexcused.
- **Students with Special needs:** It is strongly recommended that students with disabilities should contact their course coordinator early in the semester to be able to provide them with resources and help when needed.

### **Important Dates to Remember:**

The Start of the Course-First Trimester

First Exam

Second Exam

Final Exam

### **Course Schedule:**

### **Topical Outline**

| Chapter                                                               | Content                                                                                                                                     | Description                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>(Chapter 1)</b><br><br><b>(Chapter 2) Issues in Providing Care</b> | Introduction<br>Consent<br>Protective<br>Precautions<br>Legal<br>Liability<br>Critical Incident Stress &<br>Victim Death<br>Abuse & Neglect | Importance<br>Gaining consent<br>Other influences of consent<br><br>Awareness of Danger<br>Barrier Devices                                                                                                                                                                                                                                                                              |
| <b>(Chapter 3) Primary Assessment &amp; Basic Life Support</b>        | Scene Survey<br><br>- A for Airway<br>- B for Breathing<br><br>- C for Compressions<br><br>Summary of CPR                                   | Scene Survey<br>Responsiveness<br>Summary Calling<br>For Help<br>Treatment<br><br>Principles<br>Checking for breathing<br><br>Principles<br>Technique<br>Making compressions effective<br>When to Stop<br>Obstructed Airway<br><br>Area - check the area<br>Awake - check level of consciousness<br>Ambulance - call EMS<br>Airway - open the airway<br>Breathing - check for breathing |



|                                            |                                                                                             |                                                                                                                                                                                                                                                                                     |
|--------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                            | <b>D for Deadly Bleeding</b>                                                                | Compressions - begin compressions<br><br>Assessment<br>Treatment                                                                                                                                                                                                                    |
| <b>(Chapter 4) Secondary Assessment</b>    | Head-to-toe<br><br>History<br><br>Vitals                                                    | Who is this for?<br>Priority of ABCs<br>What is being looked for?<br>The six areas<br>Chief Complaint<br>History of Chief Complaint<br>Allergies<br>Medical History & Medications<br>Pain Assessment<br>Important Information<br>Onset<br>Next of Kin<br><br>Purpose<br>Assessments |
| <b>(Chapter 5) Circulatory Emergencies</b> | External Bleeding<br><br>Internal Bleeding<br><br>Heart Attack & angina<br><br>Stroke & TIA | Introduction<br>Recognition<br>Treatment<br>Dressing<br>Special cases<br><br>Introduction<br>Causes<br>Recognition<br>Treatment<br><br>Introduction<br>Recognition<br>Treatment<br><br>Recognition<br>Treatment                                                                     |
| <b>First exam</b>                          |                                                                                             |                                                                                                                                                                                                                                                                                     |
| <b>(chapter 6) Respiratory Emergencies</b> | Anaphylaxis<br><br>Asthma &<br>Hyperventilation<br>Obstructed Airway                        | Introduction<br>Recognition<br>Treatment<br><br>Recognition<br>Treatment<br><br>Conscious Victims                                                                                                                                                                                   |

|                                                       |                                                                                                                                                  |                                                                |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
|                                                       |                                                                                                                                                  | Unconscious Victims                                            |
| <b>(Chapter 7) Soft Tissue Injuries</b>               | Burns                                                                                                                                            | Recognition<br>Treatment                                       |
|                                                       | Electrocution                                                                                                                                    | Treatment                                                      |
|                                                       | Chest & Abdominal Wounds                                                                                                                         | Closed Chest Wounds<br>Open Chest Wounds<br>Abdominal Injuries |
| <b>(Chapter 8) Bone &amp; Joint Injuries</b>          | Fractures .                                                                                                                                      | Introduction<br>Recognition<br>Treatment Femoral fractures     |
|                                                       | Sprains, & Strains                                                                                                                               | Sprain or Fracture?<br>Treatment                               |
|                                                       | Head & Facial Injuries                                                                                                                           | Head Injuries<br>Injuries involving the eye                    |
|                                                       | Suspected Spinal Injuries                                                                                                                        | Recognition<br>Treatment                                       |
| <b>Second exam</b>                                    |                                                                                                                                                  |                                                                |
| <b>(Chapter 9) Environmental Illness &amp; Injury</b> | Heat Illness & Injury                                                                                                                            | Heat Cramps<br>Heat Exhaustion<br>Heat Stroke                  |
|                                                       | Cold Illness & Injury<br>Pressure-Related Illness & Injury<br>Treatment<br>Decompression Sickness (the Bends)<br>Oxygen Toxicity<br>Air Embolism | Frostbite<br>Hypothermia                                       |
| <b>(Chapter 9) Medical Conditions</b>                 | Diabetes                                                                                                                                         | Hypoglycemia (Insulin Shock)<br>Hyperglycemia                  |
|                                                       | Seizure<br><br>Poisoning<br>Absorption<br>Inhalation<br>Ingestion<br>Injection                                                                   | Recognition<br>Treatment                                       |

|                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>(Chapter 10)</b><br/><b>Advanced Topics</b></p> |  | <ul style="list-style-type: none"> <li>• Wilderness First Aid</li> <li>• Animal bites</li> <li>• Extended Assessment</li> <li>• Checking for underlying causes</li> <li>• Additional tests for spinal injuries</li> <li>• Airway Management</li> <li>• Manual methods</li> <li>• Oral Airways</li> <li>• Bag-Valve-Mask (BVM)</li> <li>• Suction Devices</li> <li>• Oxygen Administration</li> <li>• Nasal Cannula</li> <li>• Bag-Valve-Mask</li> <li>• Non-rebreathing Mask</li> <li>• Pocket Mask</li> <li>• Automated External Defibrillation</li> <li>• D for Defibrillation</li> <li>• Operation</li> <li>• Basic Triage</li> <li>• Simple Triage And Evacuation (START)</li> </ul> |
|-------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### **Course information:**

|               |                   |
|---------------|-------------------|
| Course title  | General Biology I |
| Course number | 104101            |
| Credit hours  | 3                 |
| Course date   |                   |

### **Course description:**

This course is an introductory course intended to introduce undergraduate first year medical students to a variety of subjects in biology. The course will provide an introduction to the basic concepts and themes of the study of life. Students are presented to an overview of biology to be able to analyze the basic concepts behind the major themes of biology and to outline the process of science in studying biology.

### **Learning outcomes:**

Upon completion of this course, the student will be able to:

- Understand the concept of General Biology
- Recall foundational biological information necessary for entering post-baccalaureate school or entering a career in the biological sciences
- Understand cell structure, cell physiology, and molecular processes of cells
- Understand the principle of organismal physiology, evolution, and ecology
- Understand the relationship between cellular/molecular and supra-organismic principles

### **Instructional methods:**

- Lectures-PowerPoint presentations
- Departmental hand-outs
- animations, educational movies, illustrations
- Self-readings

### **Text book and material:**

Text book of Biology, N A Campbell and J B Reese.  
Benjamin Cummings, San Francisco, 9<sup>th</sup> Edition, 2008.

### **Grading Policy:**

First Exam (6<sup>th</sup> week): 25%

Second Exam (11<sup>th</sup> week): 25%

Final Exam (16<sup>th</sup> week) : 50%

Total Points 100

### **Course Policies:**

#### **Missed exams:**

Students who are absent in any exam are allowed to sit a make-up exam after presenting an approved sick leave or any accepted certificate of absence to the assistant of the faculty dean within 72 hours. The Course Coordinator will determine the time of the exam make-up session. Also, according to the Curriculum Committee and the University regulations, the student will be given a similar examination given to the other students. All examinations must be made up within one week of returning to class. Those absents who do not present a clue will be given a zero mark.

#### **Absence**

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students will be accountable and personally responsible for attending all educational activities (lectures, labs, examinations, etc.). Unexcused absences reflect negatively on the goals and objectives of the medical curriculum and demonstrate unprofessional behavior by the respective student.

Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Attendance is mandatory. Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

#### **Cheating:**

Cheating will not be tolerated. Each individual student is responsible for his behavior and is expected to maintain standards of academic honesty and professionalism. If any instance of academic dishonesty (cheating, plagiarism, etc.) is discovered by a coordinator or an instructor, it is his or her responsibility to take appropriate action. Such action may include giving a failing grade to the student in the course and/or referring the student for Judicial Procedures Office review and possible disciplinary action, which may include disciplinary suspension or dismissal from the College.

### Classroom Protocol:

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students respond politely to faculty, staff, and student colleagues, exemplifying their maturity and empathy. Students agree to abide by appropriate biosafety practices when required.

All students are expected to be quiet in their seats in the lecture theatre before the start of the lecture. Engagement in class discussions is encouraged without side chatting.

Cell phones are not allowed to be used during lectures and exams unless prior approval has been taken from the course instructor.

### Important Dates to Remember:

The Start of the Course-First Trimester

First Exam

Second Exam

Final Exa

### Course Schedule:

| Week | Topics                                                                                              | Chapter  |
|------|-----------------------------------------------------------------------------------------------------|----------|
| 1+2  | Carbon and the Molecular Diversity of Life Cycle<br>The Structure and functioning of Macromolecules | 4<br>5   |
| 3+4  | The Structure and functioning of Macromolecules                                                     | 5        |
| 5+6  | A Tour of the Cell                                                                                  | 6        |
| 6+7  | Eid Al-Adha Almubarak                                                                               |          |
|      | First Exam                                                                                          |          |
| 8    | Membrane Structure and Function                                                                     | 7        |
| 9    | An Introduction to Metabolism                                                                       | 8        |
| 10   | An Introduction to Metabolism                                                                       | 8        |
|      | Cellular Respiration: Harvesting Chemical Energy                                                    | 9        |
| 11   | Cellular Respiration: Harvesting Chemical Energy                                                    | 9        |
| 12   | Photosynthesis                                                                                      | 10       |
| 13   | The Cell Cycle                                                                                      | 12       |
| 14   | Meiosis and Sexual Life Cycles                                                                      | 13       |
|      | Second Exam                                                                                         |          |
|      | The Molecular Basis of Inheritance<br>From Gene to Protein                                          | 16<br>16 |
| 15   | Plant Structure, Growth and Development                                                             | 35       |
| 16   | Final Exam                                                                                          |          |

### **Course information**

|               |                 |
|---------------|-----------------|
| Course title  | General Anatomy |
| Course number | 111501104       |
| Credit hours  | 3 Credits       |

### **Course description:**

1. The course begins with understanding; the definition and significance of anatomy and its subdivisions; the term of position and movements; and the regional term applied in the study of human gross anatomy.
2. The course introduces the basic structures encountered while dissecting a cadaver (skin, fascia, skeletal muscles, bones, joints, blood & lymphatic vessels, nervous system organization).
3. The course covers the main structures and functions of different body system; (Skeletal, muscular & Joints, CVS, Respiratory, GIT, Urinary, Male and Female Genital, and Nervous System).
4. The course covers the general embryology, which describe the development of embryo, fetal membrane, placenta and the causes of congenital malformations.

### **Learning outcomes:**

1. The student should be familiar with the terms used in the study of anatomy.
2. The student should be familiar with basic knowledge concerning the main structures faced while dissecting a human cadaver.
3. The student should be oriented with the structures and their arrangement in each system of human body which helps him in building good basic anatomical knowledge for subsequent modules.
4. The student should be familiar with basic knowledge of general human embryology including the process fertilization, zygote formation, implantation, embryonic period, fetal membranes and placenta formation, and the main causes of congenital malformations.

### **Instructional methods:**

- Lectures.
- Practical.

### **Textbook and material:**

| Author                        | Title                                  | Published     |
|-------------------------------|----------------------------------------|---------------|
| G.J. Tortora,                 | Principle of Human Anatomy.            | Last edition. |
| R.S. Snell.                   | Clinical Anatomy for Medical Students. | Last edition  |
| K.L. Moore and T.V.N. Persaud | Before we are born                     | Last edition  |
| Frank H. Netter               | Atlas of Human Anatomy                 | Last edition  |

### **Grading Policy:**

Grades can be based on the following:

First Exam 30%.

Practical Exam 30%.

Final Exam 40%.

Total Points 100

### **Course Policies:**

#### **Late Assignments:**

Students must give an explanation to the course instructor for any assignment which is submitted late. It will be at the course instructor's discretion if marks will be deducted for late assignments..

#### **Missed exam:**

If a student misses an examination then they will have the opportunity for a make-up examination, according to the university regulations.

#### **Absence:**

If a student is absent for a teaching session then they must discuss this with the course instructor. If a student is absent for more than 25% of the course then he may be liable to fail the course.

#### **Cheating:**

Cheating is forbidden in any form. Any students who are caught cheating will be reported to the medical Dean and further action taken as necessary.

### **Classroom Protocol:**

Students are expected to attend all sessions and to arrive on time for lectures and practical sessions. It is each student's responsibility to know their timetable and which session they should attend on which day. Students are expected to behave respectfully towards all members of staff and each other. Mobile phones are to be switched off during teaching sessions and eating, drinking and smoking are forbidden.

### **Important Dates to Remember:**

Lectures will begin the first week of the semester.

Practical sessions will begin the second week of the semester.

The dates and locations of written and practical examinations will be notified at the beginning of the semester.

### **Students rights and responsibilities:**

These are as detailed in University Regulations.

### **Course Schedule:**

After studying the material covered in the lectures, practical's, seminars and internet search regarding this study, the student is expected to express the following specific capacities:



| Topic                                                                               | General objective                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Introduction to Human Anatomy</b>                                                | <b>General introductions</b> <ol style="list-style-type: none"> <li>1. Anatomical position.</li> <li>2. Body planes, terms of position, and regional terms.</li> <li>3. Body cavity. Subdivision &amp; contents.</li> <li>4. Levels of organization.</li> </ol>                                                                                                                                                                           |
| <b>Axial Skeleton<br/>The Skull</b>                                                 | <ol style="list-style-type: none"> <li>1. Outline the bones of axial skeleton.</li> <li>2. Describe the general features of skull.</li> <li>3. Introduce the bones of skull; sutures, fontanelles &amp; their significances.</li> <li>4. Describe briefly the cranial cavity and base of skull.</li> <li>5. Outline important foramina of skull.</li> </ol>                                                                               |
| <b>Axial Skeleton<br/>The Mandible,<br/>Vertebral Column,<br/>Sternum, and Ribs</b> | <ol style="list-style-type: none"> <li>1. Describe the features of mandible.</li> <li>2. Describe the general features of vertebral column.</li> <li>3. Describe the structure and significance of inter-vertebral discs.</li> <li>4. Outline the typical parts of the vertebra.</li> <li>5. Describe briefly the main features of regional vertebrae, sacrum &amp; coccyx.</li> <li>6. Describe briefly the sternum and ribs.</li> </ol> |
| <b>Appendicular<br/>Skeleton<br/>Bones of Upper Limb</b>                            | <ol style="list-style-type: none"> <li>1. Outline the bones of upper limb.</li> <li>2. Describe the main features of clavicle, scapula &amp; humerus.</li> <li>3. Describe the features of ulna &amp; radius.</li> <li>4. Outline the general features and name of carpal bones.</li> <li>5. Describe the features of metacarpal bones and phalanges.</li> </ol>                                                                          |
| <b>Appendicular<br/>Skeleton<br/>Bones of Lower Limb</b>                            | <ol style="list-style-type: none"> <li>1. Outline the bones of lower limb.</li> <li>2. Describe the main features of bones of hip: ilium, ischium, &amp; pubis.</li> <li>3. Describe the main features of femur &amp; patella.</li> <li>4. Describe the features of tibia &amp; fibula.</li> <li>5. Outline bones of foot and arches of foot.</li> </ol>                                                                                  |
| <b>Muscular System</b>                                                              | <ol style="list-style-type: none"> <li>1. Outline the types of skeletal muscle.</li> <li>2. Outline the nomenclature of skeletal muscles.</li> <li>3. Outline the type of actions of skeletal muscles.</li> </ol>                                                                                                                                                                                                                         |
| <b>Muscles of Scalp,<br/>Face, &amp; Eye</b>                                        | <ol style="list-style-type: none"> <li>1. Outline the muscles of scalp &amp; face.</li> <li>2. Outline the muscles of mastication.</li> <li>3. Outline the extra-ocular muscles of eye.</li> </ol>                                                                                                                                                                                                                                        |
| <b>Muscles of the Neck</b>                                                          | <ol style="list-style-type: none"> <li>1. Outline the main muscles of neck.</li> <li>2. Outline the muscles of pharynx &amp; larynx.</li> <li>3. Outline the prevertebral muscles of neck.</li> </ol>                                                                                                                                                                                                                                     |
| <b>Muscles of Thorax,<br/>Abdominal &amp; Pelvic<br/>Walls</b>                      | <ol style="list-style-type: none"> <li>1. Outline the muscles of thoracic wall.</li> <li>2. Describe the diaphragm.</li> <li>3. Outline the muscles of anterior abdominal wall.</li> <li>4. Describe briefly the perineum.</li> </ol>                                                                                                                                                                                                     |
| <b>Muscles of upper<br/>Limb</b>                                                    | <ol style="list-style-type: none"> <li>1. Outline the main muscles of pectoral, shoulder, and scapular region.</li> <li>2. Outline the muscles of arm, forearm, &amp; hand.</li> </ol>                                                                                                                                                                                                                                                    |

|                              |                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Muscles of lower Limb</b> | <ol style="list-style-type: none"> <li>1. Outline the muscles of the gluteal region &amp; back of thigh.</li> <li>2. Outline the muscles of anterior &amp; lateral compartment of thigh.</li> <li>3. Outline the muscles of leg.</li> <li>4. Describe the popliteal fossa.</li> <li>5. Outline the muscles of foot.</li> </ol>                     |
| <b>Body Joints</b>           | <ol style="list-style-type: none"> <li>1. Outline the type of body joints.</li> <li>2. Outline the structure and types of synovial joints.</li> <li>3. Outline the joints of upper limb (shoulder, elbow, radio-ulnar, wrist, and joints of hand).</li> <li>4. Outline the joints of lower limb (hip, knee, ankle, and joints of foot).</li> </ol> |
| <b>Circulatory System</b>    | <ol style="list-style-type: none"> <li>1. Outline the parts of circulatory system.</li> <li>2. Briefly describe the pericardium.</li> <li>3. Briefly describe the heart (location, chambers, valves, blood supply).</li> </ol>                                                                                                                     |
| <b>Circulatory System</b>    | <ol style="list-style-type: none"> <li>1. Outline the great vessels of heart.</li> <li>2. Outline the branches of aorta.</li> <li>3. Outline the vessels of head &amp; neck.</li> <li>4. Outline the blood vessels of upper &amp; lower limbs.</li> </ol>                                                                                          |
| <b>Respiratory System</b>    | <ol style="list-style-type: none"> <li>1. Outline the parts of respiratory system.</li> <li>2. Outline the structure of nasal cavity, nasopharynx, paranasal sinuses.</li> <li>3. Outline the larynx.</li> </ol>                                                                                                                                   |
| <b>Respiratory System</b>    | <ol style="list-style-type: none"> <li>1. Describe briefly the trachea &amp; bronchi.</li> <li>2. Describe briefly the pleural sac.</li> <li>3. Describe briefly the lungs.</li> </ol>                                                                                                                                                             |
| <b>Digestive System</b>      | <ol style="list-style-type: none"> <li>1. Outline the parts of digestive system.</li> <li>2. Describe briefly the mouth &amp; esophagus.</li> <li>3. Outline the location, parts, openings, and borders of stomach, &amp; peritoneal folds.</li> <li>4. Introduce parts &amp; functions of small bowel.</li> </ol>                                 |

### First Examination (40 MCQ Written Exam.)

|                              |                                                                                                                                                                                                                                                                          |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Digestive System</b>      | <ol style="list-style-type: none"> <li>1. Outline the parts, location and function of large intestine.</li> <li>2. Outline the associated digestive glands (salivary glands, pancreas, liver &amp; gall bladder and their functions).</li> </ol>                         |
| <b>Urinary System</b>        | <ol style="list-style-type: none"> <li>1. Outline parts of urinary system.</li> <li>2. Briefly describe the location, gross structure &amp; blood vessels of kidney.</li> <li>3. Briefly outline the ureter, urinary bladder &amp; male &amp; female urethra.</li> </ol> |
| <b>Male Genital System</b>   | Outline the parts & functions of male genital system.                                                                                                                                                                                                                    |
| <b>Female Genital System</b> | Outline the parts & functions of female genital system.                                                                                                                                                                                                                  |

|                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Nervous System<br/>The cerebral hemisphere</b> | <ol style="list-style-type: none"> <li>1. Outline the anatomical and functional parts of NS.</li> <li>2. Outline the parts of CNS (brain &amp; spinal cord).</li> <li>3. Outline the meninges &amp; ventricles of brain.</li> <li>4. Outline the lobes &amp; functions of cerebral hemisphere.</li> <li>5. Outline the sulci, gyri &amp; important functional areas.</li> <li>6. Outline the other part of brain (thalamus, hypothalamus, midbrain, pons, medulla oblongata &amp; cerebellum).</li> </ol> |
| <b>Nervous System<br/>The spinal cord</b>         | <ol style="list-style-type: none"> <li>1. Outline the general features of the spinal cord.</li> <li>2. Outline its meninges.</li> <li>3. Discuss the CSF and outline its function.</li> </ol>                                                                                                                                                                                                                                                                                                             |
| <b>Nervous System<br/>The brain stem</b>          | <ol style="list-style-type: none"> <li>1. Outline the morphology of the medulla oblongata.</li> <li>2. Outline the morphology of the pons.</li> <li>3. Outline the morphology of the midbrain.</li> </ol>                                                                                                                                                                                                                                                                                                 |
| <b>General Embryology – I</b>                     | <ol style="list-style-type: none"> <li>1. Embryological terms (sperm, Oocyte, embryo, Zygote, implantation, conception, blastomeres, Morula, blastocyst, conceptus primordium, Fetus, abortion, labour).</li> <li>2. Outline the process of spermatogenesis.</li> <li>3. Outline the process of Oogenesis.</li> <li>4. Describe the process of fertilization.</li> </ol>                                                                                                                                  |
| <b>General Embryology – II</b>                    | <ol style="list-style-type: none"> <li>1. Describe zygote cleavage, formation of blastocyst &amp; implantation (1st week development).</li> <li>2. Describe the 2nd week of development.</li> </ol>                                                                                                                                                                                                                                                                                                       |
| <b>General Embryology – III</b>                   | <ol style="list-style-type: none"> <li>1. Describe briefly the 3rd week of development of embryo.</li> <li>2. Describe briefly the development of embryo from 4th – 8th weeks.</li> <li>3. Describe fetal membranes &amp; placenta.</li> <li>4. Describe causes of congenital anomalies.</li> <li>5. Outline procedures &amp; techniques used to assess fetal status.</li> </ol>                                                                                                                          |

### Practical Table

|           |                                                     |  |
|-----------|-----------------------------------------------------|--|
| Week – 1  | Introduction                                        |  |
| Week – 2  | Skull, vertebrae, sternum, and ribs                 |  |
| Week – 3  | Skull, vertebrae, sternum, and ribs.                |  |
| Week – 4  | Bones of upper and lower limbs.                     |  |
| Week – 5  | Muscles of the scalp, face, and neck                |  |
| Week – 6  | Muscles of upper limb, and thoracic & abdomen wall. |  |
| Week – 7  | Muscles of upper limb.                              |  |
| Week – 8  | Muscles of lower limb.                              |  |
| Week – 9  | CVS.                                                |  |
| Week – 10 | CVS.                                                |  |
| Week – 11 | Respiratory system.                                 |  |
| Week – 12 | Digestive system.                                   |  |
| Week – 13 | Urogenital system.                                  |  |
| Week – 14 | Practical Examination (second exam.)                |  |

### **Course information**

|               |                      |
|---------------|----------------------|
| Course title  | General Biochemistry |
| Course number | 111501107            |
| Credit hours  | 3                    |

### **Course description:**

After presenting some preliminary principles of biochemistry in previous course of molecular biology, this comprehensive course will introduce medical students to more advance knowledge on biochemistry. At the beginning there is more emphasis on understanding enzymes as efficient biological protein catalyst, in addition to the factors which affect their activation and inhibition. Then students will learn the correlation between vitamins and coenzymes as well as some bioenergetics before they are introduced to the metabolism of human body. This part will cover the anaerobic and aerobic metabolism of carbohydrates, amino acids and protein metabolism, lipid metabolism and finally their integration which involves the coordination between these metabolic pathways under different nutritional states.

### **Learning outcomes:**

Students will become acquainted with principles of basic biochemistry and body metabolism, as pre-request subjects needed for the subsequent introduction to the courses of clinical biochemistry in the modules.

### **Instructional methods:**

- Lectures as power point presentations
- Departmental hand-outs
- Reference text books

### **Text book and material:**

1. Lippincott's Illustrated Reviews: Biochemistry
2. Biochemistry by Campbell

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### **Grading Policy:**

|                                          |      |
|------------------------------------------|------|
| First in-course exam (MCQ):              | 30 % |
| Second in-course exam (MCQ):             | 30 % |
| Final exam at end of the semester (MCQ): | 40 % |
| Total Points                             | 100  |

### **Course Policies:**

#### **Late Assignments**

Students should give an explanation to the course instructor for any late submitted assignments. It will be at the course instructor's discretion if marks will be deducted for late assignments.

#### **Missed exams:**

Will be compensated later by make-up examination according to the university regulations.

#### **Absence**

Students are encouraged to make maximum attendance at lectures, but an absence of more than 25% from the course makes the student liable for a course failure.

#### **Cheating:**

Cheating is not tolerated and proved cases will be reported to the dean for further actions to be taken according to the university regulations.

### **Classroom Protocol:**

Students are expected to stick to the fixed time table of sessions and behave politely during lectures attendance. Mobile phones should be switched off during the lecture period while eating, drinking and smoking are not allowed.

### **Important Dates to be remembered**

- Lectures begin at first week of the semester.
- Dates of first, second and final examinations will be notified at the beginning of the semester.

### **Students rights and responsibilities**

These are detailed in the University regulations

### Course Schedule:

|                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Introduction to                                    | <ol style="list-style-type: none"> <li>1. What is biochemistry?</li> <li>2. Outlines of biochemistry application in medicine</li> </ol>                                                                                                                                                                                                                                                                                 |
| Enzymes I                                          | <ol style="list-style-type: none"> <li>1. Understanding enzyme as a catalyst</li> <li>2. The catalytic cycle</li> <li>3. How enzymes accelerate cellular reactions?</li> <li>4. The basis of enzyme classifications</li> <li>5. Exploring the factors affecting the rate of enzymic reaction</li> </ol>                                                                                                                 |
| Enzymes II                                         | <ol style="list-style-type: none"> <li>1. Effect of substrate concentration on rate of enzymic reaction</li> <li>2. Understanding enzyme kinetics</li> <li>3. Michaelis-Menten equation</li> <li>4. What are <math>K_m</math> and <math>V_{max}</math> values?</li> <li>5. Enzyme activation and inhibition</li> <li>6. Irreversible and reversible inhibitors</li> <li>7. Kinetics of reversible inhibitors</li> </ol> |
| Enzymes III                                        | <ol style="list-style-type: none"> <li>1. What are isozymes?</li> <li>2. Application of isozymes in diagnosis</li> <li>3. Control of enzyme activity               <ol style="list-style-type: none"> <li>a. Allosteric regulation</li> <li>b. Covalent modification</li> </ol> </li> </ol>                                                                                                                             |
| Enzymes cofactors                                  | <ol style="list-style-type: none"> <li>1. Inorganic cofactors</li> <li>2. Coenzymes               <ol style="list-style-type: none"> <li>a. Thymine pyrophosphate</li> <li>b. Flavin</li> <li>c. Nicotinamide</li> <li>d. Pyridoxal phosphate</li> <li>e. Cobalamin</li> <li>f. Tetrahydrofolate</li> <li>g. Biotin</li> <li>h. Ascorbic acid</li> </ol> </li> </ol>                                                    |
| Bioenergetics                                      | <ol style="list-style-type: none"> <li>1. Potential and kinetic energy</li> <li>2. Laws of thermodynamics</li> <li>3. Gibbs free energy</li> <li>4. Exergonic and endergonic reactions</li> <li>5. High energy compounds</li> <li>6. Energy coupling</li> </ol>                                                                                                                                                         |
| Introduction to Metabolism                         | <ol style="list-style-type: none"> <li>1. Definition of metabolism</li> <li>2. Anabolism and catabolism</li> <li>3. Autotrophic versus heterotrophic nutrition</li> <li>4. Human as heterotrophic nutritional organism</li> </ol>                                                                                                                                                                                       |
| Carbohydrates metabolism I<br>Anaerobic metabolism | <ol style="list-style-type: none"> <li>1. Glycolysis               <ol style="list-style-type: none"> <li>a. First phase</li> <li>b. Second phase</li> </ol> </li> </ol>                                                                                                                                                                                                                                                |

|                                                   |                                                                                                                                                                                                                                                 |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                   | 2. Pentose phosphate pathway<br>3. Metabolism of non-glucose sugars<br>a. metabolism of fructose.<br>b. metabolism of galactose<br>c. metabolism of glucuronic acid<br>3. Glycogen metabolism<br>a. Glycogen synthesis<br>b. Glycogen breakdown |
| Carbohydrates metabolism II<br>Aerobic metabolism | 1. Gluconeogenesis<br>Synthesis of glucose from lactate, amino acids and glycerol<br>2. Krebs cycle<br>3. Electron transport and oxidative phosphorylation<br>4. Inhibitors of electron transport and oxidative phosphorylation                 |
|                                                   | Mid-term exam                                                                                                                                                                                                                                   |
| Lipids metabolism                                 | 1. Fatty acids metabolism<br>a. Fatty acid synthesis<br>b. Fatty acid catabolism<br>2. Cholesterol synthesis<br>3. Eicosanoids synthesis from fatty acids                                                                                       |
| Amino acids metabolism                            | 1. Synthesis of non-essential amino acids<br>2. Catabolism of amino acids<br>3. Nitrogen metabolism and urea cycle<br>4. Heme synthesis from glycine and succinyl-CoA                                                                           |
| Integration of metabolism                         | 1. Coordination between metabolic pathways under different nutritional states.<br>2. Central junction points in metabolism<br>3. Amphipathic pathways                                                                                           |

### Learning Objective

At the end of this course student should be able to understand:

- Relationship between structure and functions of biochemical molecules
- Water soluble but not fat soluble vitamins are precursors of coenzymes.
- Why human body prefer aerobic metabolism over anaerobic metabolism
- Why carbohydrates can be converted to fats inside the body, but the reverse pathway does not take place.
- Why metabolic pathways are varied according to the body nutritional state.

### **Course information:**

|               |                  |
|---------------|------------------|
| Course title  | Health Economics |
| Course number | 111500103        |
| Credit hours  | 2 hours / Theory |

### **Course description:**

Against a background of increasing demands on limited resources, health economics is exerting an influence on decision making at all levels of health care. Health economics seeks to facilitate decision making by offering an explicit decision making framework based on the principle of efficiency. It is not the only consideration but it is an important one and practitioners will need to have an understanding of its basic principles and how it can impact on clinical decision making. This course is based to review some of the basic principles of health economics and in particular economic evaluation.

This course is specifically designed to enable the medical student to understand the principles of health economic that drive the demand for and supply of medical care in Jordan. After completing this course, the student should be able to understand the logic behind decisions made by physicians, hospitals, managed care organizations, and government as well as the choices made by consumers on individual and aggregate levels. The ultimate goal is for students to become better equipped at becoming effective decision-makers, themselves. Emphasis will be placed throughout the course on empirically sound and well-grounded economic theory; however applications of such theory in real situations that have occurred and/or predicted to occur in the future will be illustrated.

### **Learning outcomes:**

1. After the end of the course, the student should be able to answer the following questions:
  - What is health and how do we put a value on it?
  - What influences health other than health care?
  - What are the health needs of the individuals and the population?
  - What influences the demand for health care and health care seeking behaviour?
  - What influences the supply of health care? (The behaviour of doctors and health care providers.)
  - Alternative ways of production and delivery of health care.
  - Planning, budgeting, and monitoring of health care.



- Economic evaluation—relating the costs and benefits of alternative ways of delivering health care.

1. The course will shed the lights on the implications of studying health economics ( why)?
2. Shed the light on determinants of health.
3. Differentiate between changes in “demand” and changes in “quantity demanded ” and identify factors which may facilitate changes in either. .
4. Define the following terms: fixed cost, variable cost, marginal cost, marginal analysis, opportunity cost, and universal cost.
5. Identify factors which affect the demand for medical care; predict the effect of certain occurrences (i.e., changes in income, recession, shifts in insurance policy) on the demand for medical care.
6. Identify paying methods of health care providers
7. Understand methods of economic evaluation.
8. Understand health care financing.
9. Identify health service financing in Jordan
10. Understand globalization and health
11. Discuss health worker migration

### **Instructional methods:**

Lectures are the main method of teaching the course.

### **Textbook and material:**

1. Introduction to health economics  
Author: Wonderling, David. Gruen, Reinhold. Black, Nick. .  
Publisher: Open University Press,  
Publication Date: 2005.
2. Selected articles and handout documents on health economic issues (will be available to students as paper or electronic versions).

### **Grading Policy:**

|                |     |     |
|----------------|-----|-----|
| 1. First Exam  | MCQ | 30% |
| 2. Second Exam | MCQ | 30% |
| 3. Final Exam  | MCQ | 40% |
| Total points   |     | 100 |

### **Course Policies:**

#### **Late Assignments**

Students must give an explanation to the course instructor for any assignment which is submitted late. It will be at the course instructor's discretion if marks will be deduced for late assignments.

Students are responsible for satisfying all academic objectives. Acceptable reasons for absence from class include illness, serious family emergencies, severe weather conditions and participation in official university activities.

### **Missed exams**

If students are absent for a reason approved above and have given prior notification to the instructor when possible, they will have to take part in the reset exams within one week after the missed exam. All other missed will receive grade of zero.

### **Absence**

If a student is absent for more than 25% of the sessions then they may be liable to fail the course.

### **Cheating**

Cheating is forbidden in any form. Any students who are caught cheating will be reported to the Dean of the Faculty of Medicine and further action taken as necessary.

### **Classroom Protocol:**

- Students are expected to attend all sessions and to arrive on time for lectures.
- Turn off all cell phones upon entering the classroom.
- Students may be engaged in class discussions and encourage the students to ask and/or answer questions of the instructor, keep side conversation to minimum.
- No drinks or food allowed in the classroom.
- Smoking is prohibited in the classroom.
- Cell phones are not allowed during exams.

### **Important Dates to Remember:**

First Exam

Second exam

Final exam

### **Student rights and responsibilities:**

These are as detailed in the University Regulations

### **Course Schedule:**

#### **Lectures 1-6**

1. Basic definitions and terminology; definitions of the following:
  - ❑ What is economics?
  - What is "Health"?
  - What is "Health Economics"?
  - ❑ What is Health care?
  - ❑ Levels of Health Care
  - ❑ Health care system
  - ❑ Why Health Economics?
2. Health economics 'map'
3. Types of health care

#### 4. Scope of health economics

- ? Why Health Economics?
- ? Demand for health
- ? Need for health
- ? Supply of health
- ? Law of demand
- ? Law of supply
- ? Supply and Demand Relationship
- ? Disequilibrium

### Lectures 7-12

#### 5. Healthcare Economic Terms

- ? Medical Care Cost
  - Accounting Costs
  - Fixed cost
  - Variable cost
  - Social cost
  - Opportunity cost
  - Marginal cost
- Macroeconomic
- Microeconomic

#### 6. Paying for Care

#### 7. Paying methods of health care providers

#### 8. The impact of financing

#### 9. The Role of the Health Care Consumer

#### 10. Paying methods for health care and health care providers

#### 11. Methods of Economic Evaluation:

- ? Cost-minimisation analysis (CMA).
- ? Cost-effectiveness analysis (CEA).
- ? Cost-benefit analysis (CBA)
- ? Cost-utility analysis (CUA).

### First Exam

### Lectures 13- 24

#### 12. Health care finance:

- ? Methods of financing
- ? Universal coverage
- ? Health service financing source

#### 13. The Health System in Jordan

- ? Health sectors in Jordan

- ❑ Councils and organizations
- ❑ Sources of Health Care Financing
- ❑ Health financing functions
  - i. Revenues collection mechanism:
  - ii. Pooling mechanism
  - iii. Purchasing mechanism
- ❑ The major challenges facing Jordan in reaching efficient universal health coverage.

#### 14. Globalization and Health

- ❑ Globalization and disease
- ❑ Global natural environment
- ❑ Global workforce
- ❑ The Changing Global Health landscape
- ❑ Medical tourism :Globalization of the Healthcare Marketplace

### Second Exam

#### Lectures 25-32

#### 15. Health Worker Migration

- ❑ Motives for migration
- ❑ Causes of migration
- ❑ Impact of migration
- ❑ Scope of migration
- ❑ Negative effects of health worker migration
- ❑ strategies to combat HRH migration and shortages
- ❑ World Health Organization response
- ❑ Measuring migration
- ❑ Managing migration

### Final Exam

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### **Course information:**

|               |                  |
|---------------|------------------|
| Course Title  | Health Policy    |
| Course number | 111500104        |
| Credit hours  | 2 hours / Theory |

### **Course Description:**

Those of us who have been concerned with medical care, its quality, cost, and access, have always tended to think of it as an undifferentiated good, with a need defined by levels of disease in the population. It is important to display the importance of the changes in the trends or pattern of diseases which will require continuous changes in the trends or pattern of health care as a dynamic process, consequently it implies the continuous changes in the health policies and programmes accordingly.

Many of the faculties of Medical Colleges have already been involved in teaching this subject of health policy and programme. The faculty of Medical College of the Hashemite University started to involve this subject in the curriculum of the first year. A simple framework that shows how medical faculty can play a role in development of basic knowledge in health policy making and programmes. We will discuss this framework in details with a special reference to health policy making and health laws in Jordan.

Building goal-oriented teaching programme to build the capacity of medical students to understand the concepts and principles of health policy making and to perceive that health policy making is an important activity as it helps translate planning functions of health care into actions .

### **Learning outcome:**

#### **At the end of the course, the students are able:**

1. To elaborate the implications of studying health policy making.
2. To shed the light on the effects of Health Transition on health needs
3. To shed the light on the effects of Demographic Transition on health needs
4. To describe the different types of population pyramid and its implications on health care needs.
5. To elaborate what is a health policy? What is the process of its development?
6. To shed the light on Global health and Global health policies.
7. To be familiar with Health System organization in Jordan and the different factor that affect policy making process in Jordan.

8. To familiarize students with Public Laws in Jordan.
9. To identify health policy concerns and priorities related to major health system topics.
10. To provide students with basic knowledge of legal principles and regulatory programs applicable to the provision of health care.

### **Instructional methods:**

Lectures are the main method of teaching the course.

### **Textbooks and material:**

1. Making health policy, Author: Buse, Kent. Mays, Nicholas. Walt, Gillian.  
Publisher: Open University Press,  
Publication Date: 2005.
2. Selected articles and handout documents on health policy issues (will be available to students as paper or electronic versions).

### **Grading policy:**

|                       |     |
|-----------------------|-----|
| 1. 1. First Exam MCQ  | 30% |
| 2. 2. Second Exam MCQ | 30% |
| 3. 3. Final Exam MCQ  | 40% |
| 4. Total points       | 100 |

### **Course Policies:**

#### **Late Assignments**

Students must give an explanation to the course instructor for any assignment which is submitted late. It will be at the course instructor's discretion if marks will be deducted for late assignments.

Students are responsible for satisfying all academic objectives. Acceptable reason for absence from class include illness, serious family emergencies, severe weather conditions and participation in official university activities.

#### **Missed exams**

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- Students may be engaged in class discussions and encourage the students to ask and/or answer questions of the instructor, keep side conversation to minimum.
- No drinks or food allowed in the classroom.
- Smoking is prohibited in the classroom.
- Cell phones are not allowed during exams.

### **Important Dates to Remember:**

First Exam

Second exam

Final exam

### **Students rights and responsibilities:**

These are as detailed in the University Regulations

### **Course Schedule:**

#### **Lecture 1-6**

#### **1. Introduction**

Course Terminology or basic definitions

Introduction to Health Policy

Health Transition

Definition

Causes

Importance

Demographic Transition

Definition

Causes

Importance

Demographic transition model

Definition

Stages of Demographic Transition

Epidemiologic Transition

Definition

Causes

Implications

Population pyramid

Types of population pyramids

Uses of population pyramids

## Lecture 7-12

### 2. Health Policy

- ❑ Health care system  
Definition
- ❑ Health Care Administration  
Definition and functions
- ❑ Planning in Health care
  - General principles in planning
  - Population-based planning
  - Resource-based planning
- ❑ Health Policy making
  - Definition
  - Implications for Health Policy - Making
  - Health Policy Priorities
  - Health care policy
  - Personal health care policy options
  - Health care financing policy

### First Exam

## Lecture 13 -24

### 3. Global health

- ❑ History
- ❑ Disciplinary perspectives
- ❑ Measurement
  - Life expectancy
  - Disability adjusted life years
  - Quality adjusted life years
  - Infant and child mortality
  - Morbidity ❑
- Health conditions
  - Respiratory diseases and measles
  - Diarrhoeal diseases
  - Maternal health
  - HIV/AIDS
  - Malaria
  - Nutrition and micronutrient deficiency
  - Surgical disease burden
  - Health Care Workforce
  - Chronic disease
- Health interventions



#### **4. Global Health Priorities**

- ❑ Global health policy actors
- ❑ Priority setting in health policy making
- ❑ Priority Agenda for the 21st Century
- ❑ Approaches for improved global health

#### **Second exam**

#### **Lecture 25-32**

#### **5. Health system organization in Jordan**

- ❑ Health Priorities and programmes
  - i. Primary Healthcare
  - ii. Human Resources Management
  - iii. Secondary and Tertiary Care
  - iv. Monitoring and Control
  - v. Knowledge Management
  - vi. Priorities for the Health Sector
    - Human resources development reforms
      - Health Promotion / Lifestyle
      - Child health
      - Maternal health
      - Family planning
      - Drug Safety Drug Quality Control
      - Food safety and food control

#### **6. Public Health Law in Jordan**

- ❑ Review and Analysis of Public Health Law in Jordan
- ❑ Review of Selected Health legislations in Jordan (part1)
- ❑ Review of Selected Health legislations in Jordan (part2)

#### **Final Exam**

### **Course information:**

|               |                |
|---------------|----------------|
| Course title  | Medical Ethics |
| Course number | 0111500102     |
| Credit hours  | 1 hour/ Theory |

### **Course description:**

The medical profession since time immemorial has conducted itself with a high level of ethical behavior that has earned the trust that patients have in doctors today. Medical ethics is defined, as a civil code of behavior considered correct by members of the profession for the good of both the patient and profession. This trust goes beyond written words and leads the public at large to expect of the doctor to have not only a high standard of medical ability and skill but also impeccable behavior. The need for patient's trust in his doctor is the basis for ethical codes from many centuries ago as manifested in the traditions of all the major civilizations. In recent times, national, regional and world associations of doctors as well as other health care professionals have revised existing codes of ethics and formulated new ones to keep up with advances in medical knowledge, medical practice and research as well as changes in society. All doctors subscribe to the spirit of caring and confidentiality that regulate the doctor-patient relationship and these values continue to be accepted by all those who practice the art of medicine.

A new doctor entering the profession of medicine joins a fraternity dedicated to the service of humanity. He will be expected to subordinate his personal interests to the welfare of his patients, and, together with his fellow practitioners seek to raise the standard of health in the community where he practices. He inherits traditions of professional behavior on which he must base his own conduct, and which he must pass on untarnished to his successors. This course is an introduction to medical ethics. The first part of the course provides an introduction to basic ethical issues, codes & principles, which are intended to serve as a background aid for thinking through the particular issues discussed in the reminder of the course.

### **Learning outcomes:**

At the end of the course, students should acquire, think and behave according to the ethical issues and codes, and they will be:

1. Able to discuss different Codes of ethics in different subjects and correlate these codes with everyday practice.
2. Able to discuss and involve the principles of medical ethics in everyday practice.

3. Able to discuss and identify the common ethical issues in different medical subjects.
4. Able to discuss major bioethical issues ; and
5. Appreciate medicine as a profession.
6. Able to understand the ethical issue of patient –doctor relationship.
7. Able to understand the different types of patients' personality and the ways of dealing with each type.
8. Aware of different types of communication styles with patients.

### **Instructional methods:**

Lectures are the main method of teaching the course.  
Case studies and discussion.

### **Textbook and material:**

1. Law & ethics for medical careers / Law and ethics for medical careers  
Author: Judson, Karen, 1941-  
Hicks, Sharon, 1953- JT. AUTH.  
Publisher: Glencoe/McGraw-Hill,  
Publication Date: 2003.
2. Selected articles and handout documents on medical ethics issues (will be available to students as paper or electronic versions).

### **Grading Policy:**

|                |     |     |
|----------------|-----|-----|
| 1. First Exam  | MCQ | 30% |
| 2. Second Exam | MCQ | 30% |
| 3. Final Exam  | MCQ | 40% |
| Total points   |     | 100 |

### **Course Policies:**

#### **Late Assignments**

Students must give an explanation to the course instructor for any assignment which is submitted late. It will be at the course instructor's discretion if marks will be deducted for late assignments.

Students are responsible for satisfying all academic objectives. Acceptable reasons for absence from class include illness, serious family emergencies, severe weather conditions and participation in official university activities.

#### **Missed exams**

If students are absent for a reason approved above and have given prior notification to the instructor when possible, they will have to take part in the reset exams within one week after the missed exam. All other missed will receive grade of zero.

### **Absence**

If a student is absent for more than 25% of the sessions then they may be liable to fail the course.

### **Cheating**

Cheating is forbidden in any form. Any students who are caught cheating will be reported to the Dean of the Faculty of Medicine and further action taken as necessary.

### **Classroom Protocol:**

- Students are expected to attend all sessions and to arrive on time for lectures.
- Turn off all cell phones upon entering the classroom.
- Students may be engaged in class discussions and encourage the students to ask and/or answer questions of the instructor, keep side conversation to minimum.
- No drinks or food allowed in the classroom.
- Smoking is prohibited in the classroom.
- Cell phones are not allowed during exams.

### **Important Dates to Remember:**

First Exam

Second exam

Final exam

### **Student rights and responsibilities:**

These are as detailed in the University Regulations

### **Course Schedule:**

#### **Lectures 1-6**

1. Introduction
  - System governing human social behaviour
  - Socialization - Primary Socialization
  - Secondary Socialization
  - Why Ethics Become Important?
  - Aims of teaching medical ethics.
  - Basic Rights and Ethical Duties
  - Definition and scope of medical ethics.
1. Historical background of medical ethics.
2. Theories of medical ethics.
3. Declaration and Codes of medical ethics:
  - a) Hippocratic oath
  - b) Geneva (1947)
  - c) London 1949, revise 1968, 1983

- d) Helsinki (1946 revised 1975 and 1983)
- e) Lisbon (1981)
- f) Sydney (1968)
- g) Oslo (1970) revised 1983
- h) Tokyo (1975)
- i) Hawaii (1977 revised in 1983)
- j) Venice (1983)
- 4. Principles of medical ethics.
  - A. The Principle of Non-Maleficence
  - B. The Principle of Beneficence
  - C. The Principle of Autonomy
    - a. Telling the truth.
    - b. Informed consent.
    - c. Confidentiality.

### First Exam

#### Lectures 7-12

- D. The Principle of Justice
  - d. Fairness
  - e. Discrimination in medicine
  - f. Allocation of resources
- 5. Different issues in medical ethics :
  - A. Biomedical research
  - B. Use of computer in medicine.
  - C. Patients right to privacy.
  - D. End of Life Issues
  - E. Abortion
  - F. Ethical Issues in the Treatment of Seriously Disabled Children
- 6. Patient-Doctor relationship
  - Types of Patient-Doctor relationship
  - Privileged access
  - Importance of interpersonal aspect
  - Communication styles
  - Personality types

### Second Exam

---

## Lectures 13-16

7. Medicine as a profession
  - a. Professional ethics
  - b. Profession & social Mobility
8. Medical education
9. Euthanasia and Physician Assisted Suicide

## Final Exam

### **Course information:**

|               |                                 |
|---------------|---------------------------------|
| Course title  | Histology and molecular Biology |
| Course number | 0111501105                      |
| Credit hours  | 3 hours                         |

### **Course description:**

Histology is one of the basic medical courses. Histology is the science for researching normal microscopic structures, ultra structures and their related function. Through class lectures and lab sessions, the students will be made to master the basic knowledge and theory of human histology. Students are also encouraged to train themselves to use the microscope correctly and to refine their abilities to analyze and describe various histological structures.

In Molecular Biology, the students are taught about the relationship between macromolecules structure and properties and their biological functions inside the cells.

### **Learning outcomes:**

1. To describe the methods of tissue preparation for microscopic examination.
2. To list and understand the different types of light and electron microscopes.
3. To describe different histological techniques used in the study of tissues.
4. To recognize the structure, types & functions of the four basic types of tissues (epithelium, connective tissue, muscular and nervous tissues).
5. Explain why a certain cell or tissue has a particular appearance.
6. Relate features of various cells and tissues to their functions and vice versa.
7. Understand the basic chemistry of sugars, lipids, amino acids and proteins.
8. Understand basic concepts of nucleoproteins and sugar proteins.
9. Know about cell membrane structure and functions.

### **Instructional methods:**

1 Histology lecture / week  
1 Molecular biology lecture / week  
1 Histology Lab session / week

### **Textbook and material:**

#### **Histology:**

- 1) Basic Histology, text & atlas; L C Junqueira & J Carneiro, 12th edition or latest, McGraw-Hill Medical Publishing Division.

### **Molecular Biology:**

- 1) Essential Molecular biology. 4th edition or latest. Malacinsk, George M. Jones and Bartlett, 2003.
- 2) Molecular biology of the Cell. 4th edition or latest. Alberts, Bruce; Johnson, Alexander; Lewis, Julian; Raff, Martin; Roberts, Keith and Walter, Peter. New York, Garland Publishing 2002.
- 3) The Cell – a Molecular Approach. 2nd edition or latest. Cooper, Geoffrey; M. Sunderland (MA): Sinauer Associates Inc. 2000.

### **Grading Policy:**

- Midterm: 40% (Theory – Molecular Biology and Histology)
- Practical Exam: 20% (Histology)
- Final Exam: 40 % (Theory – Molecular Biology and Histology)

**Total Points 100**

### **Course Policies:**

#### **Late Assignments**

Students must give an explanation to the course instructor for any assignment which is submitted late. It will be at the course instructor's discretion if marks will be deduced.

#### **Missed exams**

If a student misses an examination then he/she has the opportunity to do a make-up examination, according to the University Regulations.

#### **Absence**

If a student is absent for a teaching session then he/she must discuss this with the course instructor. If a student is absent for more than 25% of the course then he/she may be liable to fail the course.

#### **Cheating**

Cheating, in any form, is forbidden. Any student caught cheating will be reported to the Dean of Medicine and further action taken as necessary.

### **Classroom Protocol:**

Students are expected to attend all sessions and to arrive on time for lectures and practical sessions. It is each student's responsibility to know their timetable and which session they should attend on which day. Students are expected to behave respectfully towards all members of staff and to each other. Mobile phones are to be switched off during teaching sessions. Eating, drinking and smoking are forbidden.

### **Important Dates to Remember:**

- Course begins: 1st week of the semester
- Lab sessions begin: 2nd week of semester
- Practical Exam: Date and location will be determined at the beginning of the semester
- Final Exam: Date and location will be determined at the beginning of the semester



### **Students rights and responsibilities:**

These are detailed in the University Regulation.

### **Course Schedule:**

#### **Molecular Biology Lectures** **(total number of lectures=15 lectures.**

| Lecture                                                                    | Specific Objectives                                                                                                                                                                                  |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Lecture 1:<br/>Introduction</b>                                         | 1) Understand the chemistry of living cell<br>2) Know the relationship between biochemistry and molecular biology                                                                                    |
| <b>Lecture 2 to 3:<br/>Basic Chemistry<br/>of Sugars</b>                   | 1) Compare between Monosaccharides, oligosaccharides and polysaccharides.<br>2) Understand the structure and properties of these molecules.<br>3) Understand the functions of various carbohydrates. |
| <b>Lecture 4 to 6: Basic<br/>Chemistry of Amino<br/>Acids and Proteins</b> | 1) Classify the common amino acids.<br>2) Know their biological functions.<br>3) Obtain knowledge about some important oligopeptides.<br>4) Understand the biochemistry of proteins.                 |
| <b>Lecture 7 to 8:<br/>Basic chemistry of</b>                              | 1) Enumerate the different types of lipids.<br>2) Understand their structure and functions.                                                                                                          |
| <b>Lecture 9<br/>to 10:<br/>Nucleoprotein<br/>complexes</b>                | 1) Introduction to viruses.<br>2) Understand basic structure of chromatin and chromosomes.                                                                                                           |
| <b>Lecture 11 to 12:<br/>Sugar- protein<br/>complexes</b>                  | 1) Know about proteoglycans in connective tissues.<br>2) Obtain basic information about bacterial cell wall.                                                                                         |
| <b>Lecture 13 to<br/>15 : Cell<br/>Membrane</b>                            | 1) Understand the structure and function of cell membrane.<br>2) Know the type of membrane transports.<br>3) Understand the types and functions of receptors.                                        |

### Histology Lectures

| Week                                                                                   | Specific Objectives                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Lecture 1:<br/>Introduction</b>                                                     | <ol style="list-style-type: none"> <li>1) Understand the steps of tissue preparation in histological studies and the principles behind them.</li> <li>2) Understand the principles of various types of microscopes.</li> <li>3) Know some specific methods of histological studies and how they work.</li> <li>4) Identify problems with tissue preparation.</li> </ol> |
| <b>Lecture 2:<br/>Epithelium I<br/>(Definition +<br/>Classification)</b>               | <ol style="list-style-type: none"> <li>1) To describe the general features &amp; characteristics of epithelium.</li> <li>2) To understand the basic structure &amp; functions of Basal Lamina and it differs from Basement Membrane.</li> <li>3) Enumerate the types of epithelium and the bases of their classification.</li> </ol>                                    |
| <b>Lecture 3:<br/>Epithelium II<br/>(Epithelial cell<br/>polarity)</b>                 | <ol style="list-style-type: none"> <li>1) Define epithelial cell polarity.</li> <li>2) List and differentiate between the types of cellular junctions.</li> <li>3) Identify the types of apical surface specialization.</li> <li>4) Know the basal surface specialization.</li> <li>5) Understand why each of these features is present.</li> </ol>                     |
| <b>Lecture 4:<br/>Epithelium III<br/>(Glands)</b>                                      | <ol style="list-style-type: none"> <li>1) To understand the structural &amp; functional types of exocrine glands</li> <li>2) To describe basic histological structure of endocrine glands</li> <li>3) To understand the different types of epithelial cells (Ion- transporting, pinocytotic, mucous, serous, steroid-secreting, diffuse neuroendocrine)</li> </ol>      |
| <b>Lecture 5:<br/>Connective<br/>Tissue I<br/>(Definition +<br/>Cells)</b>             | <ol style="list-style-type: none"> <li>1) Define connective tissue.</li> <li>2) Enumerate the various types of cells that are present in this tissue.</li> <li>3) Understand the histological features and functions of each type.</li> </ol>                                                                                                                           |
| <b>Lecture 6:<br/>Connective<br/>Tissue II<br/>(ECM + Fibers +<br/>Classification)</b> | <ol style="list-style-type: none"> <li>1) Define the extracellular matrix and understand its main components.</li> <li>2) Enumerate the different types of fibers in the connective tissues and understand the function of each.</li> <li>3) Differentiate between the various types of connective tissue proper.</li> </ol>                                            |
| <b>Lecture 7:<br/>Connective<br/>Tissue III<br/>(Adipose tissue)</b>                   | <ol style="list-style-type: none"> <li>1) Define Adipose tissue and know its functions.</li> <li>2) List the features of adipose cells and the importance of each.</li> <li>3) Understand the difference between white and brown adipose tissue.</li> </ol>                                                                                                             |
| <b>Lecture 8:<br/>Connective<br/>Tissue IV<br/>(Cartilage)</b>                         | <ol style="list-style-type: none"> <li>1) Enumerate the types of cartilage.</li> <li>2) Know the general location of each type.</li> <li>3) Understand the histological features and function of each type.</li> </ol>                                                                                                                                                  |
| <b>Lecture 9:<br/>Connective<br/>Tissue V<br/>(Bone)</b>                               | <ol style="list-style-type: none"> <li>1) Define bone.</li> <li>2) List the main functions of bones.</li> <li>3) Understand the features and functions of the cells in bone tissue.</li> <li>4) Differentiate between various types of bone.</li> </ol>                                                                                                                 |

|                                                                    |                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Lecture 10:<br/>Nervous Tissue I<br/>(Neurons + Glia cells)</b> | <ol style="list-style-type: none"> <li>1) Understand the main features of nervous tissue.</li> <li>2) Know the main features and characteristics of neurons.</li> <li>3) Enumerate the various types of glia cells. Know their location and understand their function.</li> </ol>                                                                                               |
| <b>Lecture 11:<br/>Nervous Tissue II</b>                           | <ol style="list-style-type: none"> <li>1) Describe the cerebral cortex and the cells it contains.</li> <li>2) Describe the layers of the cerebellar cortex and the cells each one contains.</li> <li>3) Enumerate the structures that form the blood-brain barrier.</li> <li>4) Understand the structure of nerves.</li> <li>5) Understand the structure of ganglia.</li> </ol> |
| <b>Lecture 12:<br/>Nervous Tissue III</b>                          | <ol style="list-style-type: none"> <li>1) To describe the structure of sensory &amp; autonomic ganglion</li> <li>2) To understand autonomic nervous system (sympathetic &amp; a. parasympathetic)</li> <li>3) To describe the features degeneration, regeneration of nerve tissue &amp; the role of neural stem cells.</li> </ol>                                               |
| <b>Lecture 13:<br/>Muscular Tissue</b>                             | <ol style="list-style-type: none"> <li>1) Understand the features of skeletal muscles.</li> <li>2) Understand the features of cardiac muscles.</li> <li>3) Understand the features of smooth muscles.</li> </ol>                                                                                                                                                                |

### Histology Labs

| Labs       | Specific Objectives                             |
|------------|-------------------------------------------------|
| Week 1&2   | Microscopy                                      |
| Week 3&4   | Epithelium I                                    |
| Week 5&6   | Epithelium II<br>Connective Tissue proper       |
| Week 7&8   | Connective tissue special features<br>Cartilage |
| Week 9&10  | Bone                                            |
| Week 11&12 | Muscular tissue                                 |

|                       |                       |
|-----------------------|-----------------------|
| <b>Week 13&amp;14</b> | <b>Nervous tissue</b> |
| <b>Week 15</b>        | <b>Review Lab</b>     |
| <b>Week 16</b>        | <b>Exam</b>           |

Working hours:

1 Histology lecture / week:

1\*16=16 hours

Histology Lab session / week:

2 \*16= 32 hours

1 Molecular biology lecture / week:

1\*16= 16 hours

## **Course information**

|               |                                                      |
|---------------|------------------------------------------------------|
| Course title  | Essentials of Organic Chemistry for Medical Students |
| Course number | 0110103237                                           |
| Credit hours  | 3                                                    |

## **Course description:**

This course is an introductory course intended to introduce undergraduate medical students to the basic principles of organic chemistry. The first part of the course will cover the fundamental aspects of structural organic chemistry to familiarize the medical students the main families of organic chemistry functions as well as the 3D structure of organic molecules. The basics of reactivity will also be covered using the mechanisms. The course will be frequently illustrated with examples linked to other scientific disciplines, in particular to the field of live sciences.

## **Learning outcomes:**

Upon completion of this course, the student will be able to:

- Understand the concept of Bonding and isomerism
- Understand the concept of Alkanes and Cycloalkanes
- Differentiate between alkenes and alkynes
- Understand the structure and function of aromatic compounds
- Understand stereoisomerism and organic halogen compounds
- Understand the structure and function of alcohols, phenols, Thiols, ethers and epoxies
- Differentiate the structure and reactions of aldehydes and ketones as well as carboxylic acid
- Understand the concept of amines

## **Instructional methods:**

- Lectures-PowerPoint presentations
- Solved examples to be done traditionally on the board
- Overhead transparencies may be used for complex molecules

### **Textbook and material:**

- Organic Chemistry A Brief Course, Harold Hart, Leslie Craine, David Hart and C. Hadad, 13th Edition, 2011. Houghton Mifflin Company, Boston, USA.
- Organic Chemistry, 8th Edition. By Solomon, 2004.
- Organic Chemistry, J. McMurry, 2004.

### **Grading Policy:**

First Exam: 25%  
Second Exam: 25%  
Final Exam: 50%  
Total Points 100

### **Course Policies:**

#### **Missed exams:**

Students who are absent in any exam are allowed to sit a make-up exam after presenting an approved sick leave or any accepted certificate of absence to the assistant of the faculty dean within 72 hours. The Course Coordinator will determine the time of the exam make-up session. Also, according to the Curriculum Committee and the University regulations, the student will be given a similar examination given to the other students. All examinations must be made up within one week of returning to class. Those absents who do not present a clue will be given a zero mark.

#### **Absence**

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students will be accountable and personally responsible for attending all educational activities (lectures, labs, examinations, etc.). Unexcused absences reflect negatively on the goals and objectives of the medical curriculum and demonstrate unprofessional behavior by the respective student.

Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Attendance is mandatory. Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the faculty shall not be allowed to take the final examination and shall receive

a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

### **Cheating:**

Cheating will not be tolerated. Each individual student is responsible for his behavior and is expected to maintain standards of academic honesty and professionalism. If any instance of academic dishonesty (cheating, plagiarism, etc.) is discovered by a coordinator or an instructor, it is his or her responsibility to take appropriate action. Such action may include giving a failing grade to the student in the course and/or referring the student for Judicial Procedures Office review and possible disciplinary action, which may include disciplinary suspension or dismissal from the College.

### **Classroom Protocol:**

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students respond politely to faculty, staff, and student colleagues, exemplifying their maturity and empathy. Students agree to abide by appropriate biosafety practices when required.

All students are expected to be quiet in their seats in the lecture theatre before the start of the lecture. Engagement in class discussions is encouraged without side chatting.

Cell phones are not allowed to be used during lectures and exams unless prior approval has been taken from the course instructor.

### **Important Dates to Remember:**

The Start of the Course-First Trimester

First Exam

Second Exam

Final Exam

### **Course Schedule:**

| Week | Topics                       | Chapter in Text |
|------|------------------------------|-----------------|
| 1    | Bonding and Isomerism        | Chapter 1       |
| 1    | Alkanes and Cycloalkanes     | Chapter 2       |
| 2    | Alkenes and Alkynes          | Chapter 3       |
| 2    | Aromatic compounds           | Chapter 4       |
| 3    | Stereoisomerism              | Chapter 5       |
| 3    | Organic Halogen Compounds    | Chapter 6       |
| 4    | Alcohols, Phenols and Thiols | Chapter 7       |
| 5    | Ethers and Epoxies           | Chapter 8       |
| 5    | Aldehydes and Ketones        | Chapter 9       |
| 6    | Carboxylic acids             | Chapter 10      |
| 7,8  | Amines                       | Chapter 11      |

### **Course information:**

|               |                    |
|---------------|--------------------|
| Course title  | General Physiology |
| Course number | 111501106          |
| Credit hours  | 3                  |

### **Course description:**

This course gives a general introduction to Physiology.

### **Learning outcomes:**

1. To introduce and familiarize students with basic definitions and principles related to physiology as a study of the living body at molecular, cellular as well as the level of intact organism.
2. To introduce the concept of internal environment and homeostasis and to present some examples of homeostatic mechanisms of the major functional systems and various control systems that are utilized by different organs to regulate various physiological functions.
3. To cover the physiological implications related to circulating body fluids and hemodynamic.
4. To describe the principles and mechanisms of membrane transport.
5. To describe the physiological implications related to circulating body fluids.
6. To describe the electrical and ionic events that underline the excitation of nerves, muscles as well as the mechanism underlying skeletal muscle contraction.
7. To describe synaptic transmission and electrical properties of synaptic potential.
8. To cover the general organization and functional aspects of the autonomic nervous system.
9. To describe the general principles and mechanisms of synaptic transmission.

### **Instructional methods:**

The course will be taught through lectures.



### **Textbook and material:**

| Author            | Title                                | Published Year |
|-------------------|--------------------------------------|----------------|
| Guyton and Hall   | Text book of Medical Physiology      | Latest edition |
| Lauralee Sherwood | Human Physiology From Cell to System | Latest edition |

### **Grading Policy:**

- First in-course exam (MCQ): 30 Marks
- Second in-course exam (MCQ): 30 Marks
- Final exam at the end of the semester (MCQ): 40 Marks

Total Points 100

### **Course Policies:**

#### **Late Assignments**

Students must give an explanation to the course instructor for any assignment which is submitted late. It will be at the course instructor's discretion if marks will be deducted for late assignments.

#### **Missed exams**

If a student misses an examination then they will have the opportunity for a make-up examination, according to the University Regulations.

#### **Absence**

If a student is absent for a teaching session then they must discuss this with the course instructor. If a student is absent for more than 25% of the course then they may be liable to fail the course.

#### **Cheating**

Cheating is forbidden in any form. Any students who are caught cheating will be reported to the Medical Dean and further action taken as necessary.

### **Classroom Protocol:**

Students are expected to attend all sessions and to arrive on time for lectures and practical sessions. It is each student's responsibility to know their timetable and which session they should attend on which day. Students are expected to behave respectfully towards all members of staff and each other. Mobile phones are to be switched off during teaching sessions and eating, drinking and smoking are forbidden.

### **Important Dates to Remember:**

Lectures will begin the first week of the semester.

Practical sessions will begin the second week of the semester.

The dates and locations of written and practical examinations will be notified at the beginning of the semester.

### **Students rights and responsibilities:**

These are as detailed in the University Regulations

### **Course Schedule:**

| Date            | Lecture Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sun Mon<br>Tues | <ul style="list-style-type: none"> <li>- General outline of physiology, Definition and fields of physiology, with emphases on human physiology.</li> <li>- Cells as the living units of the body.</li> <li>- Basic cell functions</li> <li>- Organizational levels of tissues, organs, system, and organism</li> <li>- The origin of nutrients and removal of end products of metabolism in unicellular versus multicellular organisms, the external and internal environment</li> </ul>                 |
| Sun Mon<br>Tues | <ul style="list-style-type: none"> <li>- The external and internal environment, the extracellular fluid as the internal environment.</li> <li>- The role of circulating body fluids, the continuous fluid exchange between the blood (transporting media) and</li> <li>- The external and internal environment, the extracellular fluid as the internal environment.</li> <li>- The concepts of homeostasis.</li> <li>- The concepts of feedback mechanisms (negative and positive feedback).</li> </ul> |
| Sun Mon<br>Tues | <ul style="list-style-type: none"> <li>- Overview of the circulation; Interrelationships of pressure, flow and resistance</li> <li>- Total body water (TBW).</li> <li>- The effect of age, and sex.</li> <li>- Body fluid compartments.</li> <li>- The composition of the extracellular fluid (ECF).</li> <li>- The composition of the intracellular fluid (ICF).</li> </ul>                                                                                                                             |
| Sun Mon<br>Tues | <ul style="list-style-type: none"> <li>- Measurement of body fluid compartments - the indicator-dilution principle.</li> <li>- Fluid exchange between ICF and ECF.</li> <li>- The principle of osmosis and osmotic pressure.</li> <li>- Mole, osmole, osmolality and osmolarity, the relation between osmotic pressure and osmolarity.</li> </ul>                                                                                                                                                        |
| Sun Mon<br>Tues | <ul style="list-style-type: none"> <li>- Isotonic, hypotonic, and hypertonic fluids.</li> <li>- Isosmotic, hyperosmotic, and hypo-osmotic fluids.</li> <li>- Regulation of ECF volume &amp; osmolarity</li> <li>- Volume and osmolality of ECF and ICF in abnormal states ECF hypertonicity, ECF</li> </ul>                                                                                                                                                                                              |
| Sun Mon<br>Tues | <p style="text-align: center;"><b><u>FIRST EXAM</u></b></p> <ul style="list-style-type: none"> <li>- Acid – Base balance</li> </ul>                                                                                                                                                                                                                                                                                                                                                                      |

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    | <ul style="list-style-type: none"> <li>- The microcirculation and the lymphatic system</li> <li>- Pressure, flow, resistance of the circulation</li> <li>- Edema.</li> </ul>                                                                                                                                                                                                                                                                                                              |
| Sun<br>Mon<br>Tues | <ul style="list-style-type: none"> <li>- Transport of substances through the cell membrane.</li> <li>Passive transport: <ul style="list-style-type: none"> <li>a. simple diffusion (criteria, factors determine diffusion).</li> <li>b. facilitated diffusion.</li> </ul> </li> <li>- Active transport: <ul style="list-style-type: none"> <li>a. primary active.</li> <li>b. secondary active: Co- and Counter-transport</li> </ul> </li> <li>- Phagocytosis and pinocytosis.</li> </ul> |
| Sun<br>Mon<br>Tues | <ul style="list-style-type: none"> <li>- general outline of neural function</li> <li>- Excitable membranes. Resting membrane potential (RMP), origin, and determinants.</li> <li>- Electrochemical equilibrium (Nerst equation).</li> <li>- Goldman-Hodgkin-Katz equation.</li> </ul>                                                                                                                                                                                                     |
| Sun<br>Mon<br>Tues | <ul style="list-style-type: none"> <li>- Action potential (AP) initiation and propagation.</li> <li>- Special types of AP, Slow response and pacemaker concept</li> <li>- Cardiac AP (fast response AP)</li> <li>- Latent and ectopic pacemakers</li> <li>- All or non versus graded AP</li> </ul>                                                                                                                                                                                        |
| Sun<br>Mon<br>Tues | <ul style="list-style-type: none"> <li>- Synapses: types. Transmission of AP, neurotransmitters</li> <li>- EPSP, IPSP</li> <li>- Neural circuits, Divergence, convergence reverberating cycles</li> <li>- Neural and endocrine integration to maintain homeostasis</li> <li>- Extra cellular regulators: nervous, endocrine, paracrine, autocrine</li> </ul>                                                                                                                              |
| Sun<br>Mon<br>Tues | <ul style="list-style-type: none"> <li>- Signal transduction</li> <li>- Receptors, sensation, types, neural versus hormonal</li> <li>- Ionic channels.</li> <li>- Second messengers, cAMP, GMP, ....etc</li> </ul>                                                                                                                                                                                                                                                                        |
| Sun<br>Mon<br>Tues | <p style="text-align: center;"><b><u>SECOND EXAM</u></b></p> <ul style="list-style-type: none"> <li>- Autonomic nervous system, Sympathetic Vs. parasympathetic</li> <li>- Neurotransmitters, types, receptors types, locations (pre and post ganglionic)</li> <li>- Adrenal medulla.</li> </ul>                                                                                                                                                                                          |
| Sun<br>Mon<br>Tues | <ul style="list-style-type: none"> <li>- Skeletal muscles, levels of organization</li> <li>- Neuromuscular junction and transmission</li> <li>- Excitation contraction and molecular basis of muscle contraction</li> <li>- Smooth and cardiac muscle contraction. Comparison of the three types of muscle (skeletal, cardiac and smooth)</li> </ul>                                                                                                                                      |



كلية الطب البشري  
Faculty of Medicine



The Hashemite University

Sun  
Mon  
Tues

- Body temperature regulation
- Physiology and structure of steroid hormones

### **Course information**

|               |                       |
|---------------|-----------------------|
| Course title  | Cardiovascular System |
| Course number | 111501206             |
| Credit hours  | 6 Credits             |

### **Course description:**

This system-based integrated module gives a comprehensive overview of cardiovascular system. Each of the basic science topics are incorporated into an integrated body of knowledge covering anatomy including the developmental anatomy as well as the congenital anomalies, histology, and physiology of the cardiovascular system. It also includes the biochemical and pathological prevention methods of those diseases. Lastly concentrate on some common cardiovascular diseases as hypertension, ischemic heart disease and arrhythmia.

### **Learning outcomes:**

Upon completion of this course students should be able to:

1. Identify the anatomy of the mediastinum; heart borders, surfaces, chambers, and valves; and general and topographic of the great vessels and their distribution.
2. Describe the microscopic appearance of different parts of the cardiovascular system.
3. Describe the normal embryological development with their common congenital abnormalities.
4. Describe and understand the electrocardiogram cardiac cycle, hemodynamics, regulation of blood flow and blood pressure, microcirculations, and the mechanism of circulatory shock.
5. Understand the metabolism of the cardiac muscles and the value of cardiac enzymes and Troponins and their role in the diagnosis of acute myocardial disease.
6. Recognize the role and types of lipoprotein disorders and the mechanism of formation of atherosclerosis.
7. Recognize the characteristics of microorganisms that cause infection of the cardiovascular system, their pathogenicity and methods of identification.
8. Define with the more common types of cardiovascular diseases with emphasis on (etiology, mechanism and briefly to correlate the pathological aspects of diseases with clinical manifestations).
9. Understand the mechanisms of action, pharmacokinetics, uses and adverse effects of commonly used drugs in the treatment of cardiac failure, cardiac arrhythmias, hypertension, angina and drugs used in hyperlipidemias.
10. Recognize the major cardiovascular risk factors in health and diseases.
11. Identify the nutritional and dietetic components in the etiology, management, and prevention of cardiovascular diseases.

### **Instructional methods:**

- Lectures.
- Practical.

### **Textbook and material:**

#### **\*ANATOMY:**

| Author                               | Title                                  | Published Year |
|--------------------------------------|----------------------------------------|----------------|
| G.J. Tortora,                        | Principle of Human Anatomy.            | Last edition.  |
| R.S. Snell.                          | Clinical Anatomy for Medical Students. | Last edition   |
| Carlos Junqueira. Last edition       | Basic Histology                        | Last edition   |
| K.L. Moore and T.V.N. Persaud        | Before we are born                     | Last edition   |
| Frank H. Netter                      | Atlas of Human Anatomy                 | Last edition   |
| Anne M. R. Agur and Arthur F. Dalley | Grants Atlas of Anatomy                | Last edition   |

#### **\*BIOCHEMISTRY:**

| Author                   | Title                 | Published Year |
|--------------------------|-----------------------|----------------|
| Robert K. Murray and Co. | Harper's Biochemistry | Last edition.  |

#### **\*PHYSIOLOGY:**

| Author            | Title                          | Published Year |
|-------------------|--------------------------------|----------------|
| Guyton and Hall   | Textbook of Medical Physiology | Last edition.  |
| William F. Ganong | Review of Medical Physiology   | Last edition   |

#### **\*PATHOLOGY:**

| Author                   | Title               | Published Year |
|--------------------------|---------------------|----------------|
| Emanuel rubin            | Essential Pathology | Last edition.  |
| Kumar, Cotran and Robbin | Basic Pathology     | Last edition   |

#### **\*PHARMACOLOGY:**

| Author      | Title                            | Published Year |
|-------------|----------------------------------|----------------|
| Lipincott's | Illustrated Review: Pharmacology | Last edition.  |

**\* In addition the students are advised to go back to internet resources.**

### **Grading Policy:**

Grades can be based on the following:

Assignments: First in-course exam: Theory = 40%; Practical pract= 20%

Final Exam: %

Class attendance/participation: %

Total Points 100

### Course Policies:

- **Late Assignments:** Students must give an explanation to the course instructor for any assignment which is submitted late. It will be at the course instructor's discretion if marks will be deducted for late assignments..
- **Missed exam:** If a student misses an examination then they will have the opportunity for a make-up examination, according to the university regulations.
- **Absence:** If a student is absent for a teaching session then they must discuss this with the course instructor. If a student is absent for more than 25% of the course then he may be liable to fail the course.
- **Cheating:** Cheating is forbidden in any form. Any students who are caught cheating will be reported to the medical Dean and further action taken as necessary.

### Classroom Protocol:

Students are expected to attend all sessions and to arrive on time for lectures and practical sessions. It is each student's responsibility to know their timetable and which session they should attend on which day. Students are expected to behave respectfully towards all members of staff and each other. Mobile phones are to be switched off during teaching sessions and eating, drinking and smoking are forbidden.

### Important Dates to Remember:

Lectures will begin the first week of the semester.

Practical sessions will begin the second week of the semester.

The dates and locations of written and practical examinations will be notified at the beginning of the semester.

### Student rights and responsibilities:

These are as detailed in University Regulations.

### Course Schedule:

After studying the material covered in the lectures, practical's, seminars and internet search regarding this module, the student is expected to express the following specific capacities:

| A. LECTURES                                                |                            |                                                                                                                                                                                                                                                                                                                                                                                                       |  |
|------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Contents of Anatomy Lectures (11 lectures and 4 practical) |                            |                                                                                                                                                                                                                                                                                                                                                                                                       |  |
| No                                                         | Title                      | Objectives                                                                                                                                                                                                                                                                                                                                                                                            |  |
| 1                                                          | Mediastinum & Pericardium. | <ol style="list-style-type: none"> <li>1. Study the parts and contents of mediastinum.</li> <li>2. Describe the outline and normal position of the heart.</li> <li>3. Identify and list relations of different parts of the heart in the middle mediastinum.</li> <li>4. Define the pericardium and describe its covering layers.</li> <li>5. Describe its attachment to the diaphragm and</li> </ol> |  |

|   |                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |                                                                          | <p>the root of the great vessels.</p> <ol style="list-style-type: none"> <li>6. Discuss the pericardial space and sinuses.</li> <li>7. Discuss the pericardial fluid in normal condition.</li> <li>8. Describe innervations of the fibrous pericardium.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 2 | Heart chambers, valves, conductive system and innervations of the heart. | <ol style="list-style-type: none"> <li>1. Describe the location, shape, borders, surfaces, sulci, surface landmarks, and relations of heart.</li> <li>2. Describe divisions of the heart into four chambers and the internal features of each chamber.</li> <li>3. Describe the fibrous skeleton of Heart.</li> <li>4. Identify papillary muscles and describe their locations and importance.</li> <li>5. Describe the atrioventricular, pulmonary, aortic, and semilunar (pulmonary and aortic) valves, their position, functional importance, surface marking and ideal sites for their auscultation.</li> <li>6. Describe the surface anatomy of great vessels entering and leaving the heart.</li> <li>7. Describe different parts of the conductive system of the heart and their arrangement and function within the myocardium.</li> <li>8. Understand and describe the principal of cardiac referred pain.</li> </ol> |
| 3 | Blood supply & great vessels of the heart.                               | <ol style="list-style-type: none"> <li>1. Describe the origin of the right and left coronary arteries and their course, branches and distribution.</li> <li>2. Describe sites of anastomosis between branches of coronary arteries.</li> <li>3. Describe the normal variation in the course of the coronary arteries and their branches.</li> <li>4. Describe the venous drainage of the heart and cardiac veins (their names, location and drainage areas).</li> <li>5. Describe the location and termination of the coronary sinus and its tributaries.</li> </ol>                                                                                                                                                                                                                                                                                                                                                           |
| 4 | Histology of the myocardium and blood vessels                            | <ol style="list-style-type: none"> <li>1. Describe the microscopic structure of the cardiac muscle and the histological appearance of the intercalated disc and Purkinje fibers.</li> <li>2. Describe the histological features of the endocardium, and epicardium.</li> <li>3. Describe the histological appearance of arteries and veins and their differences.</li> <li>4. Describe the ultra structural features of different</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |



|   |                                                                                              | types of capillaries.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5 | Blood vessels I – Arterial system:<br>a. Arteries in the head and neck regions.              | <ol style="list-style-type: none"> <li>1. Describe the course, relations and branches of the ascending aorta and arch of aorta.</li> <li>2. Describe the common carotid, and external and internal carotid arteries concerning with their course, relations and branches.</li> </ol>                                                                                                                                                                                                                                                                                                                       |
| 6 | Blood vessels I – Arterial system:<br>b. Arteries in the thorax, abdomen and pelvis regions. | <ol style="list-style-type: none"> <li>1. Describe the course, relation and branches of the descending thoracic aorta.</li> <li>2. Describe the course, relations and branches of the descending abdominal aorta.</li> <li>3. Describe the course, relations and branches of the common iliac artery.</li> <li>4. Describe the course, relations and branches of the internal iliac artery.</li> <li>5. Describe the course, relations and branches of the external iliac artery.</li> </ol>                                                                                                               |
| 7 | Blood Vessels I – Arterial system:<br>c. Arteries in the upper Limb region.                  | <ol style="list-style-type: none"> <li>1. Describe the course, relations and branches of the axillary artery.</li> <li>2. Describe the course, relations and branches of the brachial artery.</li> <li>3. Describe the anastomosis around the shoulder and scapula.</li> <li>4. Describe the course, relation and branches of the radial artery.</li> <li>5. Describe the course, relation and branches of the ulnar artery.</li> <li>6. Describe the anastomosis around the elbow and wrist joints.</li> <li>7. Describe the locations and branches of the superficial and deep palmar arches.</li> </ol> |
| 8 | Blood vessels I – Arterial system:<br>d. Arteries in the lower limb region.                  | <ol style="list-style-type: none"> <li>1. Describe the course, relations and branches of the femoral artery.</li> <li>2. Describe the course, relations and branches of the profunda femoris artery.</li> <li>3. Describe the course, relations and branches of the popliteal artery.</li> <li>4. Describe the cruceate and trochanteric</li> </ol>                                                                                                                                                                                                                                                        |

|    |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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|    |                                    | <p>anastomosis.</p> <ol style="list-style-type: none"> <li>Describe the course, relations and branches of the anterior tibial artery.</li> <li>Describe the course, relations and branches of the posterior tibial artery.</li> <li>Describe the anastomosis around the knee joint.</li> <li>Describe the course, relations and branches of the dorsalis pedis, medial plantar and lateral plantar arteries.</li> <li>Describe the location and branches of the plantar arch.</li> </ol>                                                                                                                    |
| 9  | Blood vessels II – Venous system.  | <ol style="list-style-type: none"> <li>Describe the caval system (course and relations of superior and inferior vena cava).</li> <li>Describe tributaries of the superior vena cava draining the head, neck and upper limb.</li> <li>Describe tributaries of the inferior vena cava draining the abdomen, pelvis and lower limbs.</li> <li>Describe the azygos system and its drainage area.</li> <li>Describe the important surface landmarks of major veins from clinical point of view.</li> <li>Describe the portal venous system.</li> <li>Describe cavo-caval and porto-caval anastomosis.</li> </ol> |
| 10 | Development of the heart.          | <ol style="list-style-type: none"> <li>Describe the primary formation and folding of the heart.</li> <li>Describe the formation of different chambers of the heart.</li> <li>Understand and describe the establishment of fetal circulation and its hemodynamics and subsequent cardiovascular changes that take place after birth.</li> <li>Describe and understand causes of major malformation incurred during these developmental stage and their clinical implications.</li> </ol>                                                                                                                     |
| 11 | Development of the vascular system | <p>Describe the formation of dorsal aorta.</p> <p>Describe the formation of aortic arches and their fate.</p> <p>Revise the process of transformation of fetal into adult circulation and the major changes that occur.</p> <p>Describe major congenital malformations incurred during these stages and their clinical implications.</p>                                                                                                                                                                                                                                                                    |

**Contents of Physiology Lectures(17 lectures and 2 practical)**

| No | Title                        | Objectives                                                                                                                                                                                                                                                                                                                                                                                                        |
|----|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                              |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 1  | Functional design of the CVS | <ol style="list-style-type: none"> <li>1. Describe the basic function of the CVS.</li> <li>2. Explain how structural differences of various parts of CVS subserve their functions.</li> <li>3. Describe the systemic and pulmonary circulations.</li> <li>4. Describe blood velocity &amp; blood flow through various parts of CVS in relation to their cross sectional area.</li> </ol>                          |
| 2  | Properties of cardiac muscle | <ol style="list-style-type: none"> <li>1. Describe automaticity and conduction of the conductive system of the heart; the control role of the ANS.</li> <li>2. Describe cardiac muscle action potential.</li> <li>3. Describe certain fundamental properties of cardiac muscle such as conductivity, refractory period and excitation contraction coupling.</li> </ol>                                            |
| 3  | The electrocardiogram I      | <ol style="list-style-type: none"> <li>1. Describe the principles of voltage recording in a volume conductor and its application to recording from the heart.</li> <li>2. Explain ECG waveforms and intervals in relation to the instantaneous pathway of waves of depolarization through the cardiac muscle.</li> <li>3. Voltage and time calibration of the ECG.</li> <li>4. Explain the normal ECG.</li> </ol> |
| 4  | The electrocardiogram II     | <ol style="list-style-type: none"> <li>1. Describe methods of recording ECG.</li> <li>2. Explain the differences in QRST configuration in various leads.</li> <li>3. State the right and left deviations of the electrical axis of the heart.</li> </ol>                                                                                                                                                          |
| 5  | The electrocardiogram III    | <p>Cardiac arrhythmias:</p> <ol style="list-style-type: none"> <li>a. Changes in the function of the sinus node.</li> <li>b. Disturbances in the conduction of impulses.</li> <li>c. Ectopic foci.</li> </ol>                                                                                                                                                                                                     |
| 6  | The electrocardiogram IV     | <p>ECG interpretation of cardiac muscle ischemia:</p> <ol style="list-style-type: none"> <li>a. Anterior wall infarct.</li> <li>b. Posterior wall infarct.</li> <li>c. Infarction involves other area of the heart.</li> </ol>                                                                                                                                                                                    |

|    |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7  | Mechanical events in cardiac cycle   | <ol style="list-style-type: none"> <li>1. Define cardiac cycle.</li> <li>2. Give Ganong's curves for the various events occurring in the heart, inlet veins, outlet arteries and explain: <ol style="list-style-type: none"> <li>a. Systolic and diastolic duration.</li> <li>b. Isometric &amp; relaxation and the ejection phases.</li> <li>c. Volume – pressure relationship in the left ventricle.</li> <li>d. The development of first and second heart sounds.</li> </ol> </li> <li>3. Define murmurs and how systolic and diastolic murmurs are produced.</li> </ol>              |
| 8  | Cardiac output and its regulation I  | <ol style="list-style-type: none"> <li>1. Define cardiac output and cardiac index.</li> <li>2. Methods of determination of cardiac output.</li> <li>3. Describe the relationship between cardiac output, stroke volume and the heart rate.</li> <li>4. Describe how stimulation of the sympathetic &amp; parasympathetic affect the cardiac output.</li> </ol>                                                                                                                                                                                                                           |
| 9  | Cardiac output and its regulation II | <ol style="list-style-type: none"> <li>1. Explain the relationship between EDV &amp; ventricular performance (Frank-Starling curve).</li> <li>2. Describe factors affecting EDV &amp; define cardiac reserve.</li> <li>3. Describe the effect of ANS, and ions on the pumping activity of the heart.</li> <li>4. Describe the energy expended &amp; O<sub>2</sub> utilization by the heart.</li> </ol>                                                                                                                                                                                   |
| 10 | Hemodynamic                          | <ol style="list-style-type: none"> <li>1. Define hydrostatic pressure and compare the magnitude of arterial pressure in the head and feet in the recumbent and standing position.</li> <li>2. Describe factors affecting the peripheral resistance.</li> <li>3. How the vascular resistance affect blood flow.</li> <li>4. Factors determine laminar and turbulent blood flow.</li> <li>5. The application of Laplace law.</li> </ol>                                                                                                                                                    |
| 11 | Blood pressure and its regulation I  | <ol style="list-style-type: none"> <li>1. Define blood pressure and state that it is determined by the cardiac output and total peripheral resistance.</li> <li>2. Define systolic, diastolic, pulse, and mean pressure and give their normal values.</li> <li>3. State that the central nervous mechanisms regulating blood pressure are comprised of: vasomotor center, the afferent influences on the center from baroreceptor, chemoreceptor, higher parts of the CNS, stretchreceptor in the right atrium etc.</li> <li>4. State that regulation is achieved by changing</li> </ol> |

|    |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                   | peripheral resistance, venous capacity, heart rate, and stroke volume.                                                                                                                                                                                                                                                                                                                                                                      |
| 12 | Blood pressure regulation II      | <ol style="list-style-type: none"> <li>1. Discuss the long term regulation of blood pressure.</li> <li>2. Discuss the role of renin-angiotensin, and aldosterone in regulation of blood pressure.</li> </ol>                                                                                                                                                                                                                                |
| 13 | Hypertension                      | <ol style="list-style-type: none"> <li>1. Define hypertension.</li> <li>2. Discuss the essential and secondary hypertension.</li> <li>3. Effects of hypertension on the body.</li> </ol>                                                                                                                                                                                                                                                    |
| 14 | Tissue blood flow                 | <ol style="list-style-type: none"> <li>1. Recognize factors which control blood flow.</li> <li>2. Autoregulation: its definition, tissues exhibit autoregulation, its myogenic &amp; metabolic theories.</li> <li>3. Discuss agents normally found in the body that cause vasoconstriction &amp; vasodilation.</li> </ol>                                                                                                                   |
| 15 | Coronary circulation              | <ol style="list-style-type: none"> <li>1. Structural &amp; functional adaptation to match high O<sub>2</sub> requirement.</li> <li>2. Metabolic hyperaemia is the dominant control of coronary circulation.</li> <li>3. Coronary vasomotor nerve.</li> <li>4. Mechanical obstruction to coronary blood flow during systole.</li> <li>5. The mechanisms of arrhythmias and decrease in cardiac contractility in cardiac ischemia.</li> </ol> |
| 16 | Heart failure & circulatory shock | <ol style="list-style-type: none"> <li>1. Definition of heart failure (HF).</li> <li>2. Hemodynamic changes in compensated and decompensated HF.</li> <li>3. Physiological bases of the manifestations of left and right side failure.</li> <li>4. Physiological bases of treatment of HF. Describe cardiogenic, hypovolumic shock.</li> </ol>                                                                                              |
| 17 | Exercise                          | <ol style="list-style-type: none"> <li>1. Describe muscular blood flow during exercise.</li> <li>2. Discuss circulatory adjustment during exercise.</li> <li>3. Discuss the relationship of cardiovascular performance to the level of O<sub>2</sub> consumption during exercise.</li> </ol>                                                                                                                                                |

**Contents of Microbiology Lectures(1 lecture)**

| No | Title                     | Objective                                                                                                                                                                                                                                                                                                                                                             |
|----|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Microbiology of carditis. | <ol style="list-style-type: none"> <li>1. Understand the characteristics of microorganisms that cause infection of the cardiovascular system: their pathogenicity and methods of identification.</li> <li>2. Understand the role of streptococcus viridians in endocarditic.</li> <li>3. Understand the role of streptococcus pyogenes in rheumatic fever.</li> </ol> |

**Contents of Biochemistry Lectures(5 lectures and 1 practical)**

| No | Title                              | Objective                                                                                                                                                                                                                                                                                                                                                                                                        |
|----|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Metabolism of cardiac muscles.     | <ol style="list-style-type: none"> <li>1. Major sources of energy for the cardiac muscles.</li> <li>2. Discuss ketone body synthesis &amp; utilization during starvation.</li> <li>3. Discuss lactate metabolism in hypoxic heart muscle.</li> <li>4. Describe how hypoxia influence serum and tissue lactate level.</li> </ol>                                                                                  |
| 2  | Plasma cholesterol.                | <ol style="list-style-type: none"> <li>1. Discuss cholesterol metabolism and its role in a               <ol style="list-style-type: none"> <li>a. Atherosclerosis.</li> <li>b. Appreciate the main regulatory factors of cholesterol metabolism and its serum levels.</li> </ol> </li> </ol>                                                                                                                    |
| 3  | Plasma lipoproteins.               | <ol style="list-style-type: none"> <li>1. Describe different types of lipoproteins, their function and metabolism.</li> <li>2. Discuss the LDL receptor and the mechanism of internalization of cholesterol in the cell.</li> <li>3. Discuss the molecular basis of atherosclerotic plaque formation.</li> <li>4. Describe various types of familial hyperlipidemias according to WHO classification.</li> </ol> |
| 4  | Heart attack.                      | <ol style="list-style-type: none"> <li>1. Know the new tests to detect the risk groups for heart attack.</li> <li>2. CR, Fibrinogen, lipoproteins a &amp; b, and Homocystein.</li> </ol>                                                                                                                                                                                                                         |
| 5  | Cardiac enzymes and the troponins. | <ol style="list-style-type: none"> <li>1. Discuss the clinical relevance of CPK, CK-MB, AST and LDH in diagnosis of cardiac diseases.</li> <li>2. Discuss Myoglobin &amp; Troponins as a marker for myocardial infarction.</li> </ol>                                                                                                                                                                            |

**Contents of Pathology Lectures (9 lectures and 2 practical)**

| No  | Title                                             | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1&2 | Atherosclerosis & Hypertensive vascular diseases. | <ol style="list-style-type: none"> <li>1. Discuss the epidemiology, the predisposing factors for atherosclerosis, including the hyperlipidemia &amp; familial predisposition.</li> <li>2. Describe the macroscopic &amp; microscopic features of atherosclerosis.</li> <li>3. Define hypertension and discuss the hemodynamic variables involved in the causation of hypertension.</li> <li>4. Discuss the pathogenesis &amp; the predisposing factors.</li> <li>5. Also describe the macroscopic &amp; microscopic features of hypertensive vascular diseases.</li> </ol>                                                                                                                        |
| 3   | Aneurysm, vasculitis & varicose veins.            | <ol style="list-style-type: none"> <li>1. Define aneurysm and enumerate the types of aneurysm, including congenital or acquired aneurysms, false or true aneurysms ...etc. Mention the location of various types of aneurysms like abdominal atherosclerotic aortic aneurysm (AAA) or syphilitic aneurysm or berry aneurysm. Discuss their pathogenesis &amp; mention the gross &amp; microscopic features.</li> <li>2. Enumerate the types &amp; causation of vasculitis. Mention their locations &amp; pathological and clinical features.</li> <li>3. Discuss the pathogenesis of varicose veins, mention their location and describe the morphological features and complications.</li> </ol> |
| 4   | Vascular tumors                                   | <ol style="list-style-type: none"> <li>1. Enumerate the benign &amp; malignant tumors of blood vessels. Describe the gross &amp; microscopic features of each type and their pathogenesis and most common location.</li> <li>2. Discuss &amp; enumerate the types of Kaposi's sarcoma, mentioning their relations to AIDS and HIV infection. Also describe the gross &amp; microscopic &amp; clinical features of each type.</li> <li>3. Discuss angiosarcoma, its relation to carcinogenic agents, their most common location, and their gross &amp; microscopic features.</li> </ol>                                                                                                            |
| 5   | Ischemic heart diseases.                          | <ol style="list-style-type: none"> <li>1. Discuss the etiology &amp; predisposing factors for ischemic heart diseases. Mention the etiology, the pathogenesis and morphological appearances of myocardial infarction, and its complications.</li> <li>2. Discuss the subendocardial infarction, its</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                    |

|     |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                                                                                          | pathogenesis, and the gross & microscopic appearances.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 6&7 | Rheumatic Heart disease, endocarditis & valve lesions.                                   | <ol style="list-style-type: none"> <li>1. Define &amp; describe causation of rheumatic heart diseases and describe the gross and microscopic features.</li> <li>2. Mention the major and the minor Jones's criteria of rheumatic heart disease.</li> <li>3. Discuss &amp; enumerate the types of cardiac valve lesions. Mention the etiopathological causes, their gross &amp; microscopic features.</li> </ol>                                                                                                                                                                        |
| 8&9 | Cardiomyopathy, myocarditis, pericarditis, and benign and malignant tumors of the heart. | <ol style="list-style-type: none"> <li>1. Define cardiomyopathy. Mention their types, pathogenesis, their pathological gross, microscopic &amp; ultrastructural features as well as the clinical features.</li> <li>2. Discuss myocarditis. Mention their causes, pathogenesis &amp; pathological features of each type.</li> <li>3. Discuss pericarditis, causes and appearances of pericardial effusion, empyema &amp; hemopericardium.</li> <li>4. Enumerate the types of benign &amp; malignant tumors of the heart. Discuss their location and morphological features.</li> </ol> |

#### Contents of pharmacology Lectures(11 lectures)

| No     | Title                    | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 to 4 | Antihypertensive agents. | <p>Classify antihypertensive agents as:</p> <ol style="list-style-type: none"> <li>1. Diuretics-discussed before.</li> <li>2. Sympatholytic Agents: <ol style="list-style-type: none"> <li>a. <math>\alpha</math>-adrenergic blockers: Prazosin.</li> <li>b. <math>\beta</math>-adrenergic blockers: Propranolol, Atenolol.</li> <li>c. Mixed adrenergic blockers: Labetalol.</li> <li>d. Adrenergic neurone blockers: Guanethidine, Reserpine.</li> <li>e. Centrally-acting sympathoplegic drugs: Methyldopa and Clonidine.</li> </ol> </li> <li>3. Vasodilators: Hydralazine, Minoxidil, Diazoxide, Sodium Nitroprusside.</li> <li>4. Calcium channel blockers: Dihydropyridines (Nifedipine, Nicardipine, Amlodipine, etc.) Verapamil, Diltiazem and Bepridil.</li> <li>5. Inhibitors of the Renin-aldosterone-angiotensin system.</li> </ol> |



|      |                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      |                                                     | <ul style="list-style-type: none"> <li>a. Angiotensin-converting enzyme (ACE) inhibitors (Captopril, Enalapril, Lisinopril).</li> <li>b. Angiotensin receptor blockers (Losartan).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 5&6  | Antianginal Drugs.                                  | <ul style="list-style-type: none"> <li>1. Classify antianginal drugs into:               <ul style="list-style-type: none"> <li>a. <math>\beta</math>-adrenergic blockers.</li> <li>b. Nitrates and nitrites.</li> <li>c. Calcium channel blockers.</li> </ul> </li> <li>2. Classify nitrates and nitrites according to route of administration and duration of action.</li> <li>3. Discuss their pharmacological actions, adverse effects and clinical uses.</li> <li>4. Classify Calcium Channel Blockers into:               <ul style="list-style-type: none"> <li>a. Dihydropyridines: Nifedipine, nicardipine, nitrendipine... etc.</li> <li>b. Verapamil.</li> <li>c. Diltiazem.</li> <li>d. Bepridil.</li> </ul> </li> <li>5. Compare these drugs regarding their pharmacological and hemodynamic effects, adverse effects and clinical indications.</li> </ul>                                                                                                                                                                                                                                                     |
| 7&8  | Cardiac glycosides and drugs used in heart failure. | <p>These two lectures will cover two classes of drugs:</p> <ul style="list-style-type: none"> <li>A. Digitalis</li> <li>B. ACE Inhibitors and Angiotensin Receptor Antagonists.</li> <li>C. Dobutamine.</li> </ul> <ul style="list-style-type: none"> <li>1. Discuss the mechanism of action of cardiac glycosides (digoxin &amp; digitoxin) as inhibitors of <math>\text{Na}^+/\text{K}^+</math> ATPase and as cardioselective parasympathomimetics.</li> <li>2. Discuss their pharmacological and adverse effects.</li> <li>3. List the interactions of digitalis with other drugs.</li> <li>4. Emphasize factors that enhance digitalis toxicity.</li> <li>5. Identify the use of digitalis in chronic versus acute heart failure and supraventricular tachyarrhythmias.</li> <li>6. Identify differences in the pharmacokinetic profiles of digoxin and digitoxin and their implications on patient care.</li> <li>7. Discuss ACE Inhibitors regarding their pharmacological actions, adverse effects, precautions and therapeutic indications.</li> <li>8. Discuss the role of dobutamine in heart failure.</li> </ul> |
| 9&10 | Drugs used in cardiac                               | Classify these drugs into:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

arrhythmias.

1. Sodium channel blockers.
    - b. Lidocaine, Tocainide, Phenytoin.
    - c. Flecainide, Propafenone.
  2.  $\beta$ -Adrenoceptor blockers.
  3. Drugs that prolong the effective refractory period: Bretylium, Sotalol.
  4. Calcium-Channel blockers: Verapamil, Diltiazem, Bepridil.
  5. Broad-spectrum antiarrhythmic drugs: Aminodarone.
  6. Others: Adenosine, Digoxin.
- Some of these drugs will be discussed more elsewhere ( $\beta$ -blockers, calcium channel blockers, digoxin, lidocaine and phenytoin).  
Discuss the pharmacological actions, adverse effects, precautions and specific clinical indications of antiarrhythmic drugs.

11 Antihyperlipidemics.

1. Classify drugs used in hyperlipidemia (HMG CoA reductase inhibitors-lovastatin, Bile- acid binding resins-cholestyramine and colestipol, Niacin and Gemfibrosil, Ezetimib).
2. Discuss pharmacological actions, adverse effects and special therapeutic indications.

#### Contents of Community medicine lectures (2 lectures).

| No  | Title                                        | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1&2 | Epidemiology of Cardiovascular Disease I&II. | <ol style="list-style-type: none"> <li>1. Understand the significance of public health.</li> <li>2. Identify the types of Cardiovascular Disease.</li> <li>3. Understand the tasks of Cardiovascular Epidemiology.</li> <li>4. Identify the parks of Cardiovascular Epidemiology.</li> <li>5. Understand the descriptive Epidemiology according to:               <ol style="list-style-type: none"> <li>A) Age B) Sex C) Ethnicity D) World Trends</li> </ol> </li> <li>6. Identify the factors influencing susceptibility to Cardiovascular Infections.</li> <li>7. Identify the risk factors of Infective Endocarditis.</li> <li>8. Identify the parts of cardiovascular diseases prevention:               <ol style="list-style-type: none"> <li>A) Primordial</li> <li>B) Primary</li> <li>C) Secondary</li> <li>D) Tertiary</li> </ol> </li> </ol> |

### B. PRACTICAL OF LABARATORY SESSIONS

| No | Title                                                                                                    | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Morphological and surface anatomy of the heart and mediastinum.                                          | <ol style="list-style-type: none"> <li>1. Outline the divisions of thoracic cavity.</li> <li>2. Study the parts of mediastinum and their contents.</li> <li>3. Understand the layers, extension, relations, attachments, and sinuses of pericardium.</li> <li>4. Describe the normal location and surface marking of the heart, and great vessels.</li> <li>5. Appreciate important relations of the heart in the middle mediastinum.</li> <li>6. Study the internal features of heart chambers (atria &amp; ventricles).</li> <li>7. Study the course and branches of right and left coronary arteries.</li> <li>8. Identify images of the heart and its blood supply in plain chest X-ray, angiograms and CT scans.</li> </ol> |
| 2  | Morphological and surface anatomy of blood vessels in the thorax, head and neck, and upper limb regions. | <ol style="list-style-type: none"> <li>1. Study the main arteries and veins and their branches in the thorax.</li> <li>2. Study the main arteries and veins and their branches in the head and neck.</li> <li>3. Study the main arteries and veins and their branches in the upper limb.</li> <li>4. Study and identify the above arteries in angiograms.</li> </ol>                                                                                                                                                                                                                                                                                                                                                             |
| 3  | Morphological and surface anatomy of blood vessels in the abdomen, pelvis and lower limb regions.        | <ol style="list-style-type: none"> <li>1. Study the main arteries of veins and their branches in the abdomen and pelvis.</li> <li>2. Study the main arteries of veins and their branches in the lower limb.</li> <li>3. Study and identify the above arteries in angiograms.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 4  | Histology of the heart and blood vessels.                                                                | <ol style="list-style-type: none"> <li>1. Examine the detailed microscopic structure of the cardiac muscle.</li> <li>2. Examine, compare and understand the microscopic structure of walls of different calibre vessels.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 5  | ECG                                                                                                      | <ol style="list-style-type: none"> <li>1. Demonstration the methods of recording ECG.</li> <li>2. Recording ECG in the 12 ECG leads.</li> <li>3. Explain why the same cardiac muscle AP that is recorded in 12 ECG shows different wave deflections.</li> <li>4. How to interprets the recorded ECG (waves &amp; intervals, NSR).</li> <li>5. Method of heart rate calculation.</li> <li>6. The determination of the mean electrical axis of the heart.</li> </ol>                                                                                                                                                                                                                                                               |

|   |                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |                                                | 7. Demonstration of the effect of deep inspiration & expiration on heart rhythm (NSA).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 6 | Measurement of blood pressure and Heart sounds | <ol style="list-style-type: none"> <li>1. Explain the principle of the indirect methods of BP measurement.</li> <li>2. Describe the different parts of the mercury sphygmomanometer.</li> <li>3. Explain the palpation &amp; auscultation methods for BP measurement demonstrating the difference between the two methods.</li> <li>4. Demonstrating the effect of exercise on systolic, diastolic &amp; pulse pressure with explanation of the mechanism.</li> <li>5. Demonstrate the locations on chest wall to hear the maximal intensity of heart sounds.</li> </ol>                                                                                                                                                          |
| 7 | Diseases of Blood vessels                      | <ol style="list-style-type: none"> <li>1. Describe the gross &amp; microscopic features of atherosclerosis, and describe the gross and microscopic appearances of coronary atherosclerosis and thrombus.</li> <li>2. Describe the gross &amp; microscopic features of vasculitis including giant cell arteritis, Takayasu disease, Kawasaki disease, Polyarteritis nodosa, and thromboangitis obliterans.</li> <li>3. Describe the gross &amp; microscopic features of aneurysms.</li> <li>4. Describe and enumerate the benign tumors of blood vessels including capillary hemangioma, cavernous hemangioma, and glomus tumor. Describe the gross &amp; microscopic appearances of Kaposi's sarcoma and angiosarcoma.</li> </ol> |
| 8 | Diseases of the heart                          | <ol style="list-style-type: none"> <li>1. Describe the gross &amp; microscopic features of acute myocardial infarction and chronic myocardial infarction.</li> <li>2. Describe the rheumatic heart diseases including valvular lesions and myocardial Aschoff bodies.</li> <li>3. Describe the gross and microscopic features of intracardiac mural thrombi.</li> <li>4. Describe the gross and microscopic features of atrial myxoma.</li> </ol>                                                                                                                                                                                                                                                                                 |
| 9 | Lipid profile                                  | <ol style="list-style-type: none"> <li>1. Understand how serum cholesterol, triglyceride, LDL &amp; HDL levels can be determined in a clinical laboratory.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

|  |  |                                                                                                                                                                                              |
|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | <p>2. Discuss methods used in the laboratory to quantitative different types of lipoproteins.</p> <p>3. Know the desirable levels &amp; the risk levels of lipids to avoid heart attack.</p> |
|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Summary of the Teaching Activities in the Module :

| Department         | No. of lectures | No. of Labs . |
|--------------------|-----------------|---------------|
| Anatomy            | 11              | 4             |
| Physiology         | 17              | 2             |
| Biochemistry       | 5               | 1             |
| Pathology          | 9               | 2             |
| Microbiology       | 1               | 0             |
| Pharmacology       | 11              | 0             |
| Community Medicine | 2               | 0             |
| Total              | 56              | 9             |

Working hours = Number of lectures + (Practical sessions \*3) = 83 Hours.

**Midterm Examination (Online) Two parts: Theory: 60 Questions (MCQ, 60 Minutes, 40 marks & Practical 20 Figures, 20 Minutes, 20 Marks).**

**\*\*\*Important Notice: Any absence from the examination due to any reason; the student must applied for a make-up examination, which will be an essay type questions.**

### **Course information**

|               |                          |
|---------------|--------------------------|
| Course title  | Clinical Skills Course 2 |
| Course number | 0111500201               |
| Credit hours  | 1                        |

### **Course description:**

The aim of this course is to help students to acquire clinical skills through the integrated basic science module which will ultimately help in better patient care.

Through emphasis on communication skills between health care provider and patients and between different medical staff, we are hoping to prepare our students for their future career, also it will help students to integrate their knowledge of basic sciences with clinical practice.

The Clinical Skills Course 2 incorporates history taking and physical examination related to the cardiovascular, respiratory and blood and lymphatic systems.

### **Consultation Skills:**

In these sessions, students learn the elements of effective communication. This involves satisfactory interviews with simulated patients and volunteers, initiating the medical interview and eliciting the medical history appropriately. The exercises include role plays with simulated patients and team members. Students will be given opportunities to view real videos of patient history taking.

- α. Eliciting the medical history in patients with different symptoms related to:
  - Respiratory system with special emphasis on social and occupational history and relevant systems review
  - Cardio-vascular system with special reference to exercise tolerance, life style, social history, family history and relevant systems review

- Diseases of blood and lymphatic system with special reference to geography, history of travel, family history and relevant systems review
- β. Learning communication skills to build the relationship with the patient and develop rapport
- χ. Developing specific communication skills to assist in the process of dealing with difficult situations such as an angry or upset patient
- δ. Obtaining consent from a patient before performing a basic medical or invasive procedure

#### Physical Examination Skills:

Conducting appropriate physical examinations focused to elicit physical signs related to:

- Respiratory system
- Cardio-vascular system
- Blood and lymphatic system

#### Procedural Skills:

Performing appropriate techniques on manikins for

- Endo-tracheal intubation
- Collection of venous blood samples and blood culture
- Basic Life Support and Advanced Life Support
- I/V drug delivery

#### Learning outcomes:

The course objectives are divided into three categories. These are: Knowledge, Skills, and Attitudes/ Behaviors.

#### Knowledge:

At the end of the CSETC Course 2, the students shall be able to:

- Demonstrate skill in initiating the medical interview and gathering information with good knowledge of the Calgary-Cambridge framework for structuring the medical interview
- Obtain accurate medical histories related to the cardiovascular, respiratory or blood and lymphatic systems
- Interpret their clinical examination findings and laboratory results related to the cardiovascular, respiratory or blood and lymphatic systems based on their basic science knowledge

#### Skills:

By the end of the CSETC Course 2, in relation to the respiratory, cardiovascular, blood and lymphatic systems, the students shall be able to:

- Collect a focused accurate medical history

- Demonstrate the use of good communication skills when dealing with difficult scenarios such as angry or upset patients/simulated patients
- Perform effective, accurate, comprehensive, focused and appropriate physical examination using simulated patients
- Competently perform endotracheal intubation, blood sampling and intravenous delivery
- Demonstrate a good ability to perform basic and advanced life support with the help of manikins
- Demonstrate the ability to obtain consent from patient before any intervention

#### Attitudes/Behaviors:

At the end of the CSETC Course 2, the students shall be able to:

- Demonstrate rapport and good skill in building the relationship with the patient/simulated patient
- Demonstrate a professional attitude when dealing with the patient, relatives and health care team
- Demonstrate a good understanding of the sensitive nature of the doctor / patient relationship with attention to the patient's familial, cultural, spiritual circumstances and patient privacy and confidentiality
- Demonstrate a proper professional demeanor by willingly and consistently using appropriate personal safety devices when handling patients, hazardous material or instruments

#### Instructional methods:

The course is taught through interactive lectures and practical sessions. Instructional methods include:

- discussions
- brainstorming
- group work
- pair work or triplet work
- role play
- simulation
- audio and video feedback
- presentations
- demonstrations



### Text book and material:

| Author                                | Title                                  | Published Year          |
|---------------------------------------|----------------------------------------|-------------------------|
| Douglas, Nicol and Robertson Elsevier | Macleod's Clinical Examination         | 12 <sup>th</sup> , 2009 |
| Silverman, Kurtz Draper               | Skills for Communicating with Patients | 2004                    |
| Ford, Hennessy, and Japp Elsevier     | Introduction to Clinical Examination   | 8th, 2005               |
| Dacre and Kopelman                    | Handbook of Clinical Skills            | 1999                    |

### Grading Policy:

Multiple Choice Examination: 40%

Objective Structured Clinical Examination: 40%

Class attendance/participation/evaluation: 20%

Total Points 100

### Course

### Policies:

- **Late Assignments** : Students must give an explanation to the course instructor for any assignment which is submitted late. It will be at the course instructor's discretion if marks will be deducted for late assignments.
- **Missed exams**: If a student misses the multiple choice examination then they will have to take part in the resit examination. Due to timetabling constraints, if a student misses the OSCE then they will not be able to take the OSCE at another time.
- **Absence** : If a student is absent for a practical session then they must discuss this with the course instructor and it is the student's responsibility to attend the practical session at another time. If a student is absent for more than 25% of the sessions then they may be liable to fail the course.
- **Cheating** : Cheating is forbidden in any form. Any students who are caught cheating will be reported to the Medical Dean and further action taken as necessary.

### Classroom Protocol:

Students are expected to attend all sessions and to arrive on time for lectures and practical sessions. It is each student's responsibility to know their timetable and which session they should attend on which day. Students are expected to behave respectfully towards all members of staff and each other. Mobile phones are to be switched off during teaching sessions and eating, drinking and smoking are forbidden.

**Important Dates to Remember:**

Lectures will begin the first week of the semester.

Practical sessions will begin the second week of the semester.

The OSCE is usually timetabled for the last week of teaching in the semester.

The MCQ Examination is timetabled during the examination period.

**Student rights and responsibilities:**

These are as detailed in the University Regulations

**Course Schedule:**

Lecture 1 – Review of CSETC Course 1 Skills and Development for CSETC Course 2

Lecture 2 – Consultation Skills and Symptoms for Respiratory System

Lecture 3 – Physical Examination Skills and Signs for Respiratory System

Lecture 4 – Consultation Skills and Symptoms for Cardiovascular System

Lecture 5 – Physical Examination Skills and Signs for Cardiovascular System

Lecture 6 – Data Interpretation Skills for Respiratory System

Lecture 7 – Data Interpretation Skills for Blood and Lymphatic Systems

Consultation Session 1 – Respiratory Medical Interview and Dealing with Crying Patients

Consultation Session 2 – Cardiovascular Medical Interview and Dealing with Angry Patients

Physical Examination Session 1 – Examining the Respiratory System

Physical Examination Session 2 – Examining the Cardiovascular System Physical

Examination Session 2b – Examining the Blood and Lymphatic Systems

Clinical Procedures Session 1 – Advanced Life Support, Cardiac Rhythms, Endotracheal Intubation

Clinical Procedures Session 2 – Venepuncture, blood cultures, IV cannulation, IV drug delivery, removal of cannula

Data Interpretation Session

### **Course information**

|               |                      |
|---------------|----------------------|
| Course title  | General Microbiology |
| Course number | 0111501204           |
| Credit hours  | 3                    |

### **Coursedescription:**

This course is an introductory course intended to introduce undergraduate medical students to a variety of subjects in medical microbiology. The course will provide an introduction to the basic principles and application relevance of clinical disease for students who are in preparation for physicians. The content of this rigorous course covers all biology of bacteria, viruses, fungi, parasites, and other pathogens related with infectious diseases in humans.

The course provides the second year medical student with the basic knowledge as well as the practical skills in medical microbiology. In addition to the introduction to the basic biology of micro-organisms of medical importance, interaction of these micro-organisms with humans is studied as related to the pathogenesis and management and control of infectious diseases.

To achieve the maximum benefit of this course and to develop both informatic and diagnostic skills in microbiology including the practical application and interpretation of laboratory tests for the diagnosis of infectious diseases; hard work and appropriate methods of learning are the keys for that target.

### **Learning outcomes:**

Upon completion of this course, the student will be able to:

- Understand the concept of medical microbiology
- Understand the bacterial cell structure, growth, nutrition and genetics
- Understand the biological nature and diversity of microorganisms
- Describe the various methods of sterilization and disinfection
- Understand the various types of antimicrobial chemotherapy
- Recognize the various types of culture media and culture methods
- Differentiate between Gram positive and Gram negative bacteria as well as mycobacteria, rickettsia, chlamydia, mycoplasma and spirochaetes
- Differentiate between the various types of fungi
- Understand the difference between protozoa and helminths

- Understand the viral structure, replication, and genetics
- Understand the pathogenesis and immunity to viral infections
- 12. Describe the various diagnostic methods of viral infections
- 13. Understand the concept anti-viral chemotherapy
- 14. Differentiate between DNA and RNA viruses

#### Instructional methods:

- Lectures-PowerPoint presentations
- Departmental hand-outs
- animations, educational movies, illustrations
- Self-readings
- Practical diagnostic classes

#### Textbook and material:

- Jawetz, Melnick, & Adelberg's Medical Microbiology, Latest Edition.
- Bailey & Scott's Diagnostic Microbiology, Latest Edition.
- Sherris Medical Microbiology, An Introduction to Infectious Diseases, Latest Edition.
- Microbiological methods, Collins and Lyne, Latest Edition.
- Medical Microbiology, David Greenwood, Published By ELST with Churchill Livingstone, Latest Edition.
- Kayser, Medical Microbiology, Latest Edition.

#### Grading Policy:

First Exam: 25%  
Second Exam: 25%  
Practical Exam: 10%  
Final Exam: 40%  
Total Points 100

#### Course Policies:

- **Missed exams:** Students who are absent in any exam are allowed to sit a make-up exam after presenting an approved sick leave or any accepted certificate of absence to the assistant of the faculty dean within 72 hours. The Course Coordinator will determine the time of the exam make-up session. Also, according to the Curriculum Committee and the University regulations, the student will be given a similar examination given to the other students. All examinations must be made up within one week of returning to class. Those absents who do not present a clue will be given a zero mark.

- **Absence:** Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students will be accountable and personally responsible for attending all educational activities (lectures, labs, examinations, etc.). Unexcused absences reflect negatively on the goals and objectives of the medical curriculum and demonstrate unprofessional behavior by the respective student.

Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Attendance is mandatory. Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

- **Cheating:** Cheating will not be tolerated. Each individual student is responsible for his behavior and is expected to maintain standards of academic honesty and professionalism. If any instance of academic dishonesty (cheating, plagiarism, etc.) is discovered by a coordinator or an instructor, it is his or her responsibility to take appropriate action. Such action may include giving a failing grade to the student in the course and/or referring the student for Judicial Procedures Office review and possible disciplinary action, which may include disciplinary suspension or dismissal from the College.

#### Classroom Protocol:

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students respond politely to faculty, staff, and student colleagues, exemplifying their maturity and empathy. Students agree to abide by appropriate biosafety practices when required.

All students are expected to be quiet in their seats in the lecture theatre before the start of the lecture. Engagement in class discussions is encouraged without side chatting.

Cell phones are not allowed to be used during lectures and exams unless prior approval has been taken from the course instructor.

### Important Dates to Remember:

The Start of the Course-First Trimester

First Exam

Second Exam

Final Exam

### Course Schedule :

| Topic                                                       | No. of Lectures |
|-------------------------------------------------------------|-----------------|
| 1.Introduction to Microbiology                              | 1               |
| 2.Bacterial Cell Structure                                  | 1               |
| 3.Nutrition and Growth of Bacteria.                         | 1               |
| 4.Control of Microorganisms: Sterilization and Disinfection | 2               |
| 5.Antimicrobial Drugs                                       | 3               |
| 6.Bacterial Genetics                                        | 1               |
| 7.Laboratory Methods, Bacterial Cultures and Culture Media  | 1               |
| 8.Gram-Positive Cocci and Aerobic Gram Positive Bacilli     | 2               |
| 9.Gram-Negative Cocci and Anaerobic Gram-Positive Bacilli   | 1               |
| 10. Haemophilus, Bordetella and Moraxella                   | 1               |
| 11. Enterobacteriaceae                                      | 2               |
| 12.Pseudomonads, Acinetobacter and other Gram-Neg. Bacilli  | 1               |
| <b>First Exam</b>                                           |                 |
| 11. Vibrios, Campylobacter and Helicobacter                 | 1               |
| 12. Brucella and Yersinia                                   | 1               |
| 13.Mycobacteria                                             | 1               |
| 14. Rickettsia, Chlamydia and Mycoplasma                    | 1               |
| 15. Spirochaetes, Bacteroides and non-sporing Anaerobes     | 1               |
| 16. Fungi                                                   | 2               |
| 17. Introduction to Parasitology                            | 1               |
| 18. Protozoa                                                | 2               |
| 19. Helminths                                               | 2               |
| <b>Second Exam</b>                                          |                 |
| 20. Introduction to Virology                                | 1               |
| 21. Viral Structure and Replication                         | 2               |
| 22. Viral Genetics                                          | 1               |
| 23. Pathogenesis and Immunity to Viral Infections           | 2               |
| 24. Diagnosis of Viral Infections                           | 1               |
| 25. Anti-Viral Agents                                       | 1               |
| 26. DNA Viruses                                             | 2               |
| 27. RNA Viruses                                             | 1               |

### **Final Exam**

## General Microbiology Practical Classes

### Overall Objectives of the Microbiology Laboratory

- ❖ In this portion of the course, student will explore the central roles of microorganisms in nature and in our daily lives. In this process of discovery, he will become adept with standard microbiological techniques that will allow him to investigate the different lab techniques and identify the different types of microorganisms. The various sub-disciplines of Microbiology including, Bacteriology, Parasitology, and Applied Microbiology will be introduced.
- ❖ The objectives over the course of the semester are to:
  - become proficient in laboratory skills and safety protocols.
  - learn to follow experimental procedures.
  - apply the scientific method: formulate answerable questions/hypotheses, predict expected results, make careful observations, collect and analyze/interpret data, and draw appropriate conclusions.
  - To show proficiency in scientific writing (laboratory reports)
  - embark in active learning opportunities in the laboratory.
  - demonstrate good lab student and the ability to work with others.
- ❖ The experiments to be conducted in the General microbiology Laboratory are outlined in a manual, they include:
  - Laboratory orientation, instruments & equipment.
  - Laboratory Safety
  - Cultivation and isolation of bacteria
  - Culture media and colonial morphology
  - Gram stain and Ziehl-Neelsen stain
  - Biochemical tests
  - Parasitology Lab

### Learning Objective

At the end of the lesson, the student should be able to:

- Identify the structure of bacterial cell
- Do simple and differential staining methods
- Describe the essential nutrients required for bacterial growth
- Describe the mechanisms of genetic variation in bacterial cell
- Identify the chemical means of sterilization and disinfection, and their effect on bacterial cell
- Do and interpret the result of anti-microbial sensitivity testing in vitro



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## Laboratory Safety

- Lab coats and safety glasses must be worn at all times while in the laboratory. Regular prescription glasses are generally not made with safety glass and thus safety glasses must be worn over the top of these glasses at all times. Safety glass checks will be made throughout the semester.
- Only the materials pertinent to lab work, such as a lab manual/notebook, and other lab materials, should be brought to your workspace. All other items such as coats, books, and bags should be stored on the shelves provided for this purpose.
- No eating, drinking or smoking in the lab.
- Know lab safety procedures and the location of the first aid kit, eyewash, and fire extinguisher.
- All culture material should be handled as if it were potentially harmful.
- Be very careful with Bunsen burners. Avoid wearing loose clothing that may be exposed beneath a lab coat and thus provide potential fuel for the flame. Burners should be turned off when not in use.
- Long hair must be tied back at all times while in the laboratory. Long pants and closed toed shoes are suggested.
- The chemical compounds used to stain bacteria can be irritating to the skin. The use of gloves when performing staining procedures will help minimize exposure.
- Dispose of materials as instructed. Do not carelessly throw materials in wastebaskets or sinks; biohazard waste containers are available.
- Report any accident or injury immediately to the laboratory instructor so that prompt action can be taken.
- After each lab, WASH your hands before leaving the laboratory.
- The surfaces of lab benches are washed with disinfectant and rinsed with water twice a day by the teaching assistants and instructor.
- If you have any allergies, chemical sensitivities or if you are pregnant or think you may become pregnant, please identify yourself to the instructor. If, for any of these reasons (or others), you believe that your safety is compromised in the lab, we will make alternative arrangements for completion of this portion of the course.



### **Course information**

|               |                                                         |
|---------------|---------------------------------------------------------|
| Course title  | GENERAL PATHOLOGY MODULE                                |
| Course number | 111501202                                               |
| Credit hours  | 3 Credits (2.5 Hours theory & 0.5 hour practical /week) |

### **Course description:**

Pathology is a branch of Medicine that deals with the scientific study of the causes , pathogenesis (mechanisms) ,structural & functional changes of human organs and tissues in various diseases .

Therefore it is one of the main foundations of medicine & it serves to bridge basic medical disciplines with clinical sciences .

Pathology as a whole is divided into two parts :

- A- General Pathology.
- B- Systemic Pathology

General Pathology: Is going to be covered in this course.

It deals with diseases processes in general & there will be a description of the molecular, ultrastructural ,the cellular & the tissue reactions to different injurious agents.

### **Learning outcome:**

By the end of this module, students are expected to know that :

Objectives of the general Pathology course are as follow:

- 1- To understand basic tissue reactions to different types of injuries .
- 2- To know the etiology i.e. causes of major diseases.
- 3- To know the pathogenesis ( mechanism) of disease process.
- 4- To describe the morphological features ( the gross & microscopic & ultrastructural changes) produced by the disease.
- 5- To describe the effects of the disease on the functions of organs .
- 6- To know the outcome & the possible complications of the disease.

### **Instructional methods:**

Integrated Modular System by:

Lectures - Practicals

- Lectures-Power Point presentations
- Departmental hand-outs
- animations, educational movies, illustrations
- Self-readings

### **Textbook and material:**

- Robbins Basic Pathology, 9<sup>th</sup>. Edition 2013 . By Kumar, et al . Suanders
- Supplementary . Departmental Handouts.
- Rosai & Ackerman's Surgical Pathology .Ninth edition .
- R.C. Curran ,colour atlas of Histopathology .Oxford University...
- Colour Atlas of Gross Pathology .Oxford .

### **Grading Policy:**

Grades can be based on the following:

- First term written exam . = 25 % of total marks.
- Second term written exam. = 25% of total marks .
- Practicalonline exam. = 10% of total marks.
- Final end course (written) exam. at end of the semester = 40% of total marks.

Total Points 100

### **Course Policies:**

- **Missed exams :** Students who are absent in any exam are allowed to sit a make-up exam after presenting an approved sick leave or any accepted certificate of absence to the assistant of the faculty dean within 72 hours.

The Course Coordinator will determine the time of the exam make-up session.

Also, according to the Curriculum Committee and the University regulations, the student will be given a similar examination given to the other students.

All examinations must be made up within one week of returning to class. Those absents who do not present a clue will be given a zero mark.

- **Absence:** Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students will be accountable and personally responsible for attending all educational activities (lectures, labs, examinations, etc.). Unexcused absences reflect negatively on the goals and objectives of the medical curriculum and demonstrate unprofessional behavior by the respective student.

Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, she /he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Attendance is mandatory.

Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is not approved by the Dean, the student shall be considered to have withdrawn from the course.

- **Cheating:** Cheating will not be tolerated. Each individual student is responsible for his behavior and is expected to maintain standards of academic honesty and professionalism. If any instance of academic dishonesty (cheating, plagiarism, etc.) is discovered by a coordinator or an instructor, it is his or her responsibility to take appropriate action. Such action may include giving a failing grade to the student in the course and/or referring the student for Judicial Procedures Office review and possible disciplinary action, which may include disciplinary suspension or dismissal from the College.

### **Classroom Protocol:**

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Students respond politely to faculty, staff, and student colleagues, exemplifying their maturity and empathy. Students agree to abide by appropriate biosafety practices when required.

All students are expected to be quiet in their seats in the lecture theatre before the start of the lecture. Engagement in class discussions is encouraged without side chatting.

Cell phones are not allowed to be used during lectures and exams unless prior approval has been taken from the course instructor.

## **Course Schedule:**

Topics covered in this course includes 22 lectures :

### **1- Cell injury, cell death & adaptations:**

( In chapter 1 ), including introduction to pathology , cellular responses to stress & noxious stimuli; cellular adaptation to stress, causes, morphology, mechanisms and examples of cell injury and necrosis; apoptosis, intracellular accumulations, pathological calcification and cellular aging. ( six lectures )

1<sup>st</sup> General Pathology Lecture  
each type  
mention

Discuss & enumerate cellular adaptations and describe Hypertrophy, hyperplasia, atrophy & metaplasia, and their clinical significance .

2<sup>nd</sup>. General pathology lecture.  
Cell injury.

Enumerate the types of injurious agents that cause cell injury .And mention their exact role in cell injury  
Define reversible & irreversible cell injury, mention their gross, microscopic & ultrastructural features, as well as their clinical significance .  
Define hydropic degeneration & Fatty changes , and describe their gross & microscopic features

3<sup>rd</sup> General pathology lectures  
Irreversible cell injury  
Necrosis & apoptosis

Define necrosis & apoptosis .  
Mention & differentiate between each type regarding their gross, microscopic & ultrastructural features  
Describe the nuclear changes in necrosis  
Discuss the causes, pathogenesis, and features of apoptosis.

Discuss the subcellular injury of mitochondria , cytoplasmic organelles, cell membrane & DNA.

4<sup>th</sup>. General pathology lecture  
coagulative , Patterns of necrosis  
gangrenous .

Enumerate the patterns of necrosis , including liquifactive, fibrinoid, fat necrosis, caseating &

Discuss each type and mention their causes and their clinical significances.

5<sup>th</sup> & 6<sup>th</sup>. General pathology  
Lectures.

Discuss & describe intracellular accumulations, & aging.

## 2- Acute and chronic inflammation .Healing & Tissue repair

### 1<sup>st</sup>. Lecture( Inflammation ) chronic &

-Define inflammation, mention the causes, the types acute ,  
subacute .The cardinal signs & nomenclature .

Discuss the vascular & cellular responses in acute inflammation

Discuss the causes of increased vascular  
permeability.

Discuss the mode of leukocytic cell margination , sticking &  
rolling, immigration ,chemotaxis & phagocytosis.

Describe the gross & microscopic features of acute inflammation

### 2<sup>nd</sup> .Lecture ( Inflammation )

- Mention the role of chemical mediators in inflammation

Enumerate the types of chemical mediator , their source &  
mode of action.

Enumerate the patterns of inflammation, & describe each  
type , mention their gross & microscopic features & clinical significance .

Define abscess, ulcer, pus ,exudates & transudate .

### 3<sup>rd</sup> .Lecture ( Inflammation )

- Discuss the outcome of acute inflammation .

Enumerate inflammatory cells both in acute & chronic  
inflammation, describe each cell, & mention their role in  
inflammatory processes.

### 4<sup>th</sup> .Lecture (Inflammation)

-Define chronic inflammation , discuss its forms ,  
pathogenesis & outcome .

Define granulomatous inflammation.

Enumerate the causes of granulomatous reactions

Describe the microscopic features of granulomas.

### 5<sup>th</sup> .Lecture (Inflammation)

- Discuss the local effects of inflammation, both beneficial &  
harmful effects.

Discuss the systemic effects of inflammation & it's  
pathogenesis.

### 6<sup>th</sup> .Lecture ( Healing & repair)

Define tissue healing & repair.

Discuss the types of somatic cells ,and stem cells.

Discuss the role of growth factors in healing process.

Discuss the role of extracellular matrix in healing process.

Describe the primary union & secondary union in healing of skin wounds.

Enumerate causes of delay of healing process

Define keloid, proud flesh scar.

### 3- Hemodynamic Disorders: (Chapter 4 )

(In four lectures) .

#### 1<sup>st</sup>. Lecture

Define edema, enumerate the causes, and discuss it's pathophysiology

Edema, congestion  
edema .

Describe the morphological features of localized & generalized

& hyperemia

Define hyperemia , discuss it's causes & it's clinical significance .  
Define congestion, discuss the causes , pathophysiology & it's gross & microscopic features.

Describe liver congestion (nut-meg liver), & pulmonary congestion

#### 2<sup>nd</sup>. Lecture

Hemorrhage

& Hematomas

Discuss hemorrhage , external & internal hemorrhages,  
mention the nomenclatures of external bleeding like epistaxis,  
hematuria ...etc. What is a hematoma ? describe the gross&  
microscopic features .

#### 3<sup>rd</sup>. Lecture

Hemostasis

discuss & Thrombosis

Define thrombosis. Enumerate it's causes. What is Virchow's triad?

Describe endocardial , arterial , venous & postmortem thrombi,  
their causes , gross & microscopic features & clinical significance .  
Discuss the fate of thrombus .

Discuss causes , pathophysiology, gross & microscopic features &  
the clinical significance of DIC .

#### 4<sup>th</sup>. Lecture

Embolism & Infarction .

Define embolism . Enumerate it's types: thromboembolism, fat,  
air , amniotic fluid , bone marrow & air embolism.

Discuss the pathogenesis , it's gross, microscopic & clinical  
features .

Define infarction . Describe the gross & histological features.

Causes of white & red infarctions .

Discuss the factors that influence the formation of an infarct .

#### 4- Neoplasia : ( Chapter 6 ) ( 6 lecture ).

##### 1<sup>st</sup>. & 2<sup>nd</sup> Lectures

Define neoplasm, discuss, benign & malignant tumors ,  
nomenclature of tumors  
Discuss the differences between benign & malignant cells ,  
regarding microscopic features & biological behavior.  
Define hamartoma , teratoma , mixed tumors  
Dysplasia ,mild, moderate & sever dysplasias carcinoma in situ .

##### 3<sup>rd</sup> Lectures Biological features of neoplasia

Discuss the biological features of malignant tumors , the cell  
morphology , anaplasia , modes of spread & metastases,  
Discuss the epidemiology of cancer. Causes of cancer , chemical  
carcinogens ,& biological carcinogens .Occupational & hereditary  
cancers. Preneoplastic lesions .

##### 4<sup>th</sup>.& 5<sup>th</sup>. Lectures Carcinogenesis

Discuss carcinogenesis , define oncogene , discuss the multistep  
theory of neoplasia , the pathogenesis of carcinogenesis.The  
chromosomal changes in cancer.

##### 6<sup>th</sup> . Lecture Paraneoplastic syndrome , grading , staging of cancer . lab. Diagnosis

Discuss the effects of cancer on host  
Define the paraneoplastic syndromes & ectopic hormones  
Define the grading of cancer.  
Define staging of cancer & mention the TNM,AJM, staging systems  
used.

#### Practical Classes :

The objective is to be familiar with morphological patterns of diseases through looking at  
slides & photographs of ultrastructural , histopathological sections & gross specimens  
those with various diseases .

Four practical sessions were held in this module:

#### First practical pathology Lab.

##### Cell injury :

The students are informed about tissue processing & a visit  
to the pathology lab. to have an idea about used instruments  
& be informed about how histological sections & cytology  
specimens were prepared .

A review of gross morphology ,& histological sections of  
reversible& irreversible cell injuries were done including  
hydropic degeneration types of necrosis & intracellular  
accumulations .

Second practical pathology  
Lab. Inflammation

The students were informed to identify the gross & microscopic features of acute & chronic inflammation, to identify the types of inflammatory cells  
The patterns of inflammation .  
To identify abscess, ulcer & granulomas.  
The gross & microscopic features of healing & repair are reviewed , including granulation tissue & fibrous scars & keloid.

Third Practical pathology Lab.  
Hemodynamic Disorders :

The students are informed to identify the gross & microscopic appearances of edema , congestion , hemorrhages , hematomas thrombosis , embolism & infarction .

Forth practical pathology Lab.  
Neoplasia :

Differentiate between benign & malignant tumors. Describe a benign & a malignant tumor . Discuss grading & staging of cancer.

Summary of the Teaching Activities in the Module :

| Subject               | Number of Lectures | Practical Labs. |
|-----------------------|--------------------|-----------------|
| Cell Injury           | 6                  | 1               |
| Inflammation          | 6                  | 1               |
| Hemodynamic disorders | 4                  | 1               |
| Neoplasia             | 6                  | 1               |
| Total                 | 22                 | 4               |



### **Course information**

|               |                      |
|---------------|----------------------|
| Course title  | General Pharmacology |
| Course number | 0111501203           |
| Credit hours  | 3                    |

### **Course description:**

This course should cover the following subjects, Pharmacokinetics, Pharmacodynamics, dose response relationship, drug toxicities and side effects, drug cost-benefit relationship, principles of drug trials, principles of drug prescription, principles of drug utilization, drug information facilities and drug interaction, drug epidemiology, principals of antimicrobial drugs, principals of anticancer drugs, immunosuppressants.

### **Learning outcomes:**

Upon completion of this course, the student will be able to:

- Understand the principles of pharmacology that enable the student to use the drug properly and safely in his practice of medicine.
- Understand the therapeutic indications, contraindications, toxic effects and drug-interaction of commonly used drugs in clinical practice.
- Able to study drugs that are used in emergency cases such as status epilepticus and asthmaticus.

### **Instructional methods:**

- Lectures-PowerPoint presentations
- Departmental hand-outs
- animations, educational movies, illustrations
- Self-readings
- Practical diagnostic classes

### **Text book and material:**

- Lippincott's Illustrated Reviews: Pharmacology, Richard A. Harvey, Pamela C. Champe, 5<sup>th</sup> Edition 2012, Lippincott Williams & Wilkins.
- Goodman and Gilman's: The Pharmacological basis of therapeutics, 11<sup>th</sup> edition, 2006, McGraw-Hill.
- Pharmacology, H.P. Rang, M.M. Dale and Ritter, 6<sup>th</sup> edition, 2007, Churchill Livingstone.
- Elsevier's Integrated Pharmacology, M. Kester, K.E. Vrana, S.A. Quraishi and K.D. Karp, 1<sup>st</sup> edition, 2008, MOSBY.

### **Grading Policy:**

First Exam: 30%

Second Exam: 30%

Final Exam: 40%

**Total Points 100**

### **Course Policies:**

- **Missed exams:** Students who are absent in any exam are allowed to sit a make-up exam after presenting an approved sick leave or any accepted certificate of absence to the assistant of the faculty dean within 72 hours. The Course Coordinator will determine the time of the exam make-up session. Also, according to the Curriculum Committee and the University regulations, the student will be given a similar examination given to the other students. All examinations must be made up within one week of returning to class. Those absents who do not present a clue will be given a zero mark.
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the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

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- **Cheating:** Cheating will not be tolerated. Each individual student is responsible for his behavior and is expected to maintain standards of academic honesty and professionalism. If any instance of academic dishonesty (cheating, plagiarism, etc.) is discovered by a coordinator or an instructor, it is his or her responsibility to take appropriate action. Such action may include giving a failing grade to the student in the course and/or referring the student for Judicial Procedures Office review and possible disciplinary action, which may include disciplinary suspension or dismissal from the College.

### **Classroom Protocol:**

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Students respond politely to faculty, staff, and student colleagues, exemplifying their maturity and empathy. Students agree to abide by appropriate biosafety practices when required.

All students are expected to be quiet in their seats in the lecture theatre before the start of the lecture. Engagement in class discussions is encouraged without side chatting.

Cell phones are not allowed to be used during lectures and exams unless prior approval has been taken from the course instructor.

### Course Schedule :

| Week No.              |  | Lecture                        | Instructor   |
|-----------------------|--|--------------------------------|--------------|
| 1 <sup>st</sup> Week  |  | General Pharmacology           | Dr. Khaleel  |
| 2 <sup>nd</sup> Week  |  | General Pharmacology           | Dr. Khaleel  |
| 3 <sup>rd</sup> Week  |  | Re-Scheduled                   |              |
| 4 <sup>th</sup> Week  |  | General Pharmacology           | Dr. Khaleel  |
| 5 <sup>th</sup> Week  |  | ANS                            | Prof. Kassim |
| 6 <sup>th</sup> Week  |  | Eid Al Adha Holiday            |              |
| 7 <sup>th</sup> Week  |  | Pharmacology of CVS            | Prof. Kassim |
| 8 <sup>th</sup> Week  |  | <b>First Exam</b>              |              |
| 9 <sup>th</sup> Week  |  | Antimicrobial Agents           | Prof. Kassim |
| 10 <sup>th</sup> Week |  | AB                             | Prof. Kassim |
| 11 <sup>th</sup> Week |  | AB                             | Prof. Kassim |
| 12 <sup>th</sup> Week |  | Antifungal + Antiviral + Blood | Dr. Khaleel  |
| 13 <sup>th</sup> Week |  | <b>Second Exam</b>             |              |
| 14 <sup>th</sup> Week |  | NSAIDs                         | Dr. Khaleel  |
| 15 <sup>th</sup> Week |  | Pharmacology of CNS            | Dr. Khaleel  |
| 16 <sup>th</sup> Week |  | <b>Final Exam</b>              |              |

### **Course information**

|               |                                            |
|---------------|--------------------------------------------|
| Course title  | HEMATOPOIETIC & LYMPHOID TISSUE DISORDERS. |
| Course number | 111501207                                  |
| Credit hours  | 5 Credits                                  |

### **Course description:**

Hematopoietic & Lymphoid tissue disorders module is an intensive multidisciplinary 5 credit hours course designed to provide students the basic sciences and clinical framework for topics in blood disorders including peripheral blood & bone marrow together with study of the lymphoid tissues including spleen , lymph nodes & thymus .. The course is designed to assist the student in integrating the different disciplines' lectures and practicals in each system including anatomy, physiology, pathology, microbiology, pharmacology, biochemistry, and community Medicine .

### **Learning outcome:**

#### **GENERAL INTENDED OBJECTIVES**

By the end of this module, students are expected to:

- 1- Describe the constituents of peripheral blood, their origin & function .
- 2- Describe the structure, morphology and function of normal bone marrow .
- 3- Describe the development of hematopoietic & lymphoid tissue.
- 4- Describe the important aspects of hemoglobin genetics & abnormal hemoglobin synthesis.
- 5- Understand the basic classification systems of anemia, their laboratory & clinical features, public health aspects & their managements.
- 6- Describe the normal lymph node appearance both gross & microscopic exam..
- 7- Describe the normal spleen both grossly & microscopically .
- 8- Describe the regulatory mechanisms of normal hemostasis , abnormalities that lead to bleeding disorders , pathologic aspects that cause thrombotic disorders & how are these conditions treated .
- 9- Identify the various thrombocytes disorders as thrombocytopenia .
- 10 - Identify the various white blood cells disorders as leukocytosis & leucopenia.
- 11- Identify & classify the various types of leukemias ., and differentiate between the different types.
- 12- Describe the various lymphoid diseases , whether reactive , inflammatory or neoplastic .
- 13- Discuss the morphology of various types of lymphomas , their grading & staging

14- Describe the microorganisms that infect the hematopoietic & lymphoid systems

15- Understand causes of toxemia, its diagnosis, treatment & prevention.

16- Regarding drug therapy, to identify prototype drugs used in prevention & treatment of hematopoietic & lymphoid system diseases: to describe the pharmacological actions of these drugs on various organs, to identify the adverse effects, precautions & contraindications related to their use, & to appreciate the importance of individualization of drug therapy.

### Instructional methods:

- Integrated Modular System by:
- Lectures-PowerPoint presentations
- Departmental hand-outs
- animations, educational movies, illustrations
- Self-readings

### Textbook and material

#### \* Anatomy :

- Principles of Human Anatomy. By G.J. Tortora, 8<sup>th</sup>. Edition 1999 or latest edition.
- Clinical Anatomy for Medical Students, By R.S. Snell, 4<sup>th</sup>. Edition or latest edition.
- Grant's Atlas of Anatomy or any other reasonable colored Atlas of Human Anatomy.
- Basic Histology. By L. Junqueira, 8<sup>th</sup>. Edition 1995 or latest.
- Before we are born. By K.L. Morre and T.V.N. Persaud, 5<sup>th</sup>. Edition 1998 or latest edition.

#### \* Physiology :

- Textbook of Medical Physiology. By Guyton and Hall, 9<sup>th</sup>. Edition or latest edition.

#### \* Biochemistry :

- Harper's Biochemistry. By Robert K. Murray and Co., 1999 or latest edition.

#### \* Pharmacology :

- Lippincott's Illustrated Reviews : Pharmacology, 2<sup>nd</sup>. Edition 2000 or latest edition.

#### \* Pathology :

- Robbins' Basic Pathology, By Kumar, Cotran and Robbins, 9<sup>th</sup>. Edition 2013.
- Supplementary. Departmental Handouts.
- Rosai & Ackerman's Surgical Pathology. Ninth edition.
- R.C. Curran, colour atlas of Histopathology. Oxford University.
- Colour Atlas of Gross Pathology. Oxford.

#### \* Microbiology :

- Medical microbiology. An introduction to infectious diseases. By Sheries. Latest edition.

### Grading Policy:

- Written exam, at the end of the system = 40% of total marks
- Practical exam. At the end of the system = 20% of total marks
- Final end course exam at end of the semester (written) = 40% of total marks

Total Points 100

❓ **Missed exams:** Students who are absent in any exam are allowed to sit a make-up exam after presenting an approved sick leave or any accepted certificate of absence to the assistant of the faculty dean within 72 hours. The Course Coordinator will determine the time of the exam make-up session. Also, according to the Curriculum Committee and the University regulations, the student will be given a similar examination given to the other students. All examinations must be made up within one week of returning to class. Those absents who do not present a clue will be given a zero mark.

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Cell phones are not allowed to be used during lectures and exams unless prior approval has been taken from the course instructor

### Course Schedule:

| Anatomy : 5 Lectures + 1 Practical |                                                                                   |
|------------------------------------|-----------------------------------------------------------------------------------|
| Lecture Title                      | Lecture Objectives                                                                |
| Lectures 1,2 &3                    | 1- Describe the blood tissue .                                                    |
| Anatomy & Histology lectures       | 2- List the composition of blood .                                                |
| Blood                              | 3- Describe the blood plasma.                                                     |
|                                    | 4- Classify formed elements of blood .                                            |
|                                    | 5- Name the organs responsible for hematopoiesis in the fetus                     |
|                                    | 6- List the developmental stages of hematopoiesis both prenatally & postnatally . |
|                                    | 7- Discuss the structure & function of red blood cells (RBCs)                     |
|                                    | 8- Describe Erythropoiesis.                                                       |
|                                    | 9- Discuss the structure & functions of granular & agranular leucocytes .         |
|                                    | 10- Describe platelets ( thrombocytes)                                            |
|                                    | 11- Discuss the process of formation of platelets.                                |



4th. & 5th, lectures:

Anatomy & Histology lectures

1- Describe the lymphatic system.

Lymphatic system

2- List the composition of the lymphatic system.

3- Review the importance of the lymphatic system.

4- Describe the origin & composition of lymph.

5- Describe lymphatic vessels & differentiate between blood capillaries & lymphatics.

6- Describe lymph trunks and lymph ducts.

7- Describe the thoracic duct & the right lymphatic duct.

8- Describe the formation & flow of lymphatics.

9- Describe the lymphatic organs & tissues .

10- Describe the primary lymph organs, Thymus & red bone marrow .

11- Describe the secondary lymphatic organs: Lymph node,

12- Lymph nodes, spleen, tonsils & Lymphatic nodules.

Physiology : 6 lectures. 2 Practical sessions

Dr. Faiq Husain (PHD)

First physiology lecture :

Blood , composition & function

1- Describe the fluid portion of blood, in which blood cellular elements are suspended.

2- Explain what properties that made the blood to act as a transporting media

3- Describe the constituents of the plasma and how it attributes to the general function of the plasma

4- What are the cellular elements of the blood ?

Second & third physiology lectures.

1- State that RBCs are non-nucleated biconcave discs elastic, R.B.Cs: characteristics & functions their number in peripheral blood

2- Sites of formation , discuss the normal percentage of reticulocytes of the whole circulating red blood cells , Explain what it does mean the increase in this percentage ?

|                                         |                                                                                                                  |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------|
|                                         | 3- Describe the main constituents of RBCs & how they contribute to the RBCs function.                            |
|                                         | 4- How RBCs are regulated , the effect of hypoxia .                                                              |
|                                         | 5- Describe the role of iron, vitamin B12 & folic acid deficiency .                                              |
|                                         | 6-Describe the clinical consequence of iron, vitamin B12 & folic acid deficiency.                                |
|                                         | 7- Discuss the laboratory classification of anemia. The absolute values.                                         |
| 4th, physiology lecture                 |                                                                                                                  |
| WBCs characteristics & functions .      | 1- How to recognize different WBCs types & describe their site of production, life span & function .             |
|                                         | 2- Describe the properties of phagocytic WBCs and physiological leukocytosis .                                   |
|                                         | 3- Describe the tissue macrophages & the reticulo-endothelial system                                             |
| 5th. Physiology lecture:                |                                                                                                                  |
| Physiology of homeostatic homeostasis . | 1- Define homeostasis & describe the steps involved in                                                           |
| & blood coagulation                     | 2- Discuss the role of blood platelets in homeostasis.                                                           |
|                                         | 3- Describe the key reaction in blood coagulation , the intrinsic & extrinsic pathways in blood coagulation .    |
|                                         | 4- Describe the mechanism of anticoagulants .                                                                    |
|                                         | 5- Describe conditions that lead to excessive bleeding & blood coagulation test.                                 |
| 6th, physiology lectures                |                                                                                                                  |
| groups ?                                | 1- On what basis human blood is typed into different blood                                                       |
| Blood group                             | 2- Describe the ABO & Rh systems of blood grouping.                                                              |
|                                         | 3- Explain why in blood transfusion , more importance is given to the recipient antibodies & the donor RBCs?     |
|                                         | 4- Describe the importance of cross-matching tests.                                                              |
|                                         | 5- How the ABO group considers as " universal recipient"& group O as "universal donor " .                        |
|                                         | 6- Describe the antibodies to D- antigen do normally present in plasma, under what condition they are developed? |

|                                                                                                    |                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pathology : 12 Lectures ,2 Practicals                                                              |                                                                                                                                                                     |
| 1st . Pathology lecture                                                                            |                                                                                                                                                                     |
| RBCs disorders.Post hemorrhagic cells & Hemolytic Anemias                                          | * Describe the normal Adult reference ranges for red blood & their indices.                                                                                         |
|                                                                                                    | * Classify Anemias according to their (I) tiology morphology . (II)RBCS                                                                                             |
|                                                                                                    | * Describe the main pathological , clinical manifestations &                                                                                                        |
|                                                                                                    | *Describe anemia of chronic blood loss.                                                                                                                             |
|                                                                                                    | * Describe the sequences & effects of intravascular & extravascular RBC destruction i.e hemolysis ,                                                                 |
|                                                                                                    | * Describe the definition, pathogenesis , characteristic clinical features . Blood film finding, diagnostic & complications of Hereditaryspherocytosis .            |
| 2nd . Pathology Lecture                                                                            |                                                                                                                                                                     |
| Sickle cell disease ,<br>Thalassemia, G6PD deficiency Clinical diagnosis &features complications . | * Describe Sickle cell anemia , itiology, pathogenesis ,The variables that influence sickling. Sickling consequences<br>Blood film & bone marrow morphology . ..... |
|                                                                                                    | * Define Thalassemia , classify it into alfa & beta types                                                                                                           |
|                                                                                                    | * Discuss the etiology, pathogenesis & diagnosis of alfa Thalassemia .                                                                                              |
|                                                                                                    | * Discuss the itiology , pathogenesis , peripheral blood & bone marrow morphology in beta thalassemia . It's clinical manifestations & complications.               |
|                                                                                                    | * Describe the causes ,etiology , pathogenesis , type of inheritance , blood film finding & diagnosis of G6PD deficiency .                                          |
| 3rd. Pathology Lecture                                                                             |                                                                                                                                                                     |
| Iron Deficincy, Megaloblastic & Aplastic anemias.                                                  | Describe the nomal iron balance ,Discuss theitiology,effects, BF&BM morphology ,clinical features & diagnostic criteria for iron deficiency anemia .                |
|                                                                                                    | *Describe the causes ,pathogenesis , BF , BM morphology , clinical manifestations , diagnostic criteria & complications of Megaloblastic anemia                     |

|                                                   |                                                                                                                                                                                                                         |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                   | * Describe the etiology, pathogenesis, BF, BM, features, clinical manifestations, diagnostic criteria, complications & prognosis of Aplastic anemia.                                                                    |
| 4th. Pathology Lecture                            | * Define polycythemia, mention the types, primary & secondary Polycythemia Etiology, and pathogenesis, PB&BM morphology & clinical features                                                                             |
| 5th. Pathology Lecture                            |                                                                                                                                                                                                                         |
| Non-neoplastic disorders of WBCs                  | * Describe the etiology, pathogenesis, BM changes, clinical course & complications of neutropenia / agranulocytosis.                                                                                                    |
|                                                   | * Enumerate the causes of leukocytosis                                                                                                                                                                                  |
|                                                   | * Describe the epidemiology, immunology, morphological features & clinical manifestation, diagnostic criteria & complications of Infectious mononucleosis.                                                              |
|                                                   | * Describe the etiology, gross & microscopic patterns of acute & chronic non-specific lymphadenitis.                                                                                                                    |
| 6th. & 7th. Pathology lecture                     |                                                                                                                                                                                                                         |
| Neoplastic proliferation of WBCs.                 | * Define leukemia and describe the FAB classification of leukemia, Leukemias Lymphomas discuss the common features of each type including the pathophysiology, signs & symptom.                                         |
|                                                   | * For lymphoid neoplasms Define: (1) the origin (B & T – cells) (2) monoclonality (3) disruption of the normal immune regulatory mechanisms                                                                             |
| 8th. Pathology Lecture                            |                                                                                                                                                                                                                         |
| Multiple myeloma & related plasma cell disorders. | * Define Multiple myeloma & related plasma cell dyscrasias.                                                                                                                                                             |
|                                                   | * Describe the common features, pathophysiology, morphologic features. Clinical manifestation                                                                                                                           |
| 9th. Pathology lecture.                           |                                                                                                                                                                                                                         |
| Hodgkin's lymphoma.                               | * Classify Hodgkin's lymphoma, describe the etiology, pathogenesis characteristic morphologic features, clinical staging of HL&NHL (Ann Arbor classification). Course, diagnosis & prognosis of each of the four types. |
| 10th & 11th. Pathology lectures                   | * Describe the normal homeostatic response & common laboratory tests in patients with bleeding disorders.                                                                                                               |
| Platelets disorders & Bleeding disorders          | * Enumerate the causes of bleeding disorders.                                                                                                                                                                           |
|                                                   | * Describe the etiology, pathogenesis, complications & prognosis of (DIC)                                                                                                                                               |

|                                              |                                                                                                                                                                    |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                              | <p>* Define Thrombocytopenia , discuss the etiology, BM &amp; spleen morphology , diagnosis &amp; prognosis of Immune(idiopathic)thrombocytopenic purpura(ITP)</p> |
|                                              | Thrombotic thrombocytopenic purpura (TTP) .                                                                                                                        |
| 12th.Pathologylecture                        |                                                                                                                                                                    |
| Coagulation disorder, Splenomegally          | <p>* Review the structure &amp; function of plasma factor VIII-VWF co complex.</p>                                                                                 |
|                                              | <p>* Describe the etiology, clinical features &amp; diagnosis of :</p>                                                                                             |
|                                              | (1) Von-Willbrand disease.                                                                                                                                         |
|                                              | (2) Factor VIII deficiency (HemophiliaA)                                                                                                                           |
|                                              | (3)Factor IX deficiency (Christmas disease or HemophiliaB)                                                                                                         |
|                                              | * Enumerate causes of splenomegaly & their effect                                                                                                                  |
|                                              |                                                                                                                                                                    |
| Biochemistry : 4 lectures .1 Practical.      |                                                                                                                                                                    |
| Dr. Moayed Mehdi Abood (PHD)                 |                                                                                                                                                                    |
|                                              |                                                                                                                                                                    |
| 1st. Biochemistry Lecture                    |                                                                                                                                                                    |
| ErythrocytesMetabolism.                      |                                                                                                                                                                    |
|                                              | 1. Understand the hexose monophosphate pathway.                                                                                                                    |
|                                              | 2. Understand the specificity of glucose utilization for energy production ;anaerobic glycolysis                                                                   |
|                                              | 3. List the biochemical abnormalities associated with hemolytic anemia                                                                                             |
|                                              |                                                                                                                                                                    |
| 2nd. Biochemistry lecture :                  |                                                                                                                                                                    |
| Molecular biology of globin chain synthesis. | 1-Understand the organization of globin genes including $\beta$ gene families .                                                                                    |
|                                              | 2- Explain the synthesis of globin chain.                                                                                                                          |
|                                              | 3- Explain the role of iron in Hb synthesis .                                                                                                                      |
|                                              | 4- List the types of hemoglobin present in normal blood and what is the percentage of each type ?                                                                  |
| 3rd. Biochemistry Lecture Hemoglobinopathies | 1 -Identify the structural abnormalities of sickle cell anemia (HbS) , HbC disease (HbC) and HbSC disease (HbSC) .                                                 |
|                                              | 2- Understand the principle behind hemoglobin electrophoresis as a diagnostic tool for hemoglobinopathies .                                                        |
|                                              | 3- Describe the basic genetic defect for sickle cell disease and thalassemia .                                                                                     |
|                                              | 4- Enzyme defects in porphyrias .                                                                                                                                  |

|                                         |                                                                                               |
|-----------------------------------------|-----------------------------------------------------------------------------------------------|
| 4th. Biochemistry Lecture               |                                                                                               |
| Biochemistry of coagulation .           | 1-Factors involved in blood coagulation .                                                     |
|                                         | 2- Types of coagulation pathways .                                                            |
| Microbiology :5 Lectures . 1 Practical. |                                                                                               |
| Dr. Mohammed Al-Timimy (PHD)            |                                                                                               |
| 1st. Microbiology Lecture               |                                                                                               |
|                                         | For each organism :                                                                           |
| Salmonella Typhi,                       |                                                                                               |
| enteric fever & Brucella .              | 1- Describe the morphology & the structure.                                                   |
|                                         | 2- Describe growth & toxins .                                                                 |
|                                         | 3- Explain pathogenesis & clinical disease .                                                  |
|                                         | 4- Explain mode of transmission .                                                             |
|                                         | 5- Explain the clinical manifestations.                                                       |
|                                         | 6- Be familiar with laboratory diagnosis .                                                    |
|                                         | 7- Be familiar with treatment and prevention .                                                |
| 2nd Microbiology Lecture                |                                                                                               |
| Plasmodium and Babesiosis               | Describe the following :                                                                      |
|                                         | 1-Microscopical properties, classification & diseases.                                        |
|                                         | 2- Microscopic differences between species , life cycle, epidemiology & pathophysiology.      |
|                                         | 3- clinical presentation, specimen collection, diagnosis , treatment & prevention .           |
| 3rd. Microbiology Lecture               |                                                                                               |
| Yersinia pestis & Plaque:               | For Yersinia pestis & Plaque :                                                                |
| Q- fever & other differences            | 1- Describe the general microbiological properties , from other Yersinia .                    |
|                                         | 2- Cultural techniques, epidemiology & patho-physiology.                                      |
|                                         | 3- Clinical presentation, specimen collection for cultura, treatment & prevention .           |
|                                         | For Q- fever & other Rickettsia, describe the following :                                     |
|                                         | 1-Microbial properties & diseases.                                                            |
|                                         | 2- Multiplication strategies, epidemiology & pathophysiology.                                 |
|                                         | 3- Clinical presentation, specimen collection, laboratory diagnosis, treatment & prevention . |

|                                                          |                                                                                                                              |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| 4th. Microbiology Lecture                                |                                                                                                                              |
| Trypanosomiasis, visceral leishmaniasis and filariasis . | For each of Trypanosomiasis, Leishmaniasis & filariasis, describe the following :                                            |
|                                                          | 1- Microbiological properties.                                                                                               |
|                                                          | 2- Classification & diseases.                                                                                                |
|                                                          | 3- Microscopical differences between species .                                                                               |
|                                                          | 4- Life cycle , epidemiology & specimen collection .                                                                         |
|                                                          | 5- Pathophysiology & clinical presentation .                                                                                 |
|                                                          | 6- Diagnosis, treatment & prevention .                                                                                       |
| 5th. Microbiology Lecture                                | 1- Describe microbiological properties & diseases.                                                                           |
| Epstein- Barr Virus (EBV) and Parvovirus                 | 2- Multiplication strategies , epidemiology & pathophysiology.                                                               |
|                                                          | 3- Clinical presentation , specimen collection , laboratory diagnosis, treatment & prevention .                              |
| Pharmacology : 8 Lectures                                |                                                                                                                              |
| 1st. & 2nd . Pharmacology lectures                       | The pharmacology & uses of iron preparations, folic acid & vitamin B12.                                                      |
| 4th. & 5th. Pharmacology lectures                        | Discuss the pharmacology of anticoagulants ( heparin, low weight heparins & Warfarin).                                       |
| molecular Anticoagulant & Thrombolytic agents .          | Discuss the pharmacology of thrombolytic agents ( streptokinase, alteplase) & antiplatelet drugs ( Aspirin and ticlopidine). |
|                                                          | List adverse effects, contraindications, drug interactions of the above drugs.                                               |
|                                                          | Realise their special indications in thromboembolism & ischemic heart disease.                                               |
| 6th. & 7th. Pharmacology lectures:                       |                                                                                                                              |
| Drugs for treatment of lymphomas & leukemias.            |                                                                                                                              |
|                                                          | Discuss pharmacology, therapeutic uses & adverse effects.                                                                    |
| 8th. Pharmacology Lecture:                               | Discuss pharmacology, therapeutic & adverse effects.                                                                         |
| Immunopharmacology                                       |                                                                                                                              |
|                                                          |                                                                                                                              |
|                                                          |                                                                                                                              |

## Community Medicine Lectures: 2 Lectures.

### 1st. Lecture

Blood born infection:

Objectives: At the end of the course, the student should be able to:

- Classify blood born infection according to microorganism.
- Know the risk of blood born infection
- Detection and diagnosis of blood born infection
- Discuss method of management of blood born infection
- Discuss method of prevention of blood born infection

### 2nd Lecture :

Anemia: a public health problem

Objectives: At the end of the course , the student should be able to:

- Describe the worldwide prevalence of anemia.
- Define anemia
- Know Hemoglobin threshold
- List Factors responsible for high prevalence of anemia
- Classify anemia as a problem of public health significance
- Know the health consequences of anemia.
- Assessing anemia
- Know the control of anemia
- Correcting anemia
- Know maternal consequences of anemia

## Practical Laboratory Sessions

### Anatomy Lab.

- |                                 |                                                                                                                    |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------|
| 1- Histology of blood smear.    | 1- Review criteria for identifying neutrophils.                                                                    |
| 2- Histology of lymphoid tissue | 2-Examine the blood smear under the light microscope applying the above criteria to identify neutrophils .         |
|                                 | 3- Repeat the same process above in identifying red blood cells , basophils , acidophils, lymphocytes & platelets. |



|                                                                                                   |                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                   | 4- Review criteria and distinguish histological features for identifying a lymph node.                                                                         |
|                                                                                                   | 5- Examine a cross section of a lymph node under the light microscope.                                                                                         |
|                                                                                                   | 6- Repeat the same process above in identifying a cross section of a spleen, thymus & tonsils .                                                                |
| 1st. Physiology Lab.<br>RBCs & WBCs count                                                         | 1-Demonstration the methods of counting RBCs & WBCs using the counting chambers .                                                                              |
| PCV & Blood grouping                                                                              | 2- Demonstration the PCV test using the microhematocrite.                                                                                                      |
|                                                                                                   | 3- Students are asked to find their own blood group & the percentage of each blood group of the students attending the practical session .                     |
|                                                                                                   |                                                                                                                                                                |
|                                                                                                   |                                                                                                                                                                |
| 2nd. Physiology Lab.                                                                              | 1- Preparing & staining a blood film by the students.                                                                                                          |
| WBCs & differential count                                                                         | 2- Examination of the slide to be familiar with the identification of WBC types.                                                                               |
|                                                                                                   | 3- Count the percent of each type of WBC.                                                                                                                      |
|                                                                                                   |                                                                                                                                                                |
| Biochemistry Lab.                                                                                 | I suggest to present slides on cases of hemoglobinopathies and describing the principle diagnostic tests of these diseases instead of the present lab subject. |
| 1st. Pathology Lab.                                                                               |                                                                                                                                                                |
| Identify the morphologic abnormalities of peripheral blood Anemias & Leukemias & bone marrow in : |                                                                                                                                                                |
|                                                                                                   | 1- Iron deficiency anemia .                                                                                                                                    |
|                                                                                                   | 2- Megaloblastic anemia .                                                                                                                                      |
|                                                                                                   | 3- Thalassemia .                                                                                                                                               |
|                                                                                                   | 4-Sickle cell anemia.                                                                                                                                          |
|                                                                                                   | 5-Microangiopathic hemolytic anemia .                                                                                                                          |
|                                                                                                   | 6-G6PD hemolytic anemia .                                                                                                                                      |
|                                                                                                   | 7- Hereditary spherocytosis .                                                                                                                                  |
|                                                                                                   | 8- Identify lymphoblasts , myeloblasts , promyelocytes & Auer rods.                                                                                            |
|                                                                                                   | Identify the diagnostic microscopic changes of :                                                                                                               |
|                                                                                                   | 1- Acute myeloid leukemia .                                                                                                                                    |
|                                                                                                   | 2- Acute lymphoblastic leukemia .                                                                                                                              |

|                           |                                                                          |
|---------------------------|--------------------------------------------------------------------------|
|                           | 3- Chronic myelogenous leukemia .                                        |
|                           | 4- Chronic lymphocytic leukemia .                                        |
|                           | 5- Hairy cell leukemia .                                                 |
|                           |                                                                          |
| 2nd. Pathology Lab.       |                                                                          |
| Lymphadenitis & Lymphomas | Identify the microscopic features of :                                   |
|                           | 1- Follicular hyperplasia .                                              |
|                           | 2- Lymphadenitis ,TB & Cat scratch disease .                             |
|                           | 3- Follicular lymphoma .                                                 |
|                           | 4- Mantle cell lymphoma .                                                |
|                           | 5- Small lymphocytic lymphoma .                                          |
|                           | 6- Large cell lymphoma                                                   |
|                           | 7- Hodgkin's lymphoma .                                                  |
| Microbiology Lab.         |                                                                          |
| Blood culture techniques  | 1- Describe aseptic techniques used in blood culture .                   |
| culture                   | 2- Describe types of systems involved in the blood (automated & manual). |
|                           | 3- Describe different types and constituents of blood culture bottles .  |
|                           | 4- Describe cultural and incubational environments .                     |

Summary of the Teaching Activities in the Module :

| Department         | No. of lectures | No. of Labs . |
|--------------------|-----------------|---------------|
| Anatomy            | 5               | 1             |
| Physiology         | 6               | 2             |
| Biochemistry       | 4               | 1             |
| Pathology          | 12              | 2             |
| Microbiology       | 5               | 1             |
| Pharmacology       | 8               | 0             |
| Community Medicine | 2               | 0             |
| Total              | 42              | 7             |

Working hours = Number of lectures + (Practical sessions \*3) = 63 Hours.

**Course information:**

|              |                                    |
|--------------|------------------------------------|
| Course name  | Introduction to community medicine |
| Course code  | 0111501209                         |
| Credit hours | 3hours/ theory                     |

**Description:**

This course is an introductory course intended to introduce undergraduate students in a variety of disciplines to the basic items of public health. The subject will enable the students to acquire skills and develop an attitude towards the community as the focus of care utilizing the Primary Health Care approach, and accept his responsibility for health promotion and disease prevention as part of the holistic approach to health care. The course will provide an introduction to community medicine , epidemiology, primary health care, mother and child health (MCH ) and health care system.

**Learning outcomes:**

After the completion of the course the student will be able to:

- 1-Understand the concept and meaning of community medicine
- 2-Identify the aims and objectives of community medicine
- 3-Describe the community medicine development
- 4-Identify the components of community medicine
- 5-Identify the role of community doctor
- 6 –Understand the measures of population health, fertility rates, mortality rates and morbidity rates.
- 7-Recognize the various types of health service
- 8-Describe the principles of primary health care.
- 9-identify the component of primary health care
- 10-identify the different services available in the MCH center for children under five.
- 11-discuss the importance of maternal services, antenatal, natal and postnatal care.
- 12-identify the main maternal health problems
- 13- identify high risk pregnancy
- 14- discuss the important of vaccination
- 15-identify the schedule of EPI
- 16-identify the different contraindication to vaccinations
- 17- Discuss the importance of family planning program
- 18- recognize the essential activities for birth control services

### **Instructional methods:**

Lectures are the main method of teaching the course.

### **Textbook and material:**

- 1- Community medicine : with recent advances /  
Author: Suryakantha, AH.  
Publication: Jaypee Brothers Medical Publishers, New Delhi : 2010.  
Edition: 2nd ed.
- 2- Principles of community medicine /  
Author: Rao, B. Sridhar.  
Publication: A.I.T.B.S. Pub., Delhi : 2010  
Edition: 5th ed.
- 3- Selected articles and handout documents on community medicine (will be available to students as paper or electronic versions).

### **Grading methods:**

- 4- There will be 3 exams comprised of multiple choice questions and short answers for makeup exams.
- 5- First.....30%
- 6- Second...30%
- 7- Final.....40%
- 8- Total .....100

### **Course Policies:**

- ❓ **Late Assignments:** Students must give an explanation to the course instructor for any assignment which is submitted late. It will be at the course instructor's discretion if marks will be deduced for late assignments. Students are responsible for satisfying all academic objectives. Acceptable reasons for absence from class include illness, serious family emergencies, severe weather conditions and participation in official university activities.
- ❓ **Missed exam:** If students are absent for a reason approved above and have given prior notification to the instructor when possible, they will have to take part in the reset exams within one week after the missed exam. All other missed will receive grade of zero.
- ❓ **Absence:** If a student is absent for more than 25% of the sessions then they may be liable to fail the course.
- ❓ **Cheating** Cheating is forbidden in any form. Any students who are caught cheating will be reported to the Dean of the Faculty of Medicine and further action taken as necessary.

### **Classroom Protocol:**

- ❓ Students are expected to attend all sessions and to arrive on time for lectures.
- ❓ Turn off all cell phones upon entering the classroom.
- ❓ Students may be engaged in class discussions and encourage the students to ask and/or answer questions of the instructor, keep side conversation to minimum.
- ❓ No drinks or food allowed in the classroom.
- ❓ Smoking is prohibited in the classroom.

❏ Cell phones are not allowed during exams.

### **Important Dates to Remember:**

First Exam

Second exam

Final exam

### **Student rights and responsibilities:**

These are as detailed in the University Regulations

### **Course schedule**

#### **Lectures 1- 4: Introduction**

##### *The concept of community medicine*

- 1- What is community medicine
- 2- Aims and objectives of community medicine
- 3- Components of community medicine
- 4- Identify the role of community doctor
- 5- Components of Community Medicine:
  - a. Epidemiology
  - b. Vital statistics
  - c. Demography
  - d. School health
  - e. Mental health
  - f. Primary health care
  - g. Maternal health and Child health
  - h. Control of communicable diseases
  - i. Control of non communicable diseases
  - j. Environmental health
  - k. Occupational health
  - l. Nutrition
  - m. Health Service Administration
  - n. Health Education

#### **Lectures 5-8: measures of population health**

##### **1-fertility indicators**

- A. the crude birth rate
- B. the general fertility rates
- C. the specific fertility rate

##### **2-mortality indicators**

- A. the crude death rate
- B. the cause specific death rate

- C. the sex specific death rate
- D. the age specific death rate
- E. Case fatality rate

### 3- Morbidity indicators:

- A. Incidence rate
- B. Cumulative incidence rate
- C. Prevalence rate

### Lectures 9- 12: What is epidemiology?

- A. Recent developments in epidemiology
- B. Definition, scope, and uses of epidemiology
- C. Epidemiology and public health
- D. Causation of disease
- E. Natural history of disease
- F. Health status of populations
- G. Evaluating interventions
- H. Achievements in epidemiology
  - ? Smallpox
  - ? Methyl mercury poisoning
  - ? Rheumatic fever and rheumatic heart disease
  - ? Iodine deficiency diseases
  - ? Tobacco use, asbestos and lung cancer
  - ? Hip fractures
  - ? HIV/AIDS
  - ? SARS

### Lectures 13- 20: Disease Occurrence

#### A. Descriptive epidemiology.

- ❖ Characteristics of persons
  - Distribution of disease with age
  - Distribution of disease with marital status
  - Distribution of disease with sex
  - Distribution of disease with education and occupation
- ❖ Characteristics of place
- ❖ Characteristics of time
  - Secular changes
  - Seasonal changes

#### B. Analytical epidemiology:

- Risk
- Risk factor
- Relative risk

- Attributable risk
- Association: Types of statistical association
- Causal association : Epidemiological criteria (Bradford Hill criteria)  
Biological criteria ( Koch's Postulates).
- The concept of cause: Sufficient or necessary  
*Multiple factors*
- Factors in causation

## **First Exam**

**Lectures 21- 25:** The scope of prevention

- Health Transition
- Causes of Health Transition

Level of prevention

- Primordial prevention
- Primary prevention - Population strategy  
- High-risk individual strategy
- Secondary prevention
  - Screening
  - Types of screening
  - Requirements for the success of screening programme
  - Validity of a screening test
- Tertiary prevention

**Lectures 26- 29:** *Primary health care*

- 1- Concept of primary health care
- 2- Principle of primary care
- 3- Strategies for the delivery of primary health care
- 4- Component of primary health care

**Maternal and Child Health (MCH) Lectures**

**30- 34:** *Under five health services 1-*

Services for children under five.

- Objectives of preventive, curative and follow up services for infants and preschool children
- Growth monitoring
- High risk babies and children

## **2nd exam**

**Lectures 35- 42** *Maternal services*

- 1- Antenatal care
- 2- Natal care
- 3- Postnatal care
- 4- Main maternal health problems
- 5- High risk pregnancy

**Lectures 43-45:** *Expanded program on vaccination (EPI)*

- 
- 1- important of vaccination
  - 2- Schedule of EPI
  - 3- Contraindication to vaccinations
  - 4- Components of cold chain
- Lectures 46- 48: *Family planning program***
- 1- Importance of family planning program
  - 2- Basic program components
  - 3- Essential activities for birth control services
  - 4- Factors favoring use of contraceptive method

### FINAL EXAM



### **Course information**

|               |                    |
|---------------|--------------------|
| Course title  | Medical Immunology |
| Course number | 0111501208         |
| Credit hours  | 3                  |

### **Course description:**

Immunology is the discipline concerned with the study of the immune systems of animals and humans, systems that have evolved to protect against infection by pathogens such as microbes, viruses and parasites.

The course aims to provide a basic understanding of the immune system of mammals, with particular emphasis on human immunology and its relationship to health and disease.

Immunology overlaps with many other biological disciplines including biochemistry, molecular biology, cell biology, genetics, physiology, microbiology, virology and parasitology; it relies on methods and concepts derived from these disciplines and in turn makes a major contribution to them and some of the newer disciplines such as biotechnology. The course aims to provide students with an appreciation of these relationships while providing a knowledge of the molecular and cellular basis of the immune system.

### **Learning outcomes:**

Upon completion of the course, students will be able to:

1. Describe the various cells and organs involved in the immune system, including the role of each during an immune response.
2. Compare and contrast the innate and adaptive immune responses, including their specific components and effector mechanisms.
3. Describe the basic mechanisms of antigen presentation, in addition to antigen/antibody interactions, factors determining antigenicity, and cross-presentation.
4. Describe the immune response to infectious diseases, cancer, tissue transplants, and allergens.
5. Apply immunology concepts to solve clinical problems.
6. Work collaboratively in groups to solve course-related problems.

### Instructional methods:

- Lectures-PowerPoint presentations
- Departmental hand-outs
- animations, educational movies, illustrations
- Self readings

### Textbook and material:

- Immunology for Medical Students, Nairn & Helbert, Latest Edition
- Essentials of Clinical Immunology, Chapel & Haeney, Latest Edition
- Basic Principles of Immunology, Kayser, Medical Microbiology, Latest Edition

### Grading Policy:

First Exam: 30%  
Second Exam: 30%  
Final Exam: 40%  
Total Points 100

### Course Policies:

- **Missed exams:** Students who are absent in any exam are allowed to sit a make-up exam after presenting an approved sick leave or any accepted certificate of absence to the assistant of the faculty dean within 72 hours. The Course Coordinator will determine the time of the exam make-up session. Also, according to the Curriculum Committee and the University regulations, the student will be given a similar examination given to the other students. All examinations must be made up within one week of returning to class. Those absents who do not present a clue will be given a zero mark.
- **Absence:** Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students will be accountable and personally responsible for attending all educational activities (lectures, labs, examinations, etc.). Unexcused absences reflect negatively on the goals and objectives of the medical curriculum and demonstrate unprofessional behavior by the respective student.

Attendance is mandatory. Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the faculty shall not be allowed to take the final examination and

shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

- **Cheating:** Cheating will not be tolerated. Each individual student is responsible for his behavior and is expected to maintain standards of academic honesty and professionalism. If any instance of academic dishonesty (cheating, plagiarism, etc.) is discovered by a coordinator or an instructor, it is his or her responsibility to take appropriate action. Such action may include giving a failing grade to the student in the course and/or referring the student for Judicial Procedures Office review and possible disciplinary action, which may include disciplinary suspension or dismissal from the College.

### Classroom Protocol:

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students respond politely to faculty, staff, and student colleagues, exemplifying their maturity and empathy. Students agree to abide by appropriate biosafety practices when required.

All students are expected to be quiet in their seats in the lecture theatre before the start of the lecture. Engagement in class discussions is encouraged without side chatting.

Cell phones are not allowed to be used during lectures and exams unless prior approval has been taken from the course instructor.

### Course Schedule:

| SUBJECT                                                                                                                                                                                                                           | INSTRUCTORS |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| <b>General introduction to the immune system</b><br>Objectives: <ol style="list-style-type: none"> <li>1. Discuss why we need an immune system.</li> <li>2. Outline the major principles of the human immune response.</li> </ol> |             |
| <b>Principles of innate immunity</b><br>Objectives: <ol style="list-style-type: none"> <li>1. Discuss the concept of innate immunity - features,</li> </ol>                                                                       |             |

importance.

2. Explain how the innate immune system recognizes foreign antigens in general.
3. Outline the components of the innate immune system.
4. Discuss how these components combat various foreign antigens.

### Principles of adaptive immunity

Objectives:

1. Explain the evolutionary forces behind adaptive immunity
2. Introduce the concept and significance of self/non-self discrimination
3. Outline the immune cells that mediate adaptive immunity and their specific roles in immune response to varying pathogens/antigens
4. Discuss the differences between cell-mediated immunity and humoral immunity
5. Explain what interactions are required for activation of T and B cells
6. Discuss immunological memory and outline the differences between primary and secondary (memory) responses
7. Compare and contrast the innate and adaptive immune response

### Antigen presentation

Objectives:

1. Understand antigens and epitopes
2. Understand the role of MHC molecules
3. Understand antigen processing
4. Immune Evasion
5. Discuss the role of antigen presentation in generating immunity

### Lymphocyte trafficking

Objectives:

1. Lymphoid system structure lymphatics
2. Lymph node trafficking.

### Overview of Immunoglobulin function

Objectives:

The lecture will discuss the role of Ig in neutralization, opsonization, antibody-dependent cellular cytotoxicity (ADCC), complement and mucosal immunity.

### Cell-mediated immunity: induction and regulation

#### Objectives:

1. Provide an overview of CMI.
2. Discuss key CMI reactions.
3. Review regulation of CMI.
4. Discuss viral counterstrikes against CMI.

### Antigen recognition and lymphocyte maturation

#### Objectives:

1. Provide an overview of the structure and functions of lymphocyte antigen recognition receptors
2. Outline the genetic mechanisms for generation of diverse antigen receptor specificities
3. Overview selection mechanisms operating during lymphocyte maturation to ensure that the repertoire of expressed antigen receptors is functional and non-harmful
4. Discuss in some detail positive and negative selection occurring in the thymus

### Cellular activation in the immune system: Signal transduction

#### Objectives:

1. Provide an overview of the basic concepts of signal transduction (definitions, modes of signaling, signal amplification, signal integration, importance of cellular context)
2. Discuss the unique signaling challenges within the immune system
3. Identify four broad stages in signal transmission from the membrane to the cytoplasm (I-R-A-E)
4. Compare and contrast the signal transmission mechanisms used by five major families of signaling receptors of immunological importance (Ig superfamily receptors, cytokine receptors, chemokine receptors, tumor necrosis factor receptor family and TOLL-like receptor family)

### Tumour Immunology

#### Objectives:

1. Discuss immune protection against tumors
2. Discuss immune mediated tumor growth
3. Discuss mechanisms of metastasis
4. Provide an overview of experimental cancer therapies

### Disorders of the immune system: Autoimmunity and tolerance

#### Objectives:

1. Define and discuss the general characteristics of tolerance
2. Define the main factors that influence the development of tolerance
3. Identify the main mechanisms of tolerance induction in B and T cells
4. Identify the mechanisms involved in the development of autoimmunity
5. Identify and discuss 3 animal models of autoimmune diseases
6. Approach to treatment of autoimmune diseases

### Inflammation

#### Objectives:

1. Overview of the inflammatory process: initiation, inflammation, resolution: Benefits and liabilities
2. Major constituents
3. Clinically relevant inflammatory processes
4. Control of inflammation

### Vaccines: Principles and Practice

#### Objectives:

1. To understand the types of currently used vaccines, the differences, and the mechanisms of protection
2. To understand how to develop a vaccine and the general requirements for vaccine development and adjuvants
3. To understand the new concept of vaccines against non-microbes such as self or tumor molecules

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### Disorders of the immune system: Hypersensitivity states I-IV

#### Objectives:

1. What is the difference between hypersensitivity and protective immunity?
2. Overview of the four major classifications of human hypersensitivity.
3. a) Type I hypersensitivity – Mechanisms (allergens, Th2 immunity, IgE, immediate and late phase reactions) and clinical overview  
b) Type 2, 3, 4 hypersensitivities – Mechanisms and clinical consequences
4. Currently practiced vs. novel (experimental) approaches to clinical management of type I hypersensitivity.

### Course Contents and Schedule:

| Date               | Topic                                                                                                                                                                                                                                                                                                                                                            |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>First Week</b>  | <ul style="list-style-type: none"> <li>- Introduction to the Immune System</li> <li>- Basic Concepts &amp; Components of the Immune               <ul style="list-style-type: none"> <li>- System and Introduction to Antigen Recognition</li> <li>- Antigens and Antibody Structure</li> <li>- Antibody - Antigen Interaction</li> </ul> </li> </ul>            |
| <b>Second Week</b> | <ul style="list-style-type: none"> <li>- Antibody Diversity &amp; the T- Cell Receptor               <ul style="list-style-type: none"> <li>- Major Histocompatibility Complex</li> <li>- Antigen Processing and Presentation</li> <li>- Lymphocyte Activation</li> <li>- Hematopoiesis &amp; The Organs and Tissues of the Immune System</li> </ul> </li> </ul> |
| <b>Third Week</b>  | <ul style="list-style-type: none"> <li>- B-Cell Development</li> <li>- T-Cell development</li> <li>- Cell-Cell Interaction in Generating Effector Lymphocytes</li> <li>- Immunological Memory</li> <li>- <i>The First Exam</i></li> </ul>                                                                                                                        |
| <b>Forth Week</b>  | <ul style="list-style-type: none"> <li>- Innate Immunity: Constitutive Defenses Including Complement</li> <li>- Phagocytes</li> <li>- Killing in the Immune System</li> <li>- Inflammation &amp; Cytokines of the Immune System</li> </ul>                                                                                                                       |
| <b>Fifth Week</b>  | <ul style="list-style-type: none"> <li>- Infections and Vaccines</li> <li>- Hypersensitivity Reactions</li> <li>- Immediate Hypersensitivity (Type I): Allergy</li> <li>- Autoimmune Disease Development</li> <li>- Antibody-Mediated Hypersensitivity (Type II)</li> <li>- <i>The Second Exam</i></li> </ul>                                                    |
| <b>Sixth Week</b>  | <ul style="list-style-type: none"> <li>- Immune Complex Disease (Type III Hypersensitivity)</li> <li>- Delayed Hypersensitivity (Type IV)</li> <li>- Primary Immunodeficiency</li> <li>- Secondary Immunodeficiency</li> </ul>                                                                                                                                   |

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**Seventh Week**

- Transplantation
  - Tumor Immunology
- Monoclonal Antibodies and Recombinant Cytokines
- Review

**Last Weeks**

- *The Final Exam*



### Course information

|               |                              |
|---------------|------------------------------|
| Course title  | Genetics & Molecular Biology |
| Course number | 111501201                    |
| Credit hours  | 3                            |

### Course description:

This course describes the gene at the molecular level by exploring the main differences between genotype and phenotype in addition to the differences between genes and chromosomes. Also, there is emphasis on the diverse functions of chromosomal DNA including the storing of genetic information, DNA replication, regulation of gene expression and DNA repair. Furthermore, special focus is given to the applications of recombinant DNA technology in the diagnosis of congenital diseases .

### Learning outcomes:

- Learning variety of techniques on human genetics and molecular biology.
- Understanding the genetic variations that contribute to the causes of human genetic diseases.
- Become familiar with the diagnostic tools that are used in the diagnosis and monitoring of genetic diseases.
- Gaining new knowledge on the subjects of human genome organization, somatic and germ line mutations, selective gene expression and its regulations during cellular differentiation, the manipulation of recombinant DNA technology in human gene cloning, types of congenital diseases and recent attempts in gene therapy.

### Instructional methods:

- Lectures as power point presentations
- Departmental hand-outs
- Reference text books

### Textbook and material:

- 1. Human molecular genetics by Sudbery P.
- 2. Lippincott's Illustrated Reviews: Biochemistry

### **Grading Policy:**

|                                          |      |
|------------------------------------------|------|
| First in-course exam (MCQ):              | 30 % |
| Second in-course exam (MCQ):             | 30 % |
| Final exam at end of the semester (MCQ): | 40 % |
| Total Points                             | 100  |

### **Course Policies:**

- **Late Assignments:** Students should give an explanation to the course instructor for any late submitted assignments. It will be at the course instructor's discretion if marks will be deducted for late assignments.
- **Missed exams:** Will be compensated later by make-up examination according to the university regulations.
- **Absence:** Students are encouraged to make maximum attendance at lectures, but an absence of more than 25% from the course makes the student liable for a course failure.
- **Cheating:** Cheating is not tolerated and proved cases will be reported to the dean for further actions to be taken according to the university regulations.

### **Classroom Protocol:**

Students are expected to stick to the fixed time table of sessions and behave politely during lectures attendance. Mobile phones should be switched off during the lecture period while eating, drinking and smoking are not allowed.

### **Important Dates to be remembered**

- Lectures begin at first week of the semester.
- Dates of first, second and final examinations will be notified at the beginning of the semester.

### **Students rights and responsibilities**

These are detailed in the University regulations

## Course Schedule

| Lecture Title                                      | Lecture outline                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Introduction                                       | <ol style="list-style-type: none"> <li>1. Definition of molecular genetics</li> <li>2. Integration of molecular genetics to other sciences</li> <li>3. Clinical goals of molecular genetics</li> <li>4. Outlines of syllabus being selected</li> </ol>                                                                           |
| Genotype and Phenotype                             | <ol style="list-style-type: none"> <li>1. Description of human genotype</li> <li>2. Comparison of human genotype with bacterial genotype</li> <li>3. Packaging of DNA in chromatin and chromosome forms</li> <li>4. Evidence that DNA is the genetic material</li> </ol>                                                         |
| The Gene                                           | <ol style="list-style-type: none"> <li>1. Explaining the gene arrangement and locations on the chromosome</li> <li>2. What is the gene action?</li> <li>3. Differences in structure between prokaryotic and eukaryotic genes</li> <li>4. Arrangement of gene families</li> <li>5. Behavior of the gene during meiosis</li> </ol> |
| The chromosomes                                    | <ol style="list-style-type: none"> <li>1. Chromosome structure</li> <li>2. Position of alleles on chromosomes</li> <li>3. Brief description of natural DNA recombination</li> <li>4. Mentioning the behavior of linked genes during meiosis</li> </ol>                                                                           |
| The DNA                                            | <ol style="list-style-type: none"> <li>1. What is the structural unit of DNA build up</li> <li>2. Describing double helix structure</li> <li>3. Mentioning the importance of DNA strand complementation</li> <li>4. Supercoiled DNA as a tertiary structure</li> </ol>                                                           |
| Functions of DNA as a store of genetic information | <ol style="list-style-type: none"> <li>1. Central dogma for transfer of genetic information</li> <li>2. Semiconservative DNA replication</li> <li>3. Mechanisms of DNA replication</li> <li>4. Differences between prokaryotic and eukaryotic DNA replication</li> <li>5. Special replication of telomere ends</li> </ol>        |
| DNA repair                                         | <ol style="list-style-type: none"> <li>1. Outlines types of DNA damages</li> <li>2. Human DNA repair systems against chemical and UV damages</li> <li>3. Xeroderma pigmentosum genetic variants with</li> </ol>                                                                                                                  |

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                               | defect in dimmers excision repair                                                                                                                                                                                                                                                                                                                                                                                               |
| Gene expression               | 1.RNA transcription in prokaryotes<br>2.RNA transcription in eukaryotes                                                                                                                                                                                                                                                                                                                                                         |
| Types of RNA                  | 1.Structure of transfer RNA<br>2.Ribosomal RNA as structural component of the ribosome<br>3.Function of messenger RNA as carrier of genetic information                                                                                                                                                                                                                                                                         |
| Protein synthesis             | 1.General properties of the genetic codes<br>2.Mechanism of RNA translation in prokaryotes<br>3.Antibiotics that act as specific inhibitors of prokaryotic RNA translation<br>4.RNA processing in eukaryotes<br>5.Differences between RNA translation of prokaryotes and eukaryotes                                                                                                                                             |
| Regulation of gene expression | 1.Lac operon as a model of gene regulation in prokaryotes<br>2.Glucose catabolite repression of other metabolite in Prokaryotes<br>3. Positive activation of gene regulation in eukaryotes<br>4.Chromatin remodeling in facilitating gene expression<br>5. Role of activators in tissue selection during differentiation<br>6.Steroid hormone receptors as gene activators<br>7.Post-translational control of protein formation |
| Mutation                      | 1.Germ line versus somatic mutation<br>2.Types of point mutations<br>3.Chromosomal mutations<br>4.Conditional mutations                                                                                                                                                                                                                                                                                                         |
| Forward and reverse genetics  | 1.The technique of investigating the proteins from knowledge on its genetic origin<br>2. Exploring genetic information backward from the nature of gene products                                                                                                                                                                                                                                                                |
| Recombinant DNA technology    | 1.The role of restriction enzymes in recombinant DNA<br>2.DNA cloning as a method of human gene copying<br>3.Polymerase chain reaction (PCR) as an amplification method of genes <i>in vitro</i>                                                                                                                                                                                                                                |
| Gene identification           | 1. Probing of the gene with complementary labeled sequence<br>2.Explaining the technique of DNA blotting                                                                                                                                                                                                                                                                                                                        |

|                                              |                                                                                                                                                                                                                                    |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                              | <ul style="list-style-type: none"> <li>• Southern Blot</li> <li>• Northern blot</li> </ul> <p>3. DNA sequencing</p>                                                                                                                |
| The Human Genome Project                     | <p>1. Goals of the human genome project</p> <p>2. Sequencing the human genome</p>                                                                                                                                                  |
| Types of congenital diseases                 | <p>1. Monogenic disorders</p> <ul style="list-style-type: none"> <li>• Autosomal <ul style="list-style-type: none"> <li>○ Recessive</li> <li>○ Dominant</li> </ul> </li> <li>• Sex linked</li> </ul> <p>2. Polygenic disorders</p> |
| Clinical implications of Molecular genetics  | <p>1. DNA fingerprinting in forensic medicine</p> <p>2. Use of repetitive sequence length polymorphism in the diagnosis of congenital diseases</p>                                                                                 |
| Methods of gene transfer to human chromosome | <p>1. <i>ex vivo</i> technique</p> <p>2. <i>in vivo</i> technique</p> <p>3. Gene transfer vehicle</p>                                                                                                                              |
| Gene therapy                                 | <p>1. Types of gene therapy</p> <p>2. Gene therapy attempts for cystic fibrosis</p> <p>3. Gene therapy attempts for Duchenne muscular dystrophy</p>                                                                                |

## Learning Objective

At the end of this course student should be able to understand:

- The structure and function of genes at the molecular level.
- The genetic variations that contribute to the causes of human genetic diseases.
- Become acquainted with the diagnostic tools that are used in the diagnosis and monitoring of genetic diseases
- The project of human genome
- Gene expression and its regulation

### **Course information:**

|               |                    |
|---------------|--------------------|
| Course title  | Respiratory System |
| Course number | 111501205          |
| Credit hours  | 5                  |

### **Course description:**

This course describes the role of the respiratory system in gas exchange and acid – base balance in the body. It covers the structural and functional aspect. It involves in an integrated knowledge of micro-organisms, allergens, and environmental pollution, specially smoking for causing respiratory diseases, in relation to their epidemiology and community aspects and the pharmacological principles of treating common respiratory diseases.

### **Learning outcomes:**

Upon completion of this course student should be able to:

1. Identify and describe structures of respiratory organs, as well as their development, histology and blood supply.
2. Understand the mechanics of pulmonary ventilation and the mechanisms involved in the regulation of respiration.
3. Explain how the respiratory gases are exchanged and transported by the blood
4. Identify various bacteria, viruses, parasites and fungal infections which infect the respiratory tract and to understand the principles of diagnosis, treatment and prevention.
5. Identify and describe the causes, pathogenesis, morphological changes and complications of various disease processes which affect the respiratory tract.
6. Understand the pharmacological principles which provide the basis for the treatment of tuberculosis, cough and bronchial asthma, as well as the pharmacology of anti-histamine drugs.
7. Identify the major risk factors which contribute to occupational diseases of the respiratory system and to understand their epidemiological pattern in the Jordanian community.

### **Instructional methods:**

The course will be taught through a combination of lectures and practical classes as an integrated system module.

### **Textbooks and material:**

#### **Anatomy:**

- Clinical Anatomy by system. By R.S. Snell.
- Grants Atlas of Anatomy or any other reasonable colored atlas of Human Anatomy.
- Before we are born. By K.L. Moore and T.V.N. Persaud, 5<sup>th</sup> edition 1998.
- Basic Histology, by L. Carlos Junqueira, 10<sup>th</sup>. Edition 2004/or functional histology by Wheater (latest edition)
- Supplementary Departmental Handouts.

#### **Biochemistry:**

- Campbell, 2006 or latest edition.
- Supplementary Departmental Handouts.

#### **Physiology:**

- Textbook of Medical Physiology, by Guyton and Hall, 11<sup>th</sup> edition.
- Supplementary Departmental Handout.

#### **Microbiology:**

- Medical Microbiology. An Introduction to Infectious Diseases. By Sheries, latest edition.

#### **Pathology:**

- Basic Pathology, by Kumar, Cotran and Robbins, 8<sup>th</sup>. edition, 2007.
- Supplementary Departmental Handouts.

#### **Pharmacology:**

- Lipincott's Illustrated Reviews: Pharmacology, 2<sup>nd</sup> edition, 2000.

#### **Grading Policy:**

- In-course theory exam = 40%
- In-course practical exam = 20%
- Final course theory exam = 40%

Total Points 100

#### **Course Policies:**

- **Late Assignments:** Students must give an explanation to the course instructor for any assignment which is submitted late. It will be at the course instructor's discretion if marks will be deducted for late assignments.
- **Missed exams:** If a student misses an examination then they will have the opportunity for a make-up examination, according to the University Regulations.
- **Absence:** If a student is absent for a teaching session then they must discuss this with the course instructor. If a student is absent for more than 25% of the course then they may be liable to fail the course.
- **Cheating:** Cheating is forbidden in any form. Any students who are caught cheating will be reported to the Medical Dean and further action taken as necessary.

### Classroom Protocol:

Students are expected to attend all sessions and to arrive on time for lectures and practical sessions. It is each student's responsibility to know their timetable and which session they should attend on which day. Students are expected to behave respectfully towards all members of staff and each other. Mobile phones are to be switched off during teaching sessions and eating, drinking and smoking are forbidden.

### Important Dates to Remember:

Lectures will begin the first week of the semester.

Practical sessions will begin the second week of the semester.

The dates and locations of written and practical examinations will be notified at the beginning of the semester.

### Students' rights and responsibilities:

These are as detailed in the University Regulations.

### Course Schedule:

Physiology: ( 11 lectures and 1 practical).

| Lecture No. | Lecture Title            | Lecture outline                                                                                                                                                                                                                                                                                                                                                             |
|-------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 & 2       | Mechanics of breathing I | 1. review anatomy of the lung, both macro and micro<br>2. what is meant by the process of external respiration & its main steps<br>3. how air at atmospheric pressure flows into the lung during inspiration<br>4. muscles involved in creating a sub-atmospheric air pressure within the lung during inspiration<br>5. what are the non-respiratory functions of the lung? |



|   |                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3 | <b>Mechanics of breathing II</b>           | <ol style="list-style-type: none"> <li>1. how intra-pleural pressure is created? what is meant by the alveolar, and trans-pulmonary pressures?</li> <li>2. the changes in intra-pleural, alveolar, trans-pulmonary, alveolar pressures and changes in lung volume</li> <li>3. what are the factors that resist expansion of the lung? the tissue elements and the alveolar surface tension.</li> <li>4. define compliance of the lung</li> <li>5. the physical principles of airway resistance, chief site in the lung, and physiological factors that affect it.</li> </ol> |
| 4 | <b>Pulmonary volumes and capacities</b>    | <ol style="list-style-type: none"> <li>1. define spirometry</li> <li>2. describe the significance of the major volume and capacities that are recorded during normal function test.</li> <li>3. describe the techniques used to determine the residual volume.</li> <li>4. forced expiratory volumes and the differentiation between obstructive &amp; restrictive respiratory dysfunction</li> </ol>                                                                                                                                                                        |
| 5 | <b>Ventilation</b>                         | <ol style="list-style-type: none"> <li>1. describe pulmonary and alveolar ventilation</li> <li>2. does all the inspired air participate in gas exchange, the anatomic and physiologic dead spaces.</li> <li>3. effect of breathing patterns on alveolar ventilation</li> <li>4. the mechanism of regional differences in ventilation.</li> </ol>                                                                                                                                                                                                                             |
| 6 | <b>Pulmonary circulation</b>               | <ol style="list-style-type: none"> <li>1. compare the pulmonary and systemic circulations listing the main differences between them.</li> <li>2. characterize pressures in the pulmonary system</li> <li>3. describe the uneven distribution of blood flow through the lungs</li> <li>4. describe the fluid balance mechanism of pulmonary edema</li> </ol>                                                                                                                                                                                                                  |
| 7 | <b>Physical principles of gas exchange</b> | <ol style="list-style-type: none"> <li>1. describe the concept of gas partial pressure.</li> <li>2. mention PO<sub>2</sub> &amp; PCO<sub>2</sub> in inspired air, alveolar air, and expired air.</li> <li>3. mention the arterial and venous PO<sub>2</sub> and PCO<sub>2</sub>.</li> <li>4. discuss the diffusion of O<sub>2</sub> and CO<sub>2</sub> through the respiratory membrane.</li> </ol>                                                                                                                                                                          |
| 8 | <b>Ventilation/perfusion relationship</b>  | <ol style="list-style-type: none"> <li>1. describe the primary function of the lung, that is, gas exchange</li> <li>2. review three mechanisms of hypoxemia:</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                      |

|    |                                                 |                                                                                                                                                                                                                                                                                                   |
|----|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                 | <p>hypoventilation, diffusion limitation , and shunt</p> <p>3. the concept of ventilation-perfusion inequality</p> <p>4. examine how ventilation-perfusion inequality impairs overall gas exchange</p>                                                                                            |
| 9  | <b>Transport of O<sub>2</sub> by the blood</b>  | <p>1. describe the forms by which O<sub>2</sub> is transported by the blood.</p> <p>2. discuss the O<sub>2</sub> – hemoglobin dissociation curve.</p> <p>3. describe factors affecting O<sub>2</sub> – hemoglobin dissociation curve.</p> <p>4. Bohr effect</p>                                   |
| 10 | <b>Transport of CO<sub>2</sub> by the blood</b> | <p>1. describe the forms by which CO<sub>2</sub> is transported by the blood.</p> <p>2. describe Haldane effect.</p>                                                                                                                                                                              |
| 11 | <b>Control of ventilation</b>                   | <p>1. the central control of ventilation</p> <p>2. the sensors; various chemoreceptors that provide the respiratory center with information</p> <p>3. describe the integrated responses to CO<sub>2</sub>, hypoxia, and pH</p> <p>4. regulation of ventilation in chronic respiratory failure</p> |

**Anatomy Lectures:** ( 7 lectures and 3 practical).

| #     | Title of Lecture                                                      | Lectures outline                                                                                                                                                                                                                                                                                                                                                           |
|-------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Overview of Anatomy of the Respiratory System                         | <p>1. Describe the general structures and organs of the respiratory system.</p> <p>2. Compare and relate the structure and function of the different components of the respiratory system.</p> <p>3. Understand the essentials of the respiratory system</p> <p>4. Describe the anatomical and functional subdivisions of the Respiratory system.</p>                      |
| 2 & 3 | Upper Respiratory System: External nose, Nasal Cavity, Pharynx, Lower | <p>1. Describe the structure of the external nose with its blood and nerve supply.</p> <p>2. Describe the structure of the nasal cavity including the nasal septum.</p> <p>3. Locate the openings of the paranasal sinuses and naso-lacrimal duct in the meatuses.</p> <p>4. Describe the nerve and blood supply of the nasal cavities, and its relation to epistaxis.</p> |

|   |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | Respiratory System:<br>Larynx                             | <p>5. Study the structure of the nasopharynx, oropharynx, and laryngopharynx and associated structures with their clinical significance.</p> <p>6. Describe the structure of the various cartilages and membranes of the larynx.</p> <p>7. Describe the muscles of the larynx, including their actions, nerve and blood supply.</p> <p>8. Study the structure of the vocal cords and the mechanism of voice production.</p>                                                                                                                                                                                                                                                                                                                                          |
| 4 | Lower Respiratory System:<br>Pleura, lung and Mediastinum | <p>8. Describe the trachea including its subdivisions and relations.</p> <p>9. Define pleura and pleural cavity, and name its parts and recesses.</p> <p>10. Discuss the nerve supply of the pleura.</p> <p>11. Describe the lungs, their lobes, fissures and surfaces and compare between right and left lungs.</p> <p>12. Make a list of bronchopulmonary segments.</p> <p>13. Describe the innervation, blood supply and lymphatic drainage of the lungs.</p> <p>14. Identify different parts and contents of the mediastinum.</p> <p>15. Study the origin, location, course and branches of the internal thoracic artery.</p> <p>16. Define the surface markings of the trachea, lungs and pleura.</p> <p>17. Describe the typical appearance of chest X-ray</p> |
| 5 | Thoracic cage, Thoracic wall & Respiratory muscles        | <p>1. Describe the shape and outline of the thoracic cage.</p> <p>2. Describe the anatomical landmarks of the anterior chest wall.</p> <p>3. List the various structures making the thoracic wall.</p> <p>4. Make a list of muscles of the thoracic wall including their nerve, blood supply and actions.</p> <p>5. Classify ribs, name their various parts.</p> <p>6. Define intercostal spaces and discuss their various components including intercostal muscles.</p> <p>7. Describe the diaphragm, its origin, insertion, function, nerve and blood supply. Study openings in the diaphragm and structures pass through.</p>                                                                                                                                     |
| 6 | Histology of Respiratory System                           | <p>1. Describe the microscopic structure of the upper respiratory passage.</p> <p>2. Correlate the structure and expected function of the nose, pharynx, larynx and trachea.</p> <p>3. Study the microscopic structure of the main bronchi and their subdivisions.</p> <p>4. Study the microscopic structure of the lung parenchyma and</p>                                                                                                                                                                                                                                                                                                                                                                                                                          |

|   |                                                       |                                                                                                                                                                                                                               |
|---|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |                                                       | correlate this structure with gas exchange function.                                                                                                                                                                          |
| 7 | Pre- and Post-natal Development of Respiratory System | <ol style="list-style-type: none"> <li>1. Describe the development of the nasal cavity.</li> <li>2. Describe development of the pharynx and larynx.</li> <li>3. Describe the development of the lungs and bronchi.</li> </ol> |

**Biochemistry Lectures:** (4 lectures).

| # | Lectures Title                             | Lectures outline                                                                                                                                                                                                                                                                                                                                                           |
|---|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Acid-base balance & the respiratory system | <ol style="list-style-type: none"> <li>1. Describe the bicarbonate buffer system</li> <li>2. Describe the biochemical changes in respiratory acidosis &amp; alkalosis</li> </ol>                                                                                                                                                                                           |
| 2 | Role of hemoglobin in acid base balance    | <ol style="list-style-type: none"> <li>1. Describe the role of hemoglobin in the buffer system</li> <li>2. Describe the oxyhemoglobin dissociation curve</li> </ol>                                                                                                                                                                                                        |
| 3 | Phospholipid Metabolism                    | <ol style="list-style-type: none"> <li>1. Describe the biochemical structure, synthesis and role of lung surfactant in respiratory distress syndrome</li> <li>2. Describe the functional role of <math>\alpha</math> 1-antitrypsin in maintaining lung elasticity, the molecular basis of emphysema</li> <li>3. Describe the molecular basis of cystic fibrosis</li> </ol> |
| 4 | Arterial Blood Gases (ABG)                 | <ol style="list-style-type: none"> <li>1. Describe the distribution of blood gases</li> <li>2. Know the effect of increase or decrease of blood gases</li> </ol>                                                                                                                                                                                                           |

**Pathology Lectures:** (9 lectures and 2 practical).

| No. | Lectures Title                       | Lectures outline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | <b>Obstructive Lung diseases (I)</b> | <p><b>Describe</b> the Normal Alveolar Wall. <b>Define Emphysema &amp; Chronic Bronchitis.</b></p> <p><b>Describe</b> the Etiology, Pathogenesis, Types, Pathologic (Gross &amp; Microscopic) Features, Effects, &amp; Complications Of The Centrilobular &amp; Panacinar <b>Emphysema (E).</b></p> <p>Define &amp; Differentiate each of the following conditions from true emphysema:</p> <p><b>(1) Compensatory E, (2) Obstructive E, (3) Bullous E, &amp; (4) Mediastinal (interstitial) E.</b></p> |
| 2   | <b>Obstructive Lung</b>              | <b>Describe</b> the etiology, types, pathogenesis, pathologic                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|   |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | diseases (II)                                                                     | features, effects & complications of:<br>(1) <b>Chronic Bronchitis</b> ,<br>(2) <b>Asthma</b> , &<br>(3) <b>Bronchiectasis</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 3 | <b>Acute Respiratory Distress Syndrome &amp; IPF</b>                              | <b>List</b> the Disorders Associated With <b>Acute Respiratory Distress Syndrome (ARDS)</b> .<br><b>Describe</b> the Pathogenesis, Gross & Microscopic Features, & Effects of <b>ARDS</b> .<br><b>Classify</b> the Major Categories Of <b>Chronic Interstitial Lung Disease</b> , & Describe Its Pathogenesis.<br><b>Describe</b> the Gross & Microscopic Features Of <b>Idiopathic Pulmonary Fibrosis (IPF)</b> .                                                                                                                                                                                                                                                                                                           |
| 4 | <b>Pneumoconioses &amp; Sarcoidosis</b>                                           | <b>Describe</b> the: Types, Pathogenesis, Gross & Microscopic Changes, Effects & Complications of:<br>(1) <b>Coal Workers' Pneumoconiosis</b> , (2) <b>Silicosis</b> , & (3) <b>Asbestosis</b> .<br><b>Define</b> Drug-Induced & Radiation-Induced Pulmonary Diseases ( <b>acute radiation pneumonitis</b> )<br><b>Describe</b> the: Pathogenesis, Sites Of Involvement, Gross & Microscopic Features, Effects & Complications Of <b>Sarcoidosis</b> In The Lung & In The Other Organs                                                                                                                                                                                                                                       |
| 5 | <b>Atelactasis. Pulmonary Embolism, Infarction Hemorrhage, &amp; Hypertension</b> | <b>Enumerate</b> the Causes & Effects Of Resorption, Compression, & Contraction Atelactasis.<br><b>Describe</b> the (1) Risk Factors Of <b>DVT</b> , & (2) Different Effects of <b>pulmonary thromboemboli</b> .<br><b>Describe</b> the Pathologic Features, Clinical Effects, & Fate Of <b>pulmonary infarcts</b> .<br><b>Describe</b> the Causes, Pathogenesis, Pathologic Features & Effects Of <b>Pulmonary Hypertension</b> .<br><b>Describe</b> the Pathogenesis, Pathological Features & Effects Of <b>Goodpasture Syndrome</b> .<br><b>Enumerate</b> the Lung <b>Defense</b> Mechanisms Against Infection.<br><b>Define</b> Bronchopneumonia & Lobar pneumonia.<br><b>List</b> the <b>Seven</b> Pneumonia Syndromes. |
| 6 | <b>Pneumonias (I)</b>                                                             | <b>Describe</b> <b><i>Pneumococcus Pneumonia</i></b> {the commonest cause of (I) <b>Community Acquired</b> Pneumonias} predisposing factors, patterns {(a) Lobar pattern Four Stages (Congestion, Red, & Gray Hepatization, & Resolution) & (B) Bronchopneumonia Pattern} Pathologic Features, &                                                                                                                                                                                                                                                                                                                                                                                                                             |

|   |                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |                                                     | <p>Complications.</p> <p><b>Comment briefly</b> on the pathology of other Community Acquired pneumonias caused by: <i>Haemophilus influenzae</i>, <i>Moraxella</i>, <i>Staph aureus</i>, <i>Klebsiella</i>, <i>Pseudomonas</i>, &amp; <i>Legionella</i>.</p> <p><b>Comment</b> briefly on the Pathology of :</p> <p>(II) <b>Community-Acquired Atypical</b> Pneumonias due to <i>Mycoplasma pneumoniae</i> &amp; Influenza.</p> <p>(III) <b>Nosocomial (hospital-acquired)</b> Pneumonias.</p> <p>(IV) <b>Aspiration</b> Pneumonia.</p> <p><b>Describe</b> 6 Mechanisms For Microorganism Introduction, Pathologic Features, &amp; Complications of the (V) <b>Lung Abscess (Necrotizing Pneumonia)</b>.</p> |
| 7 | Pneumonias (II)                                     | <p><b>Describe Tuberculosis</b> {the commonest cause of (VI) <b>Chronic</b> Pneumonias} Etiology, Epidemiology, Predisposing Factors, Difference Between Infection &amp; Disease, Tuberculin Skin Test, Pathogenesis, &amp; The Typical Tb Granuloma.</p> <p><b>Describe</b> the Source, sites, Types, Gross features, Fate, &amp; Complications of (a) Primary TB, (b) Post-Primary TB, (c) Pulmonary Miliary TB, (d) Systemic Miliary TB. Comment on fungal pneumonia</p> <p>(VII) <b>Pneumonia in the Immunocompromised Host.</b></p>                                                                                                                                                                     |
| 8 | Lung carcinoma                                      | <p><b>Classify lung tumors. Describe</b> the: Etiology, Pathogenesis, Pathologic Features, &amp; Routes Of Spread Of The Four Types Of <b>Lung Carcinoma</b> (Squamous, Adeno-, Large &amp; Small Cell Type).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 9 | Pleural lesions, Nasopharyngeal & Laryngeal cancers | <p><b>Describe</b> the Pathologic Features &amp; Effects Of Typical &amp; Atypical Pulmonary <b>Carcinoids</b>.</p> <p><b>Enumerate</b> the Causes, &amp; Complications of <b>Hydro-, Pyo-, Pneumo-, Hemo-, &amp; Chylo- thorax.</b></p> <p><b>Describe</b> the Etiology, Pathogenesis, Gross &amp; Microscopic Features, Routes Of Spread of:</p> <p>(a) <b>Malignant Mesothelioma</b>, (2) <b>Nasopharyngeal carcinoma</b> &amp; (3) <b>laryngeal carcinoma.</b></p>                                                                                                                                                                                                                                       |

**Microbiology Lectures: (10 lectures and 2 practical)**

| # | Lecture title                                                                                    | Lectures outline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Upper respiratory tract infections                                                               | <ol style="list-style-type: none"> <li>1. Define the Upper respiratory tract infections.</li> <li>2. Be familiar with the clinical picture of the different upper respiratory tract infections such as Rhinitis, Pharyngitis and tonsillitis, Stomatitis, Peritonsillar or retrotonsillar abscesses, Retropharyngeal or lateral pharyngeal abscesses.</li> <li>3. Be familiar with the major infectious causes of the upper respiratory tract infections.</li> <li>4. Be familiar with the primary diagnostic approaches in pharyngitis and tonsillitis.</li> <li>5. Be familiar with the general principles of management.</li> </ol>                                                                                                                                                                       |
| 2 | Lower respiratory tract infections                                                               | <ol style="list-style-type: none"> <li>1. Define the Middle and Upper respiratory tract infections.</li> <li>2. Be familiar with the clinical picture of the different middle respiratory tract infections such as Epiglottitis, Laryngitis, laryngotracheitis, Bronchitis, Tracheobronchitis, and Chronic bronchitis.</li> <li>3. Be familiar with the clinical picture of the different lower respiratory tract infections such as Acute pneumonia (Bronchopneumonia, and Lobar pneumonia), Chronic Pneumonia and Lung abscess.</li> <li>4. Be familiar with the major infectious causes of the middle and lower respiratory tract infections.</li> <li>5. Be familiar with the primary diagnostic approaches.</li> <li>6. Be familiar with the general principles of treatment and prevention.</li> </ol> |
| 3 | <i>Streptococcus pneumoniae</i> and other Spp.                                                   | <ol style="list-style-type: none"> <li>1. Describe morphology, and cultural characteristics of this group.</li> <li>2. Be familiar with the virulence, pneumococcal capsule, toxins, extracellular enzymes, antimicrobial susceptibility, and diseases.</li> <li>3. Be familiar with the laboratory diagnosis.</li> <li>4. Be familiar with the general principles of treatment and prevention.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                   |
| 4 | <i>Corynebacterium diphtheriae</i> , <i>Bordetella pertussis</i> & <i>Haemophilus influenzae</i> | <ol style="list-style-type: none"> <li>1. Describe the morphology and structure of <i>C. diphtheriae</i>, <i>B. pertussis</i> &amp; <i>Haemophilus influenzae</i>.</li> <li>2. Describe their growth and pathogenesis.</li> <li>3. Explain immunity, transmission and epidemiology.</li> <li>4. Be familiar with different types of their infections.</li> <li>5. Be familiar with the laboratory diagnosis.</li> <li>6. Be familiar with the general principles of treatment and the prevention.</li> </ol>                                                                                                                                                                                                                                                                                                 |
| 5 | Influenza virus                                                                                  | <ol style="list-style-type: none"> <li>1. Identify group characteristics of Influenza virus.</li> <li>2. Describe infections caused by respiratory viruses.</li> <li>3. Define the antibody response.</li> <li>4. Explain the epidemiology.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |



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|----|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                | <ol style="list-style-type: none"> <li>5. Be familiar with the laboratory diagnosis.</li> <li>6. Be familiar with prevention and treatment.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 6  | Pseudomonas , Moraxella and Bacillus Anthracis | <ol style="list-style-type: none"> <li>1. Describe morphology and structure of the group.</li> <li>2. Describe their growth, classification, toxins and extracellular products.</li> <li>3. Explain their pathogenesis, immunity and clinical manifestations.</li> <li>4. Explain their mode of transmission and epidemiology.</li> <li>5. Be familiar with related laboratory diagnosis.</li> <li>6. Be familiar with their treatment and prevention.</li> <li>7. Describe morphology and structure of the group.</li> <li>8. Describe their growth, classification, toxins and extracellular products.</li> <li>9. Explain their pathogenesis, immunity and clinical manifestations.</li> <li>10. Explain their mode of transmission and epidemiology.</li> <li>11. Be familiar with related laboratory diagnosis.</li> <li>12. Be familiar with their treatment and prevention.</li> </ol> |
| 7  | Mycoplasma and Legionella                      | <ol style="list-style-type: none"> <li>1. Describe the morphology, growth and staining of the group.</li> <li>2. Explain their pathogenesis, immunity and clinical disease.</li> <li>3. Explain their mode of transmission and epidemiology.</li> <li>4. Be familiar with the related laboratory diagnosis.</li> <li>5. Be familiar with their treatment and prevention.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 8  | Paragonimus westermani and hydatid cyst        | <ol style="list-style-type: none"> <li>1. Describe the morphology of the organism.</li> <li>2. Describe the epidemiology and clinical manifestations.</li> <li>3. Be familiar with the related laboratory diagnosis.</li> <li>4. Be familiar with treatment and prevention.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 9  | Fungal infections                              | <p>For each of Histoplasma capsulatum, Coccidiomycosis, Asperogillus, Mucormycosis and Rhizopus:</p> <ol style="list-style-type: none"> <li>1. Describe the morphology.</li> <li>2. Explain the pathogenesis and immunity.</li> <li>3. Explain the epidemiology.</li> <li>4. Discuss the clinical manifestations.</li> <li>5. Discuss diagnosis and treatment.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 10 | Mycobacterium tuberculosis                     | <ol style="list-style-type: none"> <li>1. Describe morphology, staining and cultural characteristics of the organism.</li> <li>2. Explain the range of pathogenicity, resistance, antigenic structure, virulence mechanisms and antimicrobial susceptibility.</li> <li>3. Be familiar with tuberculosis, routes of infections and reactivation.</li> <li>4. Explain the immunity, transmission and epidemiology.</li> <li>5. Describe relevant laboratory diagnosis.</li> <li>6. Define the immunoprophylaxis.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                     |



**Pharmacology Lectures: (7 lectures).**

|       |                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 & 2 | Treatment of bronchial asthma 1&2              | <ol style="list-style-type: none"> <li>1. Describe the pathophysiology, etiology and clinical presentations with special emphasis on factors known to provoke the attacks of bronchial asthma.</li> <li>2. Understand the aims of therapy of bronchial asthma. Be familiar with some examples of drugs that can be used in the treatment of bronchial asthma with their method of administration, mechanisms of action, pharmacokinetics and side effects, such as : Beta agonists, Corticosteroids, Anticholinergic agents, Theophylline, Mast – cell stabilizers, Anti-leukotriens and Others</li> </ol> |
| 3 & 4 | Treatment of respiratory bacterial infections. | <ol style="list-style-type: none"> <li>1. Understand the pharmacokinetics, mechanism of action and adverse effects of drugs commonly used in the treatment of pulmonary bacterial infections.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                   |
| 5     | Histamine and anti-histamines 1                | <ol style="list-style-type: none"> <li>1. Review histamine synthesis, storage, release, actions and the clinical manifestations of histamine shock.</li> <li>2. Understand the mechanisms of actions of anti-histamine drugs.</li> <li>3. Be able to classify, understand the pharmacokinetics, uses and adverse effects of anti-histamine drugs.</li> </ol>                                                                                                                                                                                                                                               |
| 6     | Treatment of tuberculosis                      | <ol style="list-style-type: none"> <li>1. Understand the concepts of TB treatment with special emphasis on two phases of therapy.</li> <li>2. Understand the concepts of combination therapy particularly the advantages and disadvantages with special emphasis on TB management.</li> <li>3. Describe the mechanisms of action, pharmacokinetics, uses and side effects of Isoniazid, Rifampin, and Ethambutol. In addition, pyrazinamide as first line therapy of tuberculosis.</li> </ol>                                                                                                              |
| 7     | Treatment of cough                             | <p>Understand the pathophysiology of cough.</p> <p>Understand the sites of actions of anti-tussives given example</p> <p>Understand the mechanism of action of mucolytic agents and give Examples</p>                                                                                                                                                                                                                                                                                                                                                                                                      |

**Community medicine Lectures: (2 Lectures)**

| #     | Lecture title                          | Lectures outline                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 & 2 | Epidemiology of Respiratory Infections | <ol style="list-style-type: none"> <li>1. Review the definition of upper/lower Respiratory tract infections.</li> <li>2. Review the most common causes of Respiratory Tract Infections.</li> <li>3. Identify the Epidemiology of Respiratory Tract Infections.</li> <li>4. Identify the Risk factors for Respiratory Tract Infections.</li> <li>5. Identify the measures that can reduce Respiratory Tract Infections.</li> <li>6. Know the Vaccination program for Children in Jordan.</li> <li>7. Know the emerging Respiratory Infections in the 21<sup>st</sup> century.</li> </ol> |

**PRACTICAL SESSIONS**

**Physiology Lab**

| No. | Practical Title            | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Spirometer with pneumotach | <ol style="list-style-type: none"> <li>1. Explain that the spirometer is designed to measure Lung volume &amp; the pneumotach to measure the flow rate (volume per unit of time)</li> <li>2. Discuss the purpose of performing PFT</li> <li>3. What are the normal values for lung volumes &amp; capacities. The effect of age, gender, body height, and race</li> <li>4. Demonstrate the recording of lung volumes &amp; VC</li> <li>5. The recording of FVC, FEV1, FEV%, PEFR, FEF25% - 75%</li> </ol> <p>Explain how they are used to differentiate obstructive from restrictive respiratory dysfunction</p> |

## AnatomyLab

| # | Practical Title                                                                              | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Histology of Respiratory Tract                                                               | 1. Identify the microscopic structure of the nasal mucosa, larynx and trachea                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 2 | Anatomy of the Upper respiratory tract, thoracic cage, thoracic wall and respiratory muscles | 1. Identify the different parts of the external nose, nasal cavity, nasal septum and nasal walls including conchae and meatuses with their associated openings.<br>2. Identify the different parts of the laryngeal skeleton, ligaments and membranes including the vocal and vestibular folds.<br>3. Identify the different parts of the laryngeal cavity and the rima glottidis.<br>4. Identify the muscles of the larynx.<br>5. Revise surface markings of the larynx and site for emergency tracheostomy.<br>6. Identify different parts of the pharynx and the associated structures including the tonsils and comment on their clinical significance.<br>7. Revise the gross, surface and radiological anatomy of the trachea.<br>8. Identify different components and joints of the thoracic cage.<br>Identify the principal respiratory muscle: intercostals and diaphragm. |
| 3 | Pleura, Lungs & Mediastinum                                                                  | 1. Identify the different parts of pleura and their recesses.<br>2. Identify different parts of the lung and contrast between right and left lung.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

3. Identify structures entering and leaving the hilum of the lung.
4. Identify important structural relations to each lung that leave impressions on them. Identify different parts of the bronchial tree.
1. Identify the radiological appearance of the lungs, trachea,

### Pathology Lab

| #           | Practical Title      | Objectives                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1<br>&<br>2 | Respiratory diseases | After reviewing and discussing the colored photographs of the:<br>(1) gross specimens and of the (2) histopathological sections given in the above lectures as a power point presentations during the practical hours...<br>The student should be able to identify, describe and diagnose the common and the important pathological lesions of the various respiratory diseases given in the Respiratory Module |

### Microbiology Lab

| Lab No. | Practical title | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Throat swab     | <ol style="list-style-type: none"> <li>1. Be familiar with the selection, collection and transport of specimen for microbiological examination.</li> <li>2. Be familiar with the cultivation and isolation of viable pathogens.</li> <li>3. List types of media used for throat swab culture.</li> <li>4. Identify and describe the type of hemolysis.</li> <li>5. Explain the value of using of some biochemical reactions.</li> </ol>                                                              |
| 2       | Sputum culture  | <ol style="list-style-type: none"> <li>1. Be familiar with the selection, collection, and transportation of sputum sample.</li> <li>2. Be familiar with the cultivation of acid-fast and none acid-fast bacteria.</li> <li>3. Be familiar with the procedure of Ziehl-Neelsen stain.</li> <li>4. Be able to visualize and observe mycobacterium under the microscope.</li> <li>5. Be familiar with the Lowenstein-Jensen medium.</li> <li>6. Prepare slides from the sputum for staining.</li> </ol> |



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### Summary of the Teaching Activities in the Module :

| Department        | No. of lectures | No. of Labs . |
|-------------------|-----------------|---------------|
| Anatomy           | 7               | 3             |
| Physiology        | 11              | 1             |
| Biochemistry      | 4               | 0             |
| Pathology         | 9               | 2             |
| Microbiology      | 10              | 2             |
| Pharmacology      | 7               | 0             |
| CommunityMedicine | 2               | 0             |
| Total             | 50              | 8             |

Working hours = Number of lectures + (Practical sessions \*3) = 74 Hours.

### **Course information:**

|               |                          |
|---------------|--------------------------|
| Course title  | Clinical Decision Making |
| Course number | 111501307                |
| Credit hours  | 3 hours / theory         |

### **Course description:**

This course focuses on the integration of previous knowledge and skills into the development of the medical student as a provider and coordinator of care and member of the profession. Emphasis will be on clinical decision-making for clients who have different medical disorders and discussion of decision, judgment, skills, and professional values within a legal/ethical framework.

“What is the best next thing to do for this patient at this time?” This question underlies all clinical decision-making, and intuitively, a correct answer is directly linked to the quality of patient outcomes.

Learning to deliver care requires going beyond the conceptual knowledge (“knowing that”) to the acquisition of experiential or working knowledge (“knowing how”). Clinical decision-making and the development of clinical expertise is such a process of 4-element prescriptive model of evidence-based clinical decision-making in which the patient’s 1) Clinical State and Circumstances, 2) Preferences and Actions, and 3) Research Evidence were conceptually integrated by a 4th element, Clinical Expertise. The clinical decision-making has 2 cognitive components: categorization; that is, the process of labeling (diagnosing) a patient’s signs and symptoms, and then pairing that label with the “best evidence” and contextualization; that is, the process of identifying factors specific to a patient’s life situation and relevant to their care.

### **Learning outcomes:**

After the completion of the course the student will be able to:

1. Utilize critical thinking and the practical process as a framework for clinical decisions in meeting the health care needs for clients in structured health care settings experiencing selected health problems.
2. Demonstrate competence in the performance of selected clinical skills.
3. Analyze the roles of the professional doctor in the provision of care for clients and families with selected health needs involving medical surgical disorders.
4. Analyze the etiology, pathophysiology, signs and symptoms, complications, therapeutic interventions for clients and families with selected health needs.

5. Analyze the principles of therapeutic communication in caring for clients and families with selected health needs.
6. Formulate teaching plans that assist clients with selected health needs and their families to meet their needs for health maintenance, promotion, and /or restoration.
7. Examine the use of material and human resources in planning care for clients with selected health needs and family.
8. Incorporate ethical and legal concepts in providing care for clients with selected health needs and families.

#### Instructional methods:

- Lectures/theory
- Selected assignments/papers and case studies

#### Textbook and material:

- 1- Clinical decision making in complementary and alternative medicine /  
Complementary and alternative medicine  
Author: Leach, Matthew, RN.  
Publisher: Churchill Livingstone/Elsevier,  
Publication Date: c2010.  
Publication Place: Sydney
- 2- Selected articles and handout documents on decision making issues (will be available to students as paper or electronic versions).

#### Grading Policy:

|                |     |     |
|----------------|-----|-----|
| 1. First Exam  | MCQ | 30% |
| 2. Second Exam | MCQ | 30% |
| 3. Final Exam  | MCQ | 40% |
| Total points   |     | 100 |

#### Course Policies:

##### **Late Assignments**

Students must give an explanation to the course instructor for any assignment which is submitted late. It will be at the course instructor's discretion if marks will be deduced for late assignments.

Students are responsible for satisfying all academic objectives. Acceptable reasons for absence from class include illness, serious family emergencies, severe weather conditions and participation in official university activities.

##### **Missed exams**

If students are absent for a reason approved above and have given prior notification to the instructor when possible, they will have to take part in the reset exams within one week after the missed exam. All other missed will receive grade of zero.

### **Absence**

If a student is absent for more than 25% of the sessions then they may be liable to fail the course.

### **Cheating**

Cheating is forbidden in any form. Any students who are caught cheating will be reported to the Dean of the Faculty of Medicine and further action taken as necessary.

### **Classroom Protocol:**

- Students are expected to attend all sessions and to arrive on time for lectures.
- Turn off all cell phones upon entering the classroom.
- Students may be engaged in class discussions and encourage the students to ask and/or answer questions of the instructor, keep side conversation to minimum.
- No drinks or food allowed in the classroom.
- Smoking is prohibited in the classroom.
- Cell phones are not allowed during exams.

### **Important Dates to Remember:**

First Exam

Second exam

Final exam

### **Student rights and responsibilities:**

These are as detailed in the University Regulations

### **Course Schedule:**

#### **Lectures 1-6**

##### **I. Introduction to decision making in medical practice:**

- a. Historical background
- b. Defining medical decision making
  - Components of a decision
  - Components of a judgment
- c. The importance of clinical decision-making
- d. Approaches to studying clinical decision-making
- e. The core skills of clinical decision making
- f. The rational decision-making model.
- g. Factors influencing clinical decision making
- h. Attributes of individuals who influence decision making
- i. Group decision-making
- j. Perceptions of clinical decision-making
- k. Critical thinking
  - Define critical thinking
  - Describe the importance of critical thinking for doctors



- Discuss characteristics, skills, & attitudes of critical thinking
- Critical Decision Making
- The Critical Decision Process

## Lectures 7-18

### II. Context of decision making in medical practice:

#### A. Scope of medical practice:

#### B. Professional standards

- Duties and responsibilities of doctors
- Providing a good standard of practice and care
- Maintaining good medical practice
- Maintaining trust and professional relationships
- Sharing vision on challenges in health improvement.
  - Relevance,
  - Quality,
  - Cost-effectiveness and
  - Equity
- The emergence of five star doctors.
- Personal and professional attributes
- Competence in the human sciences

#### C. Clinical Ethical Decision Making

##### a. The four topics' approach:

- Medical indication
- Patient preference
- Quality of life
- Contextual features

#### D. Ethical and Legal Considerations

- Legal concepts applied to medical practice.
- Legal protections in medical practice.
- Ethical principles important to medical practice.
- Differentiate ethical issues from legal issues.
- The influence of personal and professional values on ethical decision making.

## First exam

## Lectures 19- 30

### III. Medical uncertainty in clinical practice:

- The chain of uncertainty
- Patient and physician factors causing medical uncertainty
- Sources of uncertainty
  - Aleatory uncertainty (Inherent)
  - Epistemic uncertainty (External)
- Coping with uncertainty

5. Reducing uncertainty
6. Techniques of management of medical uncertainty
7. Strategies for handling medical uncertainty
8. Avoiding errors in clinical reasoning

### Lectures 31-42

#### IV. Concepts of Evidence-Based Medicine

- A. The research process
- B. Application of research to clinical decision making in medical practice
- C. Screening and quality of tests
  - a. Validity - Sensitivity and Specificity
  - b. Predictive values ( positive and negative)
  - c. Likelihood ratio
- V. Evidence-Based Practice Implementation
  - a. Models of Evidence-Based Practice
  - b. Steps of Evidence-Based Practice
- Knowledge creation and distillation
- Diffusion and dissemination
- End user adoption, implementation, and institutionalization
- c. Research Evidence
- d. Principles of Evidence-Based Practice for Patient Safety
- e. Research Implications

### Second exam.

### Lectures 43-48

#### VI. Decision making in medicine: An Algorithmic Approach

- a. Prevention and screening
- b. Edema
- c. Hypertension
- d. Goiter
- e. Breast mass
- f. Jaundice
- g. Rectal bleeding
- h. Vaginal discharge
- i. Vaginal bleeding in pregnancy

### Final Exam.

### **Course information:**

|               |                                          |
|---------------|------------------------------------------|
| Course title  | Clinical Psychology (Behavioral Science) |
| Course number | 0111501308                               |
| Credit hours  | 3 (Three)                                |

### **Coursedescription:**

Behavioral Science, including Clinical Psychology, demonstrates the ties between the basic and the clinical sciences in approaching and understanding the human behavior.

The course will focus mainly on understanding the Psychological basis, Biological component, and Social aspects of individual behavior. More emphasis toward understanding the biological and social determinant of physical abuse, aggressive behavior and multiple substance abuses was made.

Special lectures are arranged for basic understanding the relationship between Psychological Medicine & physical illnesses, Doctor – Patient Communication, Signs and Symptoms of Mental illnesses, and the Principles of Psychiatric Epidemiology, Biostatistics and Health Care System in Jordan.

### **Learning outcomes:**

Medical students meet the challenge of education and clinical training. In this climate of burgeoning knowledge and complex clinical issues, a medical career is more demanding than ever. Increasingly medical training must prepare physicians to seek and synthesize necessary information and to apply that information successfully.

Major advances continue in the expanding fields of genetics, psychopharmacology, biochemistry and a new edition of the Diagnostic & Statistically Manual (DSM) of mental disorders will be released soon. So the course of clinical psychology was revised to the subject of behavioral science to incorporate such expanded and new areas of information. This course demonstrates the ties between the basic and clinical sciences in approaching and understanding of human behavior.

**This course include:**

**I- Psychological Basis of Behavior (Individual Behavior)**

**II- Biological Component of Human Behavior**

**III- Social Behavior**

**IV- Clinical Reasoning**

**V- Psychopathology**

**VI- Epidemiology**

**I- Psychological bases of behavior (Individual behavior)**

**A- Knowledge of Basic Psychological concepts:-**

- 1- Nature-Nurture interactions
- 2- Pattern of behavioral consistency
- 3- Cognition
- 4- Sensation and perception
- 5- Emotion
- 6- Stress response
- 7- Motivation
- 8- Aptitude

**B- Knowledge of psychological aspects of Development through the life cycle:-**

- 1- Developmental issues
- 2- Prenatal - perinatal development
- 3- Infancy
- 4- Toddlerhood
- 5- Early childhood
- 6- Middle childhood
- 7- Adolescence
- 8- Young adulthood
- 9- Midlife
- 10- Late life

**C- Selected theories of Development presented longitudinally:-**

- 1- Social Learning (Bandura).
- 2- Cognitive development (Piaget).
- 3- Psychosexual Development (Freud).
- 4- Psychosocial Development (Ericson).
- 5- Moral Development (Kohlberg).

**D- Individual behavior in the Medical Context-**

- 1- The patient
- 2- The physician

## **II- Biologic component of Behavior:-**

### **A-Specific Neurotransmitters and their effects on Behavior:-**

- 1- Dopamine
- 2- Acetylcholine
- 3- Gamma-Aminobutyric acid (GABA)
- 4- Norepinephrine
- 5- Serotonine

### **B- Functional Neuro-anatomy**

- 1- Principal Brain Functions
- 2- Hemispheric Dominance
- 3- Structure and function of the Limbic system
- 4- Functional anatomy of propositional language
- 5- Motor function and dysfunction
- 6- Memory

### **C- Genetics and Behavior**

- 1- Concepts in Behavioral Genetics
- 2- Assessment of Genetic contributions to Behavior
- 3- Genetic Counseling

### **D-Brain Rhythm and chrono-biology**

- 1- Sleep Architecture
- 2- Developmental aspects of sleep
- 3- Sleep disorders

## **III- Social behavior**

### **A-Normal Human Sexuality**

- 1- Sexual Response cycle
- 2- Sexual orientation
- 3- Sexual Dysfunctions

### **B- Family System**

- 1- Family life style
- 2- Ill health and the family
- 3- The physician- Patient- Family Triad

### **C- Aggressive Behavior & Physical Abuse**

- 1- Violence- Biological and social determinant of aggressive behavior
- 2- Domestic Abuse
- 3- Substance abuse

## **IV- Clinical Reasoning**

### **A-The Physician- Patient Relationship**

- 1- Characteristics
- 2- Right & Responsabilités

- 3- Rapport
- 4- Empathie Versus Sympathie
- 5- Transference and Counter-transference
- 6- Tetrogenic effect

**B- The medical Encounter Knowledge**

- 1- Meeting the patient
- 2- Acquisition of Data
- 3- The medical encounter in selected situation

**C- Clinical Decision-making Knowledge**

- 1- Organization and Analysis of Data
- 2- Hypothesis of generation
- 3- Diagnosis & Differential Diagnosis
- 4- Management
- 5- Evaluation of Literature

**V- Psychopathology**

**A- Definition & concepts**

- 1- Normality, Deviance, Disorder, Syndrome and Disease
- 2- Approach to Diagnostic classification
- 3- Phenomenology
- 4- Psychological Tests
- 5- Psychiatric Nosology
- 6- Multi-access Diagnostic system
- 7- Special Knowledge of stress-related disorders

**VI- Epidemiology**

**A-Statistics knowledge**

- 1- Probability
- 2- Distribution
- 3- The logic of statistical inferences
- 4- Epidemiologic strategies

**Instructional methods:**

- Lectures
- Written multiple-choice exams

**Text book and material:**

NO SPECIFIC TEXTBOOK IS RECOMENDEDD. STUDENTS ARE ADVISED TO GO BACK TO INTERNET RESOURCES. HOWEVER, THE LATEST EDITIONS OF THE FOLLOWING EDUCATIONAL MATERIALS MAY BE OF SOME HELP.

- Abnormal Psychology: Current Perspectives. By Alloy, L.B. Latest Edition
- Introduction to Clinical Psychology: An evidence Based Approach. By Hunsley, J& Lee, C. John Wiley & Sons, Canada. Latest Edition
- Abnormal Psychology in Changing World, By Navid, J.; Rathus, S. & Greene, B. Latest Edition.

- Understanding Abnormal Behavior, By Sue, D.; Sue, D.W & Sue, S. Latest Edition.
- A Clinical Approach to Psychological Deviants. By Page, J. Latest Edition

### **Grading Policy:**

1st in course Exam: 25%  
2nd in course Exam: 25%  
Final Exam: 50%  
Total Points 100

### **Course Policies:**

#### **Missed exams:**

Students who are absent in any exam are allowed to sit a make-up exam after presenting an approved sick leave or any accepted certificate of absence to the assistant of the faculty dean within 72 hours. The Course Coordinator will determine the time of the exam make-up session. Also, according to the Curriculum Committee and the University regulations, the student will be given a similar examination given to the other students. All examinations must be made up within one week of returning to class. Those absents who do not present a clue will be given a zeromark.

#### **Absence:**

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students will be accountable and personally responsible for attending all educational activities (lectures, labs, examinations, etc.). Unexcused absences reflect negatively on the goals and objectives of the medical curriculum and demonstrate unprofessional behavior by the respective student.

Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Attendance is mandatory. Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

### **Cheating:**

Cheating will not be tolerated. Each individual student is responsible for his behavior and is expected to maintain standards of academic honesty and professionalism. If any instance of academic dishonesty (cheating, plagiarism, etc.) is discovered by a coordinator or an instructor, it is his or her responsibility to take appropriate action. Such action may include giving a failing grade to the student in the course and/or referring the student for Judicial Procedures Office review and possible disciplinary action, which may include disciplinary suspension or dismissal from the College.

### **Classroom Protocol:**

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students respond politely to faculty, staff, and student colleagues, exemplifying their maturity and empathy. Students agree to abide by appropriate bio-safety practices when required.

All students are expected to be quiet in their seats in the lecture theatre before the start of the lecture. Engagement in class discussions is encouraged without side chatting.

Cell phones are not allowed to be used during lectures and exams unless prior approval has been taken from the course instructor.

### **Important Dates to Remember:**

Course Start: On the first day of the second semester.

1st and 2nd in-course Examinations dates will be announced at the beginning of the course.

Final Examination – At the end of the Second semester

### **Course Lectures Schedule**

| Lecture | Introduction to Behavioral Medicine:-                                                                                           |
|---------|---------------------------------------------------------------------------------------------------------------------------------|
| 1       | The Life cycle                                                                                                                  |
| 2       | Principles of Developmental Psychology                                                                                          |
| 3       | Psychological aspects of the Beginning of Life: - Pregnancy Through Preschool, School Age and Adolescence, Attachment Theories. |
| 4       | The Behavioral Challenges of Early and Middle Adulthood                                                                         |
| 5       | Aging, Death , and Bereavement                                                                                                  |
| Lecture | The Psychological Bases of Behavior:-                                                                                           |
| 6       | Introduction to Psychology                                                                                                      |
| 7       | Psychodynamic Theories in Medical Practice                                                                                      |
| 8       | Learning Theories                                                                                                               |
| 9       | Individual differences , Defense Mechanism                                                                                      |



|                |                                                                             |
|----------------|-----------------------------------------------------------------------------|
| 10             | Theories of behavioral changes                                              |
| 11             | Perception, Emotion & Motivation, Memory                                    |
| 12             | Symptom expression, Illness Behavior                                        |
| 13             | Psychological Assessment of Patients with Behavioral Symptoms               |
| 14             | Free                                                                        |
| 15             | <b>First Exam</b>                                                           |
| <b>Lecture</b> | <b>The Biological Bases of Behavior:-</b>                                   |
| 16             | Biological Determinant of Behavior, Bio-psycho Social Model of illness      |
| 17             | Behavioral Genetics                                                         |
| 18             | Brain and Behavior ( Behavioral Neuro-anatomy)                              |
| 19             | Behavioral Neurochemistry                                                   |
| 20             | Sleep Medicine- The Basics of Sleep                                         |
| 21             | Sleep Medicine:- Overview of abnormal Sleep                                 |
| <b>Lecture</b> | <b>Social Behavior:-</b>                                                    |
| 22             | Introduction to Social Psychology                                           |
| 23             | Culture and Illness                                                         |
| 24             | Human Sexuality:- cultural and psychological perspectives                   |
| 25             | Sexuality in medical practice                                               |
| 26             | Violence and Impulse Control                                                |
| 27             | Substance Abuse                                                             |
| <b>Lecture</b> | <b>The Doctor-Patient Relationship:-</b>                                    |
| 28             | Doctor – Patient Communication                                              |
| 29             | Non-verbal communication                                                    |
| 30             | Breaking Bad News                                                           |
| 31             | Ethical and Legal Issues in Psychological Medicine                          |
| 32             | <b>Second Exam</b>                                                          |
| <b>Lecture</b> | <b>Psychopathology:-</b>                                                    |
| 33             | Signs and Symptoms of Mental illnesses.                                     |
| 34             | Anxiety, Stress and Maladjustment.                                          |
| 35             | Psychological Medicine & physical illnesses                                 |
| <b>Lecture</b> | <b>Treatment in Psychiatry:-</b>                                            |
| 36             | Drugs in Psychiatry (antipsychotics)                                        |
| 37             | Drugs in Psychiatry II (antidepressants, mood stabilizers, benzodiazepines) |
| 38             | Psychotherapy                                                               |
| <b>Lecture</b> | <b>Epidemiology and Biostatistics:-</b>                                     |
| 39             | The Principles of Psychiatric Epidemiology, Biostatistics                   |
| 40             | Health Care System in Jordan                                                |
| 41             | Free                                                                        |
| 42             | <b>Final Examination</b>                                                    |

### **Course information:**

|               |                          |
|---------------|--------------------------|
| Course title  | Clinical Skills Course 3 |
| Course number | 0111500303               |
| Credit hours  | 1                        |

### **Course description:**

The aim of this course is to help students to acquire clinical skills through the integrated basic science module which will ultimately help in better patient care.

Through emphasis on communication skills between health care provider and patients and between different medical staff, we are hoping to prepare our students for their future career, also it will help students to integrate their knowledge of basic sciences with clinical practice.

The Clinical Skills Course 3 incorporates history taking and physical examination related to the gastrointestinal, hepatobiliary and endocrine systems.

### **Consultation Skills:**

In these sessions, students learn the elements of effective communication. This involves satisfactory interviews with simulated patients and volunteers, initiating the medical interview, gathering information about the medical history and explaining and planning management appropriately. The exercises include role plays with simulated patients and team members. Students will be given opportunities to view real videos of patient history taking.

#### **a. Eliciting the medical history in patients with different symptoms related to:**

- Gastrointestinal system including family history, dietary, growth and developmental history, worm infestation, alteration in bowel habit and relevant systems review
- Hepatobiliary system
- Endocrine disorders including family history, dietary history and counselling

#### **b. Developing specific communication skills to aid the process of giving information to patients regarding diseases of the different systems and planning initial management and treatment steps**

### c. Obtaining consent from a patient before a surgical procedure

#### **Physical Examination Skills:**

Conducting appropriate physical examinations focused to elicit physical signs related to:

- Gastrointestinal system
- Hepatobiliary system
- Thyroid gland
- Diabetes mellitus
- Infertility

#### **Procedural Skills:**

Performing appropriate techniques on manikins for

- IM/SC injections
- Self monitoring of glucose
- Paps smear

#### **Interpretation Skills:**

Interpretation of patient laboratory data, by applying the acquired basic science knowledge through:

- LFT in jaundiced patient
- Blood results for acute appendicitis, food poisoning and dehydration
- Blood results for viral hepatitis
- Hormonal assay, semen analysis and ultrasonogram results for infertility
- Thyroid function test

#### **Learning outcomes:**

The course objectives are divided into three categories. These are: Knowledge, Skills, and Attitudes/ Behaviors.

#### **Knowledge:**

At the end of the CSETC Course 3, the students shall be able to:

- Understand the disease and illness models and how to transition between these during the medical interview
- Demonstrate knowledge of the components of explanation and planning in the medical interview
- Extract the relevant history symptoms related to the gastrointestinal, hepatobiliary and endocrine systems
- Interpret their clinical examination findings and laboratory results, related to the gastrointestinal, hepatobiliary and endocrine systems, based on their basic science knowledge

### Skills:

By the end of the CSETC Course 3, in relation to the gastrointestinal, hepatobiliary and endocrine systems, the students shall be able to:

- Collect a focused accurate medical history
- Demonstrate skill in transitioning between the different components of the medical interview
- Demonstrate communication skills necessary for explanation and planning in the medical interview, such as:
  - chunking and checking
  - discovering the patient's starting point
  - signposting
  - clarification and repetition
  - summarising
  - relating to illness framework
  - shared decision making
- Use the skills mentioned above to counsel and educate patients about their disease and decisions they need to make about their health care taking into consideration their level of education and socioeconomic class
- Perform effective, accurate, comprehensive, focused and appropriate physical examination using simulated patients
- Demonstrate the ability to obtain consent from patient before a surgical procedure such as appendicetomy
- Competently perform glucose monitoring (finger prick test), Pap smear, and IM/SC injections

### Attitudes/Behaviors:

At the end of the CSETC Course 3, the students shall be able to:

- Demonstrate professionalism in inter-colleague relationships
- Exhibit a capacity for self-evaluation, moral reflection and ethical reasoning to form the basis for a self-directed, life long engagement in the committed practice of medicine
- Demonstrate a good understanding of the sensitive nature of the doctor / patient relationship, with attention to the patient's familial, cultural, spiritual circumstances and patient privacy and confidentiality
- Demonstrate the ability to work effectively as a team member with other health care professionals in providing a high standard of patient care
- Demonstrate a proper professional demeanor by willingly and consistently using appropriate personal safety devices when handling patients, hazardous material or instruments

### **Instructional methods:**

The course is taught through interactive lectures and practical sessions. Instructional methods include:

- ❖ discussions
- ❖ brainstorming
- ❖ group work
- ❖ pair work or triplet work
- ❖ role play
- ❖ simulation
- ❖ audio and video feedback
- ❖ presentations
- ❖ demonstrations

### **Textbook and material:**

| Author                                   | Title                                  | Published Year |
|------------------------------------------|----------------------------------------|----------------|
| Douglas, Nicol and Robertson<br>Elsevier | Macleod's Clinical Examination         | 12th, 2009     |
| Silverman, Kurtz Draper                  | Skills for Communicating with Patients | 2004           |
| Ford, Hennessy, and Japp<br>Elsevier     | Introduction to Clinical Examination   | 8th, 2005      |
| Dacre and Kopelman                       | Handbook of Clinical Skills            | 1999           |

### **Grading Policy:**

Multiple Choice Examination: 40%

Objective Structured Clinical Examination: 40%

Written Assignment: 5%

Class attendance/participation/evaluation: 15%

Total Points 100

### **Course Policies:**

#### **Late Assignments**

Students must give an explanation to the course instructor for any assignment which is submitted late. It will be at the course instructor's discretion if marks will be deducted for late assignments.

#### **Missed exams**

If a student misses the multiple choice examination then they will have to take part in the resit examination. Due to timetabling constraints, if a student misses the OSCE then they will not be able to take the OSCE at another time.

### **Absence**

If a student is absent for a practical session then they must discuss this with the course instructor and it is the student's responsibility to attend the practical session at another time.

If a student is absent for more than 25% of the sessions then they may be liable to fail the course.

### **Cheating**

Cheating is forbidden in any form. Any students who are caught cheating will be reported to the Medical Dean and further action taken as necessary.

### **Classroom Protocol:**

Students are expected to attend all sessions and to arrive on time for lectures and practical sessions. It is each student's responsibility to know their timetable and which session they should attend on which day. Students are expected to behave respectfully towards all members of staff and each other. Mobile phones are to be switched off during teaching sessions and eating, drinking and smoking are forbidden.

### **Important Dates to Remember:**

Lectures will begin the first week of the semester.

Practical sessions will begin the second week of the semester.

The OSCE is usually timetabled for the last week of teaching in the semester.

The MCQ Examination is timetabled during the examination period.

### **Student rights and responsibilities:**

These are as detailed in the University Regulations

### **Course Schedule:**

|                                |                                                                                          |
|--------------------------------|------------------------------------------------------------------------------------------|
| Lecture 1                      | Review of CSETC Course 1 and 2 Skills and Professionalism                                |
| Lecture 2                      | Explanation and Planning in the Medical Interview                                        |
| Lecture 3                      | Consultation Skills and Symptoms for Gastrointestinal System                             |
| Lecture 4                      | Physical Examination Skills and Signs for Gastrointestinal System                        |
| Lecture 5                      | Consultation Skills and Symptoms for Endocrine System                                    |
| Lecture 6                      | Review and Examination Instructions                                                      |
| Consultation Session 1         | Medical Interview for Gastrointestinal System and Explaining Information to Patients     |
| Consultation Session 2         | Medical Interview for Endocrine System, Obtaining Consent and Making Plans with Patients |
| Physical Examination Session 1 | Examining the Gastrointestinal System                                                    |
| Physical Examination Session 2 | Examining the Thyroid Gland and for Signs of Diabetes                                    |
| Clinical Procedures Session 1  | IM and SC Injections, Glucose monitoring, Pap smear                                      |
| Professionalism Session        |                                                                                          |
| Data Interpretation Session    |                                                                                          |

### **Course information:**

|               |                          |
|---------------|--------------------------|
| Course title  | Clinical Skills Course 4 |
| Course number | 0111500301               |
| Credit hours  | 1                        |
| Course date   |                          |

### **Course description:**

The aim of this course is to help students to acquire clinical skills through the integrated basic science module which will ultimately help in better patient care.

Through emphasis on communication skills between health care provider and patients and between different medical staff, we are hoping to prepare our students for their future career, also it will help students to integrate their knowledge of basic sciences with clinical practice.

The Clinical Skills Course 4 incorporates history taking and physical examination related to the cranial nerves, special senses and musculoskeletal systems.

### **Consultation Skills:**

In these sessions, students learn the elements of effective communication. This involves satisfactory interviews with simulated patients and volunteers, initiating the medical interview, gathering information about the medical history and explaining and planning management appropriately. The exercises include role plays with simulated patients and team members. Students will be given opportunities to view real videos of patient history taking.

#### **a. Eliciting the medical history in patients with different symptoms related to:**

- Central nervous system
- Special senses
- Peripheral nerves and musculoskeletal disorders with special reference to history of trauma and family history and relevant systems review
- Musculo-skeletal system

#### **b. Using communication skills and basic science knowledge to give appropriate information and counseling to patients regarding diseases of the different systems and planning initial management and treatment steps**



- c. Obtaining consent from a patient before performing a basic medical or invasive procedure

### **Physical Examination Skills:**

Conducting appropriate physical examinations focused to elicit physical signs related to:

- Central nervous system
- Cranial nerves
- Special senses
- Musculo-skeletal system

### **Procedural Skills:**

#### **Performing appropriate techniques on manikins for:**

- Lumbar puncture technique and CSF examination
- Suturing and wound dressing

### **Interpretation Skills:**

#### **Interpretation of patient laboratory data, by applying the acquired basic science knowledge through:**

- CSF result
- Radiograph images

### **Learning outcomes:**

The course objectives are divided into three categories. These are: Knowledge, Skills, and Attitudes / Behaviors.

#### **Knowledge:**

At the end of the CSETC Course 4, the students shall be able to:

- a. Demonstrate good theoretical knowledge of the Calgary-Cambridge Framework for medical interviewing
- b. Be able to extract the relevant history symptoms related to the Central Nervous System, special senses and musculoskeletal system
- c. Interpret common physical signs and laboratory results in relation to the CNS, special senses and musculoskeletal system, based on their basic science knowledge
- d. Understand how to take into consideration the social, ethnic and religious needs of the local community

#### **Skills:**

By the end of the CSETC Course 4, in relation to peripheral nerves, special senses, musculoskeletal system, and central nervous system, the students shall be able to:

- a. Obtain a focused accurate medical history
- b. Demonstrate good communication skills in explanation and planning in the medical interview with a particular focus on shared decision making:
  - involving the patient
  - negotiating
  - offering choice
  - giving opinions
- c. Be considerate to psychosocial, economic, and behavioral community factors while educating patients on health related lifestyle modifications
- d. Attend to the timing of the medical interview
- e. Demonstrate the ability to obtain consent from a patient before any intervention
- f. Perform effective, accurate, comprehensive, focused and appropriate physical examination using simulated patients
- g. Competently perform lumbar puncture, suturing and wound dressing using manikins

#### Attitudes / Behaviors:

At the end of the CSETC Course 4, the students shall be able to:

- a. Demonstrate professionalism in inter-colleague relationships, team building and high ethical standards in all aspects of medical practice
- b. Demonstrate a good understanding of the sensitive nature of the doctor / patient relationship and the importance of attention to the patient's familial, cultural, spiritual circumstances and patient privacy and confidentiality
- c. Demonstrate the ability to work effectively as a team member with other health care professionals in providing a high standard of patient care
- d. Exhibit a capacity for self-evaluation, moral reflection and ethical reasoning to form the basis for a self-directed, life long engagement in the committed practice of medicine
- e. Demonstrate a proper professional demeanor by willingly and consistently using appropriate personal safety devices when handling patients, hazardous material or instruments

#### Instructional methods:

The course is taught through interactive lectures and practical sessions. Instructional methods include:

- ❖ discussions
- ❖ brainstorming
- ❖ group work
- ❖ pair work or triplet work

- ❖ role play
- ❖ simulation
- ❖ audio and video feedback
- ❖ presentations
- ❖ demonstrations

### Textbook and material:

| Author                                   | Title                                  | Published Year |
|------------------------------------------|----------------------------------------|----------------|
| Douglas, Nicol and Robertson<br>Elsevier | Macleod's Clinical Examination         | 12th, 2009     |
| Silverman, Kurtz Draper                  | Skills for Communicating with Patients | 2004           |
| Ford, Hennessy, and Japp<br>Elsevier     | Introduction to Clinical Examination   | 8th, 2005      |
| Dacre and Kopelman                       | Handbook of Clinical Skills            | 1999           |

### Grading Policy:

Multiple Choice Examination: 40%

Objective Structured Clinical Examination: 40%

Written Assignment: 5%

Class attendance/participation/evaluation: 15%

Total Points 100

### Course Policies:

#### **Late Assignments**

Students must give an explanation to the course instructor for any assignment which is submitted late. It will be at the course instructor's discretion if marks will be deducted for late assignments.

#### **Missed exams**

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#### **Absence**

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#### **Cheating**

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### **Classroom Protocol:**

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### **Important Dates to Remember:**

- Lectures will begin the first week of the semester.
- Practical sessions will begin the second week of the semester.
- The OSCE is usually timetabled for the last week of teaching in the semester.
- The MCQ Examination is timetabled during the examination period.

### **Student rights and responsibilities:**

These are as detailed in the University Regulations

### **Course Schedule:**

|                                |                                                                                               |
|--------------------------------|-----------------------------------------------------------------------------------------------|
| Lecture 1                      | Review of Previous CSETC Courses and Skills                                                   |
| Lecture 2                      | Shared Decision Making in the Medical Interview                                               |
| Lecture 3                      | Consultation Skills and Symptoms for Central Nervous System and Cranial Nerves                |
| Lecture 4                      | Physical Examining Skills and Signs for Central Nervous System and Cranial Nerves             |
| Lecture 5                      | Consultation Skills and Symptoms for Special Senses and Musculoskeletal System                |
| Lecture 6                      | Physical Examining Skills and Signs for Special Senses and Musculoskeletal System             |
| Consultation Session 1         | Medical Interview for Central Nervous System and Cranial Nerves with Explanation and Planning |
| Consultation Session 2         | Medical Interview for Musculoskeletal System and Shared Decision Making                       |
| Physical Examination Session 1 | Examining Cranial Nerves and Peripheral Nerves                                                |
| Physical Examination Session 2 | Examining Special Senses and Musculoskeletal System                                           |
| Clinical Procedures Session 1  | Lumbar puncture technique and CSF examination                                                 |
| Clinical Procedures Session 2  | Suturing and wound dressing                                                                   |
| Data Interpretation Session    |                                                                                               |

### **Course information:**

|              |                          |
|--------------|--------------------------|
| Coursetitle  | Clinical Skills Course 5 |
| Coursenumber | 0111500302               |
| Credithours  | 1                        |

### **Coursedescription:**

The aim of this course is to help students to acquire clinical skills through the integrated basic science module which will ultimately help in better patient care.

Through emphasis on communication skills between health care provider and patients and between different medical staff, we are hoping to prepare our students for their future career, also it will help students to integrate their knowledge of basic sciences with clinical practice.

The Clinical Skills Course 5 incorporates history taking and physical examination related to the breast, genitourinary and reproductive systems.

### **Consultation Skills:**

In these sessions, students learn the elements of effective communication. This involves satisfactory interviews with simulated patients and volunteers, initiating the medical interview, gathering information about the medical history and explaining and planning management appropriately. The exercises include role plays with simulated patients and team members. Students will be given opportunities to view real videos of patient history taking.

- a. Eliciting the medical history in patients with different symptoms related to:
  - Genitourinary and reproductive systems with special reference to past history of illness, sexual and family history and relevant systems review

- Breast lump with attention to history of duration, growth pattern, nipple discharge and family history
- b. Using communication skills to “break bad news” to a simulated patient or relative
- c. Demonstrating sensitivity and specific communication skills to minimise any distress for simulated patients when discussing potentially embarrassing topics
- d. Obtaining consent from a patient before performing any intimate examination or procedure

### **Physical Examination Skills:**

Conducting appropriate physical examinations focused to elicit physical signs related to:

- Labour and delivery
- Benign hypertrophy prostrate
- Normal breast and breast lump

### **Procedural Skills:**

#### **Performing appropriate techniques on manikins for**

- Catheterisation
- Labour and normal delivery
- Per rectal examination
- Per vaginal examination

### **Interpretation Skills:**

#### **Interpretation of patient laboratory data, by applying the acquired basic science knowledge through:**

- KUB
- Renal function test
- Urine culture
- US and biopsy report for BPH
- Amniocentesis report, ultrasonogram and color Doppler screening in pregnant mothers for congenital abnormalities in fetus

### **Learning outcomes:**

**The course objectives are divided into three categories. These are: Knowledge, Skills, and Attitudes / Behaviors.**

#### **Knowledge:**

At the end of the CSETC Course 5, the students shall be able to:

- Demonstrate excellent theoretical knowledge in clinical skills and its application to patient care
- Be able to extract the relevant history symptoms related to the genitourinary system, reproductive system and breast
- Interpret their clinical examination findings and laboratory results in relation to the different systems, based on their basic science knowledge
- Understand how to take into consideration the social, ethnic and religious needs of the local community

#### Skills:

**By the end of the CSETC Course 5, in relation genitourinary and reproductive systems and breast. The students shall be able to:**

- Obtain a focused accurate medical history
- Demonstrate good communication skills in all aspects of the medical interview
- Demonstrate the ability to “break bad news” sensitively to simulated patients and relatives and recognise that this is a special case of explanation and planning
- Demonstrate sensitivity and the use of specific communication skills to minimise any distress for patients when discussing potentially embarrassing topics
- Demonstrate the ability to obtain consent from a simulated patient before performing any intimate examination or intervention
- Perform effective, accurate, comprehensive, focused and appropriate physical examination using simulated patients
- Competently perform catheterisation using manikins

#### Attitudes/Behaviors:

**At the end of the CSETC Course 5, the students shall be able to:**

- Demonstrate professionalism in inter-colleague relationships, team building and high ethical standards in all aspects of medical practice
- Demonstrate a good understanding of the sensitive nature of the doctor / patient relationship and the importance of attention to the patient's familial, cultural, spiritual circumstances and patient privacy and confidentiality
- Display the personal attributes of compassion, honesty, and integrity in relationships with patients and families
- Show a life-long commitment to self education and personal development through print or electronic resource
- Exhibit a capacity for self-evaluation, moral reflection and ethical reasoning to form the basis for a self-directed, life long engagement in the committed practice of medicine
- Demonstrate a proper professional demeanor by willingly and consistently using appropriate personal safety devices when handling patients, hazardous material or instruments

### **Instructional methods:**

The course is taught through interactive lectures and practical sessions. Instructional methods include:

- ❖ discussions
- ❖ brainstorming
- ❖ group work
- ❖ pair work or triplet work
- ❖ role play
- ❖ simulation
- ❖ audio and video feedback
- ❖ presentations
- ❖ demonstrations

### **Textbook and material:**

| Author                                   | Title                                  | Published Year |
|------------------------------------------|----------------------------------------|----------------|
| Douglas, Nicol and Robertson<br>Elsevier | Macleod's Clinical Examination         | 12th, 2009     |
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The OSCE is usually timetabled for the last week of teaching in the semester.

The MCQ Examination is timetabled during the examination period.

### **Student rights and responsibilities:**

These are as detailed in the University Regulations

### **Course Schedule:**

|                                |                                                                                  |
|--------------------------------|----------------------------------------------------------------------------------|
| Lecture 1                      | Review of Previous CSETC Courses and Skills                                      |
| Lecture 2                      | Communication Skills for Discussing Embarrassing Topics in the Medical Interview |
| Lecture 3                      | Consultation Skills for Breaking Bad News to Patients                            |
| Lecture 4                      | Consultation Skills and Symptoms for Genitourinary and Reproductive Systems      |
| Lecture 5                      | Physical Examining Skills and Signs for Genitourinary and Reproductive Systems   |
| Lecture 6                      | Review and Examination Instructions                                              |
| Consultation Session 1         | Medical Interview for Genitourinary System                                       |
| Consultation Session 2         | Medical Interview for Reproductive System and Breaking Bad News                  |
| Consultation Session 3         | Breaking Bad News Continuation                                                   |
| Physical Examination Session 1 | Examining Labour and Delivery, Per Vagina Examination                            |
| Physical Examination Session 2 | Examining Breast Lumps, Prostate Gland, Per Rectum Examination                   |
| Clinical Procedures Session 1  | Catheterisation                                                                  |
| Data Interpretation Session    |                                                                                  |



The Hashemite University

|                       |                               |
|-----------------------|-------------------------------|
| COURSE TITLE:         | ENDOCRINE SYSTEM (E.S.)       |
| CREDIT HOUR :         | 5 Credits                     |
| CALENDAR DESCRIPTION: | 4 WEEKS / SEMESTER 1 / YEAR 3 |
| TEACHING APPROACHES:  | INTEGRATED SYSTEM MODULE      |
| COORDINATOR:          | MOHAMMAD A. SHABAN. MD; PhD.  |

### **I. GENERAL INTENDED OBJECTIVES :**

**By the end of this module, students are expected to:**

- =**Know** what is the endocrine system means in its role in regulation of different body function compared to other regulatory systems
- =**Identify** location, gross and microscopic appearance of various endocrine glands, their development, relation to neighboring structures.
- =**Know** how this system regulates itself
- =**Know** different types of hormones produced by this system and to **compare** and group them according to the embryological and microscopic structure of different endocrine glands.
- =**Know** effects of hormones on different tissues
- =**Know** different structural and functional changes and the effect of this change on other glands or tissues.
- =**Use** these information to **explain** findings in different pathological conditions
- =**Use** these information in understanding how drugs (hormonal and non hormonal) are used in correction of abnormal function
- =**formulate** an evaluation plan for diagnosis and correction of endocrine disease
- =**Prepare** the student for clinical years to use these information and apply it once he faces an endocrine disease

### **II. METHODS OF INSTRUCTION :**

- Lectures
- Practical
- Written multiple-choice exams

### **III. EVALUATION AND DISTRIBUTION OF MARKS:**

- First in-course exam (Theory)\* = 40%.
- Practical in-course exam (Practicals) = 20%
- Final exam at the end of the semester (Comprehensive/Theory)\* = 40%

IV. NO SPECIFIC TEXTBOOK IS RECOMENDEDD. STUDENTS ARE ADVISED TO GO BA CK TO INTERNET RESOURCES. HOWEVER, THE LATEST EDITIONS OF THE FOLLOWING EDUCATIONAL MATERIALS MAY BE OF SOME HELP

- \* Anatomy
  - Principles of Human Anatomy. By G.J. Tortora, Latest edition.
  - Clinical Anatomy for Medical Students. By R.S. Snell, Latest edition.
  - Basic Histology, by L. Carlos Junqueira. Latest edition.
  - Before we are born. By K.L. Moore and T.V.N. Persaud, Latest edition.
- \* Clinical Biochemistry
  - Harper's Biochemistry. By Robert K. Murray and Co., Latest edition.
  - Supplementary Departmental Handouts.
- \* Physiology:
  - Textbook of Medical Physiology, by Guyton and Hall,
  - Review of Medical Physiology, by William F. Ganong,.
- \* Pathology
  - Essential Pathology, by Emanuel Rubin.
  - Basic Pathology, by Kumar, Cotran and Robbin.
- \* Clinical Pharmacology
  - Lipincott's Illustrated Reviews: Pharmacology.

**LEARNING (SPECIFIC AIMS) OBJECTIVES OF THE MODULE:**

**After studying the material covered in the lectures, practical's, seminars and internet search regarding this module, the student is expected to express the following specific capacities:**

## Lectures and Labs :

### Contents of lectures and Labs of the Anatomy of the Endocrine System Module (1500301)

**Instructor: Dr. Saad A. Al Sabti ( 6 lectures and 1 practical).**

| No    | Title                                           | Objectives                                                                                                                                                                                                                                                                                                                        |
|-------|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 & 2 | Morphology of the endocrine glands              | <ol style="list-style-type: none"> <li>1. Review the differences between endocrine and exocrine glands.</li> <li>2. List the endocrine glands.</li> <li>3. Describe the structure of endocrine glands.</li> <li>4. Describe the location, relations, blood and nerve supply and lymphatic drainage of endocrine glands</li> </ol> |
| 3 & 4 | Histology and embryology of endocrine glands I  | <ol style="list-style-type: none"> <li>1. Describe the development of the pituitary, thyroid, parathyroid, adrenal and pancreas glands.</li> <li>2. Describe the microscopic structure of the pituitary gland.</li> <li>3. Describe the microscopic structure of the thyroid gland.</li> </ol>                                    |
| 5 & 6 | Histology and embryology of endocrine glands II | <ol style="list-style-type: none"> <li>1. Describe the microscopic structure of the parathyroid gland.</li> <li>2. Describe the microscopic structure of the adrenal glands.</li> <li>3. Describe the microscopic structure of the pancreas.</li> </ol>                                                                           |

## Practical Laboratory Session of the Endocrine System Module (1500301)

Instructor: Dr. Saad A. Al Sabti

| No | Title                                                  | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Morphology and microscopic anatomy of endocrine glands | <ol style="list-style-type: none"> <li>1. Identify the pituitary gland and describe its relations.</li> <li>2. Identify the different parts of the thyroid gland and describe its relations.</li> <li>3. Identify the adrenal glands and describe their relations.</li> <li>4. Identify the ultra-structural component of the following glands and correlate between them: <ol style="list-style-type: none"> <li>a. Pituitary gland</li> <li>b. Thyroid gland</li> <li>c. Parathyroid glands</li> <li>d. Adrenal glands</li> <li>e. Pancreas</li> </ol> </li> </ol> |

**Endocrinology Module-1500301- 1<sup>st</sup>. Semester-3<sup>rd</sup>. Year**  
**Clinical Biochemistry 6 lectures + one laboratory**

| Lecture Number & Title                               | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Mechanism of hormone actions                      | <p>Describe the molecular aspects of hormone action</p> <ul style="list-style-type: none"> <li>- Understand PIP2 turnover (<math>Ca^{+2}</math> /protein kinase C system)</li> <li>- List actions of diacylglycerol (DAG)</li> <li>- Characterize cAMP as a second messenger</li> <li>- List intracellular actions of cAMP</li> </ul>                                                                                             |
| 2. Biochemical aspects of pituitary hormones         | <p>Mechanism of hormone actions</p> <ul style="list-style-type: none"> <li>- The structure and functions of ant.pituitary hormones mainly growth hormone and prolactin</li> <li>- The structure &amp; function of posterior pituitary hormones ( oxytocin &amp; vasopressin)</li> </ul>                                                                                                                                           |
| 3. Biochemical aspects of thyroid hormone metabolism | <ul style="list-style-type: none"> <li>- Describe thyroid hormone biosynthesis MIT,DIT,T3,T4 &amp; reverse T3</li> <li>- Discuss the role of peroxidase, coupling, protease &amp; thyroglobulin</li> <li>- Discuss thyroid stimulating hormone action via cAMP</li> <li>- Describe the regulation of TSH by thyroid releasing hormone &amp; T3, T4, somatostatin &amp; dopamine</li> <li>- Discuss T3 and T4 transport</li> </ul> |
| 4. Steroidogenesis                                   | <ul style="list-style-type: none"> <li>- Describe the biosynthesis of steroid hormones</li> <li>- Describe defects and consequences of congenital adrenal hyperplasia</li> </ul>                                                                                                                                                                                                                                                  |
| 5. Regulation of glucose metabolism                  | <ul style="list-style-type: none"> <li>- The role of insulin, glucagons, cortisol and other hormones in glucose metabolism.</li> <li>- Know the consequences of Hyperglycemia &amp; Hypoglycemia</li> </ul>                                                                                                                                                                                                                       |
| 6. Bone metabolism                                   | <p>Parathyroid hormone and calcium, phosphorous, and magnesium Metabolism</p>                                                                                                                                                                                                                                                                                                                                                     |
| Clinical Biochemistry Laboratory                     | <p>Introduce the different methods used in hormone assays and understand the principles underlying the techniques used in hormone measurement. The precautions required before and after blood sample collections for hormone assay</p>                                                                                                                                                                                           |

| Lecture Number<br>Subject, & Title                                                | ENDOCRINE SYSTEM – PATHOLOGY - 6 LECTURES<br>AND 2 PRACTICAL SESSIONS<br>OBJECTIVES.<br>Dr. Mohammed Alwiswasi, MBChB, PhD, FRCPath.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1st Endocrine<br>Lecture<br><br><b>Diseases of the<br/>pituitary gland</b>        | <p><b>List</b> the Causes &amp; Effects Of Anterior Pituitary Gland Diseases (<b>Hyper- &amp; Hypopituitarism</b>).</p> <p><b>Classify adenomas</b> of the Anterior Lobe Of Pituitary Gland According To Their (I) Functional Status &amp; (II) Type Of Hormone Production.</p> <p>+ <b>Describe</b> the Pathogenesis, Gross &amp; Microscopic Features Of Pituitary Adenomas In General.</p> <p>+ <b>Describe</b> the Pathologic &amp; Clinical Effects Of: Prolactinomas, Growth Hormone-Producing, Corticotroph Cell (Cushion Disease), &amp; Gonadotroph, &amp; Thyrotroph Adenomas</p> <p>+ <b>Describe</b> the Causes &amp; Clinical Manifestations Of <b>Hypopituitarism</b>.</p> <p><b>Enumerate</b> the Types, Causes, &amp; Effects Of <b>Diabetes Insipidus</b>.</p> <p><b>Define</b> the Syndrome Of Inappropriate <b>Anti Diuretic Hormone (SIADH)</b> Secretion.</p> |
| 2nd Endocrine<br>Lecture<br><br><b>Diseases of the<br/>thyroid gland (I)</b>      | <p><b>Enumerate</b> the Causes &amp; Diagnostic Criteria Of: <b>Thyrotoxicosis &amp; Hypothyroidism</b>.</p> <p>★ <b>Describe Cretinism &amp; Myxedema</b>.</p> <p><b>Enumerate</b> the main types of <b>Thyroiditis</b></p> <p>★ <b>Describe</b> the Etiology, Pathogenesis, Gross &amp; Microscopic Features &amp; Diagnosis Of:</p> <p>(1) <b>Thyroiditis</b>: including Hashimoto's, de Quervain, Subacute Lymphocytic, &amp; Riedel.</p> <p>(2) <b>Graves disease</b>.</p> <p>(3) <b>Diffuse multinodular goiters</b>, both Endemic &amp; Sporadic.</p>                                                                                                                                                                                                                                                                                                                       |
| 3rd Endocrine<br>Lecture<br><br><b>Diseases of the<br/>thyroid gland<br/>(II)</b> | <p><b>List</b> the Main Types Of Thyroid Tumors.</p> <p>★ <b>Describe</b> the Etiology, Pathogenesis, Pathological Features &amp; Diagnosis Of Benign Thyroid <b>Adenomas</b>.</p> <p>+ <b>Describe</b> the Etiology, Pathogenesis, Pathological Features, Diagnosis &amp; Routes Of Spread Of Each Type Of The Thyroid Carcinomas (Papillary, Follicular, Medullary, &amp; Anaplastic).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |



|                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>4th Endocrine Lecture</p> <p><b>Diseases of the parathyroid gland</b></p>     | <p><b>List the Causes &amp; Effects Of Primary Hyperparathyroidism.</b></p> <p>+ <b>Describe</b> the Molecular Pathogenesis, Types, Pathological Changes (In The Parathyroid Glands, Bones, &amp; Kidneys), &amp; The Clinical Features Of <b>Parathyroid Tumors</b></p> <p><b>List the Causes of Hypercalcemia.</b></p> <p><b>List the Causes of Secondary Hyperparathyroidism.</b></p> <p>+ <b>Describe</b> the Causes &amp; Effects Of <b>Hypoparathyroidism.</b></p>                                                                                                                            |
| <p>5th Endocrine Lecture</p> <p><b>Diseases of the endocrine pancreas.</b></p>   | <p>+ <b>Describe the Pathogenesis of :</b></p> <p>(1) Type 1 &amp; 2 Diabetes Mellitus (DM);</p> <p>(2) The Complications of DM.</p> <p>+ <b>Describe the Pathological Changes of:</b></p> <p>(1) DM in the Pancreas.</p> <p>(2) DM Late Complications, Including Diabetic Macrovascular Disease, Microangiopathy, Nephropathy, Neuropathy, &amp; The Ocular Complications of DM.</p> <p>+ <b>Describe</b> the Pancreatic Endocrine Neoplasms, Including Insulinomas, Gastrinomas, Glucagonomas, VIPoma [Vasoactive Intestinal peptide (VIP) producing tumor].</p>                                  |
| <p>6th (Last) Endocrine Lecture</p> <p><b>Diseases of the adrenal gland.</b></p> | <p>+ <b>Describe</b> the Causes &amp; Pathological Features Of The Different Forms of:</p> <p>(1) Hypercortisolism (Cushing syndrome);</p> <p>(2) Hyperaldosteronism.</p> <p>+ <b>Describe</b> the Causes &amp; Pathological Features Of Primary (Acute &amp; Chronic) &amp; Secondary Adrenocortical Insufficiency (<b>Hypoadrenalism</b>).</p> <p>+ <b>Describe</b> the Pathological Features &amp; Effects Of The Main <b>Adrenal Tumors</b> (Adenomas, Carcinomas, &amp; Pheochromocytomas)</p> <p>+ <b>Describe</b> the Multiple Endocrine Neoplasia Syndromes (Type 1, Type 2A &amp; 2B).</p> |

| Lecture Number<br>Subject, & Title | <p><b>ENDOCRINE SYSTEM – PATHOLOGY – 2</b></p> <p><b>PRACTICAL SESSIONS</b></p> <p><b>OBJECTIVES.</b></p> <p><b>Dr. Mohammed Alwiswasi, MBChB, PhD, FRCPath.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1st and 2 <sup>nd</sup> Labs       | <p><input type="checkbox"/> Pathology of the thyroid gland.</p> <ol style="list-style-type: none"> <li>1. <b>Describe</b> the morphology of various types of thyroiditis.</li> <li>2. <b>Describe</b> the features of nodular colloid goitre.</li> <li>3. <b>Describe</b> the features of adenomas.</li> <li>4. <b>Describe</b> the features of various carcinomas.</li> </ol> <p><input type="checkbox"/> Pathology of the pituitary gland.</p> <ol style="list-style-type: none"> <li>1. <b>Identify</b> various types of adenomas and the significance of using immunological stains in their categorization.</li> <li>2. <b>Describe</b> the morphology of craniopharyngioma.</li> </ol> <p><input type="checkbox"/> Parathyroid gland.</p> <p><b>Identify</b> the morphological features of hyperplastic gland and compare with adenoma.</p> <p><input type="checkbox"/> Endocrine pancreas.</p> <ol style="list-style-type: none"> <li>1. <b>Identify</b> the morphological features of the pancreas in diabetes.</li> <li>2. <b>Identify</b> the morphological features of islet cell adenoma.</li> </ol> <p><input type="checkbox"/> Adrenal gland</p> <ol style="list-style-type: none"> <li>1. <b>Identify</b> the morphological features of atrophic and hyperplastic glands. Compare with the features of cortical adenoma.</li> <li>2. <b>Identify</b> the morphological features of pheochromocytoma.</li> <li>3. <b>Identify</b> the morphological features of neuroblastoma.</li> </ol> |

## **Endocrine System – Clinical Pharmacology: 8 lectures**

At the end of the course, the student should be able to:

1. Identify prototype drugs used in the treatment or prevention of endocrine diseases.
2. Describe the pharmacological actions of these drugs on various organ-systems.
3. Identify the adverse effects, precautions and contraindications related to their use.
4. List the therapeutic uses of all prototype drugs.
5. Appreciate the importance of individualization of drug therapy.

### **I. Anterior Pituitary Hormones (1 lecture):**

Discuss the pharmacology of growth hormone and its antagonists  
Prolactin and inhibitors

### **II. Insulin and Oral Hypoglycemic Agents (3 lectures).**

Identify drugs used in the treatment of both insulin-dependent and Noninsulin-dependent diabetes mellitus.

Classify insulin preparations according to duration of action (immediate, intermediate & long acting), and routes of administration (IV, SC).

List methods of insulin administration.

Identify special indications of insulin.

Discuss the pharmacological actions, adverse effects and drug interactions with insulin.

Discuss the pharmacological actions, adverse effects, precautions, and special indications of oral hypoglycemic agents (sulfonylureas, biguanides, acarbose and thiazolidinedione).

### **III. Thyroid and antithyroid drugs (1 lecture)**

Realize the role of thyroid hormones as replacement therapy in cases of hypothyroidism.

Discuss drugs used in treatment of thyrotoxicosis (thionamides, iodides, radioactive iodine) regarding pharmacological actions, adverse effects, therapeutic indications, and special precautions.

#### **IV. Corticosteroids (2 lectures)**

Discuss the actions and regulation of naturally occurring glucocorticoids (cortisol).

Classify synthetic adrenocorticosteroids into:

- Short-to-medium-acting glucocorticoids (cortisone, prednisone, prednisolone and methylprednisolone)
- Intermediate-acting glucocorticoids (Triamcinolone).
- Long-acting glucocorticoids (Betamethasone and dexamethasone).
- Mineral corticoids (Fludrocortisone and deoxycorticosterone acetate).

Identify their clinical uses in various medical conditions (adrenal and nonadrenal disorders).

List adverse effects, contraindications, and precautions.

#### **V. Agents that affect bone and mineral hemostais (1 lecture):**

Discuss the pharmacology of parathyroid hormone, calcitonin and vitamin D.

Drugs that affect bone

Bisphosphonates

## ENDOCRINE SYSTEM - PHYSIOLOGY

**BY THE END OF THE COURSE THE STUDENT SHOULD BE ABLE TO FULLFILL THE FOLLOWING OBJECTIVES FROM PHYSIOLOGY POINT OF VIEW:**

Physiology part of the endocrine system module was divided to two sections.

**First section** covers general concepts of endocrinology and the neuroendocrinology.

**Second section** covers specific glands.

**First section:** The following concepts were emphasized:

Homeostasis, types of regulations neural versus endocrine with emphasis on the endocrine part, Glands types exocrine, endocrine and paracrine, importance and their secretions. Hormones, types, mechanisms and pattern of secretion and transport, degradation and the effect on variability of on plasma concentration. Pulsatile, diurnal, circadian, monthly and seasonal variation in plasma levels.

Components of regulation as receptors locations and second messenger, feedback positive versus negative and their effect on plasma level and physiological effect of hormones, hormone actions that are exerted through changes in gene expression with those exerted through changes in protein phosphorylation. The effects of plasma hormone binding proteins on access of hormones to their sites of action and degradation and on the regulation of hormone secretion

The central role of the hypothalamus as part of the endocrine and nervous systems. Secretion of the hypothalamus: releasing and release inhibiting hormones. Portal circulation long and short and the importance in transporting the hypothalamic secretion to the anterior pit gland. The importance of hypothalamic secretions in control of the endocrine system.

### **Pituitary Gland - Posterior**

Neural extension of the hypothalamus in the pituitary gland vascular supply, development, and innervation.

Types of cells and secretion in the posterior pit gland oxytocin structure secretion regulation and target tissues. Mechanism of actions and importance in postpartum state for milk ejection, Milk letdown reflex.

ADH and explain why vasopressin is also known as antidiuretic hormone. Stimuli and mechanisms that control vasopressin secretion. States caused by a) over-secretion, and b) under-secretion of vasopressin and list the principle symptoms of each.

## Second section

### Anterior Pituitary Gland: Anterior

Short-loop and long-loop negative feedback control of anterior pituitary hormone secretion. Changes in secretory rates of hypothalamic, anterior pituitary, and target gland hormones caused by over-secretion or under-secretion of any of these hormones or receptor deficit for any of these hormones.

Pulsatile and diurnal secretion. Synthesis, structure, and actions of the glycoprotein hormones FSH, LH, and TSH. Synthesis, structure, actions, and metabolism of the GH/prolactin family.

Synthesis, structure, and actions of the POMC family: ACTH, MSH,  $\beta$ -lipoprotein,  $\beta$ -endorphin.

Identify appropriate hypothalamic factors that control the secretion of each of the anterior pituitary hormones, and describe their route of transport from the hypothalamus to the anterior pituitary.

### Thyroid Gland: Hypothalamic pituitary thyroid axis

Define “iodine pool”. Distribution of iodine and the iodide metabolic pathway. Relate the distribution of radioiodide in the body to thyroid hormone synthesis, metabolism, and excretion. Steps in the biosynthesis, storage, and secretion of tri-iodothyronine ( $T_3$ ) and thyroxine ( $T_4$ ) and their regulation. Factors that control the synthesis, storage, and release of thyroid hormones. Explain the importance of thyroid hormone binding in blood on free and total thyroid hormone levels. Significance of the conversion of  $T_4$  to  $T_3$  and reverse  $T_3$  ( $rT_3$ ) in extra-thyroidal tissues. Actions of thyroid hormones on development and metabolism. Causes and consequences of a) over-secretion and b) under-secretion of thyroid hormones. Explain why either condition can cause an enlargement of the thyroid gland. Explain the components of hypothalamic pituitary control over the thyroid gland

### Adrenal Gland

Identify the functional zones (medullary and three cortical zones), innervation, and blood supply of the adrenal glands and the principal hormones secreted from each zone.

Synthesis of the adrenal steroid hormones (glucocorticoids, mineralocorticoids, and androgens) and the key structural features that distinguish each class. Relation of different steroid hormones and steps of synthesis. cellular mechanism of action of adrenal cortical hormones. Major actions of glucocorticoids on metabolism and the target organs on which they are produced. Actions of glucocorticoid hormones in injury and stress. Components of the neuroendocrine axis that control glucocorticoid secretion and describe how factors in the internal and external environment influence the neuroendocrine axis. Causes and consequences of a) over-secretion and b) under-secretion of glucocorticoids and adrenal androgens. Major mineralocorticoids and identify their biological actions and target organs or tissues. Physiological stimuli that cause increased mineralocorticoid secretion. Relate these stimuli to regulation of sodium

and potassium excretion. List the factors that can modulate the secretory response and explain how they are detected. Pathophysiological look at causes and consequences of a) over-secretion and b) under-secretion of mineralocorticoids.

Diagram the negative feedback control of aldosterone secretion. Chemical nature of catecholamines, their biosynthesis, mechanism of transport within the blood, and how they are degraded and removed from the body. Identify how the structure of norepinephrine differs from epinephrine. Biological consequences of activation of the adrenal medulla and identify the target organs or tissues for catecholamines along with the receptor subtype that mediates the response. Understand the mechanism by which epinephrine and norepinephrine can produce different effects in the same tissues. Explain the change in the ratio of epinephrine to norepinephrine release from the adrenal medulla during sympathetic activation (fight and flight), or in prolonged food deprivation.

Name the key stimuli causing catecholamine secretion. List the factors that can modulate a) the secretory response and b) the responses of target tissues. Integration of adrenal medullary and cortical hormones in response to stress. Disease states caused by an over-secretion of adrenal catecholamines.

### **$\text{Ca}^{++}$ and $\text{PO}_4^-$ homeostasis**

#### **$\text{Ca}^{2+}$ and Phosphate Balance**

The normal range of dietary  $\text{Ca}^{2+}$  and phosphate intake, major storage pools of Ca and phosphate, and major routes of  $\text{Ca}^{2+}$  and phosphate loss from the body. Regulation of plasma  $\text{Ca}^{2+}$  by calcitonin and phosphate by parathyroid hormone. Normal filtered load of  $\text{Ca}^{2+}$ . Tubular sites of  $\text{Ca}^{2+}$  reabsorption. Tubular sites of phosphate reabsorption.

Renal regulation of  $\text{Ca}^{2+}$  and phosphate transport by PTH, calcitonin, and 1,25-dihydroxy vitamin D (calcitriol), and distinguish from other factors that alter their transport (ECF volume, acid-base disorders). The role of the kidney in the production of 1,25-dihydroxy vitamin D (calcitriol).

Calcium pool and its components. Cells of origin for parathyroid hormone, its biosynthesis, and mechanism of transport within the blood (bound or free). Target organs and cell types for parathyroid hormone and describe its effects on each. Functions of the osteoblasts and the osteoclasts in bone remodeling and the factors that regulate their activities. Onset and duration for each of the biological actions of parathyroid hormone. Regulation of parathyroid hormone secretion and the role of the calcium-sensing receptor.

Sources of vitamin D and diagram the biosynthetic pathway and the organs involved in modifying it to the biologically active  $1,25(\text{OH})_2\text{D}_3$  (1-25 dihydroxy cholecalciferol). Target organs and cellular mechanisms of action for vitamin D. Negative feedback relationship between the parathyroid hormone and the biologically active form of vitamin D [ $1,25(\text{OH})_2\text{D}_3$ ]. Consequences of vitamin D deficiency and vitamin D excess.

origin and target organs or cell types for calcitonin. Stimuli that can promote secretion of calcitonin.

### Glucose Homeostasis

Plasma glucose levels over twenty four hours. Role of hormone in maintenance of plasma glucose concentration. Role on Insulin in glucose homeostasis.

Target organs or cell types for insulin, the major effects of insulin on each, and the consequent changes in concentration of blood constituents. Time course for the onset and duration for the biological actions of insulin. Relationship between blood glucose concentrations and insulin secretion. Describe the roles of neural input and gastrointestinal hormones on insulin secretion. List the factors that modulate the secretory response. Disease states caused by: a) over-secretion, b) under-secretion of insulin, or c) decreased sensitivity to insulin, and describe the principal symptoms of each.

Identify the major hormones secreted from the endocrine pancreas, their cells of origin, and their chemical nature. Target organs or cell types for glucagon and describe its principal actions on each. Time course for the onset and duration of the biological actions of glucagon.

Describe the control of glucagon secretion. Regulation of plasma glucose in well and poor fed states. Identify the normal range of plasma glucose concentrations, and list the chemical forms and anatomical sites of storage pools for glucose and other metabolic substrates. Hormones that promote the influx and efflux of glucose, fat, and protein into and out of energy storage pools and their impact on the uptake of glucose by tissues. Establish specific roles for insulin, glucagon, glucocorticoids, catecholamines, growth hormone, and thyroid hormone.



## Growth

Describe the relationship between growth hormone and the insulin-like growth factors and their binding proteins in the regulation of growth. Understand the regulation of growth hormone secretion. Identify the roles of hypothalamic factors and IGF-I. Target organs or cell types for insulin-like growth factors that account for longitudinal growth.

Role of thyroid, gonadal, and adrenal hormones modulate growth. The nature and actions of local growth factors: epidermal growth factor, nerve growth factor, platelet-derived growth factor, and angiogenic and antiangiogenic factors.

## Physiology Lectures : 12 Lectures

| No. | Title                                                                 | Objective                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Introduction to endocrinology<br>(Phys1)                              | <ol style="list-style-type: none"> <li>1. Describe general aspects, governs regulation of hormone secretion.</li> <li>2. Describe how feedback relationship is important in determining the level of circulating hormones.</li> <li>3. Outline the role of hormones as an integral part of the control mechanism used to regulate different metabolic, developmental, growth and reproductive functions in the human body.</li> <li>4. Characterize the major hormonal biorhythms.</li> </ol> |
| 2   | General endocrinology, Hypothalamic-pituitary relationship<br>(Phys2) | <ol style="list-style-type: none"> <li>1. List adenohypophyseal &amp; neurohypophyseal hormones</li> <li>2. Describe the regulation of anterior pituitary hormones by the hypothalamus. Explain physiological role of portal circulation</li> <li>3. Describe the posterior pituitary gland relationship with the hypothalamus</li> <li>4. Design an experiment to show the importance of pituitary gland in close proximity to the hypothalamus</li> </ol>                                   |
| 3   | Hypothalamic/Pit, Adenohypophyseal hormones I<br>(Phys3)              | <ol style="list-style-type: none"> <li>1. Describe growth and metabolic effects of growth hormone.</li> <li>2. List the principal insulin-like growth factors and describe their relationship to the actions of growth hormone</li> </ol>                                                                                                                                                                                                                                                     |
| 4   | Hypothalamic/Pit, Adenohypophyseal hormones II<br>(Phys4)             | <ol style="list-style-type: none"> <li>1. Describe regulation of growth hormone secretion.</li> <li>2. List the factors which stimulates growth hormone secretion</li> <li>3. List the factors which inhibits growth hormone secretion</li> <li>4. Describe the role of the hypothalamus, growth hormone releasing hormone and somatostatin in the control of growth hormone secretion</li> <li>5. Describe the function of growth hormone in different age periods</li> </ol>                |
| 5   | Posterior pituitary hormones<br>(Phys5)                               | <ol style="list-style-type: none"> <li>1. Compare antidiuretic hormone and oxytocin in relation to their structure.</li> <li>2. Discuss the physiological effects of antidiuretic hormone.</li> <li>3. Describe the regulation of antidiuretic hormone secretion.</li> <li>4. List the major physiological effects of oxytocin.</li> <li>5. Describe the regulation of oxytocin secretion</li> </ol>                                                                                          |
| 6   | Thyroid hormones<br>(Phys6)                                           | <ol style="list-style-type: none"> <li>1. Describe physiological aspects related to the formation and secretion of thyroid hormones.</li> <li>2. Characterize physiological consequences of thyroid hormones binding to transporting proteins.</li> <li>3. List the main physiological actions of thyroid hormones.</li> <li>4. Describe the regulation of thyroid hormones secretion.</li> </ol>                                                                                             |

|    |                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|----|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 7  | Hormonal control of calcium metabolism I<br><b>(Phys7)</b>  | <ol style="list-style-type: none"> <li>1. Discuss absorption, metabolism and excretion of calcium and phosphate.</li> <li>2. Discuss the role of vitamin D in calcium and phosphate absorption</li> <li>3. Outline the effect of calcium ion concentration on the regulation of the active form of vitamin D levels</li> <li>4. List the major physiological effects of PTH</li> <li>5. Discuss the regulation of PTH secretion</li> </ol> |  |
| 8  | Hormonal control of calcium metabolism II<br><b>(Phys8)</b> | <ol style="list-style-type: none"> <li>1. List the major physiological actions of calcitonin</li> <li>2. Discuss the regulation of calcitonin secretion</li> <li>3. Compare between PTH and calcitonin as regulators of calcium levels.</li> </ol>                                                                                                                                                                                         |  |
| 9  | Endocrine functions of the pancreas<br><b>(Phys9)</b>       | <ol style="list-style-type: none"> <li>1. Describe plasma glucose level in well fed and poor fed state</li> <li>2. Discuss principal hormones that affect blood glucose concentration.</li> <li>3. Discuss metabolic effects of insulin.</li> <li>4. Discuss the regulation of insulin secretion.</li> <li>5. Discuss physiological effects of glucagon.</li> <li>6. Describe the regulation of glucagon secretion.</li> </ol>             |  |
| 10 | Mineralocorticoids<br><b>(Phys10)</b>                       | <ol style="list-style-type: none"> <li>1. Describe physiological effects of mineralocorticoids (aldosterone).</li> <li>2. Discuss the regulation of aldosterone secretion.</li> <li>3. Describe the clinical consequences of hypo and hyperaldosteronism.</li> </ol>                                                                                                                                                                       |  |
| 11 | Adrenal medullary hormones<br><b>(Phys11)</b>               | <ol style="list-style-type: none"> <li>1. List the catecholamines secreted by the adrenal medulla.</li> <li>2. Describe the actions of catecholamines in human body.</li> <li>3. List the factors that regulate adrenal medullary secretion.</li> </ol>                                                                                                                                                                                    |  |
| 12 | Glucocorticoids<br><b>(Phys12)</b>                          | <ol style="list-style-type: none"> <li>1. Describe the major physiological effects of glucocorticoids.</li> <li>2. Discuss the regulation of cortisol secretion.</li> <li>3. Describe the clinical consequences of hypo and hyperadrenalism.</li> </ol>                                                                                                                                                                                    |  |

## Community medicine Lectures : 2 Lectures

| No.   | Title                              | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 & 2 | Epidemiology of endocrine diseases | <ol style="list-style-type: none"> <li>1. Describe epidemiology of diabetes mellitus ( DM).</li> <li>2. Describe the epidemiological aspects of DM regarding age distribution, incidence and prevalence risk factors and trend</li> <li>3. Identify the diagnostic methods.</li> <li>4. List general public awareness policies.</li> <li>5. Describe epidemiology of thyroid diseases.</li> <li>6. Describe the epidemiological aspects of goiter regarding age distribution, incidence and prevalence risk factors and trend.</li> <li>7. Describe public protective measures to prevent neonatal hypothyroidism.</li> <li>8. List general public awareness policies.</li> </ol> |

## Summary of the Teaching Activities in the Endocrine System Module

| Department            | No of Lectures | No.of Labs(3hrs) each |
|-----------------------|----------------|-----------------------|
| Anatomy               | 6              | 1                     |
| Physiology            | 12             | 0                     |
| Clinical Biochemistry | 6              | 1                     |
| Pathology             | 6              | 2                     |
| Microbiology          | 0              | 0                     |
| Pharmacology          | 8              | 0                     |
| Community medicine    | 2              | 0                     |
| <b>Total</b>          | <b>40</b>      | <b>4</b>              |

Working hours = Number of lectures + (Practical sessions \*3) = 52 Hours.

### Course information:

|               |                              |
|---------------|------------------------------|
| Course title  | Gastrointestinal tract (GIT) |
| Course number | 0111501302                   |
| Credit hours  | 6 (Six)                      |

### Course description:

The Gastrointestinal tract (GIT) System is an intensive multidisciplinary 6 credit hour course designed to provide students the basic sciences and clinical framework for topics in gastrointestinal tract. The course is designed to assist the student in integrating the different disciplines' lectures and practical's in each part of the system, including the anatomy, physiology, pathology, microbiology, pharmacology, biochemistry, and community medicine.

### Learning outcomes:

Upon completion of this course students should be able to:

- ★ Describe the gross structure & functional anatomy of each GIT organ; & recognize the: (1) Histological appearance of different parts of the GIT & (2) their normal embryological development & their congenital abnormalities.
- ★ Describe the function of each GIT structure; & explain the neuronal mechanisms & GIT hormones which regulate the GIT, pancreatic, & biliary functions.
- ★ Describe the major types of nutrients; & explain how proteins, carbohydrate, & fats are digested & absorbed.
- ★ Describe the etiology, pathogenesis, gross & microscopic changes, manifestations & complications of the major diseases affecting each organ of GIT, including neoplasms.
- + Describe the various bacterial, viral, fungal, & parasitic GIT infections & describe the principal manifestations, diagnosis, treatment, & prevention of each individual one of them.
- ★ Describe the mechanisms of action, pharmacokinetics, indications, & adverse effects of commonly used drugs in the treatment of different GIT disorders.
- ★ Describe the essential nutritional requirement, body weight & energy balance, nutritional deficiencies, & disease processes associated with diet.

### **Instructional methods:**

Integrated Modular System by:

- Lectures-PowerPoint presentations
- Departmental hand-outs
- animations, educational movies, illustrations
- Self-readings

### **Recommended Text Books, Atlases and supporting material**

#### **1. Anatomy:**

- ❑ Principles of Human Anatomy. By G. J. Tortora, latest edition.
- ❑ Clinical Anatomy for Medical Students. By R. S. Snell, latest edition.
- ❑ Grants Atlas of Anatomy or any other Atlas of Human Anatomy.
- ❑ Basic Histology. By L. Carlos Junqueira, latest edition.
- ❑ Before we are born. By K. L. Morre & T. V. N. Persaud, latest edition.

#### **2. Physiology:**

- ❑ Textbook of Medical physiology. By Guyton & Hall, latest edition.

#### **3. Biochemistry:**

- ❑ Harper's Biochemistry. By Robert K. Murray & Co. latest edition.
- ❑ Supplementary Departmental Handouts

#### **4. Pathology:**

- ❑ Robbins Basic Pathology, By Kumar, Abbas & Aster, 9<sup>th</sup> Edition (2013)
- ❑ Supplementary Departmental handouts (GIT 67 pages + Liver, GB & Pancreas 52 pages; a total of 119 Pages)

#### **5. Microbiology:**

- ❑ Medical Microbiology. An Introduction to Infectious Diseases. By Sheries, latest edition.

#### **6. Pharmacology:**

- ❑ Lippincott's Illustrated Reviews Pharmacology, latest edition.

#### **7. Public Health (Community Medicine):**

- Supplementary Departmental Handouts.

### **Grading Policy:**

Grades are based on the following:

- Written Mid-Term exam at the end of the system: 40%
- Practical exam at the end of the system: 20%
- Final Course Exam: 40%
- Total Points: 100%

## **Course Policies:**

### **Missed exams:**

Students who are absent in any exam are allowed to sit a make-up exam after presenting an approved sick leave or any accepted certificate of absence to the assistant of the faculty dean within 72 hours. The Course Coordinator will determine the time of the exam make-up session. Also, according to the Curriculum Committee and the University regulations, the student will be given a similar examination given to the other students. All examinations must be made up within one week of returning to class. Those absents who do not present a clue will be given a zeromark.

### **Absence:**

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students will be accountable and personally responsible for attending all educational activities (lectures, labs, examinations, etc.). Unexcused absences reflect negatively on the goals and objectives of the medical curriculum and demonstrate unprofessional behavior by the respective student.

Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Attendance is mandatory. Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

### **Cheating:**

Cheating will not be tolerated. Each individual student is responsible for his behavior and is expected to maintain standards of academic honesty and professionalism. If any instance of academic dishonesty (cheating, plagiarism, etc.) is discovered by a coordinator or an instructor, it is his or her responsibility to take appropriate action. Such action may include giving a failing grade to the student in the course and/or referring the student for Judicial Procedures Office review and possible disciplinary action, which may include disciplinary suspension or dismissal from the College.

### **Classroom Protocol:**

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students respond politely to faculty, staff, and student colleagues, exemplifying their maturity and empathy. Students agree to abide by appropriate bio-safety practices when required.

All students are expected to be quiet in their seats in the lecture theatre before the start of the lecture. Engagement in class discussions is encouraged without side chatting.

Cell phones are not allowed to be used during lectures and exams unless prior approval has been taken from the course instructor.

### **Important Dates to Remember:**

Course Start: On the first working day following the end of the endocrine module teaching.

Mid-Examination: Theory and Practical, on the last day of the module teaching time table.

Final Examination – Theory only, at the end of the first semester.

### **SPECIFIC (LEARNING) OBJECTIVES:**

After studying the material covered in lectures & practical sessions of this course, using his/her private self learning time in a productive way, the student is expected to achieve the following specific objectives:

#### **A. LECTURES:**

| Lecture (L) Number, Subject, & Title                                             |  | LECTURE OBJECTIVES                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>GIT Anatomy, Histology &amp; Embryology: 13 Lectures &amp; 6 Practical's:</b> |  |                                                                                                                                                                                                                         |
| Anatomy<br>1st Lecture                                                           |  | 1. Outline the parts & functions of GIT.<br>2. Understand the general structure of digestive tract wall.<br>3. Describe the anatomy of oral cavity (parts, structure, blood & lymph vessels, motor and sensory supply). |
| Anatomy of GIT                                                                   |  | 4. Describe briefly the teeth (types & structure).<br>5. Describe the gross features & histology of tongue.<br>6. Describe muscles & movements of tongue, blood & nerve Supply, lymphatic drainage.                     |



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|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2nd Lecture<br><br>Anatomy &<br>Histology<br>of Salivary Glands                                  | <ol style="list-style-type: none"> <li>1. Outline the types &amp; function of minor and major salivary Glands.</li> <li>2. Describe location, shape, facial sheaths &amp; gross features of parotid gland.</li> <li>3. Understand the relations, blood supply, nerve supply and lymph drainage of parotid gland supply.</li> <li>4. Describe the histology of parotid gland.</li> <li>5. Describe the location, extension, fascial sheaths &amp; relations of submandibular gland.</li> <li>6. Study the blood supply, nerve supply &amp; lymph drainage of submandibular gland.</li> <li>7. Describe the histology of submandibular gland.</li> </ol> |
| 3rd Lecture<br><br>Anatomy &<br>Histology<br>of Salivary Glands,<br>Palate & Pharynx             | <ol style="list-style-type: none"> <li>1. Describe the location, relations, blood supply, nerve and lymphatic drainage of sublingual gland.</li> <li>2. Describe the histology of sublingual gland.</li> <li>3. Describe the parts and structure of palate.</li> <li>4. Understand the muscles, movements, blood supply, nerve supply &amp; lymph drainage of soft palate.</li> <li>5. Describe the extension, relations and parts of pharynx.</li> <li>6. Describe muscles, blood supply, nerve supply &amp; lymph drainage of pharynx.</li> <li>7. Study the histological features of palate &amp; pharynx.</li> </ol>                               |
| 4th Lecture<br>Anatomy & Histology<br>of Esophagus<br>&<br>Anatomy of Anterior<br>Abdominal Wall | <ol style="list-style-type: none"> <li>1. Describe the extension, parts, relations, blood and nerve supply, lymph drainage of esophagus.</li> <li>2. Describe the histology of esophagus.</li> <li>3. Outline the layers, blood supply, nerve supply &amp; lymph drainage of anterior abdominal wall of anterior.</li> <li>4. Describe the abdominal lines, planes, quadrants and regions.</li> <li>5. Describe the muscles of anterior abdominal wall.</li> </ol>                                                                                                                                                                                     |
| 5th Lecture<br><br>Anatomy of<br>Anterior<br>Abdominal Wall &<br>Scrotum                         | <ol style="list-style-type: none"> <li>1. Describe the structure &amp; content of rectus sheath.</li> <li>2. Understand the inguinal ligament; the extension, walls and content of inguinal canal.</li> <li>3. Understand the anatomy of spermatic cord, scrotum &amp; the descend of testis.</li> <li>4. Introduce the important clinical condition of anterior abdominal wall &amp; scrotum.</li> </ol>                                                                                                                                                                                                                                              |
| 6th Lecture<br><br>Anatomy of<br>Peritoneum                                                      | <ol style="list-style-type: none"> <li>1. Describe the parts and reflection of peritoneum.</li> <li>2. Describe the parts of peritoneal cavity (lesser &amp; greater sacs).</li> <li>3. Describe the peritoneal omenta, ligaments, folds, recesses, gutter &amp; pouches.</li> <li>4. Understand the histology, blood supply, nerve supply &amp; lymph drainage of peritoneum.</li> </ol>                                                                                                                                                                                                                                                              |
| 7th Lecture<br>Anatomy & Histology<br>of Stomach                                                 | <ol style="list-style-type: none"> <li>1. Describe the location, shape, openings, surfaces and areas of stomach.</li> <li>2. Describe the relations, blood &amp; nerve supply, and the lymph drainage of stomach.</li> <li>3. Describe the histology of stomach.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                            |

|                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8th Lecture<br>Anatomy & Histology of Small Intestine | <ol style="list-style-type: none"> <li>1. Describe the parts of small intestine.</li> <li>2. Understand the relations of the four parts of duodenum, and the blood &amp; nerve supply and the lymph drainage.</li> <li>3. Describe the gross features, blood supply, nerves and lymph drainage of jejunum &amp; duodenum.</li> <li>4. Describe the histology of small intestine.</li> <li>5. Outline the arteries and veins of GIT.</li> </ol> |
| 9th Lecture Anatomy of Large Intestine                | <ol style="list-style-type: none"> <li>1. Outline the parts of the large intestine.</li> <li>2. Describe the location, relations, blood supply, nerves and lymph drainage of appendix, colon and rectum.</li> </ol>                                                                                                                                                                                                                            |
| 10th Lecture<br>Anatomy & Histology Anal Canal        | <ol style="list-style-type: none"> <li>3. Describe location, internal features, relations, sphincters, blood &amp; nerve supply, lymph drainage and histology of anal canal.</li> <li>1. Describe the location, relations, blood &amp; nerve supply, lymph drainage and the histology of pancreas.</li> </ol>                                                                                                                                  |
| 11th Lecture<br>Anatomy of Liver & Gall Bladder       | <ol style="list-style-type: none"> <li>1. Describe the location, lobes, peritoneal covering, surfaces and relations, blood &amp; lymph vessels and nerve supply of liver.</li> <li>2. Describe the histology of liver &amp; gall bladder.</li> </ol>                                                                                                                                                                                           |
| 12th & 13th Lectures<br>Anatomy Embryology of GIT     | <ol style="list-style-type: none"> <li>1. Describe the formation of gut tube.</li> <li>2. Outline the derivatives of foregut, midgut &amp; hindgut.</li> <li>3. Outline important congenital anomalies of GIT</li> </ol>                                                                                                                                                                                                                       |

### GIT Physiology: 8 Lectures

|                         |                                                         |
|-------------------------|---------------------------------------------------------|
| 1st Physiology L        | ★ Salivary secretion, swallowing, & esophageal motility |
| 2nd Physiology L        | ★ Gastric motility and vomiting                         |
| 3rd Physiology L        | ★ Gastric secretion                                     |
| 4th Physiology L        | ★ Pancreatic secretion                                  |
| 5th & 6th, Physiology L | ★ Biliary & intestinal secretion                        |
| 7th & 8th Physiology L  | ★ Absorption in GIT                                     |

### GIT Biochemistry: 4 Lectures

|                           |                                           |
|---------------------------|-------------------------------------------|
| 1st Biochemistry L        | + Digestion & Absorption of carbohydrates |
| 2nd Biochemistry L        | + Digestion & Absorption of Lipids        |
| 3rd Biochemistry L        | ★ Digestion & Absorption of proteins.     |
| 4th (Last) Biochemistry L | + Liver function tests,                   |

### GIT Pathology: (18 Lectures & 4 practical's)

|                                                 |                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1st Path Lecture<br>Diseases of the oral cavity | <p>+ Describe the Etiology, Pathogenesis, &amp; Pathologic Features Of Oral Leukoplakia, Candidiasis, &amp; Herpes Simplex Virus Infection, &amp; Aphthous.</p> <p>+ Describe the Causes &amp; Pathological Features Of Acute &amp; Chronic Sialadenitis. List Salivary Gland Tumors &amp; Describe Pleomorphic &amp; Warthin Tumor.</p> |
| 2nd Path Lecture                                | <p>Describe the: ★ Etiology, Pathogenesis &amp; Pathologic Features Of Esophageal Laceration, Achalasia &amp; Hiatus Hernia.</p> <p>★ Pathological Features Of Reflux Esophagitis.</p>                                                                                                                                                   |

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| Diseases of the esophagus                                        | <ul style="list-style-type: none"> <li>★ Cause, Pathological Features, &amp; Clinical Significance Of Esophageal Varices.</li> <li>★ Barrett's Esophagus.</li> <li>★ The Risk Factors &amp; Pathological Features Of Squamous Cell &amp; Adeno-carcinomas Of The Esophagus.</li> </ul>                                                                                                                                                                                                                                                                                      |
| 3rd Path L<br>Diseases of the stomach (gastritis & peptic ulcer) | <p>Classify diseases of the Stomach.</p> <ul style="list-style-type: none"> <li>+ Describe the Pathogenesis, Pathologic Features, &amp; Complications Of (I) Chronic Gastritis (H Pylori-Induced &amp; Drug-Induced Gastritis), &amp; (II) Acute Gastritis.</li> <li>+ Describe The Etiology, Pathogenesis, &amp; Pathological Features, &amp; Complications Of Both Acute &amp; Chronic Peptic Ulcers.</li> </ul>                                                                                                                                                          |
| 4th Path L<br>Gastric Ca                                         | + Describe the Types, Risk Factors, Gross & Microscopic Features, Spread & Prognosis Of Gastric Adenocarcinoma.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 5th Path L<br>Diseases of the intestines                         | <ul style="list-style-type: none"> <li>+ Describe the Small &amp; Large Intestinal: Developmental Anomalies.</li> <li>+ Etiology, Types &amp; Pathological Features Of Ischemic Bowel Diseases,</li> <li>+ Angiodysplasia, &amp; Hemorrhoids</li> <li>+ Diverticular diseases of the bowel.</li> <li>+ Causes, Features, Clinical Significance, &amp; Complications Of Malabsorption.</li> </ul> <p>List The Main Causes Of Bowel Obstruction, &amp; ★ Describe the 4 major causes: Strangulated Internal Or External Hernias + Adhesions + Intussusception + Volvulus.</p> |
| 6th Path L<br>(IBD)                                              | <ul style="list-style-type: none"> <li>+ Describe the Types, Etiology, Pathologic, Endoscopic &amp; Clinical Features Of Chronic Inflammatory Bowel Disease (IBD).</li> </ul> <p>Identify the Differences between Crohn's disease &amp; Ulcerative colitis.</p>                                                                                                                                                                                                                                                                                                             |
| 7th Path L<br>Intestinal polyps                                  | <p>Provide a Simplified Classification Of Small &amp; Large Intestinal Non-Neoplastic &amp; Neoplastic Polyps.</p> <ul style="list-style-type: none"> <li>+ Describe the Types &amp; Pathological Features Of Different Intestinal Polyps.</li> </ul>                                                                                                                                                                                                                                                                                                                       |
| 8th Path L<br>Colorectal carcinoma                               | <ul style="list-style-type: none"> <li>+ Describe the Adenoma-Carcinoma Sequence &amp; The Two-Hit Hypothesis Of Development Of Colorectal Carcinoma.</li> <li>+ Describe the Pathological Features, Spread, Stages &amp; Prognosis Of Colorectal Carcinoma.</li> </ul>                                                                                                                                                                                                                                                                                                     |
| 9th Path L<br>Tumors of small intestine & Appendix               | <ul style="list-style-type: none"> <li>+ Describe the Types &amp; Pathological Features Of Intestinal Lymphomas, Carcinoids, &amp; Small Intestinal Adenocarcinomas.</li> </ul> <p>List the main diseases of Appendix, &amp;</p> <ul style="list-style-type: none"> <li>+ Describe the Etiology, Pathological &amp; Clinical Features &amp; Complications Of Acute Appendicitis.</li> </ul>                                                                                                                                                                                 |
| 10th Path L<br>Cirrhosis, & hepatic failure                      | <ul style="list-style-type: none"> <li>+ Describe the Patterns of Hepatic Cell Injury &amp; the Liver Cell Responses to Injury.</li> </ul> <p>List the main Causes Of Hepatic Failure.</p> <ul style="list-style-type: none"> <li>+ Describe the Pathogenesis, Pathologic Features, &amp; Complications of Hepatic Failure</li> <li>+ Describe the Causes, Pathological &amp; Clinical Features, &amp; Complications Of Cirrhosis.</li> </ul> <p>Define jaundice &amp; List its main Causes</p>                                                                             |
| 11th Path L<br>Viral Hepatitis                                   | <p>Identify the Causes, Types, Routes, Pathological Features, &amp; Complications Of Viral Hepatitis.</p> <ul style="list-style-type: none"> <li>+ Describe the role of the Liver biopsy in Hepatitis.</li> </ul>                                                                                                                                                                                                                                                                                                                                                           |
| 12th Path L                                                      | <p>Discuss the Pathogenesis &amp; Pathologic Manifestations Of Alcohol Liver Disease.</p> <ul style="list-style-type: none"> <li>+ Describe the other (Non-Alcohol) Drug Induced Liver Diseases.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                 |

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| Alcohol & Drug-induced Liver Disease                                                                    | + Describe the Pathological Effects Of Metabolic & Inherited Liver Diseases (Hemochromatosis, Wilson disease, alpha-1-antitrypsine deficiency, & neonatal hepatitis & Rye syndrome) &                                                                                                                                    |
| 13th Path L<br>Intrahepatic Biliary Tract Diseases                                                      | Define & Describe the Pathogenesis, Pathological Features, & Complications of:<br>★Primary Biliary Cirrhosis (PBC)<br>★Primary Sclerosing Cholangitis {PSC}                                                                                                                                                              |
| 14th Path L<br>Hepatic Tumors                                                                           | List & Describe The Types Of Hepatic Nodules & Benign Hepatic Tumors.<br>+ Describe the Predisposing Factors, Pathogenesis, Morphological Features, & Methods Of Spread Of Hepatic Cell Carcinoma                                                                                                                        |
| 15th & 16th Path Lectures<br>Diseases of the gall bladder<br>Diseases of the extra hepatic biliary tree | + Describe the:<br>★Types, Etiology, Risk Factors For The Development, Effects, & Complications Of Gallstones.<br>★Pathological Features & Complications Of Acute & Chronic Cholecystitis.<br>★Pathological Features & Complications Of Choledocholithiasis & Cholangitis<br>★Tumors of the Gall Bladder & Biliary Tree. |
| 17th & 18th Path Lectures<br>Diseases of exocrine pancreas                                              | List the main Congenital Anomalies Of The Pancreas.<br>+ Describe the Causes, Pathogenesis, & Pathologic Feature Of Acute & Chronic Pancreatitis.<br>+ Types & Pathological Features Of Pancreatic Cysts<br>+ Risk Factors & Pathological Features Of Pancreatic Carcinoma                                               |

**GIT Microbiology: (9 Lectures & 2 practical's).**

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| 1st Microbiology L<br>Gastritis & Helicobacter pylori<br>2nd Microbiology L<br>Bacterial infections of GIT | Understand the role of Helicobacter in gastritis as well as laboratory diagnosis & sensitivity to antibiotics.<br><br>Recognize morphology, culture, & the pathogenesis of causative bacteria (Salmonella, Shigella & Campylobacter); & Appreciate their epidemiology & treatment. |
| 3rd Microbiology L<br>Viral hepatitis                                                                      | Recognize the characteristics of various types of viruses affecting the liver (HAV, HBV, and HCV & HEV), their modes of infection, laboratory diagnosis, & epidemiology.                                                                                                           |
| 4th Microbiology L<br>Food poisoning & Cholera                                                             | Understand the role of E. Coli, Clostridium perfringens, C. botulinum, Staphylococcus aureus and B. cereus in food poisoning. Appreciate their pathogenesis & epidemiology.<br>Recognize morphology, culture & pathogenesis of Vibrio cholerae.                                    |
| 5th Microbiology L<br>Diarrhea due to viruses                                                              | Identify the characteristics of Rota viruses & to a lesser extent those of adenoviruses 40 & 41 Norwalk, Coronaviruses & Enteroviruses.<br>★Describe the infection mechanism, define antibody response, & understand epidemiology, laboratory diagnosis, & control.                |
| 6th Microbiology L<br>Amebiasis                                                                            | Understand the differences between Entamoeba histolytica & other amoeba, laboratory diagnosis, treatment.<br>★Describe both intestinal extra intestinal infections.                                                                                                                |
| 7th Microbiology L<br>Diarrhea due to parasites I                                                          | ★Describe the morphology, life cycle, pathogenesis, epidemiology, & treatment of Giardia lamblia, Strongyloides, Balantidium, & Cryptosporidium parvum.                                                                                                                            |
| 8th Microbiology L<br>Intestinal infections                                                                | Understand infections arising from Ascaris, Enterobius, Trichuris & Toxocara parasites.                                                                                                                                                                                            |

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| with parasites II                                                                                                                                                                                        | Recognize the life cycle, morphology & treatment of each parasite.<br>Understand infection caused by Taenia, Himenolepis nana, Ancylostoma & Fasciola, their laboratory diagnosis, epidemiology & treatment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 9th (Last)<br>Microbiology Lecture<br>Schistosomiasis &<br>Hydatid disease                                                                                                                               | Recognize the life-cycle, pathogenesis & the infection caused by Schistosoma Mansoni & Echinococcus granulosus.<br>Understand the epidemiology & treatment of Schistosomiasis & Hydatid disease.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>GIT Pharmacology: 6 Lectures</b>                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1st and 2 <sup>nd</sup><br>Pharmacology<br>Lecture<br>Antiemetics & drugs<br>affecting gastric<br>3 <sup>rd</sup> & 4 <sup>th</sup><br>Pharmacology<br>Lectures<br>Drugs used in peptic<br>ulcer disease | <p>★ Describe the mechanism of drug-induced vomiting.<br/>List drug classes employed as antiemetics &amp; the mechanism of action each class.<br/>Explain the clinical implications of drugs affecting gastric emptying.</p> <p>List major drugs or groups of drugs associated with GI ulceration &amp; ways of preventing or reducing this risk.<br/>★ Describe the mechanism of action of drugs or groups of drugs commonly employed in the management of peptic ulcer disease.<br/>Explain the rationale behind the use of drug combination in peptic ulcer disease.<br/>List important antimicrobial drugs employed in peptic ulcer disease, &amp; explain the therapeutic basis of their inclusion in the management of peptic ulcer disease.<br/>Enumerate the adverse effects of drugs commonly used in peptic ulcer disease.</p> |
| 5th Pharmacology L<br>Laxative agents                                                                                                                                                                    | <p>Review the physiological aspects of normal bowel habits.<br/>List the major classes of drugs employed as laxatives &amp; describe their mechanism of action.<br/>List the major indications &amp; contraindications of laxatives.<br/>Indicate the specific adverse effects associated with the commonly used laxative agents.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 6th Pharmacology L<br>Antidiarrheal drugs                                                                                                                                                                | <p>★ Describe the therapeutic aims of antidiarrheal drugs.<br/>List the major classes of antidiarrheal drugs &amp; describe their mechanism of action.<br/>Indicate the major adverse effects possibly encountered in patients using antidiarrheal drugs.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>GIT Community Medicine: 2 Lectures</b>                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1st Community<br>Medicine Lecture<br>Nutrition                                                                                                                                                           | <p>★ Recognize the use of nutritional terms.<br/>★ Recognize the basis for categorizing the nutrients as macro, micro, and essentials.<br/>★ Classify the common domestic food items according to nutritional category.<br/>★ Understand the use of Recommended Daily Allowances (RDA) tables.<br/>★ Identify the difference between reference and non-reference individuals.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2nd Community<br>Medicine Lecture<br>Dietary roughage                                                                                                                                                    | <p>★ List the mechanism by which dietary fibers affect normal functions.<br/>★ Discuss the effect of fiber on nutrient absorption rates.<br/>★ Describe how dietary fiber help preventing health disorders.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

## B. PRACTICAL LABORATORY SESSIONS:

| PRACTICLE SESSION<br>Number & TITLE                                                                                                                                                                                                         | OBJECTIVES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| 1st anatomy<br>practical session<br><br>Anatomy &<br>Histology of Upper<br>GIT<br><br>2nd anatomy<br>practical session.<br>Anatomy &<br>Histology of<br>Esophagus,<br>&<br>Anatomy of the<br>Anterior Abdominal<br>Wall & the<br>Peritoneum | <ol style="list-style-type: none"> <li>1. Study the structure of circum oral area (lips &amp; cheeks)</li> <li>2. Study the structure, blood vessels, nerves of mouth cavity</li> <li>3. Study the location, gross features, structure, muscles, vessels &amp; nerves of the tongue</li> <li>4. Study the structure, muscles, vessels &amp; nerves of soft palate &amp; pharynx</li> <li>5. Study the Histology of soft palate, tongue</li> <li>6. Study the location, shape, surfaces, relations, blood vessels, nerves, lymph drainage and histology of parotid, submandibular &amp; sublingual glands</li> <li>1. Study the structure, extension, relations, blood &amp; lymph vessels, nerves and histology of esophagus</li> <li>2. Study the layers, muscles, blood &amp; nerve supply, lymph drainage of anterior abdominal wall</li> <li>3. Study the structure &amp; content of rectus sheath</li> <li>4. Understand the inguinal ligament; and the extension, wall &amp; content of inguinal canal in male and female</li> <li>5. Describe the structure of spermatic cord &amp; scrotum</li> <li>6. Study the reflection, organization, ligaments and folds of Peritoneum</li> </ol> <p>Understand the parts of peritoneal cavity</p> |
| 3rd anatomy<br>practical session<br><br>Anatomy &<br>Histology of<br>Stomach                                                                                                                                                                | <ol style="list-style-type: none"> <li>1. Study the location, extension, shape, surfaces &amp; relations of stomach</li> <li>2. Study the regions, openings, borders, peritoneal covering &amp; Ligaments</li> <li>3. Study the blood supply, nerves and lymphatic drainage of stomach</li> <li>4. Understand the histology of different regions of stomach</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 4th anatomy<br>practical session<br>Anatomy &<br>Histology of Small<br>intestine                                                                                                                                                            | <ol style="list-style-type: none"> <li>1. Study the parts, location, peritoneal covering, structure, relations, blood &amp; nerve supply and lymph drainage of duodenum</li> <li>2. Study the location, gross features, blood &amp; nerve supply &amp; lymphatic drainage of jejunum and ileum</li> <li>3. Understand the histology of small intestine (duodenum, jejunum, ileum)</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 5th anatomy<br>practical session<br>Anatomy &<br>Histology of Large<br>Intestine                                                                                                                                                            | <ol style="list-style-type: none"> <li>1. Study the location, relations, blood supply, nerves and lymph drainage of each part of large bowel (appendix, cecum, ascending colon, transverse colon, descending colon and sigmoid colon)</li> <li>2. Study the anatomy of rectum &amp; anal canal</li> <li>3. Histology of the appendix, colon, rectum &amp; anal canal</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 6th (last) Anatomy<br>practical session<br>Anatomy &<br>Histology of Liver,<br>Gall Bladder &<br>Pancreas                                                                                                                                   | <ol style="list-style-type: none"> <li>1. Study the location, gross features, structure, peritoneum, blood, lymph, nerves and ducts of liver, gall bladder &amp; pancreas</li> <li>2. Understand the histology of liver, gall bladder &amp; pancreas</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |



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| 1st pathology practical session                                     | <ul style="list-style-type: none"> <li>► Describe the morphology of the <input type="checkbox"/> Mucocoele, <input type="checkbox"/> Sialolithiasis, <input type="checkbox"/> Sjögren's syndrome, &amp; <input type="checkbox"/> Tumors of the salivary glands</li> <li>► Describe the morphology of the <input type="checkbox"/> Esophagitis, <input type="checkbox"/> Barrett's esophagus &amp; adenocarcinoma, <input type="checkbox"/> Esophageal varices; &amp; <input type="checkbox"/> Squamous cell carcinoma</li> <li>► Describe the morphology of <input type="checkbox"/> Gastritis, <input type="checkbox"/> Gastric ulceration, &amp; <input type="checkbox"/> Gastric adenocarcinoma</li> </ul> |
| 2nd pathology practical session                                     | <ul style="list-style-type: none"> <li>► Describe the morphology of the following:<br/>Small intestine disorders: <input type="checkbox"/> Enteritis; <input type="checkbox"/> Tumors (carcinoid, lipoma, lymphoma, &amp; adenocarcinoma); &amp;<br/><input type="checkbox"/> Celiac disease &amp; other causes of malabsorption. Large intestinal disorders: <input type="checkbox"/> Colonic polyps &amp; adenomas; <input type="checkbox"/> Colonic adenocarcinoma; <input type="checkbox"/> Diverticular disease.</li> </ul>                                                                                                                                                                              |
| 3rd pathology practical session                                     | <ul style="list-style-type: none"> <li>► Describe the morphology of inflammatory bowel disease:<br/><input type="checkbox"/> Ulcerative colitis, <input type="checkbox"/> Crohn's disease, <input type="checkbox"/> Pseudomembranous colitis.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 4th (Last) pathology practical session                              | <ul style="list-style-type: none"> <li>► Describe the morphology of the following:<br/>Liver disorders: <input type="checkbox"/> Steatosis, <input type="checkbox"/> Hepatitis, <input type="checkbox"/> Cirrhosis, &amp; <input type="checkbox"/> Tumors<br/>Gall bladder &amp; biliary disorders: <input type="checkbox"/> Cholelithiasis &amp; cholecystitis, <input type="checkbox"/> Carcinoma of the gall bladder; &amp; <input type="checkbox"/> Cholestasis.</li> </ul>                                                                                                                                                                                                                               |
| 1st microbiology practical session (Stool examination)              | <p>Examine wet preparation for fecal leucocytes RBCs.</p> <p>Prepare stool culture for Salmonella &amp; Shigella.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2nd (Last) microbiology practical session (Parasite identification) | <p>Identify the following parasites in slides:<br/>Ascaris, Trichuris, Enterobius, Hookworm, Tinea saginata.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

#### Summary of the Teaching Activities in the Module :

| Department         | No. of lectures | No. of Labs . |
|--------------------|-----------------|---------------|
| Anatomy            | 13              | 6             |
| Physiology         | 8               | 0             |
| Biochemistry       | 4               | 0             |
| Pathology          | 18              | 4             |
| Microbiology       | 9               | 2             |
| Pharmacology       | 6               | 0             |
| Community Medicine | 2               | 0             |
| Total              | 60              | 12            |

Working hours = number of lectures + (practical sessions \*2) = 84 hours.

Total of 60 lectures in 4 weeks and 12 practical (two hours each)/ student

### **Course information :**

|               |                     |
|---------------|---------------------|
| Course title  | Genito-UrinaySystem |
| Course number | 0111501304          |
| Credit hours  | 8 credit hours      |

### **Coursedescription:**

The Genitourinary System is an intensive multidisciplinary 6 credit hour course designed to provide students the basic sciences and clinical framework for topics in genitourinary system. The course is designed to assist the student in integrating the different disciplines' lectures and practicals in each system including anatomy, physiology, pathology, microbiology, pharmacology, biochemistry, and communityMedicine.

### **Learning outcomes:**

Upon Completion of this course students should be able to:

1. Describe the gross morphology of different organs forming the Genito-Urinary System.
2. Understand the normal development of the Genito-Urinary System and its congenital anomalies.
3. Discuss the vasculature, lymphatic drainage and innervation of different parts of the Genito-Urinary System.
4. Understand various functions of the Genito-Urinary System.
5. Describe the microscopic appearance of different components of the Genito-Urinary System.
6. Discuss the microorganisms that infect the Genito-Urinary System.
7. Understand the pathogenesis of various diseases of the Genito-Urinary System.
8. List and describe the pharmacology of various drugs acting on the Genito-Urinary System.
9. Understand the bases of the inherited diseases.

### **Instructional methods:**

Integrated Modular System by:

- Lectures-PowerPoint presentations
- Departmental hand-outs
- animations, educational movies, illustrations
- Self-readings



## **Textbook and material:**

### **Anatomy:**

- Principles of Human Anatomy. By G.J. Tortora, latest edition.
- Clinical Anatomy for Medical Students: By R.S. Snell, latest edition.
- Basic Histology, By L. Carlos Junqueira, latest edition.
- Before we are born. By K.L. Morre and T.V.N. Persaud, latest edition.
- Grant Atlas of Anatomy, latest edition.

### **Physiology:**

- Textbook of Medical Physiology. By Guyton and Hall, latest edition.
- Supplementary Departmental Handouts.

### **Biochemistry:**

- Harper's Biochemistry. By Robert K. Murray and Co., latest edition.
- Supplementary Departmental Handouts.

### **Pharmacology:**

- Lippincott's Illustrated Reviews: Pharmacology, latest edition.
- Supplementary Departmental Handouts.

### **Pathology:**

- Basic Pathology. By Kumar, Cotran and Robbins, latest edition.
- Supplementary Departmental Handouts.

### **Microbiology:**

- Medical Microbiology. An Introduction to Infectious Diseases. By Sherris, latest edition.
- Supplementary Departmental Handouts.

### **Public Health (Community Medicine):**

- Supplementary Departmental Handouts.

### **Grading Policy:**

Grades can be based on the following:

Written Mid-Term exam at the end of the system: 40%

Practical exam at the end of the system: 20%

Final Exam: 40%

Total Points 100

### **Course Policies:**

#### **Missed exams:**

Students who are absent in any exam are allowed to sit a make-up exam after presenting an approved sick leave or any accepted certificate of absence to the assistant of the faculty dean within 72 hours. The Course Coordinator will determine the time of the exam make-up session. Also, according to the Curriculum Committee and the University regulations, the student will be given a similar examination given to the other students. All examinations must be made up within one week of returning to class. Those absents who do not present a clue will be given a zero mark.

## Absence

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students will be accountable and personally responsible for attending all educational activities (lectures, labs, examinations, etc.). Unexcused absences reflect negatively on the goals and objectives of the medical curriculum and demonstrate unprofessional behavior by the respective student.

Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Attendance is mandatory. Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

## Cheating:

Cheating will not be tolerated. Each individual student is responsible for his behavior and is expected to maintain standards of academic honesty and professionalism. If any instance of academic dishonesty (cheating, plagiarism, etc.) is discovered by a coordinator or an instructor, it is his or her responsibility to take appropriate action. Such action may include giving a failing grade to the student in the course and/or referring the student for Judicial Procedures Office review and possible disciplinary action, which may include disciplinary suspension or dismissal from the College.

## Classroom Protocol:

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students respond politely to faculty, staff, and student colleagues, exemplifying their maturity and empathy. Students agree to abide by appropriate biosafety practices when required.

All students are expected to be quiet in their seats in the lecture theatre before the start of the lecture. Engagement in class discussions is encouraged without side chatting.

Cell phones are not allowed to be used during lectures and exams unless prior approval has been taken from the course instructor.

Important Dates to Remember:

The Start of the Course-Second Trimester, Third Year.

Mid-Exam – Theory at the end of the course Practical

Exam – at the end of the course

Final Exam – Theory at the end of the Semester

Course Schedule :

Anatomy Lectures:

14 lectures and 4 practical.

| # | Lecture Title                           | Lecture Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Gross Anatomy of kidney                 | <ol style="list-style-type: none"> <li>1. Overview of parts &amp; functions of urinary system.</li> <li>2. Understand the location, shape and surfaces of kidney.</li> <li>3. Describe the coverings of kidney its significance, and the relations of both kidneys.</li> <li>4. Understand the gross structure of a coronal section of the kidney.</li> <li>5. describe the blood supply, nerves and lymphatic drainage of kidney</li> </ol>        |
| 2 | Histology of kidney                     | <ol style="list-style-type: none"> <li>1. Understand the parts of nephron.</li> <li>2. Describe the histology of renal corpuscle with LM &amp; EM.</li> <li>3. Understand the histological features &amp; functions of; proximal convoluted tubule, loop of Henle, distal convoluted tubule, collecting tubule, and renal calyces.</li> <li>4. Describe the structure &amp; functions of juxtaglomerular apparatus.</li> </ol>                      |
| 3 | Anatomy & Histology of Urinary Passages | <ol style="list-style-type: none"> <li>1. Understand the course, relations, blood &amp; nerve supply, lymph drainage and histology of ureters.</li> <li>2. Understand the location, shape, surfaces, relations, blood &amp; Nerve supply, function and the histology of urinary bladder.</li> <li>3. Understand the location, relations, sphincters, blood &amp; nerve supply, lymph drainage, and histology of male and female urethra.</li> </ol> |
| 4 | Embryology of Urinary System            | <ol style="list-style-type: none"> <li>1. Understand the development of the kidney.</li> <li>2. Understand the development of urinary passages (ureter, urinary bladder, urethra).</li> <li>3. Describe the developmental anomalies of urinary system.</li> </ol>                                                                                                                                                                                   |

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| 5  | Gross Anatomy & Histology of Male Genital System              | <ol style="list-style-type: none"> <li>1. Outline the parts &amp; functions of male genital system.</li> <li>2. Understand the location, shape, coverings, relations, blood &amp; nerve supply, lymph drainage, and histology.</li> <li>3. Describe the process of spermatogenesis.</li> </ol>                                                                                                                     |
| 6  | Gross Anatomy & Histology of Male Genital System              | <ol style="list-style-type: none"> <li>1. Understand the gross anatomy &amp; histology of; Epididymis, Vas Deferens, Seminal vesicle &amp; Ejaculatory duct.</li> <li>2. Understand the gross anatomy and histology of: prostate, penis and scrotum.</li> </ol>                                                                                                                                                    |
| 7  | Gross Anatomy of Female Genital System                        | <ol style="list-style-type: none"> <li>1. Outline the parts &amp; functions of female genital system.</li> <li>2. Describe the location, shape, relations, blood &amp; nerve supply, support &amp; lymph drainage of ovary.</li> <li>3. Describe the gross anatomy of uterine tubes, vagina and external genitalia.</li> </ol>                                                                                     |
| 8  | Histology of Female reproductive System                       | <ol style="list-style-type: none"> <li>1. Describe the histology of ovary.</li> <li>2. Understand the ovarian &amp; menstrual cycles.</li> <li>3. Describe the histology of uterine tubes.</li> <li>4. Describe the histology of uterus, cervix &amp; vagina.</li> </ol>                                                                                                                                           |
| 9  | Embryology of Male & Female Genital Systems                   | <ol style="list-style-type: none"> <li>1. Describe the development of the testis &amp; ovary</li> <li>2. Describe the development of male genital ducts, associated glands &amp; external genitalia.</li> <li>3. Describe the development of female genital ducts, associated glands &amp; external genitalia.</li> <li>4. Understand the developmental anomalies of male &amp; female genital systems.</li> </ol> |
| 10 | Anatomy, Histology & embryology of The Breast                 | <ol style="list-style-type: none"> <li>1. Describe the gross anatomy of the breast.</li> <li>2. Describe the histology and embryology of breast.</li> <li>3. Outline the important clinical conditions of the breast.</li> </ol>                                                                                                                                                                                   |
| 11 | The Posterior Abdominal and Pelvic Walls & Related Structures | <ol style="list-style-type: none"> <li>1. Describe the structure of posterior abdominal wall.</li> <li>2. Describe the Bones and muscles forming the wall of pelvic cavity.</li> <li>3. Describe the blood vessels and nerves of pelvic cavity.</li> </ol>                                                                                                                                                         |
| 12 | The Perineum                                                  | <ol style="list-style-type: none"> <li>1. Understand the location, definition and parts of perineum.</li> <li>2. Understand the perineal pouches and their arrangement.</li> <li>3. Understand the contents of superficial perineal pouch of male and female.</li> <li>4. Understand the contents of deep perineal pouch of male &amp; female.</li> </ol>                                                          |
| 13 | Radiological Anatomy Of Uro-Genital System                    | <ol style="list-style-type: none"> <li>1. Outline the radiological techniques used in the study of gross anatomy of urogenital system.</li> <li>2. Be oriented with radiological appearance of common</li> </ol>                                                                                                                                                                                                   |

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|    |            | diseases of urinary<br>3. Be oriented with radiological appearance of common diseases of male & female genital systemsystem |
| 14 | Anatomy 14 | Revision, Questions & Answers                                                                                               |

### Anatomy & Histology Practical Laboratory Sessions:

| # | Lab title                                                                       | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Gross Anatomy & Histology of Urinary System                                     | <ol style="list-style-type: none"> <li>1. Study the location, shape, surfaces, hilum and relations of both kidneys.</li> <li>2. Study the blood vessels of kidneys.</li> <li>3. Study the gross features of sectioned kidney.</li> <li>4. Study the course, relations of both ureters,</li> <li>5. Study the location, shape, surfaces and relations of urinary bladder.</li> <li>5. Understand the histology of the parts of nephron (Glomerulus, Bowman's capsule, proximal convoluted tubule, loop of Henle, distal convoluted tubule, and collecting ducts.</li> <li>6. Understand the histology of ureter, bladder and urethra</li> </ol> |
| 2 | Gross Anatomy & Histology of Male Genital System                                | <ol style="list-style-type: none"> <li>1. Study the structure of scrotum &amp; penis</li> <li>2. Study the location, shape, blood vessels &amp; covering of testis</li> <li>2. Study the epididymis, Vas deference, seminal vesicle &amp; Prostate</li> <li>3. understand the histology of testis, vas deferens, seminal vesicle &amp; prostate</li> </ol>                                                                                                                                                                                                                                                                                     |
| 3 | Gross Anatomy & Histology of Female Genital System                              | <ol style="list-style-type: none"> <li>1. Study the location, shape and relations of ovary</li> <li>2. Study the uterine tubes, uterus &amp; vagina</li> <li>3. Understand the histology of ovary, uterus, uterine cycle, and vagina</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                |
| 4 | Posterior Abdominal Wall & Related Structures, and Pelvic Wall & Pelvic Viscera | <ol style="list-style-type: none"> <li>1. Study the structures forming the posterior abdominal wall</li> <li>2. Study the structures on posterior abdominal wall (lumbar plexus branches, abdominal aorta, inferior vena cava and sympathetic trunk</li> <li>4. Study the muscles of pelvic wall, contents of pelvic cavity (internal iliac vessels, sigmoid colon &amp; rectum, urinary bladder and related male genital organs, sacral plexus</li> </ol>                                                                                                                                                                                     |

## pathologyLectures:

### 17 lectures and 4 practical

| # | Lecture Title                                         | Lecture Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| 1 | Diseases of The Kidney: Glomerular Diseases (I)       | <ol style="list-style-type: none"> <li>1. Define Prerenal, Renal, &amp; Post Renal Azotemia &amp; Uremia. Defined the 8 Major Syndromes of renal diseases, according to their clinical manifestations</li> <li>2. Describe the Normal Glomerulus (G). Classify Glomerular Diseases: [Primary, Secondary to Systemic Diseases, &amp; Hereditary Disorders].</li> <li>3. Describe the Pathogenesis, Light, Electron, &amp; Immunofluorescence Microscopic Changes &amp; Fate of:               <ol style="list-style-type: none"> <li>(I) Glomerulonephritis (GN) Caused by Circulating Immune Complexes,</li> <li>(II) Anti-Glomerular Basement Membrane Antibody GN, &amp;</li> <li>(III) Antibodies reacting in situ with previously "planted" nonglomerular Ags.</li> </ol> </li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 2 | Glomerular Diseases (II) & The Nephrotic Syndrome (I) | <ol style="list-style-type: none"> <li>1. Define the Mediators of Immune Injury in GN:               <ol style="list-style-type: none"> <li>(1) Complement-leukocyte-mediated,</li> <li>(2) Complement-dependent but not neutrophil-dependent injury, &amp;</li> <li>(3) Cytotoxic Abs directed to Glomerular cell Antigens.</li> </ol>               Other mediators of G damage: Monocytes &amp; macrophages, Platelets, Resident G cells (endothelial, epithelial, &amp; mesangial cells), &amp; Fibrin-related products. Other Mechanisms of G Injury: (A) Podocyte Injury, (B) Nephron Loss             </li> <li>2. Describe the Components Of, Pathogenesis, Causes, Prevalence in Children &amp; adults, Pathologic Features, and Effects &amp; complications of the Nephrotic Syndrome.</li> <li>3. Define &amp; Describe the Pathogenesis, Light &amp; Electron, &amp; Immune Fluorescence Microscopy Features, Clinical Course &amp; Prognosis Of The Following 4 Causes of Nephrotic Syndrome :               <ol style="list-style-type: none"> <li>(1) Minimal-Change Disease (Lipoid Nephrosis).</li> <li>(2) Focal and Segmental Glomerulosclerosis (FSGS).</li> <li>(3) Membranous Nephropathy or Membranous GN</li> <li>(4) Membranoproliferative GN, both types I &amp; II.</li> </ol> </li> </ol> |
| 3 | The Nephrotic Syndrome (II).                          | <ol style="list-style-type: none"> <li>4. Describe the Components Of, Causes, &amp; Light Microscopic Features of the Nephritic Syndrome.</li> <li>5. Define &amp; Describe the Pathogenesis, Light, Electron, &amp; Immune Fluorescence Microscopic Features, Clinical Course &amp; Prognosis of:               <ol style="list-style-type: none"> <li>(1) Acute Poststreptococcal GN.</li> </ol> </li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |



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| 4 | The Nephrotic Syndrome(III) & Chronic GN                      | <p>(2) IgA Nephropathy (Berger Disease).</p> <p>(3) Hereditary Nephritis.</p> <p>(4) Rapidly Progressive (Crescentic) GN Groups A, B, &amp; C.</p> <p>(5) Chronic GN.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 5 | Pyelonephritis & Interstitial Nephritis                       | <p>1. Describe the Pathogenesis, Routes, Importance of Vesicoureteral Reflux in ascending infection, Predisposing Conditions, Gross &amp; Microscopic Features, &amp; Clinical Features Of acute pyelonephritis</p> <p>-Define the Predisposing Conditions, Pathognomonic Feature, &amp; Effects of papillary necrosis.</p> <p>2. Describe The Causes, Gross &amp; Microscopic Features, &amp; Clinical Course, Effects, &amp; Diagnosis of Chronic Pyelonephritis &amp; Reflux Nephropathy</p>                                                                                                                                                                                                  |
| 6 | Vascular Diseases Of The Kidney                               | <p>1. Describe the Pathogenesis, Gross &amp; Microscopic Features, &amp; Clinical Course Of:</p> <p>(1) Acute Drug-Induced Interstitial Nephritis, (2) Analgesic Nephropathy, &amp; (3) Acute Tubular Necrosis (Both Ischemic &amp; Nephrotoxic forms).</p> <p>2. Describe the Pathogenesis, Gross &amp; Microscopic Features, &amp; Clinical Course of Benign &amp; malignant Nephrosclerosis</p> <p>-Define Thrombotic Microangiopathies &amp; Enumerate their Causes.</p> <p>3. Describe the Frequency, Pathogenesis, Microscopic Features, &amp; Clinical Course of: Childhood hemolytic uremic syndrome.</p>                                                                                |
| 7 | Cystic Diseases Of The Kidney, Renal Stones & Hydronephrosis. | <p>1. Describe renal Simple Cysts &amp; Dialysis-associated acquired renal cysts.</p> <p>2. Describe the Pathogenesis, Gross &amp; Microscopic Features, &amp; Clinical Course of:</p> <p>(a) Autosomal Dominant (Adult) Polycystic, (b) Autosomal Recessive (Childhood) Polycystic (c) Medullary Cystic Disease of the Kidney</p> <p>3. Describe the Prevalence, Pathogenesis, Effects &amp; Complications of renal stones. Enumerate the most common Causes of Hydronephrosis.</p> <p>4. Describe the Pathogenesis, Gross &amp; Microscopic Features, &amp; Effects Of Unilateral &amp; Bilateral; Partial &amp; Complete Obstruction Of The Urinary Tract; Above &amp; Below The Bladder.</p> |

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| 8  | Renal cell & Bladder carcinoma                                           | <ol style="list-style-type: none"> <li>1. Classify &amp; Describe the Gross &amp; Microscopic Features, Clinical Manifestations, routes of Spread &amp; Prognosis of:               <ol style="list-style-type: none"> <li>(1) Renal Cell Carcinoma 3 forms Clear cell, Papillary, &amp; Chromophobe RCC.</li> <li>(2) Nephroblastoma (Wilms Tumor).</li> </ol> </li> <li>2. Classify &amp; Describe the Incidence, Risk Factors, Gross &amp; Microscopic Features, Spread, Stages, Clinical Manifestations, Diagnosis &amp; Prognosis of Bladder carcinoma.</li> </ol>                                                                                                            |
| 9  | The Female Genital System- Diseases of the Vulva, Vagina, & Cervix (CIN) | <ol style="list-style-type: none"> <li>1. Describe the Pathologic Features of vulvitis, contact dermatitis, lichen sclerosis, lichen simplex chronicus, condylomata lata &amp; acuminata of the vulva.               <ul style="list-style-type: none"> <li>-Define the Causes &amp; Pathologic Features of vulvar carcinoma &amp; extramammary Paget diseases</li> <li>-Define the Causes, Pathologic Features, &amp; Effects of vaginitis, vaginal clear cell adenocarcinoma &amp; sarcoma botryoides</li> </ul> </li> <li>2. Describe The Etiology, Risk Factors, Grades Of, Pathologic Features, Fate, &amp; Prognosis of Cervical Intraepithelial Neoplasia (CIN).</li> </ol> |
| 10 | Carcinoma of the Cervix & Diseases of the Uterus (I)                     | <ol style="list-style-type: none"> <li>1. Describe the Gross &amp; Microscopic Features, Stages, Clinical Manifestation, Early Diagnosis, Prognosis &amp; Prevention of invasive carcinoma of the cervix.               <ul style="list-style-type: none"> <li>-Define Cervical Polyp, Acute &amp; Chronic Endometritis.</li> <li>-Define the Causes &amp; Effects Of Acute &amp; Chronic endometritis &amp; adenomyosis.</li> </ul> </li> <li>2. Describe Endometriosis Sites, Pathogenesis, Gross &amp; Microscopic Features, &amp; Clinical Effects.</li> </ol>                                                                                                                 |
| 11 | Diseases of the Uterus (II)                                              | <ol style="list-style-type: none"> <li>1. Enumerate the Causes of Dysfunctional Uterine Bleeding.</li> <li>2. Describe the Incidence, Etiology, Types, Gross &amp; Microscopic Features, &amp; Effects of:               <ul style="list-style-type: none"> <li>Endometrial Hyperplasia, polyp, carcinoma, Uterine leiomyoma &amp; Leiomyosarcoma.</li> <li>-Define the Causes &amp; Effects of Salpingitis.</li> <li>-Define the follicular, luteal cysts, &amp; Stein-Leventhal syndrome of the ovary.</li> </ul> </li> </ol>                                                                                                                                                    |
| 12 | Tumors Of The Ovary                                                      | <ol style="list-style-type: none"> <li>1. Describe the Origin, Frequency, Gross &amp; Microscopic Features, Effects, &amp; Prognosis of ovarian:               <ul style="list-style-type: none"> <li>Benign, borderline &amp; malignant Serous, Mucinous, &amp; Endometrioid tumors, Benign (Mature) Cystic &amp; malignant Teratomas.</li> <li>-Define: Dysgerminoma, Granulosa-thecal, Thecoma-</li> </ul> </li> </ol>                                                                                                                                                                                                                                                          |



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|    |                                                              | <p>fibroma, Sertoli-Leydig cell &amp; Brenner Tumors.</p> <p>2. Describe the clinical manifestation of all ovarian tumors.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 13 | Diseases Of Pregnancy                                        | <p>1. Describe the Causes, Gross &amp; Microscopic Features, &amp; Complications of ectopic pregnancy.</p> <p>2. Describe the Incidence, Etiology, Pathogenesis, Gross &amp; Microscopic Features, Complications, &amp; Prognosis of the Gestational Trophoblastic Diseases:</p> <p>(1) Hydatidiform moles (complete &amp; partial), (2) Invasive mole, &amp;</p> <p>(3) Choriocarcinomas.</p> <p>-Define Preeclampsia &amp; eclampsia, their pathogenesis &amp; effects (DIVC &amp; placental changes).</p>                                                                                                                                                                                                                                                                                        |
| 14 | Diseases of the breast                                       | <p>1. Describe the Nonproliferative (Cysts &amp;/Or Fibrosis) &amp; Proliferative (Epithelial Hyperplasia, Ductal Papillomatosis, Atypical Hyperplasia, &amp; Sclerosing Adenosis) Lesions of Fibrocystic Changes of Breast</p> <p>-Define the relationship of fibrocystic changes to breast ca.</p> <p>2. Describe the Etiology, Gross &amp; Microscopic Features, &amp; Effects of: Acute mastitis, Mammary duct ectasia, Traumatic fat necrosis; Breast Fibroadenoma, Phyllodes Tumor, &amp; Intraductal Papilloma</p>                                                                                                                                                                                                                                                                           |
| 15 | Carcinoma of the Breast                                      | <p>1. Classify carcinoma of the breast &amp; ★ Describe its Epidemiology, Risk Factors, &amp; Pathogenesis.</p> <p>2. Describe the main Gross &amp; Microscopic Features Of Breast:</p> <p>(A) Noninvasive ca: Ductal ca in situ, Lobular ca in situ, &amp; Paget disease of the nipple.</p> <p>(B) Invasive ca: Invasive Ductal Ca ("Not otherwise Specified"), Invasive Lobular Ca, Medullary Ca, Colloid Ca, Tubular Ca, &amp; Inflammatory Ca.</p> <p>3. Describe the Locations, Invasion Sites, Routes Of Spread, Stages, Clinical Manifestations, Diagnosis, &amp; Factors Affecting The Prognosis Of Breast Carcinoma.</p> <p>4. Finally, What is the differential diagnosis of a FEMALE BREAST MASS? Enumerate the Causes of Gynecomastia &amp; briefly describe male breast carcinoma.</p> |
| 16 | The male genital system<br>(I)<br>Penis, Testis & epididymis | <p>1. Define: hypospadias, epispadias, balanitis; balanoposthitis, phimosis, &amp; paraphimosis.</p> <p>2. Describe the Predisposing Factors &amp; Pathologic Features of (1) Bowen disease, (2) Erythroplasia of Queyrat, (3) Bowenoid papulosis, &amp; (4) Squamous cell carcinoma of penis.</p> <p>3. Describe the Etiology, Gross &amp; Microscopic Features, &amp;</p>                                                                                                                                                                                                                                                                                                                                                                                                                         |

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| 17 | The Male Genital System<br>(II)<br>Prostate | <p>Effects of Cryptorchidism, Nonspecific epididymitis &amp; orchitis, mumps, &amp; Granulomatous Orchitis</p> <ol style="list-style-type: none"> <li>Classify the testicular Germ Cell tumors according to the WHO Classification scheme.</li> <li>Describe the: Risk Factors, Types, Gross &amp; Microscopic Features, Routes Of Spread, Importance Of HCG, &amp; AFP Tumor Markers Assay In The Diagnosis &amp; Prognosis Of The Testicular: Seminoma, Embryonal carcinoma, Yolk sac tumor Choriocarcinoma, pure teratoma variants (mature, immature &amp; teratoma with somatic-type malignancies), &amp; Mixed germ cell tumors.</li> <li>Describe the Causes, Gross &amp; Microscopic Features, Clinical Manifestations, &amp; Complications of Acute bacterial prostatitis, Chronic Bacterial &amp; Abacterial prostatitis</li> <li>Describe the Incidence, Pathogenesis, Gross &amp; Microscopic Features, Clinical Manifestations, &amp; Complications of Prostatic Nodular Hyperplasia.</li> <li>Describe the Incidence, Pathogenesis, Gross &amp; Microscopic Features, Gleason System Of Grading, TNM Staging, Clinical Manifestations, Prognosis &amp; Assay Of Serum Levels Of Prostate-Specific Antigen (PSA) In The Diagnosis of Prostatic Adenocarcinoma.</li> </ol> |
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#### thology Practical Laboratory Sessions:

| Lab # | Lab. Title                                                                           | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| 1     | Glomerular pathology.                                                                | <ol style="list-style-type: none"> <li>Identify the main light microscopical features of the different types of glomerulonephritis plus selected examples of electron microscopic (EM) and immunofluorescence (IF).<br/>(for this class use Webpath images &amp; glass slides from your slide box).</li> </ol>                                                                                                                                                                                                                                                                                                     |
| 2     | Non-neoplastic diseases of the kidney.<br>Neoplasms of kidney and urothelial tumors. | <ol style="list-style-type: none"> <li>Identify the congenital and cystic diseases of the kidney grossly.</li> <li>Examine kidneys with pyelonephritis grossly and microscopically.</li> <li>Examine kidneys with hydronephrosis, lithiasis and tuberculosis grossly; (for this class use Webpath, glass slides and gross specimens in the museum)</li> <li>Examine the gross and histological slides of renal cell carcinoma and nephroblastoma (Wilms tumor).</li> <li>Examine urinary bladder cancer grossly and histologically; (for this class use the Webpath, glass slides and gross specimens).</li> </ol> |

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| 3 | Male reproductive system. | <ol style="list-style-type: none"> <li>1. Identify the gross and histological features of: <ul style="list-style-type: none"> <li>- Benign prostatic hyperplasia.</li> <li>- Carcinoma of the prostate.</li> <li>- Carcinoma of the penis.</li> <li>- Testicular tumors.</li> </ul> </li> <li>2. Identify the gross appearance of hydrocele and torsion of testis.</li> <li>3. Identify the histological features of testicular atrophy associated with infertility cases.</li> </ol>                                                                                                                                                                                                                                                                                                                               |
| 4 | Female genital tract-I.   | <ol style="list-style-type: none"> <li>1. Identify and recognize the pathologic changes in: <ul style="list-style-type: none"> <li>- Human papilloma virus infection.</li> <li>- Squamous cell carcinoma of the vulva, vagina and cervix.</li> <li>- Dysplasia and squamous intraepithelial neoplasia of the cervix.</li> <li>- Endometrial adenocarcinoma.</li> <li>- Adenomyosis and endometriosis.</li> <li>- Benign and smooth muscle tumors of the uterus.</li> </ul> </li> <li>1. Identify and recognize the pathologic changes in: <ul style="list-style-type: none"> <li>- Ectopic tubal pregnancy.</li> <li>- The following ovarian tumors: serous, mucinous, granulosa cell, teratomas and Krukenberg tumor</li> <li>- Gestational disease: molar pregnancies and choriocarcinoma.</li> </ul> </li> </ol> |

### Physiology Lectures: (12 lectures).

| # | Lecture Title               | Lecture Objectives                                                                                                                                                                                                                                                                                                                                                                 |
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| 1 | Glomerular filtration (GF). | <ol style="list-style-type: none"> <li>1. List kidney functions</li> <li>2. Describe the functions of the nephron.</li> <li>3. Explain the process of renal blood flow and glomerular filtration.</li> <li>4. Illustrate the glomerular membrane, and the dynamics of glomerular filtration.</li> <li>5. List the factors that affect glomerular filtration rate (GFR).</li> </ol> |
| 2 | Reabsorption and secretion. | <ol style="list-style-type: none"> <li>1. Explain transport mechanisms across epithelial membranes.</li> <li>2. Illustrate the reabsorption of H<sub>2</sub>O and electrolytes.</li> <li>3. Illustrate the reabsorption of glucose, urea, creatinine and protein</li> <li>4. Illustrate the reabsorption of calcium, phosphate</li> </ol>                                          |

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| 3  | Regulation of the GF and renal-blood flow (RBF). | <ol style="list-style-type: none"> <li>1. Explain the autoregulation and tubuloglomerular feedback.</li> <li>2. Describe the juxtaglomerular apparatus and its role in renin-angiotensin system.</li> <li>3. Define the glomerulotubular balance.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                               |
| 4  | Parameter of renal active transport.             | <ol style="list-style-type: none"> <li>1. Explain the renal tubular transport maximum (T<sub>m</sub>).</li> <li>2. Define the filtered load and excretion.</li> <li>3. Assess the glucose and para-aminohippuric acid (PAH) titration curve</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 5  | Renal clearance.                                 | <ol style="list-style-type: none"> <li>1. Explain the mechanisms of renal clearance and its applications.</li> <li>2. Analyse the inulin, creatinine and PAH clearance.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 6  | Renal concentration and dilution of urine.       | <ol style="list-style-type: none"> <li>1. Explain the mechanisms of dilution and concentration <ul style="list-style-type: none"> <li>- Counter current multipliers.</li> <li>- Counter current exchangers.</li> </ul> </li> <li>2. Illustrate the role of urea on urine concentration mechanism</li> </ol>                                                                                                                                                                                                                                                                                                                                                                |
| 7  | Regulation of Acid-Base Balance                  | <ol style="list-style-type: none"> <li>1. List renal buffer systems</li> <li>2. Illustrate the role of kidney in acid base balance</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 8  | Hormonal regulation of sex determination.        | <ol style="list-style-type: none"> <li>1. Describe fetal differences in male and female gonads</li> <li>2. Illustrate the role of various hormones and factors involved in sex differentiation</li> <li>3. Compare and contrast male and female reproductive systems</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                            |
| 9  | Male reproductive physiology.                    | <ol style="list-style-type: none"> <li>1. Describe the hypothalamic pituitary gonadal axis</li> <li>2. Describe the endocrine regulation of male reproduction.</li> <li>3. Illustrate the functions of the male reproductive Organ and glands.</li> <li>4. Illustrate the spermatogenesis process.</li> <li>5. Illustrate the male reproductive dysfunction</li> </ol>                                                                                                                                                                                                                                                                                                     |
| 10 | Female reproductive physiology-I.                | <ol style="list-style-type: none"> <li>1. List the hormones of female reproduction and describe their functions.</li> <li>2. List the functions of the female sex hormones.</li> <li>3. Describe the pituitary ovary axis and the changes that occur in the ovaries leading up to and following ovulation during an ovarian cycle.</li> <li>4. Describe the monthly pattern of female sex hormones</li> <li>5. Illustrate the structural changes that occur in the endometrium during the menstrual cycle and explain how these changes are hormonally controlled</li> <li>6. Describe the compare normal sequence of events of puberty in the male and female.</li> </ol> |

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| 11 | Femalereproductive physiology-II/pregnancy. | <ol style="list-style-type: none"> <li>1. Describe the physiology of the menopause and possible andropause.</li> <li>2. Describe the disorders of reproductive function.</li> <li>3. Describe, fertilization, transport of the fertilised oocyte and implantation of the blastocyst</li> <li>4. List requirements of implantation.</li> <li>5. Describe the formation and functions of placenta.</li> <li>7. Describe the response of the mother's body to pregnancy.</li> </ol> |
| 12 | Physiology of pregnancy and lactation..     | <ol style="list-style-type: none"> <li>1. List factors currently thought to be involved in the initiation of parturition.</li> <li>2. Illustrate the hormonal requirements for mammary gland development and establishment of lactation.</li> <li>3. Describe the milk synthesis , regulation and composition.</li> <li>4. Describe the milk let down reflex</li> </ol>                                                                                                          |

### Microbiology Lectures: (9 lectures and 2 practical).

| # | Lecture Title                   | Lecture Objectives                                                                                                                                                                                                                                                                                      |
|---|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Urinary tract infection.        | <ol style="list-style-type: none"> <li>1. Understand the role of <i>E. coli</i> and other gram negative bacteria as well as gram positive organisms in UTI.</li> <li>2. The laboratory diagnosis and susceptibility of these microorganisms to antibiotics</li> </ol>                                   |
| 2 | Schistosomiasis.                | <ol style="list-style-type: none"> <li>1. Describe <i>Schistosoma hematobium</i>, its pathogenesis, immune response, epidemiology, life cycle and clinical manifestations.</li> <li>2. Describe the laboratory diagnosis, treatment, prevention and control measures.</li> </ol>                        |
| 3 | Gonorrhoea.                     | <ol style="list-style-type: none"> <li>1. Understand the role of <i>Neisseria gonorrhoeae</i> as the commonest cause of sexually transmitted diseases.</li> <li>2. Describe the laboratory diagnosis, pathogenesis, susceptibility to antibiotics and epidemiology of <i>N. gonorrhoeae</i>.</li> </ol> |
| 4 | Trichomoniasis & Ectoparasites. | <ol style="list-style-type: none"> <li>1. Describe <i>Trichomonas vaginalis</i> and other ectoparasites transmitted by sexual means, their morphology, structural features and life cycle.</li> <li>2. Briefly describe clinical presentations and drugs used for treatment.</li> </ol>                 |

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|---|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5 | Infections by <i>Chlamydia</i> , <i>Gardnerella</i> , and <i>Ureaplasma</i> . | <ol style="list-style-type: none"> <li>1. Describe the differences in structure, morphology and replication of these organisms from other bacteria or viruses.</li> <li>2. Describe the pathogenesis stressing the role of virulence factors and their implication on the clinical picture.</li> <li>3. Describe laboratory diagnosis and rationale behind treatment.</li> </ol>                         |
| 6 | Syphilis.                                                                     | <ol style="list-style-type: none"> <li>1. Describe the morphology of <i>Treponema pallidum</i>, pathogenesis and laboratory diagnosis of the disease.</li> <li>2. Describe the various stages of the disease and appropriate treatment as well as preventive measures.</li> </ol>                                                                                                                        |
| 7 | HIV and AIDS.                                                                 | <ol style="list-style-type: none"> <li>1. Describe the nature of the virus, life cycle and its role in the understanding of pathogenesis and immunopathology of AIDS with emphasis on its epidemiology.</li> <li>2. Describe the laboratory measures for screening, confirmation and follow up of treatment.</li> <li>3. Highlight the treatment regimens and preventive measures.</li> </ol>            |
| 8 | Herpes, Cytomegalovirus, Human Papilloma Virus and Moluscum contagiosum.      | <ol style="list-style-type: none"> <li>1. Describe the structure, morphology, replication cycle and serotypes of each virus as well as epidemiology of the diseases they cause.</li> <li>2. Describe the pathogenesis and role of these viruses in cervical cancer.</li> <li>3. Describe the cell culture and serology for identification and highlight role of antiviral drugs in treatment.</li> </ol> |
| 9 | Candidiasis.                                                                  | <ol style="list-style-type: none"> <li>1. Describe the morphology of <i>Candida albicans</i>, its pathogenesis and the association between the immune system and fungal infections.</li> <li>2. Briefly describe clinical presentation and the nature of the vaginal discharge.</li> <li>3. Describe laboratory methods of diagnosis as well as drugs used for treatment.</li> </ol>                     |

### Microbiology Practical Laboratory Sessions:

|   |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Urinalysis and urine culture | <ol style="list-style-type: none"> <li>1. Describe methods of urine collection.</li> <li>2. Examine the following characteristics of urine: <ul style="list-style-type: none"> <li>- Physical.</li> <li>- Chemical.</li> <li>- Microscopic.</li> </ul> </li> <li>3. Demonstrate the lab diagnosis of urinary tract infection.</li> <li>4. Demonstrate the significance of antibiotic sensitivity test in urinary tract infection.</li> <li>5. Identify the morphological features of <i>Schistosoma Hematobium</i></li> </ol> |
| 2 | Urethral Discharge.          | <ol style="list-style-type: none"> <li>1. Describe specimen collection methods used in sexually transmitted disease, and storage of specimens.</li> <li>2. Recognize in microscopic slides bacteria, fungi, and parasites causing urethral discharge.</li> <li>3. Culture a urethral discharge simulated specimen that has <i>Neisseria</i> sp. Identify it by biochemical tests.</li> </ol>                                                                                                                                  |

### pharmacology Lectures: (9 lectures).

| #      | Lecture Title                    | Lecture Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 to 3 | Diuretic agents-I.               | <ol style="list-style-type: none"> <li>1. List major types of diuretics and relate them to their sites of action.</li> <li>2. List the major applications, toxicities, and the efficacy of carbonic anhydrase inhibitors (acetazolamide), osmotic diuretics, thiazides, loop diuretics and potassium-sparing diuretics.</li> <li>3. Describe the drugs that reduce potassium loss during diuresis (spironolactone, triamterene, amiloride).</li> </ol> |
|        | Diuretic agents-II.              | <ol style="list-style-type: none"> <li>1. Describe a therapy that will reduce calcium excretion in patients who have recurrent urinary stones.</li> <li>2. Discuss the principle of force diuresis.</li> <li>3. Describe the drugs for reducing urine volume in nephrogenic diabetes insipidus.</li> </ol>                                                                                                                                             |
| 4      | Drugs and the Kidney.            | <ol style="list-style-type: none"> <li>1. Understand the usefulness of altering urine pH by drugs.</li> <li>2. Discuss the mechanisms by which drugs and chemicals damage the kidney.</li> <li>3. Understand how to select and prescribe drugs for patients with renal impairment.</li> </ol>                                                                                                                                                          |
| 5 to 6 | Androgens and their antagonists. | <ol style="list-style-type: none"> <li>1. Classify and understand the nature and the mechanism of action of androgens and androgen antagonists.</li> <li>2. Discuss the therapeutic uses of androgens and their abuse potential.</li> </ol>                                                                                                                                                                                                            |



|        |                                                |                                                                                                                                                                                                                                                                                                |
|--------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7 to 8 | Female sex steroids and contraceptives agents. | <ol style="list-style-type: none"> <li>1. Describe the nature, mechanisms of actions and the adverse effects of female sex steroids and various female contraceptive agents.</li> <li>2. Indicate the therapeutic applications of antiestrogenic agents.</li> </ol>                            |
| 9      | Drugs acting on the uterus.                    | <ol style="list-style-type: none"> <li>1. Describe drugs (stimulants and relaxants) of the uterus and their therapeutic uses and adverse effects.</li> <li>2. Emphasize the effects of these drugs on uterine receptors in the nonpregnant and pregnant uterus at different stages.</li> </ol> |

### Biochemistry Lectures: (3 lectures).

| # | Lecture Title                                                             | Lecture Objectives                                                                                                                                                                                                                                                            |
|---|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Special aspects of renal metabolism. Role of kidney in acid base balance. | <ol style="list-style-type: none"> <li>1. Discuss amino acids absorption by the kidney and their disorders.</li> <li>2. Discuss creatinine metabolism.</li> <li>3. Understand the role of kidney in the regulation of hydrogen ions and bicarbonate buffer system.</li> </ol> |
| 2 | Inherited diseases-I.                                                     | <ol style="list-style-type: none"> <li>1. Understand the autosomal dominant inheritance.</li> <li>2. Understand the autosomal recessive inheritance.</li> </ol>                                                                                                               |
| 3 | Inherited diseases-II.                                                    | <ol style="list-style-type: none"> <li>1. Understand the sex-linked inheritance.</li> <li>2. Understand the mitochondrial inheritance.</li> <li>3. Understand the multifactorial inheritance.</li> </ol>                                                                      |

### Public Health Lectures: (2 lectures).

|   |                                                         |                                                                                                                                                                                                                                                  |
|---|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Epidemiology of sexually transmitted diseases (STD) I.  | <ol style="list-style-type: none"> <li>1. Define STD</li> <li>2. Discuss the epidemiological importance of STD</li> <li>3. Describe the risk factors</li> <li>4. Classify the causative pathogens</li> <li>5. Methods of Transmission</li> </ol> |
| 2 | Epidemiology of sexually transmitted diseases (STD) II. | <ol style="list-style-type: none"> <li>6. Describe different types of STD regarding clinical presentation and treatment</li> <li>7. Discuss strategies for control of STDs</li> </ol>                                                            |



Summary of the Teaching Activities in the Module :

| Department        | No. of lectures | No. of Labs . |
|-------------------|-----------------|---------------|
| Anatomy           | 14              | 4             |
| Physiology        | 12              | 0             |
| Biochemistry      | 3               | 0             |
| Pathology         | 17              | 4             |
| Microbiology      | 9               | 2             |
| Pharmacology      | 9               | 0             |
| CommunityMedicine | 2               | 0             |
| Total             | 66              | 10            |

Working hours = number of lectures + (practical sessions \*3) = 96 hours.

### **Course information:**

|               |                                 |
|---------------|---------------------------------|
| Course title  | Musculoskeletal and Skin Module |
| Course number | 111501303                       |
| Credit hours  | 6 hours                         |

### **Course description:**

The goal of this integrated course is to provide the medical student with basic sciences' information about bones, joints muscles, tendons, ligaments, skin and associated soft tissues related to clinical manifestations of diseases of the musculo-skeletal system and skin.

### **Instructional methods:**

- Lectures.
- Practical sessions.

### **Textbook and material:**

#### **ANATOMY:**

- Principles of Human Anatomy. By G.J. Tortora, Latest edition.
- Clinical Anatomy for Medical Students. By R.S. Snell, Latest edition.
- Basic Histology, by L. Carlos Junqueira. Latest edition.
- Before we are born. By K.L. Moore and T.V.N. Persaud, Latest edition.

#### **BIOCHEMISTRY:**

- Harper's Biochemistry. By Robert K. Murray and Co., Latest edition.
- Supplementary Departmental Handouts.

#### **PHYSIOLOGY:**

- Textbook of Medical Physiology, by Guyton and Hall
- Review of Medical Physiology, by William F. Ganong.

#### **PATHOLOGY:**

- Essential Pathology, by Emanuel Rubin.
- Basic Pathology, by Kumar, Cotran and Robbin.

#### **MICROBIOLOGY:**

Medical Microbiology. By John C Sherris.

## PHARMACOLOGY:

- Lipincott's Illustrated Reviews: Pharmacology.
- Goodman and Gilman's: The pharmacological basis of therapeutics.
- Basic and clinical pharmacology, Bertram and Katzung.
- Clinical Pharmacology.D.R. Laurence, P.N. Bennet, and M.J. Brown.Churchill Livingstone.

### Grading Policy:

Grades can be based on the following:

- First in-course exam (written) \* = 40%.
  - Second in-course exam (Practical) \* = 20%.
  - Final end-course exam at the end of the semester (written) \* = 40%.
  - Total Points 100
- All exams are in integrated form.

### Course Policies:

#### Late Assignments

Students must give an explanation to the course instructor for any assignment which is submitted late. It will be at the course instructor's discretion if marks will be deducted.

#### Missed exams

If a student misses an examination then he/she has the opportunity to do a make-up examination, according to the University Regulations.

#### Absence

If a student is absent for a teaching session then he/she must discuss this with the course instructor. If a student is absent for more than 25% of the course then he/she may be liable to fail the course.

#### Cheating

Cheating, in any form, is forbidden. Any student caught cheating will be reported to the Dean of Medicine and further action taken as necessary.

### Classroom Protocol:

Students are expected to attend all sessions and to arrive on time for lectures and practical sessions. It is each student's responsibility to know their timetable and which session they should attend on which day. Students are expected to behave respectfully towards all members of staff and to each other. Mobile phones are to be switched off during teaching sessions. Eating, drinking and smoking are forbidden.

### Important Dates to Remember:

Course begins first week of the semester.

Lab sessions begin the second week of the semester.

The dates and location of the written and practical examinations will be determined at the beginning of the semester.

### **Students rights and responsibilities:**

These are detailed in the University Regulation.

### **Learning outcomes:**

### **Anatomy : (22 lectures and 6 practical).**

| No. | Lecture Title                                                                | Lecture Objectives                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Skeletal & Muscular System<br>Introduction                                   | <ol style="list-style-type: none"> <li>1. List the bones of axial &amp; appendicular skeleton</li> <li>2. Describe the gross types of bones</li> <li>3. Describe the gross parts of bones, and the bone surface marking</li> <li>4. Describe types of joints; structure and types of synovial joints</li> <li>5. Describe the gross part and nerve supply of skeletal muscle; types and nomenclature of muscles</li> </ol> |
| 2   | Axial Skeleton<br>The Skull                                                  | <ol style="list-style-type: none"> <li>1. Describe the general features of skull</li> <li>2. Describe the feature of Norma Frontalis (anterior view) of skull</li> <li>3. Describe the features of Norma Verticalis (superior view) of skull</li> <li>4. Describe the features of Norma Lateralis (lateral view) of skull</li> </ol>                                                                                       |
| 3   | Axial Skeleton<br>The Skull                                                  | <ol style="list-style-type: none"> <li>1. Describe the features of Norma Occipitalis (posterior view) of skull</li> <li>2. Describe the features of Norma Basalis (inferior view) of skull</li> <li>3. Describe the features of cranial cavity (interior) of skull</li> <li>4. Describe the internal features of cranial cap</li> <li>5. Describe the features of the skull of new born baby</li> </ol>                    |
| 4   | Axial Skeleton<br>Mandible, Hyoid Bone, Cervical Vertebrae                   | <ol style="list-style-type: none"> <li>1. Describe the features of mandible</li> <li>2. Describe the features of hyoid bone</li> <li>3. Describe the general features of vertebral column</li> <li>4. Describe the features of cervical vertebrae</li> </ol>                                                                                                                                                               |
| 5   | The Scalp & Face                                                             | <ol style="list-style-type: none"> <li>1. Describe the extension, structure, muscles, blood and nerve supply, and lymph drainage of scalp</li> <li>2. Describe the muscles of facial expression; motor and sensory nerve supply; blood supply and lymph drainage of the face</li> </ol>                                                                                                                                    |
| 6   | The Muscles of Mastication, Temporal, Infratemporal & pterygopalatine Fossae | <ol style="list-style-type: none"> <li>1. Describe the muscles of mastication (attachment, nerve supply and action)</li> <li>2. Describe the extension and content of temporal fossa</li> <li>3. the extension, connections and content of infratemporal fossa</li> <li>4. Illustrate the course, parts and branches of maxillary artery</li> </ol>                                                                        |

|    |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                      | 5. Describe the location, connections and content of pterygopalatine fossa                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 7  | The Cervical Fascia & Muscular Triangles of the Neck | <ol style="list-style-type: none"> <li>1. Describe the four types of cervical fascia (investing, carotid, pretracheal &amp; prevertebral)</li> <li>2. Describe the boundaries, contents of posterior triangle of neck</li> <li>3. Describe the anterior triangle, boundaries and contents of its sub-triangles</li> </ol>                                                                                                                                                                                        |
| 8  | The Pre-Vertebral Muscles of the Neck                | <ol style="list-style-type: none"> <li>1. Illustrate the anterior group of prevertebral muscles</li> <li>2. Illustrate the lateral group of prevertebral muscles</li> <li>3. Illustrate the muscles of the back of neck</li> <li>4. Illustrate the boundaries and the content of sub-occipital Triangle</li> </ol>                                                                                                                                                                                               |
| 9  | The muscles of Vertebral Column & Joints of the Neck | <ol style="list-style-type: none"> <li>1. Describe the layers of the muscles of vertebral column</li> <li>2. Describe the cervical vertebra joints (atlanto-occipital, atlantoaxial, intervertebral)</li> <li>3. Describe the temporomandibular joint</li> <li>4. Describe the blood supply of vertebral column and its Muscles</li> </ol>                                                                                                                                                                       |
| 10 | Pharyngeal Apparatus                                 | <ol style="list-style-type: none"> <li>1. Describe the development, structure and components of pharyngeal arches</li> <li>2. Describe the derivatives of pharyngeal arches</li> <li>3. List the congenital anomalies of pharyngeal arches</li> </ol>                                                                                                                                                                                                                                                            |
| 11 | The Skin                                             | <ol style="list-style-type: none"> <li>1. Describe the histology of epidermis &amp; dermis</li> <li>2. List the cellular layers of epidermis</li> <li>3. Describe the glands and skin appendages of the skin</li> </ol>                                                                                                                                                                                                                                                                                          |
| 12 | Bones of the Upper Limb                              | <p>Explain the principal distinguishing features of the:</p> <ol style="list-style-type: none"> <li>1. Scapula</li> <li>2. Clavicle</li> <li>3. Humerus</li> <li>4. Radius</li> <li>5. Ulna</li> <li>6. Carpus</li> <li>7. Phalanges</li> </ol>                                                                                                                                                                                                                                                                  |
| 13 | Scapular muscles, Arm muscles & Shoulder Joint:      | <ol style="list-style-type: none"> <li>1. List the muscles that are attached to the scapula.</li> <li>2. Describe the attachments, action, nerve and blood supply of scapular muscles.</li> <li>3. Illustrate the intermuscular spaces related to the scapula and their contents.</li> <li>4. Describe the rotator cuff muscles and discuss their clinical significance.</li> <li>5. Describe the muscles of the arm, their actions, nerve and blood supply.</li> <li>6. Describe the shoulder joint.</li> </ol> |

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|-----------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14<br>&15 | Axilla, Cubital Fossa<br>and Muscles of the<br>forearm | <ol style="list-style-type: none"> <li>1. Define the axilla</li> <li>2. Describe the boundaries and contents of the axilla</li> <li>3. Explain the importance of the axilla.</li> <li>4. Describe the cubital fossa and list its contents.</li> <li>5. Illustrate the clinical importance of the cubital fossa.</li> <li>6. Describe the muscles in the anterior and posterior compartments of the forearm,</li> <li>7. Describe the elbow joint.</li> </ol>                  |
| 16        | Hand                                                   | <ol style="list-style-type: none"> <li>1. Describe the wrist joint and its components.</li> <li>2. List the muscles acting on the wrist joint and the movement they perform.</li> <li>3. Describe the carpal tunnel, flexor and extensor retinacula, and the structures in relation to them.</li> <li>4. Describe the anatomical snuffbox..</li> <li>5. Describe the movements of thumb and fingers.</li> <li>6. List the muscles acting on the thumb and fingers.</li> </ol> |
| 17        | Bones of the lower<br>limb                             | <p>Explain the distinguishing features of the:</p> <ol style="list-style-type: none"> <li>1. Hip bone</li> <li>2. Femur</li> <li>3. Tibia</li> <li>4. Fibula</li> <li>5. Tarsal bones</li> <li>6. Phalanges</li> </ol>                                                                                                                                                                                                                                                        |
| 18        | Inguinal Region, Hip &<br>Knee joints                  | <ol style="list-style-type: none"> <li>1. Describe the inguinal ligament and inguinal canal.</li> <li>2. Describe the femoral sheath and femoral triangle and their contents.</li> <li>3. Describe the adductor canal and adductor hiatus.</li> <li>4. List the types of Hernia.</li> </ol>                                                                                                                                                                                   |
| 19        | Muscles of the lower<br>limb                           | <ol style="list-style-type: none"> <li>1. List the muscles of the thigh.</li> <li>2. List the muscles of the leg.</li> <li>3. Describe the attachments of the thigh and leg muscles, their actions, and their nerve and blood supply.</li> <li>4. Describe the popliteal fossa and its contents.</li> </ol>                                                                                                                                                                   |
| 20        | Muscles of the lower<br>limb                           | <ol style="list-style-type: none"> <li>1. List the muscles in the gluteal region.</li> <li>2. Describe the attachments, action and nerve supply of the gluteal muscles.</li> <li>3. Describe the greater and lesser sciatic foramina and structures passing through them.</li> </ol>                                                                                                                                                                                          |
| 21        | Ankle, Foot & Ankle<br>Joint                           | <ol style="list-style-type: none"> <li>1. Describe the components and movements of the ankle joint.</li> <li>2. List the muscles acting on the ankle joint and the movements they perform.</li> <li>3. List the muscles acting on the toes.</li> <li>4. Describe the movements of toes.</li> <li>5. Describe the retinacula which are related to the foot and the structures in relation to the retinacula.</li> </ol>                                                        |

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|    |                   | 6. List the muscles in the four layers of the sole of the foot.<br>7. Describe the arches of foot.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 22 | Hip & Knee Joints | 1. Describe the components of the hip joint.<br>2. List the ligaments associated with the hip joint and their attachments.<br>3. Describe the muscles acting on the hip joint according to the type and movement they perform.<br>4. Describe the stability and mobility of the shoulder joint.<br>5. Describe the components of the knee joint.<br>6. List the ligaments associated with the knee joint and their attachment.<br>7. List the muscles acting on the knee joint according to the type and movement they perform.<br>8. Describe the bursae in relation to the knee joint.<br>9. List the blood and nerve supply of the knee joint. |
|    |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

### Physiology: (6 lectures).

| No    | Title of Lecture                                        | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.    | Skeletal Muscle Structure and Mechanism of Contraction  | Define the sarcomere and its structure.<br>Illustrate structure of myosin molecule and its subunits Describe the function of the subunits.<br>Illustrate structure of the thick and thin myofilaments and label the constituent proteins. Relationship of the myosin-thick filament bare zone to the shape of the active length:force relationship. Chemical and mechanical steps in the cross-bridge cycle, and explain how the cross-bridge cycle results in <u>shortening of the muscle</u> .                                                                                                                                                                                                                                                 |
| 2 & 3 | Control of Skeletal Muscle Contraction                  | Excitation-Contraction. Coupling and Neuromuscular Transmission, Steps in excitation-contraction coupling in skeletal muscle, and describe the roles of the sarcolemma, transverse tubules, sarcoplasmic reticulum, thin filaments, and calcium ions. The roles of ATP in skeletal muscle contraction and relaxation. Structure of the neuromuscular junction. Sequence the steps involved in neuromuscular transmission in skeletal muscle and point out the location of each step on a diagram of the neuromuscular junction. Endplate potential Vs. action potential in skeletal muscle. Possible sites for blocking neuromuscular transmission in skeletal muscle and provide an example of an agent that could cause blockage at each site. |
| 4.    | Mechanics and energetics of skeletal muscle contraction | Relationship of preload, afterload and total load in the time course of an isotonic contraction. Isometric and isotonic contraction. Distinguish between a twitch and a tetanus in skeletal muscle and explain why a twitch is smaller in amplitude                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |



|             |                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |                                      | than a tetanus. Length versus force diagram for muscle showing passive (resting), active, and total force. Describe the molecular origin of these forces. Interaction of the length:force and the force:velocity relationships. Force versus velocity relationships for two skeletal muscles of equal maximum force generating capacity but of different maximum velocities of shortening.                                                                                                                                                                                                                                                                                  |
| 5<br>&<br>6 | Energy sources of muscle contraction | Energy sources of muscle contraction with respect to their relative speed and capacity to supply ATP for contraction. Muscular fatigue. Some intracellular factors that can cause fatigue. Structural, enzymatic, and functional features of fast-glycolytic and slow-oxidative fiber types from skeletal muscle. Describe the role of the myosin crossbridges acting in parallel to determine active force and the rate of crossbridge recycling to determine muscle speed of shortening and rate of ATP utilization during contraction. Define a motor unit and describe the order of recruitment of motor units during skeletal muscle contraction of varying strengths. |

### Pathology: (9 lectures and 2 practical).

| Lecture Number, Subject, & Title                | Lectures Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1st Pathology Lecture.<br><br>Diseases of bones | ★ Describe the Etiology, Pathogenesis, Pathologic & Clinical features, Complications, & Diagnosis of:<br>(1) Acute, Chronic, & Tuberculous osteomyelitis<br>(2) Paget Disease (Osteitis Deformans).<br>Classify bone tumors & comment on their general principles.<br>+ Describe the Pathological & Radiological Features & Complications of:<br>(1) Osteomas, Osteoid Osteomas, & Osteoblastomas<br>(2) Osteochondroma, single & multiple chondromas (Ollier disease & Maffucci syndrome)                                              |
| 2nd Pathology Lecture.<br><br>Diseases of bones | + Describe the Etiology, Pathogenesis, Gross & Microscopic & Radiological Features, Diagnosis & Routes Of Spread of: (1) Osteogenic sarcoma, (2) Chondrosarcoma, (3) Ewing's sarcoma, & (4) Giant-Cell Tumor (GCT) of Bone (osteoclastoma)<br>+ Describe The Pathological & Radiological Features & Complications Of: (1) Fibrous Cortical Defects, (2) Nonossifying Fibromas, & (3) Fibrous Dysplasia.<br>+ Describe the Common Sites Of Cancer Primaries, Bones Involved, Types & Effects Of Metastatic Malignant Secondaries In Bone |
| 3rd and 4 <sup>th</sup> Pathology Lectures.     | + Describe the Types, Pathogenesis, Pathologic & Clinical Features Of                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |



|                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Diseases of joints                                               | <p>Osteoarthritis (OA) &amp; Compare Between The Morphologic Features Of OA &amp; Rheumatoid Arthritis.</p> <p>+ Describe the Types, Pathogenesis, Pathological features &amp; Clinical Stages of gout.</p> <p>Define pseudogout (chondrocalcinosis)</p> <p>★ Describe the Etiology, Pathogenesis, Pathologic Features of Suppurative &amp; Lyme Arthritis</p> <p>+ Describe the Pathogenesis, Pathologic &amp; Clinical Features of:</p> <p>(1) Ganglion, (2) Pigmented villonodular synovitis , &amp; (3) Giant-cell tumor (GCT) of tendon sheath</p> |
| <p>5th Pathology Lecture.</p> <p>Diseases of skeletal muscle</p> | <p>Enumerate the Causes of muscle atrophy.</p> <p>+ Describe the Pathogenesis, Pathologic &amp; Clinical Features of:</p> <p>(1) ) X-Linked muscular dystrophy (Duchenne &amp; Becker Muscular Dystrophy)</p> <p>(2) ) Autosomal muscular dystrophies.</p> <p>(3) Myotonic dystrophy,</p> <p>(4) Myopathies, congenital &amp; toxic</p> <p>(5) Myasthenia Gravis</p> <p>(6) Lambert-Eaton Myasthenic Syndrome</p> <p>(7) ) Rhabdomyosarcoma.</p>                                                                                                        |
| <p>6th Pathology Lecture.</p> <p>Soft tissue tumors</p>          | <p>Classify Soft tissue Tumors &amp; comment on their general principles.</p> <p>+ Describe the Types, &amp; Pathological Features Of Lipoma &amp; Liposarcoma</p> <p>+ Describe Reactive Fibrous Proliferations: Nodular Fasciitis, Myositis Ossificans, Superficial &amp; Deep Fibromatoses.</p> <p>+ Describe the Pathogenesis, Types, &amp; Pathological Features Of:</p> <p>(1) Fibrosarcoma</p> <p>(2) Benign &amp; malignant fibrohistiocytic tumors,</p> <p>(3) Leiomyoma &amp; Leiomyosarcoma</p> <p>(4) Synovial Sarcoma</p>                  |
| <p>7th Pathology Lecture.</p> <p>dermatoses</p>                  | <p>Define the dermatologic macroscopic &amp; microscopic Terms.</p> <p>+ Describe the Etiology, Pathogenesis, Gross, Microscopic &amp; Clinical Features of the:</p> <p>Acute inflammatory dermatoses: Urticaria, Acute Eczematous Dermatitis, Contact dermatitis, &amp; Erythema Multiforme.</p> <p>Chronic inflammatory dermatoses: Psoriasis, Lichen Planus, &amp; Lichen Simplex Chronicus.</p>                                                                                                                                                     |
| 8th Pathology Lecture.                                           | <p>+ Describe the Etiology, Pathogenesis, Gross, Microscopic &amp; Clinical Features Of The Infectious Dermatoses: Bacterial, Fungal Infection, &amp; viral infections [Verrucae (Warts)]</p> <p>+ Describe the Etiology, Pathogenesis, Gross, Microscopic (including the direct immunofluorescence findings) features of the Blistering (Bullous) skin disorders:</p> <p>Pemphigus (Vulgaris &amp; Foliaceus), Bullous Pemphigoid, &amp; Dermatitis Herpetiformis.</p>                                                                                 |

|                        |                                                                                                                |
|------------------------|----------------------------------------------------------------------------------------------------------------|
| 9th Pathology Lecture. | + Describe the Pathogenesis, Gross, & Microscopic Features Of:<br>Seborrheic Keratosis ( Basal cell papilloma) |
| Skin disorders         | Sebaceous Adenoma<br>Actinic Keratosis<br>Squamous Cell Carcinoma<br>Basal Cell Carcinoma<br>Dysplastic Nevus  |
| Tumors of the skin     | Melanocytic nevi<br>Melanoma                                                                                   |

### Microbiology: (6 lectures and 1 practical).

| No. | Lecture Title                                                                  | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Anaerobes and clostridium perfringens and Gas gangrene<br>Trichinella Spiralis | <ul style="list-style-type: none"> <li>Describe the morphological, bacteroides and trichinella features, pathogenesis and virulent factors, laboratory diagnosis, treatment and prevention of clostridium perfringens which is the main cause of gas gangrene.</li> <li>Describe the role of cl. Perfringens and Bacteroides in gas gangrene and the role of Trichinella in muscle infection. Explain their laboratory diagnosis, pathogenesis and treatment.</li> <li>Describe the morphological features, pathogenesis and virulent factors, laboratory diagnosis treatment and prevention of clostridium perfringens</li> <li>Describe the role of aerobes in the formation of deep wound infection and abscess.</li> <li>Describe the role of Trichinella in muscle infection and explain their laboratory diagnosis, pathogenesis and treatment.</li> </ul> |
| 2   | Bacterial infections of the skin.                                              | <p>Describe the role of bacteria in the pathogenesis of osteoarthritis, arthritis, specimen collection identification and treatment</p> <p>pathogenesis of skin commensals and pathogens</p> <p>Describe the antibiotic sensitivity of each organism (Diphtheroids, Staphylococci, Streptococci, Propionibacterium acnes, Mycobacteria)</p> <p>Explain types, pathogens of wound infection methods of specimen collection for proper diagnosis of types Bacteria and laboratory diagnosis.</p>                                                                                                                                                                                                                                                                                                                                                                   |
| 3   | Viral infections of the skin.                                                  | Explain morphology and pathogenesis as well as diagnostic procedures of viruses infecting skin.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 4   | Viral infection of the skin.                                                   | Describe the Herpes and childhood exanthems.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

|   |                                   |                                                                                                                                                                                                                                                                                                                                               |
|---|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5 | Parasitic infections of the skin. | <p>Discuss the parasites that infest the skin ( Scabies Leishmania and Onchocerca ). Briefly describe the life cycle, treatment and prevention of each parasite.</p> <p>Describe parasites that infest the skin, their life cycle, treatment and prevention. (Scabies Leishmania, Onchocerca fleas, loaloa, and cutaneous larva migrans).</p> |
| 6 | Fungal infections of the skin     | <p>Describe the fungi that infect the skin and subcutaneous tissue, their identification and treatment (Dermatophytes , Candida and Mycetoma agents )</p> <p>Describe the fungi that infect the skin, their clinical classification, their identification and treatment (cutaneous, subcutaneous and opportunistic).</p>                      |

### Pharmacology: (6 lectures).

| No.   | Title of Lecture                         | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Muscle relaxants                         | <ul style="list-style-type: none"> <li>Review the transmission process at the neuromuscular endplate and the points at which drugs can modify this process.</li> <li>Compare the pharmacodynamics and pharmacokinetics of nondepolarizing and the depolarizing neuromuscular blockers.</li> </ul> <p>Describe the main indications, major adverse effects and drug interaction of nondepolarizing and depolarizing neuromuscular blockers.</p> |
| 2 & 3 | Antirheumatoid drug                      | <ul style="list-style-type: none"> <li>List the indications to use antirheumatoid drugs in the treatment of rheumatoid arthritis.</li> <li>Describe the concept of disease-modifying agents.</li> </ul> <p>Describe the mechanism of action, toxic effect and contraindications of drugs used in the treatment of rheumatoid arthritis.</p>                                                                                                    |
| 4     | Topical antimicrobial drugs              | Describe antibacterial agents, antifungal agents, antiviral agents and ectoparasitic ones                                                                                                                                                                                                                                                                                                                                                      |
| 5     | Drugs of noninfective skin conditions    | Describe anti-inflammatory, topical corticosteroid, tar compounds and keratolytic.                                                                                                                                                                                                                                                                                                                                                             |
| 6     | Drugs of noninflammatory skin conditions | <p>Describe drugs employed in the treatment of acne, psoriasis affecting pigmentation. Acne preparations. Drugs for psoriasis. Antipruritic agents. Trichogenic agents.</p> <p>Antiseborrhea agents.</p>                                                                                                                                                                                                                                       |

### Community Medicine: (2 lectures).

| No.     | Lecture Title                 | Objectives                                                                                                                                                                                                                                                                                                                                                      |
|---------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1<br>&2 | Epidemiology of MSS injuries. | <p>Define: Epidemiology of accidents, hazards and injuries.<br/>Distinguish between risk and hazard.<br/>Identify the human, situational and environmental factors of accidents.<br/>Identify risk factors, risk groups and incidence rate of MSS injuries..</p> <p>Explain the factors that influence risk perception and risk acceptance of MSS injuries.</p> |

### Biochemistry: (2 lectures).

| No. | Lecture title                                                                | Objectives                                                                                                                                       |
|-----|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Biochemistry of Muscles, Bones and connective tissue.<br>Metabolic disorders | Understand the role of alkaline phosphatase, calcium and phosphate and vitamin D in bone formation and remodeling                                |
| 2   | Bone markers                                                                 | <p>clinical biochemistry of muscle and bone</p> <p>Discuss the markers for bone formation and resorption and their clinical use in diagnosis</p> |

## Practical

|   |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Anatomy Lab 1<br>The Bones of Head & Neck                      | <ol style="list-style-type: none"> <li>1. Name the bones of cranium and facial skeleton</li> <li>2. Understand the external features of skull (Norma frontalis, Norma verticalis, Norma lateralis, Norma occipitalis, Norma basalis)</li> <li>3. Study the features of the interior of skull</li> <li>4. Study the foramina, fissures of skull &amp; the main structures passing through</li> <li>5. Describe the features of mandible</li> <li>6. Describe the features of cervical vertebrae</li> </ol>                                                   |
| 2 | Anatomy Lab 2<br>The Scalp, Face                               | <ol style="list-style-type: none"> <li>1. Study the structure, layers, muscles, blood supply, nerves &amp; lymph drainage of scalp</li> <li>2. Study the muscles, blood vessels, motor and sensory nerve supply, &amp; lymph drainage of the face</li> <li>3. Understand the cervical deep fascia (types &amp; extension), and the superficial nerves &amp; veins of the neck</li> <li>4. Describe the attachment, nerve supply and action of sternomastoid muscle</li> </ol>                                                                               |
| 3 | Anatomy Lab 3<br>The Neck                                      | <ol style="list-style-type: none"> <li>1. Study the boundaries, parts and contents of posterior triangle and its subdivisions</li> <li>2. Study the boundaries of anterior triangle</li> <li>3. Describe the boundaries &amp; contents of subdivisions of anterior triangle</li> <li>4. describe the anterior &amp; lateral pre-vertebral muscles</li> <li>5. Study the muscles of the back of neck</li> <li>6. Study the blood vessels and nerves of the back of neck</li> <li>7. Describe the boundaries and content of sub-occipital triangle</li> </ol> |
| 4 | Anatomy Lab 4<br>Bones and joints of the upper and lower limbs | <ol style="list-style-type: none"> <li>1. Identify the different parts of the bones of the upper and lower limbs.</li> <li>2. Identify the components of the joints of the upper and lower limbs</li> </ol>                                                                                                                                                                                                                                                                                                                                                 |
| 5 | Anatomy Lab 5<br>Muscles of the upper limb                     | <ol style="list-style-type: none"> <li>1. Identify the muscles of the shoulder, arm, forearm and hand in the upper limb</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6 | Anatomy Lab 6<br>Muscles of the lower limb                     | <ol style="list-style-type: none"> <li>1. Identify the muscles of the glutea region and the anterior, medial, and posterior compartments of the thigh.</li> <li>2. Identify the muscles in the anterior, lateral, and posterior compartments of the leg.</li> <li>3. Identify the muscles of the foot</li> </ol>                                                                                                                                                                                                                                            |

|             |                                                                                                                                                                                                                                    |                                                                                                                                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7<br>&<br>8 | Pathology Lab 1 &2<br>After reviewing and discussing the colored photographs of the:<br>(1) gross specimens and of the (2) histopathological sections given in lectures as a power point presentations during the practical hours: | ★ The student should be able to identify, describe and diagnose the common and the important pathological lesions of bones, joints, soft tissues, muscle and skin disorders given in the module.                           |
| 9           | Microbiology Lab<br>Wound Culture                                                                                                                                                                                                  | Describe types:<br><ul style="list-style-type: none"> <li>Describe specimen collection methods</li> </ul> Lists the most common aerobic and anaerobic organisms causing the infection and their laboratory identification. |

#### Summary of the Teaching Activities in the Module :

| Department         | No. of lectures | No. of Labs . |
|--------------------|-----------------|---------------|
| Anatomy            | 22              | 6             |
| Physiology         | 6               | 0             |
| Biochemistry       | 2               | 0             |
| Pathology          | 9               | 2             |
| Microbiology       | 6               | 1             |
| Pharmacology       | 6               | 0             |
| Community Medicine | 2               | 0             |
| Total              | 53              | 9             |

Working hours = Number of lectures + (Practical sessions \*2) = 71 Hours.

- There are a total of 53 lectures (one hour each) and 9 practical (2 hours each) in the module
- All lectures are held in lecture room No 301 in the faculty building.

### **Course information:**

|               |                      |
|---------------|----------------------|
| Course title  | Neuroscience (CNS I) |
| Course number | 0111501305           |
| Credit hours  | 4 credit hours)      |

### **Course description:**

The Neuroscience (CNS I) System is an intensive multidisciplinary 6 credit hour course designed to provide students the basic sciences and clinical framework for topics of the central nervous system. The course is designed to assist the student in integrating the different disciplines' lectures and practical's in each part of the system, including the anatomy, physiology, pathology, microbiology, pharmacology, biochemistry, and community medicine.

### **Learning outcomes:**

Upon completion of this course students should be able to:

- ★ Describe the gross structure & functional anatomy of each part of the CNS; & recognize the: (1) Histological appearance of different parts of the CNS & (2) their normal embryological development & their congenital abnormalities.
- ★ Describe the function of each part of the CNS. ;
- ★ Describe the etiology, pathogenesis, gross & microscopic changes, manifestations & complications of the major diseases affecting the different parts of the CNS , including neoplasms.
- + Describe the various bacterial, viral, fungal, & parasitic infections of the CNS & describe the principal manifestations, diagnosis, treatment, & prevention of each individual one of them.
- ★ Describe the mechanisms of action, pharmacokinetics, indications, & adverse effects of commonly used drugs in the treatment of different CNS disorders.
- ★ Describe the epidemiology, prevention and control of meningitis and encephalitis

### **Instructional methods:**

Integrated Modular System by:

Lectures-Power Point presentations (52 Lectures) and 8 Practical sessions {Two hours each} / student

Departmental hand-outs

animations, educational movies, illustrations

Self-readings

**The 52 Lectures (L), 8 Practical (P) {Two hours each} / students include:**

|                    |      |      |
|--------------------|------|------|
| Anatomy            | 16 L | + 4P |
| Physiology         | 10 L | +1P  |
| Biochemistry       | 2 L  |      |
| Pathology          | 7L   | + 2P |
| Microbiology       | 2 L  | + 1P |
| Pharmacology       | 13 L |      |
| Community Medicine | 2 L  |      |

**Recommended Textbooks:**

**1. Anatomy, Histology & Embryology:**

- Principles of Human Anatomy. By GJ Tortora, Latest edition
- Clinical Anatomy for Medical Students, Regional & Systemic Texts, RS Snell, latest edition
- Grants or Netter Atlas of Human Anatomy, Latest edition
- Basic Histology, L C Junqueira, Latest edition
- Before we are born, Moore & Persaud, Latest Edition

**2. Physiology:**

- Textbook of Medical Physiology, By Guyton and Hall, latest edition
- Concise Text of Neuroscience, By RE Kingsley, latest edition
- Biochemistry, RK Murray, latest edition - Harper

**3. Pharmacology:**

- Illustrated Reviews Pharmacology, latest edition - Lippincott
- Basic & clinical Pharmacology, By Katzung, latest edition

**4. Pathology:**

- Robbins Basic Pathology, By Kumar, Abbas & Aster, 9th Edition (2013)
- Supplementary Departmental handouts (34 pages)

**5. Microbiology:**

Medical Microbiology, an Introduction to Infectious Diseases, By Sherries, latest edition

**6. Public Health (Community Medicine)**

- Supplementary Departmental Handouts.

**Grading Policy:**

Grades are based on the following:

- Written Mid-Term exam at the end of the system: 40%
- Practical exam at the end of the system: 20%
- Final Course Exam: 40%
- Total Points: 100%

**Course Policies:**



### Missed exams:

Students who are absent in any exam are allowed to sit a make-up exam after presenting an approved sick leave or any accepted certificate of absence to the assistant of the faculty dean within 72 hours. The Course Coordinator will determine the time of the exam make-up session. Also, according to the Curriculum Committee and the University regulations, the student will be given a similar examination given to the other students. All examinations must be made up within one week of returning to class. Those absents who do not present a clue will be given a zeromark.

### Absence:

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students will be accountable and personally responsible for attending all educational activities (lectures, labs, examinations, etc.). Unexcused absences reflect negatively on the goals and objectives of the medical curriculum and demonstrate unprofessional behavior by the respective student.

Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Attendance is mandatory. Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

### Cheating:

Cheating will not be tolerated. Each individual student is responsible for his behavior and is expected to maintain standards of academic honesty and professionalism. If any instance of academic dishonesty (cheating, plagiarism, etc.) is discovered by a coordinator or an instructor, it is his or her responsibility to take appropriate action. Such action may include giving a failing grade to the student in the course and/or referring the student for Judicial Procedures Office review and possible disciplinary action, which may include disciplinary suspension or dismissal from the College.

### **Classroom Protocol:**

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students respond politely to faculty, staff, and student colleagues, exemplifying their maturity and empathy. Students agree to abide by appropriate bio-safety practices when required.

All students are expected to be quiet in their seats in the lecture theatre before the start of the lecture. Engagement in class discussions is encouraged without side chatting.

Cell phones are not allowed to be used during lectures and exams unless prior approval has been taken from the course instructor.

### **Important Dates to Remember:**

Course Start: On the first working day following the end of the Genitourinary module teaching.

Mid-Examination: Theory and Practical, on the last day of the module teaching time table.

Final Examination – Theory only, at the end of the Second semester.

### **SPECIFIC (LEARNING) OBJECTIVES:**

After studying the material covered in lectures & practical sessions of this course, using his/her private self learning time in a productive way, the student is expected to achieve the following specific objectives:

#### **Lectures Objectives**

#### **CNS I Anatomy, Histology & Embryology: 16 Lectures & 4 Practicals**

| No           | Title                                                                                                                                           | Objectives                                                                                                                                                                                                                        |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1<br>anatomy | An introduction to the nervous System.<br>Classification of the nervous system<br>Meninges of the brain and spinal cord<br>Dural venous sinuses | 1. Review the structure of the central, peripheral & autonomic nervous systems<br>2. Describe the dura, arachnoid and pia mater of the brain & spinal cord<br>3. Describe the dural folds<br>4. Describe the dural venous sinuses |
| 2<br>anatomy | The spinal cord: Gross features & Internal structure; Ascending tracts of the spinal cord I                                                     | 1. Describe the gross and internal features of the spinal cord.<br>2. Describe the arrangements of nerve fiber tracts in the spinal cord.                                                                                         |
| 3<br>anatomy | Ascending tracts of the spinal cord II                                                                                                          | 1. Describe the anterolateral ascending tracts<br>Describe the dorsal column tracts<br>Describe the muscle-joint pathway to the cerebellum<br>4. Describe the spinotectal, spinoreticular, spino- Olivary                         |

|                            |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            |                                                         | and visceral sensory tracts.                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>4 anatomy</b>           | Descending tracts of the spinal cord                    | <ol style="list-style-type: none"> <li>1. Identify the different direct and indirect ascending tracts in the spinal cord.</li> <li>2. Describe the pyramidal and extra-pyramidal tracts and their functions.</li> <li>3. Describe the sensory and motor homonucleus</li> <li>4. Describe the intersegmental tracts and their Significance.</li> </ol>                                                                     |
| <b>5 anatomy</b>           | The Brainstem: Medulla oblongata, pons, and midbrain I  | <ol style="list-style-type: none"> <li>1. Describe the structure, functions and components of the brainstem</li> <li>2. Describe the external and internal features of the upper, middle and lower level of the medulla oblongata.</li> </ol>                                                                                                                                                                             |
| <b>6 anatomy</b>           | The Brainstem: Medulla oblongata, pons, and midbrain II | <ol style="list-style-type: none"> <li>1. Describe the external &amp; internal features of the pons</li> <li>2. Describe the external &amp; internal features of the midbrain</li> </ol>                                                                                                                                                                                                                                  |
| <b>7 anatomy</b>           | The Cerebellum                                          | <ol style="list-style-type: none"> <li>1. Describe the cerebellum; its external and internal features, including the intracerebellar nuclei.</li> <li>2. Describe the functional areas of the cerebellar cortex and its white matter</li> <li>3. Describe the afferent &amp; efferent connections of the cerebellum</li> <li>4. Review the signs and symptoms of cerebellar diseases as related to its anatomy</li> </ol> |
| <b>9 anatomy</b>           | The Cerebrum II                                         | <ol style="list-style-type: none"> <li>1. Describe the white matter of the brain, the commissural, association and projection fibers.</li> <li>2. Describe the functional localization of cerebral cortex and their clinical significance.</li> </ol>                                                                                                                                                                     |
| <b>10 anatomy</b>          | The Basal nuclei                                        | Describe the components of basal nuclei, their functions, afferent and efferent connections and disorders                                                                                                                                                                                                                                                                                                                 |
| <b>11 anatomy</b>          | The Limbic system; Diencephalon I                       | <ol style="list-style-type: none"> <li>1. Describe the limbic system, the structures forming it, its functions and connections.</li> <li>2. Describe the thalamus, the thalamic nuclei, their functions and connections</li> </ol>                                                                                                                                                                                        |
| <b>12 anatomy</b>          | Diencephalon II                                         | <ol style="list-style-type: none"> <li>1. Describe the epithalamus, its parts, connections, and functions</li> <li>2. Describe the subthalamus</li> <li>3. Describe the hypothalamus, hypothalamic nuclei, and hypothalamic lines of communications, afferent and efferent connections.</li> <li>4. Review the functions of the hypothalamus</li> </ol>                                                                   |
| <b>13 &amp; 14 anatomy</b> | Cranial nerves I & II<br>Ventricles of the brain        | <ol style="list-style-type: none"> <li>1. List the cranial nerves I – XII</li> <li>2. List the functional components of cranial nerves</li> <li>3. Describe the motor, sensory and parasympathetic nuclei of the cranial nerves I-XII and their connections</li> <li>4. Describe the lateral ventricles, third ventricle, Cerebral aqueduct, fourth ventricle and central canal of the</li> </ol>                         |

|                            |                                           |                                                                                                                                                                                                                                                                            |
|----------------------------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            |                                           | medulla oblongata and spinal cord                                                                                                                                                                                                                                          |
| <b>15 &amp; 16 anatomy</b> | Blood supply of the brain and spinal cord | <ol style="list-style-type: none"> <li>1. Describe the arterial blood supply of the brain</li> <li>2. Describe the circle of Willis</li> <li>3. Describe the veins of the brain</li> <li>4. Describe the arterial blood supply and the veins of the spinal cord</li> </ol> |

### CNS I Pharmacology: 13 Lectures

|                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1<sup>st</sup> Pharmacology Lecture</b><br><br><b>An overview of synaptic transmission of the CNS</b> | <ol style="list-style-type: none"> <li>1. Review the physiology of synaptic transmission and the electrical properties of synaptic potentials</li> <li>2. List the criteria for accepting a chemical as neurotransmitter</li> <li>3. Describe the mechanism of pre- and postsynaptic modulation of synaptic transmission caused by drugs</li> <li>4. List the major excitatory neurotransmitters</li> <li>5. list the major inhibitory central neurotransmitters</li> <li>6. Identify the major receptor subtypes of CNS neurotransmitters &amp; functional roles</li> <li>7. Indicate the involvement of neurotransmitters in the pathophysiology of diseases</li> </ol>                         |
| <b>2<sup>nd</sup> Pharmacology</b><br><br><b>Drugs used in schizophrenia and psychotic disorders</b>     | <ol style="list-style-type: none"> <li>1. Describe the monoamine theory of depression</li> <li>2. Describe the dopamine hypothesis of schizophrenia and the major symptoms and signs of schizophrenia</li> <li>3. Describe the classification of antipsychotic drugs and list the major receptors blocked by them</li> <li>4. Describe the pharmacodynamics of antipsychotic drugs and correlate to their clinical uses</li> <li>5. Describe the side effect of antipsychotic drugs</li> <li>6. Describe the pharmacokinetic and pharmacodynamics of lithium</li> </ol>                                                                                                                           |
| <b>3<sup>rd</sup> PharmacologyL</b><br><br><b>Antidepressants</b>                                        | <ol style="list-style-type: none"> <li>1. Describe the classification of antidepressant</li> <li>2. Describe the mechanisms of action, pharmacodynamics properties, and toxic effect of chronic therapy and overdosage of tricyclic antidepressant of tricyclic antidepressant</li> <li>3. Describe the describe the therapeutic uses and toxic effects of MAO inhibitors</li> <li>4. Identify the 2<sup>nd</sup> &amp; 3<sup>rd</sup> generation antidepressant and their properties</li> <li>5. Identify the prototype selective serotonin reuptake inhibitors and list their major characteristics</li> <li>6. identify the drug interaction associated with antidepressant therapy</li> </ol> |

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| <p><b>4<sup>th</sup> &amp; 5<sup>th</sup><br/>Pharmacology L</b></p> <p><b>Drug used in epilepsy</b></p>              | <ol style="list-style-type: none"> <li>1. define epilepsy and classification of seizures</li> <li>2. Understand the biochemical markers and cellular mechanism of underlying epilepsy</li> <li>3. Describe the major drugs used in treatment of different types of seizures</li> <li>4. describe the mechanism of action, adverse effects and drug-drug interaction of each drug</li> <li>5. understand the importance of drug therapy monitoring in the follow up of patient with antiepileptic drugs therapy</li> <li>6. Describe the pharmacokinetic factors considered in designing dose regimen for antiepileptic drugs</li> <li>7. list new antiepileptic drugs, their advantages, indication and side effects</li> </ol>                           |
| <p><b>6<sup>th</sup> &amp; 7<sup>th</sup><br/>Pharmacology L</b></p> <p><b>Pharmacology of sedative-hypnotics</b></p> | <ol style="list-style-type: none"> <li>1. Identify major chemical classes of sedative-hypnotics, and the sequence of CNS of drug effect over entire dose range</li> <li>2. Describe the pharmacodynamics of benzodiazepines and barbiturates and the differences between them</li> <li>3. Describe clinical uses, adverse effects and drug interactions of sedative-hypnotic drugs</li> <li>4. Describe the tolerance and dependence induced by sedative-hypnotics</li> <li>5. Understand the indications and adverse effects of benzodiazepine antagonists</li> </ol>                                                                                                                                                                                    |
| <p><b>8<sup>th</sup> &amp; 9<sup>th</sup><br/>Pharmacology L</b></p> <p><b>General anesthetics</b></p>                | <ol style="list-style-type: none"> <li>1. Understand the physiochemical theories of anesthesia, and describe stages of anesthesia</li> <li>2. Describe drugs used as pre-anesthetics, and identify main inhaler anesthetics pharmacodynamics and pharmacokinetics</li> <li>3. understand the mechanisms of toxicity of inhaler anesthetics</li> <li>4. describe the relationship between blood gas partition coefficient of an inhaler anesthetic and the induction and recovery of anesthesia</li> <li>5. Describe how changes in pulmonary ventilation and blood flow can influence induction and recovery of inhalation anesthesia</li> <li>6. Describe the mechanism of action of commonly used intravenous anesthetics and their toxicity</li> </ol> |
| <p><b>10<sup>th</sup> &amp; 11<sup>th</sup><br/>Pharmacology L</b></p> <p><b>Opioids and opioid antagonists</b></p>   | <ol style="list-style-type: none"> <li>1. Describe the neural mechanisms of pain sensation and its control</li> <li>2. list receptors affected by opioids analgesics and endogenous opioid peptides</li> <li>3. list major opioid agonists and rank them in analgesic efficacy</li> <li>4. Describe pharmacodynamics and kinetics properties of agonist opioid analgesics and list their clinical uses</li> <li>5. list the adverse effects of acute and chronic use of opioid analgesics</li> <li>6. identify opioid receptors antagonists and mixed agonist-antagonist</li> </ol>                                                                                                                                                                       |

**12<sup>th</sup> & 13<sup>th</sup>  
Pharmacology L**

**CNS stimulants  
and drugs of  
abuse**

1. Describe the clinical use of opioid receptor antagonists, and describe the methods of treatment of opioids dependency
2. Describe pharmacologic types of drug dependence
3. Describe major pharmacological actions of commonly abused drugs
4. Describe the signs and symptoms of withdrawal of drugs commonly abused
5. Identify most likely causes of fatalities from commonly abused agents
6. Describe methods of treatment of drugs of abuse

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| <p><b>1st and 2<sup>nd</sup> Pathology Lectures</b></p> <p><b>Cerebral edema, hydrocephalus, herniations, &amp; Global Cerebral Ischemia</b></p>    | <ul style="list-style-type: none"> <li>+ Describe the Patterns Of Injury &amp; Responses (Markers) To Injury In The nervous System.</li> <li>+ Describe the Underlying Mechanisms, Causes, Gross Features Of Cerebral edema</li> <li>+ Define Hydrocephalus &amp; Hydrocephalus Ex Vacuo</li> <li>+ Describe the Causes, Pathogenesis, Types, Effects &amp; Complications Of hydrocephalus In Infants &amp; Adults</li> <li>+ Define the Subfalcine (Cingulate), Transtentorial (Uncinate), &amp; The tonsillar hernias &amp; Describe The Effects Of Each One.</li> <li>+ Define the Term Cerebrovascular Disease (Thrombotic &amp; Embolic Occlusion of vessels, &amp; Vascular Rupture).</li> <li>+ Describe the Causes, Gross &amp; Microscopic (Early, Subacute, &amp; Repair) changes, &amp; Outcomes Of Global Cerebral Ischemia</li> </ul> |
| <p><b>3<sup>rd</sup> and 4<sup>th</sup> Pathology Lectures</b></p> <p><b>Cerebral infarction, Primary Brain Parenchymal, &amp; Subarachnoid</b></p> | <ul style="list-style-type: none"> <li>+ Enumerate The Sources Of Emboli &amp; Sites Of In Situ Thrombosis In The cerebral Circulation.</li> <li>+ Describe the Sites, Types, Gross &amp; Microscopic Changes Of Early &amp; Late cerebral Infarction Classify The Intracranial Hemorrhages</li> <li>+ Describe the Cause (S), Sites, Effects, Gross &amp; Microscopic Features of: Recent &amp; old Primary Brain Parenchymal Hemorrhage &amp; Subarachnoid Hemorrhage</li> <li>+ Describe the Pathologic Features of Berry saccular aneurysms &amp; Vascular malformations.</li> </ul>                                                                                                                                                                                                                                                           |
| <p><b>5<sup>th</sup> Pathology Lecture</b></p> <p><b>Hypertensive cerebrovascular disease &amp; CNS trauma</b></p>                                  | <ul style="list-style-type: none"> <li>★ Describe the Effects Of Hypertensive Cerebrovascular Disease, Including:               <ol style="list-style-type: none"> <li>(1) Massive Hypertensive Parenchymal Hemorrhage</li> <li>(2) Lacunar Infarcts,</li> <li>(3) Slit Hemorrhage, &amp; (4) Hypertensive Encephalopathy.</li> </ol> </li> <li>★ Describe The Sites, Gross &amp; Microscopic Features Of Recent &amp; Old; Closed &amp; opened Traumatic Head Injury.</li> <li>★ Describe the Cause, Pathologic Features, &amp; Effects Of Diffuse Axonal Injury.</li> <li>★ Describe the Causes, Sites &amp; Effects Of Traumatic:               <ol style="list-style-type: none"> <li>(1) Epidural Hemorrhages</li> <li>(2) Subdural Hemorrhages (Acute &amp; Chronic)</li> </ol> </li> </ul>                                                  |
|                                                                                                                                                     | <ul style="list-style-type: none"> <li>+ List the Routes Of Entry Of Infectious Agent To the CNS.</li> <li>+ List the Causes, Effects &amp; Clinical Features of Epidural, Subdural, &amp; Brain abscesses.</li> <li>+ Describe the Causes, Routes of Infection, Pathologic Features, CSF Findings,</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |



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| <b>6<sup>th</sup> Pathology Lecture</b><br><br><b>Infections of the CNS</b> | <p>effects, &amp; Fates of (1) Acute pyogenic, (2) Aseptic, &amp; (3) Tuberculous meningitis</p> <p>+ Describe the Pathologic Features &amp; Effects of Neurosyphilis</p> <p>+ Describe the most Characteristic Histologic Features Of Viral Encephalitis; comment briefly on the Pathologic Features Of Nervous System Infection by: Arboviruses, Herpes Simplex Virus Type 1&amp;2, Varicella-Zoster Virus, Cytomegalovirus, Poliovirus, Rabies, &amp; Progressive Multifocal Leukoencephalopathy (PML), caused by JC virus, &amp; fungi</p> <p>+ Describe the Causes, Routes Of Infection, Pathologic Features, &amp; Effects of Prion Diseases, including Sporadic, Familial, Iatrogenic &amp; Variant Forms (vCJD) of Creutzfeldt-Jakob disease.</p> |
| <b>7<sup>th</sup> Pathology Lecture</b><br><br><b>TUMORS OF THE CNS</b>     | <p>+ Classify &amp; Describe the Unique Characteristics Of the CNS tumors.</p> <p>+ Describe the Gross &amp; Microscopic Features of: Astrocytomas (Fibrillary &amp; pilocytic, &amp; Glioblastoma multiforme), Oligodendrogliomas, &amp; Ependymomas</p> <p>+ Define Central Neurocytoma, Gangliogliomas, &amp; Dysembryoplastic Neuroepithelial Tumor.</p> <p>★ Describe the Gross &amp; Microscopic Features, Routes of Spread of Medulloblastoma</p> <p>+ Define Primary CNS: Lymphoma, Germ-Cell Tumors.</p> <p>+ Describe the Gross &amp; Microscopic Features of Meningiomas</p> <p>+ Describe the Metastatic Secondaries in the CNS &amp; Define The Para-Neoplastic Syndromes.</p>                                                               |

**Physiology: 10 Lectures and 1 Practical**

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| <b>Physiology Lecture: 1</b><br><br><b>General introduction &amp; CSF</b> | <ol style="list-style-type: none"> <li>General functions of the Nervous system, Functional connections. Role of the nervous system in regulation. Comparison to the endocrine system</li> <li>Cerebrospinal Fluid, Ventricular system, the meninges and subarachnoid Space.</li> <li>Formation and reabsorption of cerebral spinal fluid, including the anatomy and function of the choroid plexus. normal pressure, volume, and composition of the CSF. Variation of CSF in certain pathological conditions.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Physiology Lecture: 2</b><br><br><b>Electrophysiology</b>              | <ol style="list-style-type: none"> <li>Functions of the following regions a neuron,: dendrites, axon, axon hillock, soma, and synaptic cleft. Nernst equation, and the effects of altering either the intracellular or extracellular <math>\text{Na}^+</math>, <math>\text{K}^+</math>, <math>\text{Cl}^-</math>, or <math>\text{Ca}^{2+}</math> concentration on the equilibrium potential for that ion. Normal distribution of <math>\text{Na}^+</math>, <math>\text{K}^+</math>, <math>\text{Ca}^{2+}</math>, and <math>\text{Cl}^-</math> across the cell membrane, and using the chord conductance equation to explain how the relative permeabilities to these ions create a resting membrane potential. Ionic basis of an action potential.</li> <li>Generation and conduction of graded potentials with that of action potentials, on the neuron the area in which each occurs. Conduction velocities in a compound nerve, identifying how the diameter and myelination lead to differences in conduction velocity, and the use of these differences to classify neurons as group Ia, Ib, II, III, IV fibers or as A<sub>alpha</sub>, A<sub>beta</sub>, A<sub>delta</sub>, b, and c fibers. Ionic basis for inhibitory and excitatory post-synaptic potentials and how these changes can alter synaptic transmission.</li> <li>Effects of hyperkalemia, hypercalcemia, and hypoxia on the resting membrane</li> </ol> |



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|                                                                                                   | <p>and action potential.</p> <p>4. Effects of demyelination on action potential propagation and nerve conduction.</p> <p>5. Electrical Vs chemical synapses transmission based on velocity of conduction, fidelity, and the possibility for neuromodulation (facilitation or inhibition).</p> <p>6. Chemical neurotransmission, temporal sequence events beginning with the arrival of a wave of depolarization at the pre-synaptic membrane and ending with a graded potential generated at the post-synaptic membrane.</p> <p>7. Characteristics of a neurotransmitter.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <p><b>Physiology<br/>Lecture: 3</b></p> <p><b>Spinal Cord<br/>Physiology and<br/>injuries</b></p> | <p>1. Sensory Vs. motor Vs. integrative parts of the spinal cord. Distinguish between postsynaptic inhibition and presynaptic inhibition and provide examples of each.</p> <p>2. Anatomy and functions of the major ascending and descending spinal cord tracts, including any crossing of midline.</p> <p>3. Relation of such pathways to the type of receptors. The concept of labeled line theory in transmission of sensations.</p> <p>4. Describe the use of dermatomes, sensory deficits, and motor deficits to identify local spinal cord lesions, and spinal cord hemisection.</p> <p>5. Describe the immediate and long-term consequences of spinal cord transection.</p> <p>6. Anatomical location, function, and afferent neurotransmission of muscle spindle and Golgi tendon organs.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p><b>Physiology<br/>Lecture 4 &amp; 5:</b></p> <p><b>Somatosensory<br/>System:</b></p>           | <p>1. point localization and two-point discrimination in neurophysiological terms. changes in the threshold for two-point discrimination in different areas of the body surface, e.g., lips, fingertips and back.</p> <p>2. List the submodalities of discriminative touch.</p> <p>3. Function of the following cutaneous and proprioceptive mechanoreceptors: Pacinian corpuscles, Meissner's corpuscles, Ruffini endings, Merkel cell, A-delta and C free nerve endings, Golgi tendon organ, muscle spindle.</p> <p>4. Functional organization at all levels and submodalities served by the dorsal column-medial lemniscus and the equivalent components of the trigeminal system.</p> <p>5. The proprioceptive pathways to the cerebellum with that to the cerebral cortex.</p> <p>6. The submodalities of nondiscriminative touch, temperature and nociception based on receptor transduction mechanism, localization within the spinal gray matter, and central termination of the pathways.</p> <p>7. Functional organization at all levels and submodalities served by the anterolateral system and the equivalent components of the spinal trigeminal system.</p> <p>8. Control of pain perception, including central processing and the role of endorphins. Gating mechanism theory for control of pain transmission, and relate it to the use of TENS (transcutaneous electrical nerve stimulation) and spinal cord stimulation.</p> <p>9. Levels of pain perception and the central pain syndrome, for example, the thalamic pain syndrome. The mechanism of referred pain of visceral origin.</p> |
|                                                                                                   | <p>1. Trace the neuronal activity initiated by striking the patellar tendon with a</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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| <p><b>Physiology<br/>Lecture 6 :</b></p> <p><b>Motor<br/>Reflexes</b></p>                                    | <p>percussion hammer (the patellar tendon reflex) that leads to contraction of a muscle.</p> <p>2. Contrast this reflex with the inverse myotactic reflex.</p> <p>3. The role of the gamma efferent system in the stretch reflex, and explain the significance of alpha-gamma co-activation. Properties of the flexor reflex initiated by touching a hot stove.</p> <p>4. Identify when pain is sensed, when flexor contraction occurs, and the neuronal connections and role of the crossed extensor reflex.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p><b>Physiology<br/>Lecture 7 &amp; 8:</b></p> <p><b>Cerebellum and<br/>Basal Ganglia</b></p>               | <p>1. Roles of the cerebellum in the regulation of skilled movement. Functional divisions of the cerebellum, detailing the input and output connections of each.</p> <p>2. Functions of each division and their integration with lateral and medial motor systems. Circuitry of the cerebellar cortex, functional role of each neuron type and give its synaptic action (excitatory/inhibitory).</p> <p>3. Circuit functions as a timing mechanism and how it produces synergy in opposing muscle groups. On the basis of input-output organization, somatotopic organization, and overall function, predict the neurological disturbances that can result from disease or damage in different regions of the cerebellum. The spinal proprioceptive pathways to the cerebellum with those to the cortex.</p> <p>4. Major interconnections between components of the basal ganglia and the motor cortex. Identify the neurotransmitters determining the flow of information in the system. Overall function of the basal ganglia in movement control and initiation in association with medial and lateral motor systems.</p> <p>5. List the appropriate signs of rigidity, dyskinesias, akinesia, and tremor for Parkinsonism, chorea, hemiballism, and athetosis. Assign a likely lesions or chemical system defect for each clinical syndrome.</p>                                                                                       |
| <p><b>Physiology<br/>Lecture 9 &amp; 10:</b></p> <p><b>Cerebral Cortex<br/>&amp; Sleep<br/>mechanism</b></p> | <p>1. Organizations of the primary motor cortex and the premotor cortex from medial to lateral, rostral to caudal, and surface to white matter. As well as the supplementary motor cortex.</p> <p>2. The effects of electrical stimulation of motor cortex and premotor cortex, relating the expected results to the control of voluntary movement. Origin, course, and termination of the pyramidal tract.</p> <p>3. The consequences of upper motor neuron loss to lower motor neuron loss and consequences of pyramidal tract transection. Brain regions involved in planning, initiating, and properly executing a skilled voluntary movement. Brodmann areas for visual, auditory, somatic sensory, motor, and speech areas.</p> <p>4. Cortical areas that receive projections from the following thalamic nuclei: ventral lateral, dorsomedial, pulvinar, medial geniculate, lateral geniculate, ventral posterolateral, and posteromedial. cortical areas important for language. Cortical area important for spatial relations.</p> <p>5. Functions of the prefrontal association cortex. Primary types of rhythms that make up the EEG and the behavioral states that correlate with each. Origin of spontaneous electrical activity of the cerebral cortex.</p> <p>6. Medial and Lateral System Control of Movement. Motor control systems, including cerebral cortex, basal ganglia, cerebellum, thalamus, brain stem motor</p> |

nuclei, and spinal cord. How the flow of information among these structures and, ultimately, to the alpha and gamma motor neurons.

7. Draw a cross section of the spinal cord and discuss the organization of the sensory and motor components of gray matter. Describe the somatotopic arrangement of motor neuron pools.

8. The medial and lateral motor systems; their origin, pathway, and termination within the spinal cord. Compare their functions in motor control. The effects of lesions in medial and lateral systems.

9. Describe the behavioral, EEG, and other characteristics of the stages of slow-wave sleep and rapid-eye-movement (REM) sleep. Explain the changes in sleep stages associated with aging, drugs, and sleep deprivation.  
Comparison between slow wave sleep and paradoxical sleep.

10. Reticular activating system RAS and the neural systems important for the regulation of sleep-waking.  
The neurochemical systems important for sleep and waking.

11. Describe narcolepsy and sleep apnea.

12. Describe the structure of the hypothalamus, including the major hypothalamic nuclei and areas. The major functions of the hypothalamus and its nuclei/areas.  
The role and mechanisms of the hypothalamus as it relates to thirst, hunger, temperature regulation, and the defense mechanism.

13. List the parts of the brain that appear to be involved in memory in mammals, and summarize the proposed role of each in memory processing and storage. The mechanisms proposed for short term and long-term memory storage.  
The major differences in hemispheric function in humans.

### CNS I Microbiology: 2 Lectures & 1 Practical

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| <b>Microbiology</b><br>Lectures:<br><b>1</b><br><br><b>Bacterial meningitis</b> | <ol style="list-style-type: none"> <li>1. Define bacterial meningitis.</li> <li>2. Describe the morphology, cultural characteristics, pathogenesis, Laboratory diagnosis, pathophysiology, epidemiology, prevention and treatment of meningitis caused by: <ul style="list-style-type: none"> <li>- Neisseriameningitidis,</li> <li>- Streptococcus agalactiae (group b Streptococci),</li> <li>- Streptococcus pneumoniae,</li> <li>- Haemophilus influenzae and</li> <li>- Listeria monocytogenes.</li> </ul> </li> </ol>                                                                                                                                                                                                                                                                                                                       |
| <b>Microbiology2</b><br><br><b>Viral and Fungal meningitis</b>                  | <ol style="list-style-type: none"> <li>1. Define viral meningitis.</li> <li>2. Describe causes of the following viral meningitis: <ul style="list-style-type: none"> <li>- Enteroviruses</li> <li>- Arboviruses</li> <li>- Mumps</li> <li>- Herpes family viruses</li> <li>- Lymphocytic choriomeningitis virus</li> <li>- Adenovirus</li> <li>- Measles</li> <li>- HIV</li> <li>- TB and Mycoplasma</li> <li>- Syphilis</li> <li>- Fungal</li> </ul> </li> <li>3. Describe the morphology, physical properties, pathogenesis, laboratory diagnosis, and treatment of polio virus, coxsackie viruses A and B, enteroviruses numbers 70 and 71, echo, arbovirus and rabies virus.</li> <li>4. Describe cryptococcus neoformans, its morphology, cultural characteristics, pathogenesis, laboratory diagnosis, treatment its importance.</li> </ol> |
| <b>CNS I Biochemistry: 2 Lectures</b>                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Biochemistry</b><br><b>2 Lectures: 1</b><br><br>Metabolism of the CNS        | <ul style="list-style-type: none"> <li>- Describe ketone bodies metabolism in the brain</li> <li>- Discuss the glutamine metabolism in the brain</li> <li>- Describe glucose transport and metabolism in nervous tissue</li> <li>- Discuss the effect of hypoglycemia and hyperglycemia on the brain</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Biochemistry</b><br><b>2</b> The biochemistry of CNS neurotransmitters       | <p>Discuss the synthesis, storage, release and degradation of neurotransmitters</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

### CNS I Community Medicine: 2 Lectures

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| <b>Community Medicine:</b><br><b>2 Lectures:</b> 1<br>Epidemiology of Meningitis and encephalitis | <ul style="list-style-type: none"> <li>- Explain the important aspect of neurology practice worldwide.</li> <li>- Understand the epidemiologic trends on central nervous system infection.</li> <li>- List Meningitis and encephalitis pathogens.</li> <li>- Have an idea about emerging and re emerging infections.</li> <li>- Describe the epidemiology of meningitis regarding: incidence among different age groups, risk factors, mode of transmission &amp; Seasonality of Outbreaks</li> </ul> |
| 2<br>Prevention & control of Meningitis and encephalitis                                          | <ul style="list-style-type: none"> <li>- Explain the importance of vaccines and Vaccine Policy</li> <li>- Explain the importance of prophylactic treatment</li> <li>- Discuss methods of prevention</li> <li>- Discuss methods of treatment</li> </ul>                                                                                                                                                                                                                                                |

### Practical Sessions (Total 8 Labs)

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| <b>Pathology Practical</b><br>Sessions I & II                                                                               | ★ After reviewing and discussing the colored photographs of the:<br>(1) Gross specimens and its (2) Histopathological sections given in the above lectures as power point presentations during the practical hours...<br>★ The student should be able to identify, describe and diagnose the common and the important pathological lesions of the various CNS disorders given in the CNS I Module.                                                          |
| <b>Anatomy Practical I</b><br>Meninges of the brain & spinal cord<br>Dural folds<br>Dural venous sinuses<br>The spinal cord | <ol style="list-style-type: none"> <li>1. Identify the dura, arachnoid and pia mater of the brain &amp; spinal cord.</li> <li>2. Identify the falx cerebri, tentorium cerebelli, Falx cerebelli, and diaphragma sellae</li> <li>3. Identify the superior sagittal, inferior sagittal, Transverse, sigmoid, the cavernous, the superior and inferior petrosal sinuses.</li> <li>4. Identify the external and internal features of the spinal cord</li> </ol> |
| <b>Anatomy Practical II</b><br>The Brain stem: Medulla oblongata, pons and midbrain                                         | Identify the external and internal features of the medulla oblongata, pons & Midbrain                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Anatomy Practical III</b><br>The Cerebrum                                                                                | Identify the external & internal features of the cerebral hemisphere                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Anatomy Practical IV</b><br>The                                                                                          | <ol style="list-style-type: none"> <li>1. Identify the external &amp; internal features of the cerebellum</li> <li>2. Identify the internal carotid, vertebral &amp; basilar arteries supplying the brain and spinal cord and their branches.</li> </ol>                                                                                                                                                                                                    |

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| cerebellum<br>Blood supply<br>of the brain<br>and spinal<br>cord | 3. Identify the circle of Willis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Microbiology<br/>Practical<br/>Session</b>                    | <ol style="list-style-type: none"> <li>Describe the method of specimen collection including the: <ol style="list-style-type: none"> <li>indications and contraindications</li> <li>equipment</li> <li>process of lumbar puncture</li> <li>transportation of specimen</li> <li>storage</li> <li>interpretations</li> <li>complications</li> </ol> </li> <li>Describe the laboratory method used for the specimen processing, including media used, incubation environment, colonial morphology and bacterial identification.</li> <li>Do a sample culturing resembling CSF specimen and Identify the organisms involved: <ol style="list-style-type: none"> <li><i>Neisseria meningitidis</i></li> <li>Group b <i>Streptococci</i></li> <li><i>Streptococcus pneumoniae</i></li> <li><i>Haemophilus influenzae</i></li> <li><i>Listeria monocytogenes</i></li> </ol> </li> <li>Write the laboratory findings in the hospital laboratory format.</li> </ol> |
| <b>Physiology<br/>Practical<br/>Session</b>                      | CSF composition, properties and type of samples & related tests required in clinical diagnosis.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

Summary of the Teaching Activities in the Module :

| Department         | No. of lectures | No. of Labs . |
|--------------------|-----------------|---------------|
| Anatomy            | 16              | 4             |
| Physiology         | 10              | 1             |
| Biochemistry       | 2               | 0             |
| Pathology          | 7               | 2             |
| Microbiology       | 2               | 1             |
| Pharmacology       | 13              | 0             |
| Community Medicine | 2               | 0             |
| Total              | 52              | 8             |

Working hours = Number of lectures + (Practical sessions \*2) = 68 Hours.

### **Course information**

|               |                        |
|---------------|------------------------|
| Course title  | NEUROSCIENCES II (PNS) |
| Course number | 111501306              |
| Credit hours  | 4 Credit hours         |

### **Course description:**

It is a 4 week course that includes 41 lectures and 7 practical sessions. It familiarizes the medical students with the Peripheral Nervous System structure and function. This course covers the various illnesses and diseases and the Microbiological agents that infect the PNS. An insight into treatment and patient counseling is included as well.

### **Learning outcomes:**

By the end of this module, students are expected to:

- ❖ Define the structure and location of different sensory receptors
- ❖ Explain how various environmental stimuli are converted to sensory signals.
- ❖ Illustrate the organization of structures conveying (Sensory) and receiving (Central) information from sensory receptors.
- ❖ Illustrate the organization of structures integrating (Central) and conveying (Motor) information to motor effectors.
- ❖ Explain the electrochemical events taking place within this system.
- ❖ Describe metabolic and structural changes affecting this system and to
- ❖ Expect the change in specific functions.
- ❖ List drugs react to different parts of this system and
- ❖ Expect how the function will be modified.
- ❖ Describe common infections affecting this system.
- ❖ Use these information to build a diagnosis of different neurological deformities (vision, hearing, hemiplegia, paralysis and spinal cord traumas).
- ❖ Prepare the student for clinical years to use these information and apply it once he faces a neurological diseases



### **Instructional methods:**

| Subject            | No. of lectures    | No. of practical classes |
|--------------------|--------------------|--------------------------|
| Anatomy            | 14                 | 3                        |
| Pharmacology       | 9                  | -                        |
| Physiology         | 6                  | 2                        |
| Microbiology       | 5                  | -                        |
| Pathology          | 5                  | 2                        |
| Community Medicine | 2                  | -                        |
| <b>Total</b>       | <b>41 Lectures</b> | <b>7 Practicals</b>      |

### **Textbook and material:**

No specific textbook is recommended. Students are advised to go back to internet resources. however, the latest editions of the following educational materials may be of some help

#### **ANATOMY:**

- \*Clinical Neuroanatomy. By R. S. Snell.
- \*Clinical Anatomy for Medical Students. By R. S. Snell.
- \*Principles of Human Anatomy. By G. J. Tortora.
- \*Basic Histology. By C. Junqueira.
- \*Before We Are Born. By K.L. Moore and T.V.N. Persaud.
- \*[www.medicalstudent.com](http://www.medicalstudent.com) or search the www for any subject of your preference.

#### **PHYSIOLOGY:**

- \*Textbook of Medical Physiology, by Guyton and Hall,
- \*Review of Medical Physiology, by William F. Ganong,.

#### **BIOCHEMISTRY:**

- \*Harper's Biochemistry. By Robert K. Murray and Co.,
- \*Supplementary Departmental Handouts.

#### **PATHOLOGY:**

- \*Basic Pathology. By Kumar, Cotran and Robbins.
- \*Essential Pathology. By Rubin.
- \*Supplementary handouts

#### **MICROBIOLOGY:**

- \*Medical Microbiology. By John C Sherris.

#### **PHARMACOLOGY:**

- \*Lipincott's Illustrated Reviews: Pharmacology
- \*Goodman and Gilman's: The pharmacological basis of therapeutics.

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- \*Basic and clinical pharmacology, Bertram and Katzung.
  - \*Clinical Pharmacology.D.R. Laurence, P.N. Bennet, and M.J. Brown. Churchill Livingstone.

#### Grading Policy:

Grades can be based on the following:

First in-course exam (Theory) = 40%

Practical in-course exam (Practicals) = 20%

Final exam at the end of the semester (Comprehensive/Theory) = 40%

Total Points 100

#### Course Policies:

##### Late Assignments

Students are expected to present their seminars on scheduled time, if not, a new date is given to the student to present his seminar (within 2 week). Late assignment will affect the grade by 5 points unless there is an excuse.

##### Missed exams

Make up exam will be held to students who missed their exam when they have an excuse accepted by the department (New date to be set up by Department)

##### Absence

Neuro II System is 4 weeks in duration; absence by 3 or more days requires repeating the Neuro II course.

##### Cheating

Cheating is extremely prohibited and will be dealt with according to university policies.

#### Classroom Protocol:

Students are expected to arrive at 8:00 AM.

Attendance is taken each day.

Students are expected to respect other students and instructors.

Participation is graded according to presenting seminars, attending daily activities, good behavior, medical knowledge, communication skills, and professionalism.

#### Important Dates to Remember:

First in-course exam date

Practical in-course exam date

Final exam date (end of semester)

#### Student rights and responsibilities:

All student rights presented by the university regulations will be respected during the Neuro II course.

#### Course Schedule:

After studying the material covered in the lectures, practical's, seminars and internet search regarding this module, the student is expected to express the following specific capacities:

## A. LABORATORY SESSIONS.

### Instructions:

It is important that you get prepared for your lab sessions by:

1. Studying your reading material.
2. Have a preliminary idea by having a look at your atlas.
3. Prepare a list of structure you need to identify: Micro and Macro.
4. Then you come to the lab (with atlases and books if you wish) to develop your skills of comparison, identification and observing how things fit on each other.
5. Instructors will facilitate your learning.

| No | Title                                                                                                          | Objectives.                                                                                                                                                                                                                                  |
|----|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Morphology of the Orbit. Eye and Ear Face & Neck<br>(Anatomy 1)                                                | Recognize individual structures.<br>Observe how they fit on each other.<br>Compare & contrast between your understanding, your atlas and the real thing you see in the lab.                                                                  |
| 2  | . Neck<br>(Anatomy 2)                                                                                          | Recognize individual structures.<br>Observe how they fit on each other.<br>Compare & contrast between your understanding, your atlas and the real thing you see in the lab.                                                                  |
| 3  | Brachial plexus and Nerves of the upper limb. Lumbo-sacral plexus and nerves of the lower limb.<br>(Anatomy 3) | Recognize individual structures.<br>Observe how they fit on each other.<br>Compare & contrast between your understanding, your atlas and the real thing you see in the lab.                                                                  |
| 4  | Pathology 1.                                                                                                   | Students are expected to study computerized images of gross & microscopic findings of: CNS tumors I                                                                                                                                          |
| 5  | Pathology 2.                                                                                                   | Students are expected to study computerized images of gross & microscopic findings of:<br>1. Tumors II<br>2. Gross & microscopic findings in Multiple Sclerosis, Parkinson's disease and Alzheimer's disease and other degenerative diseases |
| 6  | Physiology 1.                                                                                                  | Students are expected to do experiments demonstrating the following tests:<br>1- Visual acuity test, Snellen, Charts.<br>2- Color vision test using Ishihara charts..                                                                        |
| 7  | Physiology 2.                                                                                                  | Students are expected to perform auditory tests, including Rennn's and Webber's tests.<br>Demonstrating physiology of balance and equilibrium using Barny chair.                                                                             |

## B. LECTURES:

The specific objectives of individual lectures are as follows.

It is essential that you are prepared before you listen to the lecture.

The lecture is a meeting to explain some ideas (what is read and not understood) and it is by no means the only source of information or a replacement of the textbook.

|   |                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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|   | Introductory case presentation.<br>(All Disciplines)             | A case will be presented Then open discussion of the case and relevant knowledge needed to explain and solve the case.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1 | Face, scalp & trigeminal nerve.<br>(anatomy)                     | 1-Describe general features of the major openings of facial skeleton.<br>2- Discuss briefly how the face is developed.<br>-Review the trigeminal nerve and describe nerve supply of the face. 3-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 2 | The orbit. The eye & optic nerve and visual pathway<br>(anatomy) | 1- Describe the location of the orbit.<br>2- Make a list of structures making the orbit starting from orbital margin.<br>3- Define each component.<br>4- Describe openings into orbital cavity.<br>5- Define the orbital fascia.<br>6- Describe muscles of the orbit, their cone arrangement, origin, insertion, nerve supply and their function.<br>7- Describe the nerves of the orbit.<br>8- Name the foramen point of entry.<br>Their course and their targets.<br>9- Describe blood supply and lymph drainage of the orbit. 10- Make a list of structures making the eyeball starting from the optic disc.<br>11- Define each part.<br>12- Make sure to use essential keywords in your definitions.<br>13- Discuss the structure of coats of the eye.<br>14- Describe the anterior modifications of the eye coats.<br>15- Describe the contents of the eye ball.<br>16- Describe the sensory, sympathetic and parasympathetic nerve supply.<br>17- Define the optic nerve.<br>18- Follow the optic nerve from the eyeball to its point of entry to the brain.<br>19- Review the list of structures making the eye and related structures.<br>20- Define the following: Optic groove, Optic vesicle. Lens placode Lens pit and vesicle. Optic cup.<br>21- Discuss briefly the changing processes that will take place to the above structures. |

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| 3 | The external, middle ear & cranial nerve VII. (Anatomy)         | <p>1-Make a list of structures making the external and middle ear.</p> <p>2- Define each part – use keywords.</p> <p>3- Highlight the structural features of the external auditory meatus.</p> <p>4- Describe the shape, position and various boundaries of the middle ear.</p> <p>5- Discuss the features of the tympanic membrane.</p> <p>5- Describe the ossicles and their muscles.</p> <p>7- Describe the auditory tube, its openings and structure.</p> <p>8- Have an idea about mastoid air cells and their connection to the middle ear.</p> <p>9- Follow up the facial nerve from the brain down to the stylomastoid foramen.( turn page))</p> <p>10- Follow up the central connections of the facial nerve.</p> <p>6- Note the proximity of the internal carotid artery to the middle ear.</p>                                                                                                        |
| 4 | Inner ear & cranial nerve VIII. (Anatomy)                       | <p>1- Make a list of parts making the internal ear.</p> <p>2- Define each part .Make sure to use keywords.</p> <p>3- Note how structures fit each other.</p> <p>4- Describe the bony labyrinth.</p> <p>5- Explain how the membranous labyrinth fits the bony one.</p> <p>6- Describe the hearing receptors.</p> <p>7- Describe the balancing receptors.</p> <p>8- Follow the course of the VIII nerve down to its point of entry to the brain.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 5 | The neck. Triangles of the neck & cranial nerves XII. (Anatomy) | <p>1-Define the boundaries of the neck.</p> <p>2- Describe the fasciae of the neck.</p> <p>3- Study table 11-1 pg. 656 summarizing muscles of the neck.</p> <p>4- Summarize the main arteries, veins nerves and lymph nodes of the neck.</p> <p>5- Note it is essential to go to the dissecting room and have a look at the various components. An extensive lab will be prepared for this purpose.</p> <p>6- Review the boundaries of the neck.</p> <p>7- Describe the key muscles creating the triangles, mainly, sternomastoid, omohyoid and digastric.</p> <p>8- Study each triangle in the following way :</p> <p>a/Boundaries/Contents of muscles, arteries, veins, nerves, organs and glands.</p> <p>9- Follow up the course of the accessory nerve from the point of its central connections, exit and down to its target organs.</p> <p>10- Make a list of types of nerve fibers making the nerve.</p> |

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| 6 | Development of head & neck.<br>(Anatomy)                      | <p>1- Define the following:</p> <ul style="list-style-type: none"> <li>Pharyngeal arches.</li> <li>Neural crest cells.</li> <li>Pharyngeal grooves.</li> <li>Pharyngeal pouches.</li> <li>Pharyngeal membranes.</li> </ul> <p>2- Discuss the changes that will take place on the above structures leading to formation of various organs in the head and neck.</p> <p>3- Make a list of these processes involved in the formation of each organ.</p> <p>4- Define each process.</p>                                                                                       |
| 7 | Cranial nerves IX, X & XI.<br>(Anatomy)                       | <p>1- Review table 11-4 pg. 708.</p> <p>IX - Follow up its course from its central connections, exit from the brain and down to its target organs.</p> <p>2- Make a list of types of nerve modalities conveyed by this nerve.</p> <p>3- Review structure of the pharynx.</p> <p>X Follow up its course from its central connections, exit from the brain and down to its target organs.</p> <p>4- Make a list of types of nerve modalities it conveys.</p> <p>5- Review the structure of the larynx.</p> <p>6- Make note of plexuses it creates in the mediastinum.</p>   |
| 8 | Tongue, submandibular region & cranial nerve XI.<br>(Anatomy) | <p>1- Make a list of structures making the tongue.</p> <p>2- Define each part using keywords.</p> <p>3- Describe the mucous membrane of the tongue and its papillae.</p> <p>4- Discuss the intrinsic muscles and its innervations.</p> <p>5- Describe the extrinsic muscles of the tongue.</p> <p>6- Follow up the hypoglossal nerve from its central connections, exit point, and its target organs.</p> <p>7- Describe the tongue's blood supply lymph drainage and sensory innervation.</p> <p>8- Outline the boundaries and contents of the submandibular region.</p> |
| 9 | Histology of peripheral nervous system.<br>(Anatomy)          | <p>1- Review the basic histology of neurons, glial cells and synaptic communications.</p> <p>2- Classify nerves.</p> <p>3- Describe the structure of peripheral nerves.</p> <p>4- Discuss myelination.</p> <p>5- Describe the structure of ganglia (sensory and autonomic)..</p>                                                                                                                                                                                                                                                                                          |

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| 10 | Cervical plexus & nerves of the neck.<br>(Anatomy)          | <ol style="list-style-type: none"> <li>1-Make a list of contributing roots.</li> <li>2- Discuss the general arrangement.</li> <li>3- Describe the location of this plexus.</li> <li>4- Make a list of the out coming nerves.</li> <li>5- Follow the branches to their target organs.</li> <li>6- Point out the point where the major cutaneous nerves emerge.</li> <li>7- Make a list of the cutaneous nerve.</li> <li>8- Follow the cutaneous branches to their destinations.</li> </ol>                                                  |
| 11 | Brachial plexus & nerves of the upper limb.<br>(Anatomy)    | <ol style="list-style-type: none"> <li>1- Make a list of contributing spinal nerves.</li> <li>2- Discuss the general arrangement of this plexus.</li> <li>3- Locate the plexus in the axilla and note important relations to blood vessels..</li> <li>4- Make a list of local branches with short notes on its target organs.</li> <li>5- Make a list of its terminal main branches.</li> <li>6- Follow up each branch down to its target organs (myotomes and Dermatomes).</li> </ol>                                                     |
| 12 | Lumbosacral plexus & nerves of the lower limb.<br>(Anatomy) | <ol style="list-style-type: none"> <li>1-Make a list of contributing spinal nerves to the lumbar plexus.</li> <li>2- Discuss the arrangement of the plexus.</li> <li>3- Describe the location of this plexus and its relation to the psoas muscle.</li> <li>4- List the terminal branches and follow up each branch to its final destination.</li> <li>5- Make a list of contributing spinal nerves to the sacral plexus.</li> <li>6- Discuss the arrangement of this plexus.</li> <li>7- Describe the location of this plexus.</li> </ol> |

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| 13 | Sympathetic nervous system.<br>(Anatomy)     | <ol style="list-style-type: none"> <li>1- Review the subdivisions of the nervous system.</li> <li>2- Review the general arrangement and compare the sympathetic and parasympathetic parts.</li> <li>3- Describe the following plans <ul style="list-style-type: none"> <li>Para vertebral ganglia.</li> <li>Prevertebral ganglia.</li> <li>Parasympathetic ganglia.</li> <li>Splanchnic nerves.</li> <li>Autonomic plexuses.</li> </ul> </li> <li>4- Map out the various plexuses in head and neck, thorax, abdomen and pelvis.</li> <li>5- Make a list of the components of the system.</li> <li>6- Review the basic structure of sympathetic trunk.</li> <li>7- Describe the source of sympathetic system in the neck and make a list of target organs.</li> <li>8- Describe the Para vertebral sympathetic ganglia in the abdomen, their locations and target organs.</li> <li>9- Discuss the relation of this system to the adrenal medulla.</li> <li>10- Discuss the sympathetic innervation of blood vessels.</li> </ol> |
| 14 | Parasympathetic nervous system.<br>(Anatomy) | <ol style="list-style-type: none"> <li>1- Make a list of the components of the system.</li> <li>2- Make a list of cranial nerves having parasympathetic activity.</li> <li>3- Describe the parasympathetic ganglia in the head and neck, their locations and target organs.</li> <li>4- Describe the sacral parasympathetic out flow.</li> <li>5- Make a list of its target organs.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |



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| 1 | Neurophysiology of vision, the eye and retina.<br>(Physiology) | <p>1- Describe the light refraction by the eye and know the refractive indices of the cornea, lens aqueous humor and vitreous humor.</p> <p>2- Define accommodation and know its mechanism of action as well as its importance for near vision</p> <p>3- Define visual acuity and know that the fovea has the highest visual Acuity</p> <p>4- List the types of photoreceptors in the retina.</p> <p>5- Describe the mechanism of phototransduction and the ionic basis of receptor potential in rods and cones</p> <p>6- Describe different types of neuronal cells in the retina and their synaptic connections (neural circuit in retina)</p> <p>7- Define the functions of bipolar cells ,horizontal cells , amacrine cells and their role in processing of visual signal.</p> <p>8- Describe the functions of the visual cortex in perception of visual signals.</p> <p>9-Describe the major relay stations of the visual pathway.</p> <p>10- List the major functions of the geniculate nucleus and superior colliculus. 11-Explain the role of the visual cortex in perception of vision.</p> <p>12- Outline briefly the major pathways of color and black and white vision.</p> <p>13-Describe the major types of visual cortex cells and their role in visual perception</p> |
| 2 | Hearing. (Physiology)                                          | <p>1- Describe the ossicular system of the ear and discuss its role in the conduction of sound waves from the tympanic membrane to the cochlea sound waves.</p> <p>2- Outline the properties of traveling waves and describe how, via these waves, particular movement of the foot plate of the stapes produce maximal deflection of the basilar membrane at a particular point.</p> <p>3- Describe the functions of the organs of Corti and describe how deformation of the basilar membrane is converted to impulses in auditory fibers.</p> <p>4- Describe the ionic basis of auditory receptors.</p> <p>5- Explain how pitch (frequency) and loudness of sound are coded in the auditory pathways.</p> <p>6- Explain the mechanisms that permits sound localization</p> <p>7- Describe the function of auditory cortex in hearing perception and sound localization.</p>                                                                                                                                                                                                                                                                                                                                                                                                          |

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| 3 | Equilibrium.<br>(Physiology)                                                                 | <p>1- Explain how hair cells in the semicircular canals detect rotational acceleration.</p> <p>2- Explain how hair cells in the utricle and saccule detect linear acceleration</p> <p>3- Describe the role of the vestibular system in stabilizing eye movements during acceleration.</p> <p>4- List the major connections of the vestibular system with the brainstem and cerebellum.</p> <p>5- List the major sensory input that provide the information which is synthesized in the brain into the sense of position in space.</p>                                                                                                                                                                 |
| 4 | Chemical senses, taste & smell.<br>(Physiology)                                              | <p>1- Describe the olfactory receptors and the mechanism of their excitation.</p> <p>2- Describe the anatomy of olfactory pathway.</p> <p>3- Describe the primary taste of modalities</p> <p>4- Discuss the characteristics of taste buds and distribution in relation to the primary taste modalities</p> <p>5- List major substances that produce sweet, sour , bitter and salty taste and comment on their interaction.</p> <p>6-Describe taste pathway.</p> <p>7- Describe the mechanism of excitation of taste receptors and impulse generation in the primary afferents carrying taste sensation.</p>                                                                                           |
| 5 | Physiology of peripheral nerves.<br>(Physiology)                                             | <p>1- List various types of nerve fibers in peripheral nerves and know their function.</p> <p>2- Describe and explain the compound action potential and understand its clinical significance</p> <p>3- Define latent period and know how to calculate the conduction velocity of peripheral nerves.</p>                                                                                                                                                                                                                                                                                                                                                                                               |
| 6 | Functions of the Autonomic nervous system and central regulation of viscera.<br>(Physiology) | <p>1- Describe the functions of the ANS and the response of effector organs on the neurotransmitters released by the two divisions.</p> <p>2- Explain the concept that ANS is a reflex based control system and emphasize the general feature of autonomic neuronal reflexes.</p> <p>3- Describe autonomic reflexes integrated at the level of spinal cord and brain stem</p> <p>4- Describe central regulation of autonomic output and the role of nucleus of the solitary tract, limbic system and hypothalamus in the control of autonomic functions.</p> <p>5- List the major functions of the hypothalamus including body rhythm, temperature regulation, appetite control and water intake.</p> |

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| 1&2 | Tumor of the Nervous system I & II<br>(pathology)<br>(pathology) | <ol style="list-style-type: none"> <li>1. Classify tumors &amp; describe the general features of primary brain tumors in comparison to other tumors in the body</li> <li>2. Know the pathology &amp; prognosis of the various types of brain tumors</li> <li>3. Describe tumors of peripheral nerves</li> </ol> <p>Know the common types of metastatic tumors &amp; their pathologic characteristics</p>                                                                                                                                                                                                                              |
| 3&4 | Demyelinating and Degenerative diseases.<br>(Pathology)          | <ol style="list-style-type: none"> <li>1- Know the various causes and types of peripheral neuropathies</li> <li>2- Know about various axonal degeneration and injuries</li> <li>3- Know the general features of demyelinating diseases, with special emphasis on Multiple Sclerosis, its clinical &amp; morphological characteristics.</li> <li>4- Know the general features of degenerative diseases &amp; dementias, with special emphasis on Alzheimer's disease, its clinical &amp; morphological findings.</li> <li>5- Know briefly about Parkinson's Disease, Huntington's disease and amyotrophic lateral sclerosis</li> </ol> |
| 5   | Diseases of the motor neurons & peripheral nerves<br>(pathology) | <p>Define the diseases of motor neurons</p> <p>Describe the Gross &amp; Microscopic Features of Amyotrophic Lateral Sclerosis (Motor Neuron Disease),</p> <p>Define:</p> <ol style="list-style-type: none"> <li>(1) Bulbospinal Atrophy (Kennedy Disease), &amp;</li> <li>(2) Spinal Muscular Atrophy.</li> </ol> <p>Describe the Cause &amp; Response to Segmental Demyelination.</p> <p>Classify the Causes of Peripheral Neuropathies</p>                                                                                                                                                                                          |

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| 1&2 | Local anesthetics.<br>(Pharmacology)                     | <p>1- Describe the classification of the local anesthetic</p> <p>2- Indicate the pharmacological characteristics of their chemical structures</p> <p>3- Describe the mechanism of blockade of the impulse by local anesthetics.</p> <p>4- Discuss the relation between pH, pKa, and the speed of onset of local anesthesia.</p> <p>5- List the factors that determine the susceptibility of nerve fibers to blockade by local anesthetics.</p> <p>6- List the major toxic effects of the local anesthetics.</p> <p>7- Explain use-of dependent blockade by local anesthetics.</p>                                         |
| 3   | Directly acting cholinergic agonists<br>(Pharmacology)   | <p>1- Review the steps involved in the synthesis, storage, release and the termination of action of acetylcholine</p> <p>2- Mention examples on inhibitors of acetylcholine synthesis, storage, and release.</p> <p>3- List the locations and types of acetylcholine receptors in various organ systems.</p> <p>4- Describe the effects of acetylcholine on major organ systems.</p> <p>5- Correlate the pharmacokinetic properties of various choline esters and cholinomimetic alkaloids with their chemical properties.</p> <p>List the major clinical indications and adverse effects of cholinomimetic agonists.</p> |
| 4   | Cholinergic antagonists<br>(Pharmacology)                | <p>1- Describe the effects of cholinergic antagonists on various organ systems.</p> <p>2- List the major clinical indications of muscarinic antagonists</p> <p>3- List the major adverse effects of antimuscarinic agents.</p> <p>4- Describe the signs, symptoms and treatment of atropine poisoning.</p>                                                                                                                                                                                                                                                                                                                |
| 5   | Indirectly acting cholinergic agonists<br>(Pharmacology) | <p>1- Describe the distribution and function of cholinesterase</p> <p>2- Provide a classification and examples on drugs that inhibit cholinesterase</p> <p>3- Describe the pharmacodynamic differences between direct and indirect-acting cholinomimetic agents.</p> <p>4- List the major signs and symptoms of organophosphate insecticide poisoning.</p> <p>5- Describe the treatment modalities of organophosphate poisoning.</p>                                                                                                                                                                                      |

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| 6&7 | Adrenergic agonists.<br>(Pharmacology)                            | <p>(A) 1- Review the steps involved in the synthesis, storage, release and the termination of action of epinephrine and norepinephrine</p> <p>2- List examples on the inhibitors of norepinephrine synthesis, storage, release and re-uptake.</p> <p>3- List tissues that contain significant numbers <math>\alpha_1</math> or <math>\alpha_2</math> adrenergic receptors.</p> <p>4- Describe the major systemic effects of a pure alpha agonist.</p> <p>5- Indicate the major clinical applications and major adverse effect of <math>\alpha</math>-receptor agonists.</p> <p>( B ) 1- List tissues that contain significant numbers of <math>\beta_1</math> or <math>\beta_2</math> receptors.</p> <p>2- Describe the major organ system effects of a pure beta agonist, and a mixed alpha and beta agonist.</p> <p>3- List the major clinical applications and adverse effect of <math>\beta</math>-receptor agonists ( turn page).</p> <p>4- Indicate the pharmacodynamic differences between direct and indirect acting sympathomimetic amines.</p> |
| 8&9 | Adrenergic antagonists.<br>(Pharmacology)                         | <p>1- Indicate the differences between selective and nonselective <math>\alpha</math>-receptor antagonists.</p> <p>2- List the main indications and the major adverse effects of <math>\alpha</math>-receptors antagonists</p> <p>3- Provide a classification for <math>\alpha</math>- receptor antagonists.</p> <p>4- Compare the pharmacokinetics of various <math>\beta</math>- receptor antagonists</p> <p>5- Describe the main indications and major adverse effects of <math>\beta</math> receptors antagonists</p> <p>Describe the main drug-drug interactions of <math>\alpha</math> and <math>\beta</math> receptors antagonists.</p>                                                                                                                                                                                                                                                                                                                                                                                                           |
| 1&2 | Peripheral nervous disorders epidemiology<br>(Community Medicine) | <p>Review the common peripheral nervous disorders.</p> <p>Identify the risk factors for sciatica.</p> <p>Know the epidemiological facts of Poliomyelitis.</p> <p>Identify the risk groups for poliomyelitis and the prevention methods.</p> <p>Know the epidemiological facts of Guillian barre Syndrome.</p> <p>Know the most important features of leprosy.</p> <p>Know the most important features of tetanus.</p> <p>Know the prevention methods for tetanus.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

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| 1 | Group B streptococci, Listeria & mycobacterium Leprae. Clostridium tetani & Clostridium Botulism.<br>(microbiology) | Understand the characteristics, laboratory diagnosis and management of mycobacterium leprae, group B streptococcus and listeria. – Understand the bacteriological aspects, laboratory diagnosis, management and prevention of Clostridium Tetani and Botulism. |
| 2 | Prions<br>(Microbiology)                                                                                            | Historical back ground, basic structure, classification of diseases involved, epidemiology, pathogenesis and pathology, laboratory diagnosis, treatment and prevention.                                                                                        |
| 3 | Enteroviruses.<br>(Microbiology)                                                                                    | - Enteroviruses: Polio viruses, coxsaki viruses, echo viruses, basic structural, morphological and physical properties, epidemiology, pathogenesis, clinical presentation, laboratory diagnosis, treatment, and prevention.                                    |
| 4 | Rabies and, arboviruses<br>(Microbiology)                                                                           | - Rabies, Arboviruses: Classification, basic structural, morphological and physical properties, epidemiology, pathogenesis, clinical presentation, laboratory diagnosis, treatment, and prevention.                                                            |
| 5 | Ticks<br>(Microbiology)                                                                                             | - Definition of Ticks<br>- Morphology.<br>- Life cycle.<br>- Pathogenesis and clinical disease.<br>- Clinical manifestations.<br>- Laboratory diagnosis.<br>- Treatment.<br>- Prevention.                                                                      |

Summary of the Teaching Activities in the Module :

| Department        | No. of lectures | No. of Labs . |
|-------------------|-----------------|---------------|
| Anatomy           | 14              | 3             |
| Physiology        | 6               | 2             |
| Biochemistry      | 0               | 0             |
| Pathology         | 5               | 2             |
| Microbiology      | 5               | 0             |
| Pharmacology      | 9               | 0             |
| CommunityMedicine | 2               | 0             |
| Total             | 41              | 7             |

Working hours = Number of lectures + (Practical sessions \*3) = 62 Hours.

## Fourth Year – 1<sup>st</sup> semester

**Course Title:** General surgery – 1 (General Surgery, Pediatric surgery, Thoracic & Vascular Surgery).

**Course Code:** 111502401

**Credit Hours:** 10 Credits

### Calendar Description:

- Hospital Bedside Teaching: 10 weeks subdivided into four rotations
- Seminars: two seminars per week per surgical rotation, repeated four times per year
- Lectures: two lectures per week distributed throughout the whole academic year

### I. General Objectives:

By the end of this course, students are expected to:

1. Obtain a comprehensive history for surgical diseases.
2. Acquire the basic skills of physical examination.
3. Identify and explain abnormal signs.
4. Formulate a case summary and differential diagnosis list.
2. Suggest relevant investigations.
3. Suggest treatment.

### II. Methods of Instruction:

- Lectures: Data show, slides.
- Seminars: Topics discussion, integration of knowledge & clinical approach
- Bed-side teaching sessions: Clinical case discussion, x-rays and lab tests.
- Visits to outpatient clinics
- Visits to operating theatres.

### III. Evaluation and Distribution of Marks:

- In-course evaluation = 20%
- Final clinical exam = 30%
- Final written exam = 50%

### IV. Methods of Evaluation:

- In-course evaluation based on attendance, participation, preparation, case presentation and knowledge of the student, mark out of 100 given at the end of each rotation and the average mark of the four rotations is taken as the evaluation score.
- End of module clinical examination which is held at the end of the 10 weeks clinical rotations. Students are evaluated on one long case (score out of 55) and three short cases (score out of 15 each short case, total 45), the total exam score is out of 100.
- Final written examination, held at the end of the academic year. The exam is in multiple choice questions (MCQs) format, total of 100 questions, score is out of 100.

### IV. Recommended Text Books:

- Bailey & Love's Short Practice of Surgery.
- Forest Principles of Surgery.



- Browse's Introduction to the Symptoms & Signs of Surgical Disease.
- Schwartz's Principles of Surgery (Reference)
- Sabiston Textbook of Surgery. The Biological Basis of Modern Surgical Practice

### **Learning (Specific) Objectives of the Course:**

After studying the material covered in the lectures, seminars and bed-side teaching sessions of this course, the student is expected to achieve the following specific objectives:

#### **A. Lectures:**

| <b>No.</b> | <b>Title</b>                                                    | <b>Objectives</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1          | Pre-operative preparation & post-operative care & complications | <ul style="list-style-type: none"> <li>• Perform pre-operative patient assessment &amp; select the proper investigations</li> <li>• Define high risk surgical patients</li> <li>• Documentations &amp; Consent</li> <li>• Post-operative care &amp; anticipation of potential complications</li> <li>• Define body fluid compartments</li> <li>• Recognize disturbances in water and electrolytes</li> <li>• Recognize disturbances in acid base balance and their clinical implications</li> <li>• Outline methods of management</li> <li>• Recognize bleeding disorders and their management</li> <li>• Outline the importance of major and minor blood groups</li> <li>• Describe how to obtain and store blood</li> <li>• List the indications for blood transfusion in surgical practice</li> <li>• Recognize hazards of blood transfusion and how to be avoided (Infections, reactions).</li> <li>• Identify the different components of blood and how to order each of them.</li> </ul> |
| 2          | Fluids, Electrolytes & Acid base Balance                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 3          | Bleeding disorders & Blood transfusion                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 4          | Shock                                                           | <ul style="list-style-type: none"> <li>• Define shock; Discuss pathophysiology of shock</li> <li>• Recognize types of shock (hypovolemic, cardiogenic, septic, and neurogenic).</li> <li>• Identify the importance of physiologic monitoring of the surgical patient (urine output, cardiac output, central venous pressure, Swan-Ganz catheter)</li> <li>• Define the indications for admission to critical care unit</li> <li>• Assessment and monitoring (invasive &amp; none invasive) of patients in critical care</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 5          | Critical Care                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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| 6 | Imaging Endoscopy & Tissue Diagnosis | <ul style="list-style-type: none"> <li>• Writing imaging request and interpretation of images</li> <li>• Identify the hazards of imaging &amp; ionizing radiations</li> <li>• Recognize the basic principle of different imaging techniques and their advantages &amp; disadvantages in different clinical scenarios</li> </ul>                                                                                                                                                                                                                                                                                                                                                                           |
| 7 | Wound Healing & Care                 | <ul style="list-style-type: none"> <li>• Know the steps of wound healing</li> <li>• Identify the factors which may interfere with wound healing</li> <li>• Recognize the surgical wounds and their type of closure</li> <li>• Obtain relevant history and do proper physical examination for common chronic ulcers (venous, arterial, diabetic, pressure ulcers)</li> <li>• Formulate management plan of the common types of chronic ulcers</li> </ul>                                                                                                                                                                                                                                                    |
| 8 | Burns                                | <ul style="list-style-type: none"> <li>• Recognize the variety of scars and their treatment.</li> <li>• Obtain relevant history for burns (flame, scold, closed space, exposure time, possible associated injuries)</li> <li>• Determine percentage and degree of burns</li> <li>• List indications for admission</li> <li>• Discuss pain management.</li> <li>• Outline fluid replacement.</li> <li>• Discuss wound management (open, closed, principles of antiseptic solutions).</li> </ul>                                                                                                                                                                                                            |
| 9 | Trauma Surgery & Abdominal Trauma    | <ul style="list-style-type: none"> <li>• Classify types of trauma</li> <li>• List types of injuries</li> <li>• Recognize risk factors and trauma scores</li> <li>• Identify the value of first aid measures and methods of resuscitation</li> <li>• Recognize the mechanism of injury (penetrating, Blunt).</li> <li>• Recognize the wide spectrum of possible presentations.</li> <li>• Discuss ABC (Airway, Breathing, and Circulation) management.</li> <li>• Identify the role of US, CT scan computed tomography, lavage, and peritoneal manometry in the diagnosis.</li> <li>• Discuss specific injury of difference intra-abdominal organs (spleen, liver, kidney, pancreas intestine).</li> </ul> |

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| 10 | Surgical infections and prophylactic antibiotics | <ul style="list-style-type: none"> <li>• Discuss pathophysiology of surgical infection.</li> <li>• Identify of surgical infections</li> <li>• Outline of principles of antibiotic usage in surgical patients.</li> <li>• Risk factors for infections</li> <li>• Classify types of wound infections</li> </ul>                                                                                                                                                                                                                                                                                                                                                                        |
| 11 | Principles of Laparoscopic Surgery               | <ul style="list-style-type: none"> <li>• Define minimal access surgery</li> <li>• Recognize the principles of minimal access surgery</li> <li>• Understand advantages, limitations and specific complications of minimal access</li> <li>• Define cysts, ulcers, fistulas and sinuses</li> <li>• Identify the underlying etiology and pathophysiology</li> <li>• Discuss specific types of cysts, ulcers, fistulas and sinuses and their management</li> </ul>                                                                                                                                                                                                                       |
| 12 | Cysts, Ulcers, Fistulas & Sinuses                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 13 | Hernias & Abdominal Wall Defects                 | <ul style="list-style-type: none"> <li>• Definition and composition of hernias</li> <li>• Classification of hernias</li> <li>• Anatomy of common hernias</li> <li>• The common surgical approaches to hernias</li> <li>• Understand the anatomy and physiology of the esophagus and their relation to disease</li> <li>• Identify symptoms and signs relevant to benign and malignant esophageal pathologies</li> <li>• Know the risk factors for esophageal cancer</li> <li>• Appreciate the role of surgery in managing benign and malignant pathologies</li> </ul>                                                                                                                |
| 14 | The Esophagus                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 15 | Gastric Neoplasms                                | <ul style="list-style-type: none"> <li>• Recognize the clinical presentation</li> <li>• Recognize the predisposing factors</li> <li>• Identify relevant diagnostic and staging investigations.</li> <li>• Outline modalities of treatment</li> <li>• Identify features of gastric cancer among Jordanian</li> <li>• Recognize and understand the anatomy and pathophysiology of the stomach in relation to peptic ulcer disease</li> <li>• The most appropriate investigations for gastroduodenal symptoms</li> <li>• The importance of gastritis and Helicobacter pylori</li> <li>• Complications</li> <li>• The treatment of peptic ulcer disease and its complications</li> </ul> |
| 16 | Peptic Ulcer Disease, Complications & Management |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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| 17 | Small Intestine                      | <ul style="list-style-type: none"> <li>• Discuss the anatomy and physiology of small intestine</li> <li>• Understand that disease of the small intestine may involve functional or anatomical problems</li> <li>• Acute surgical problems of the small intestines</li> <li>• Investigations and treatment of the range of conditions that may affect small intestine</li> </ul>                                                                                                                                       |
| 18 | Colon & Rectal Tumors                | <ul style="list-style-type: none"> <li>• Epidemiology, Discuss, List, Outline management of colon and rectal cancer.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                       |
| 19 | Intestinal Obstruction               | <ul style="list-style-type: none"> <li>• Definition, classification, pathophysiology and etiology of intestinal obstruction</li> <li>• Clinical presentation and investigations of intestinal obstruction</li> <li>• Complications</li> <li>• Management of patient with intestinal obstruction</li> </ul>                                                                                                                                                                                                            |
| 20 | The Vermiform Appendix               | <ul style="list-style-type: none"> <li>• Define the anatomy and function of the appendix</li> <li>• Etiology and pathogenesis of appendicitis</li> <li>• Clinical manifestation, investigations and management of acute appendicitis</li> <li>• Differential diagnosis of lower abdominal pain</li> <li>• Tumors of the appendix</li> </ul>                                                                                                                                                                           |
| 21 | Inflammatory Bowel Disease           | <ul style="list-style-type: none"> <li>• Identify the disease spectrum of inflammatory bowel disease</li> <li>• Clinical manifestation and investigation</li> <li>• Assessment of attacks severity</li> <li>• Complications</li> <li>• Management of patients with inflammatory bowel disease</li> </ul>                                                                                                                                                                                                              |
| 22 | Diverticulosis & Mesenteric Ischemia | <ul style="list-style-type: none"> <li>• Definition, presentation, investigations and management of patients with diverticulosis and mesenteric ischemia</li> </ul>                                                                                                                                                                                                                                                                                                                                                   |
| 23 | Anal & Peri-anal Conditions          | <ul style="list-style-type: none"> <li>• Identify symptoms &amp; signs of different painful anal and peri-anal conditions</li> <li>• management of these conditions</li> </ul>                                                                                                                                                                                                                                                                                                                                        |
| 24 | Gallbladder Disorders                | <ul style="list-style-type: none"> <li>• Understand the wide spectrum of different clinical presentation and to diagnose them clinically (Biliary colic, cholecystitis, cholangitis, pancreatitis, jaundice, and carcinoma).</li> <li>• Understand the role of U/S, CT, ERCP, MRCP in the diagnosis and management of gallstone disease.</li> <li>• Outline the principles of treatment of cholecystitis, cholangitis, and obstructive jaundice.</li> <li>• Discuss the mechanism of gall stone formation.</li> </ul> |

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| 25 | Obstructive Jaundice          | <ul style="list-style-type: none"> <li>• Discuss bilirubin metabolism and pathway of excretion</li> <li>• List causes of obstructive jaundice with special focus on obstructive jaundice</li> <li>• Understand the peculiarities of obstructive jaundice while taking medical history, performing physical examination and planning investigations</li> <li>• Discuss treatment of different causes of obstructive jaundice</li> </ul> |
| 26 | Surgical Disease of the Liver | <ul style="list-style-type: none"> <li>• Revise liver Anatomy</li> <li>• Portal hypertension</li> <li>• Liver Infections</li> <li>• Cystic disease of the liver</li> <li>• Benign liver tumors</li> <li>• Discuss hepatocellular carcinoma in brief.</li> <li>• Understand the importance of liver secondaries and how to prove the diagnosis.</li> </ul>                                                                              |
| 27 | Hydatid Disease               | <ul style="list-style-type: none"> <li>• Discuss the lifecycle of hydatid cyst.</li> <li>• List the relevant tests to diagnose hydatid cyst (plain X-Ray, U/S, CT, serology).</li> <li>• Complications</li> <li>• Management</li> </ul>                                                                                                                                                                                                |
| 28 | Spleen                        | <ul style="list-style-type: none"> <li>• Anatomy and physiology</li> <li>• Congenital anomalies of the spleen</li> <li>• Splenic rupture</li> <li>• Aneurysm &amp; infarction</li> <li>• Splenomegaly etiology and management</li> <li>• Spleen and hemolytic anemia</li> <li>• Splenectomy, indications, pre-operative preparation, and post splenectomy care and complications</li> </ul>                                            |
| 29 | Pancreatitis                  | <ul style="list-style-type: none"> <li>• Define pancreatitis and describe its pathogenesis.</li> <li>• List the common etiological factors (gallstones, alcohol).</li> <li>• Understand the role of different investigations (lab, U/S, CT, and ERCP) in diagnosis and treatment.</li> <li>• List complications of pancreatitis.</li> </ul>                                                                                            |
| 30 | Pancreatic Tumors             | <ul style="list-style-type: none"> <li>• Classify pancreatic tumors.</li> <li>• Discuss the clinical presentation</li> <li>• Understand the role of ERCP, CT, MRI, U/S in diagnosis and treatment</li> <li>• Describe staging of the disease</li> <li>• Know the prognosis and principles of treatment.</li> </ul>                                                                                                                     |
| 31 | Morbid Obesity                | <ul style="list-style-type: none"> <li>• To recognize the definition of morbid obesity</li> <li>• Identify the magnitude of morbid obesity</li> <li>• Know the measurement of obesity</li> </ul>                                                                                                                                                                                                                                       |

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| 32 | Skin Tumors & Principles of Plastic Surgery                     | <ul style="list-style-type: none"> <li>• Appreciate the pathophysiology and associated medical problems of obesity</li> <li>• Management of morbid obesity with focus on the role of surgery</li> <li>• Anatomy of the skin</li> <li>• Appreciate the different types of skin tumors (basal cell carcinoma, squamous cell carcinoma and melanomas) clinical presentations, investigations and management</li> </ul>                                                                                                                                                                                                                          |
| 33 | Thyroid Gland, Parathyroid Gland & Thyroglossal Tract Disorders | <ul style="list-style-type: none"> <li>• Formulate a differential diagnosis for a goiter</li> <li>• list tumors of thyroid gland</li> <li>• appreciate the role of surgery</li> <li>• list possible post-operative complications</li> <li>• elicit signs and symptoms related to thyroid disease (thyrotoxicosis, hypothyroidism, eye manifestations, tremors, Reflexes)</li> <li>• appreciate the relevance of performing TFT, hormone measurements, U/S, FNA, radioactive scans.</li> <li>• Elicit sign and symptoms of hypercalcemia</li> <li>• Briefly list etiologies of hypercalcemia and how to differentiate between them</li> </ul> |
| 34 | Adrenal Gland Disorders                                         | <ul style="list-style-type: none"> <li>• Differentiate between primary, secondary and tertiary hyperparathyroidism</li> <li>• Understand the anatomy and function of the adrenal gland</li> <li>• Appreciate the clinical presentation, investigations and management of adrenal gland disorders</li> <li>• Appreciate the role of surgery in the management of adrenal disorders</li> </ul>                                                                                                                                                                                                                                                 |
| 35 | Salivary Glands Disorders                                       | <ul style="list-style-type: none"> <li>• Review the anatomy of major salivary glands.</li> <li>• Patterns of presentation, investigations, and treatment of sialectasis.</li> <li>• Describe common infections affecting the major salivary glands (including postoperative parotitis).</li> <li>• Understand the clinical presentation of benign and malignant salivary gland tumors.</li> <li>• Classify malignant salivary gland tumors.</li> </ul>                                                                                                                                                                                       |
| 36 | Benign and Malignant Breast Disorders                           | <ul style="list-style-type: none"> <li>• Review the anatomy of the breast</li> <li>• Appreciate the clinical presentation of benign and malignant breast disorders</li> <li>• The appropriate selection of investigation of breast disease</li> <li>• Special focus on breast cancer and management</li> </ul>                                                                                                                                                                                                                                                                                                                               |
| 37 | Presentation of Lung Disease                                    | <ul style="list-style-type: none"> <li>• Define the symptoms and signs of the range of lung disease</li> <li>• To be able to select the appropriate investigation</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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| 38 | Pneumothorax, empyema & lung cysts                                                                 | <ul style="list-style-type: none"> <li>List the difference types of pneumothorax and empyema.</li> <li>List signs of pneumothorax and empyema.</li> <li>Discuss the etiology of pneumothorax.</li> <li>Outline the treatment for empyema and pneumothorax</li> </ul>                                                                                                                                                                                                                                                                                                          |
| 39 | Lung Neoplasms                                                                                     | <ul style="list-style-type: none"> <li>List the cystic lesions of the lung alert.</li> <li>Appreciate epidemiology and etiology of primary lung cancer</li> <li>Identify the histological classification of lung cancer</li> <li>Clinical features, investigations, staging and management of lung cancer</li> <li>Benign lung tumors</li> </ul>                                                                                                                                                                                                                              |
| 40 | Chest & Diaphragm Trauma                                                                           | <ul style="list-style-type: none"> <li>Understand mechanism of trauma.</li> <li>Recognize the major life threatening injuries (tension pneumothorax, tamponad, major vascular injury, and massive lung contusion, major tracheal or bronchial injuries).</li> <li>Recognize how and when to ask for relevant investigations).</li> <li>Know the principles of treating pneumothorax and hemothorax.</li> <li>To understand the role of thoracic surgery in the management of medical conditions (e.g. Bronchiectasis, Lung abscess, Tuberculosis, lung cysts, etc)</li> </ul> |
| 41 | Thoracic Surgery in Medical Conditions                                                             | <ul style="list-style-type: none"> <li>Appreciate the different invasive thoracic procedures such as biopsy under CT guidance, mediastinoscopy, mediastinotomy, chest drains and thoracotomy with lobectomy, pneumonectomy</li> </ul>                                                                                                                                                                                                                                                                                                                                         |
| 42 | Invasive Thoracic Procedures                                                                       | <ul style="list-style-type: none"> <li>Possible complications of invasive thoracic</li> <li>Review the embryogenesis</li> <li>Identify presentation and diagnostic methods.</li> <li>Outline principles of management</li> </ul>                                                                                                                                                                                                                                                                                                                                              |
| 43 | Congenital pediatric disorders (including abdominal wall defect, Malrotation, anorectal anomalies) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 44 | Neonatal Intestinal Obstruction & Hirschsprung Disease)                                            | <ul style="list-style-type: none"> <li>Review embryological developmental anatomy and clinical pathology of the disease</li> <li>Take relevant history from mother for early recognition of the case</li> <li>Appreciate the urgency of these pathologies</li> <li>Ask for relevant investigations and suggest management plan</li> <li>Appreciate the pathophysiology of Hirschsprung disease and stages of management</li> </ul>                                                                                                                                            |

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| 45 | PediatricsAcute Abdomen               | <ul style="list-style-type: none"> <li>• Identify the various pathologies of acute abdomen including none-surgical ones</li> <li>• Take the proper relevant history and performing the pertinent physical examination</li> <li>• Appreciate importance of early resuscitation and treatment</li> </ul>                                                                                                                       |
| 46 | Pediatrics Inguinoscrotal Conditions  | <ul style="list-style-type: none"> <li>• Suggest management plan</li> <li>• Review anatomy of the inguinoscrotal canal and the developmental anomalies</li> <li>• Appreciated the importance of early diagnosis of complicated strangulated hernia and torted testis</li> <li>• List the differential diagnosis of inguinoscrotal</li> </ul>                                                                                 |
| 47 | PediatricsTrauma                      | <ul style="list-style-type: none"> <li>• Know the ABC of management</li> <li>• Understand mechanism of trauma and the possible injuries</li> <li>• Appreciate the need for fast and early resuscitation</li> <li>• Understand the possibility of child abuse as underlying cause of trauma</li> <li>• Suggest management plan</li> </ul>                                                                                     |
| 48 | Peripheralvascular Diseases           | <ul style="list-style-type: none"> <li>• Identify pain due to peripheral ischemia (claudication, rest pain, critical limb).</li> <li>• Suggest relevant investigations such as Doppler ultrasound and angiography.</li> <li>• Define common vascular procedures.</li> </ul>                                                                                                                                                  |
| 49 | Aneurysmsand vascular anomalies       | <ul style="list-style-type: none"> <li>• Describe different types of aneurysms and the possible symptomatology for each one (subclavian, aortic, dissecting, popliteal)</li> <li>• Appreciate the etiology of each</li> <li>• Differentiate between false and true aneurysm.</li> <li>• Suggest relevant investigations and treatments.</li> </ul>                                                                           |
| 50 | Varicose veins and lymphaticdiseases. | <ul style="list-style-type: none"> <li>• List the common vascular anomalies.</li> <li>• Review venous and lymphatic anatomy</li> <li>• Discuss principles of physical examination.</li> <li>• Differentiate between primary varicose veins and a post phlebetic limb.</li> <li>• Suggest modalities of treatment.</li> <li>• Differentiate between different types of lymphedema and their clinical implications.</li> </ul> |



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## B. Seminars

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| 1 | Acute Abdomen                                            | <ul style="list-style-type: none"><li>• Know the definition of acute abdomen</li><li>• Initial patient stabilization</li><li>• Be able to take proper history and perform physical examination to diagnose the underlying cause of acute abdomen</li><li>• Know the most common causes of acute abdomen</li><li>• Appreciate the urgency of the problem and suggest precise management plan</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2 | Abdominal Trauma                                         | <ul style="list-style-type: none"><li>• Concentrate on the ABC rule for management of any trauma during stabilization and resuscitation of patient</li><li>• Identify the types of abdominal trauma (blunt or penetrating) and take proper oriented history</li><li>• Know the most common intraabdominal organs susceptible to be injured</li><li>• Select the proper investigation</li><li>• Formulate management plan according to</li><li>• Identify the thyroid nodule as part of the differential diagnosis of anterior neck mass</li><li>• Be able to take proper history and pick up symptoms</li><li>• perform proper physical examination of the neck and thyroid gland and pick up the relevant signs</li><li>• Know the different etiologies of neck swelling including thyroid nodule</li><li>• Select the proper investigation sequence</li></ul> |
| 3 | Diagnosis & Management of Neck Swelling & Thyroid Nodule |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 4 | Upper Gastrointestinal Tract Bleeding                    | <ul style="list-style-type: none"><li>• Identify the different forms of presentation of patient with upper GIT bleeding</li><li>• Initial assessment, evaluation, resuscitation and management based on the perception of bleeding severity</li><li>• Know the appropriate investigation and /or intervention to localize the bleeding site so as to stop it</li><li>• Recognize the different etiologies of upper GIT bleeding</li><li>• Management of specific causes of upper GIT bleeding</li></ul>                                                                                                                                                                                                                                                                                                                                                         |
| 5 | Lower Gastrointestinal Tract Bleeding                    | <ul style="list-style-type: none"><li>• Identify the different forms of presentation of patient with lower GIT bleeding</li><li>• Initial assessment, evaluation, resuscitation and management based on the perception of bleeding severity</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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|---|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6 | Hiatal Hernia & Gastroesophageal Reflux Disease | <ul style="list-style-type: none"> <li>• Know the appropriate investigation and /or intervention to localize the bleeding site so as to stop it</li> <li>• Recognize the different etiologies of lower GIT bleeding</li> <li>• Management of specific causes of lower GIT bleeding</li> <li>• Describe the anatomy of lower esophageal sphincter</li> <li>• Know the different types of hiatal hernia and the differences between them</li> <li>• Understand the relation between hiatal hernia and Gastroesophageal Reflux Disease</li> <li>• Identify the symptoms of Gastroesophageal Reflux Disease</li> <li>• Know the most relevant investigations</li> <li>• Formulate relevant management plan</li> </ul> |
| 7 | Gastrointestinal Stomas & Fistulas              | <ul style="list-style-type: none"> <li>• Differentiate between fistula and stoma</li> <li>• Know how to classify fistulas</li> <li>• Identify factors predispose to fistula formation</li> <li>• Know the steps in management of different types of fistulas</li> <li>• Identify the factors that prevent closure of fistula</li> <li>• Differentiate between common types of stomas</li> <li>• Know the complications of stomas by history and examination and suggest management for each of them</li> </ul>                                                                                                                                                                                                    |
| 8 | Breast Lumps & Nipple Discharge                 | <ul style="list-style-type: none"> <li>• Identify the relevant symptoms related to breast lump and nipple discharge</li> <li>• Know the differential diagnosis of breast lump according to age</li> <li>• Appreciate the nature of nipple discharge and relate it to patient's age and history</li> <li>• Be able to perform proper physical examination of the breast and identify signs related to malignancy</li> <li>• Formulate investigation and management plan</li> </ul>                                                                                                                                                                                                                                 |
| 9 | Abdominal Mass                                  | <ul style="list-style-type: none"> <li>• Know the possible presentations of intraabdominal masses</li> <li>• Identify the relevant symptoms by history in relation to the possible differential diagnosis of abdominal mass</li> <li>• Perform proper physical examination and differentiate enlarged solid organs from other masses</li> <li>• Appreciate the role of blood tests and radiological investigations to identify the cause</li> </ul>                                                                                                                                                                                                                                                               |

|    |                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                           | <ul style="list-style-type: none"> <li>• Suggest proper management plan</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 10 | Vascular Surgery Seminars | <ul style="list-style-type: none"> <li>• Identify the symptoms and signs of arterial, venous and lymphatic systems disorders</li> <li>• Formulate a clinically oriented approach to patient presenting with vascular system related complaints, and suggest the possible diagnostic methods according to urgency and the underlying etiology of the problem</li> <li>• Appreciate the emergency vascular pathologies</li> <li>• Suggest the role of conservative versus surgical treatment when managing chronic arterial, venous and lymphatic systems disorders</li> <li>• Appreciate the symptoms that may indicate vascular trauma</li> <li>• Discuss briefly injuries to different arteries</li> </ul>                                                                                                                                                                                                                                                  |
| 11 | Thoracic Surgery Seminars | <ul style="list-style-type: none"> <li>• Recognize the common methods of stopping arterial bleeding.</li> <li>• Revise anatomy of the chest</li> <li>• List the difference types of pleural effusion (unilateral and bilateral)</li> <li>• List signs of pleural effusion</li> <li>• Discuss the etiology of pleural effusion</li> <li>• Outline the treatment of pleural effusion</li> <li>• Classification of diseases of mediastinum including Mediastinal masses</li> <li>• Identify the role of different diagnostic investigations including chest x-ray, MRI, CT scan and management of Mediastinal disorders</li> <li>• Understand mechanism of trauma.</li> <li>• Integrate knowledge to recognize the major life threatening injuries (tension pneumothorax, tamponad, major vascular injury, and massive lung contusion, major tracheal or bronchial injuries).</li> <li>• Recognize how and when to ask for relevant investigations).</li> </ul> |

| C. Clinical Skills (bedside teaching) |                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                     | General Physical Examination               | <ul style="list-style-type: none"> <li>• pulse examination</li> <li>• Blood pressure examination</li> <li>• Signs of dehydration</li> <li>• Signs of anemia</li> <li>• Signs of cyanosis</li> <li>• Signs of jaundice</li> <li>• Level of consciousness</li> </ul>                                                                                                                                                                                                                                                                                                            |
| 2                                     | Skills of physical examination head & neck | <ul style="list-style-type: none"> <li>• cervical lymph nodes</li> <li>• thyroid examination</li> <li>• cystichygroma</li> <li>• examination of other neck masses</li> <li>• carotid artery pulsations and carotid body tumor</li> <li>• position of trachea</li> </ul>                                                                                                                                                                                                                                                                                                       |
| 3                                     | Physical examination Chest                 | <ul style="list-style-type: none"> <li>• chest deformity desertion</li> <li>• chest expansion</li> <li>• signs of pneumothorax</li> <li>• signs of pleural effusion</li> <li>• heart sounds and position of apex beat</li> </ul>                                                                                                                                                                                                                                                                                                                                              |
| 4                                     | Physical examination abdomen and genitalia | <ul style="list-style-type: none"> <li>• inspection for hernia orifices and cough impulse</li> <li>• inspection of diversion recti</li> <li>• palpate for the hepatomegny and how to measure liver span</li> <li>• palpate for splenomegaly</li> <li>• palpate for kidneys</li> <li>• how to differentiate between spleen and left kidney masses</li> <li>• examine for ascitis</li> <li>• palpate for abdominal aorta</li> <li>• signs of hernia</li> <li>• inguinal masses</li> <li>• examination of gentile for haematocele/ testicular masses , epidermal cyst</li> </ul> |

|   |                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5 | Physical examination lower limbs                | <ul style="list-style-type: none"> <li>• describe shape and deformity</li> <li>• signs of chronic ischemia</li> <li>• peripheral pulsations</li> <li>• examination for foot ulcers</li> <li>• examination for superficial and deep sensations</li> <li>• examination for muscle power muscle tone, and reflexes</li> <li>• examination for amputations ( level , stump, joint deformity)</li> <li>• signs of DVT</li> <li>• signs of varicose veins</li> </ul> |
| 6 | Physical examination for post operation patient | <ul style="list-style-type: none"> <li>• Types of skin incisions</li> <li>• Describe colostomy</li> <li>• Describe different types of drains, catheters (e.g. Foley's catheter) &amp; tubes (e.g. N/G tube)</li> <li>• Describe I.V lines and cannulas</li> </ul>                                                                                                                                                                                              |

**Course Title: Internal Medicine (1)**  
**Course Code: 111503401**  
**Course Duration: 10 weeks**  
**Credit Hours: 10**

## **I. Course Description**

This is a ten week clinical rotation for fourth year medical students during 4th year. about functional anatomy which covers 8 medical specialties and gives information and

about pathophysiology of organs and systems, and interpretation of symptoms and abnormal physical signs related to disorders of that system or organ

## **II. Rotation Objectives & Expected Outcomes**

### **General objectives & Expected Outcomes**

Upon completion of the course, students should be able to:

1. To highlight the concept of health and disease and provide knowledge of the common medical disorders
2. Offer information regarding approach to patients, identification of disease, reaching diagnosis, and how to provide care and respond to patient needs
3. Offer information about how to obtain medical history and perform physical examination and how and what investigations to request. Further assist the student to develop skills of interviewing, communication, and rapport establishment
4. To provide the students information regarding formulation, broad lines of management and safety use of medications and drug interactions
5. To develop concept of health and disease, case identification and approach to diagnosis and management
6. Learn how to perform proper clinical assessment
7. Developed skill of interviewing, communication, establishment of rapport and meeting different patient needs
8. Obtained knowledge of available clinical diagnostic facilities and investigations, treatment methods, safety use of drugs, and awareness of non-pharmacological approaches
9. Become aware of the ethical issues of medical practice and patient rights

### **III. Suggested Textbooks:**

- 1. Kumar and Clark's Clinical Medicine, 7th Edition** - With STUDENT CONSULT Online Access. By Parveen Kumar, CBE, BSc, MD, FRCP, FRCP (Edin) and Michael L. Clark, MD, FRCP
- 2. Davidson's Principles and Practice of Medicine, 20th Edition** With STUDENT CONSULT Online Access. By Nicholas A. Boon, MA, MD, FRCP(Ed), FESC, Nicki R. Colledge, BSc, FRCP(Ed), Brian R. Walker, BSc, MD, FRCP(Ed) and John A. A. Hunter, OBE, BA, MD, FRCP
- 3. Harrison's textbook of medicine** – by Charles Wiener, Anthony Fauci, Eugene Braunwald and Dennis Kasper

### **IV. Teaching Materials Made Available to Students**

- Textbooks and references
- Lecture Notes, from seminars prepared by the students and moderated by the consultants and teaching assistants.
- Attending outpatient clinics and learn examination methods after seeing patients, supervised by consultants and residents.
- Clinical skills lab
- Interventional labs Hospitals (catheterization Lab , bronchoscopy unit, GI unit)

### **V. Instructional Methods**

- Morning report.
- Seminars.
- Bed-side teaching.
- Outpatient clinics.
- Problem solving sessions.

- Attending some diagnostic and interventional procedure (like cardiac catheterization, bronchoscopy or endoscopy).

## **VI. Student Evaluation:**

1. Student Evaluation (20 marks)
2. Clinical Examination (30 marks)
3. Final Examination (50 marks) : MCQ exam

### **Topics to be covered:**

- 1) Cardiovascular System.
- 2) Disorders of the respiratory system.
- 3) Gastroenterology.
- 4) Diseases of the kidney & urinary tract.
- 5) Endocrine & metabolism.
- 6) Hematology.
- 7) Infectious diseases.
- 8) Rheumatology.
- 9) Geriatric Medicine
- 10) Palliative Care



# **Course Outline**

## **1) Cardiovascular System:**

### **I. Knowledge/Mix of Diseases/Patients:**

- A. Ischemic heart disease: unstable angina and myocardial infarction
- B. Heart failure
- C. Congenital heart disease with onset of manifestations in the adult
- D. Valvular heart disease—causes
- E. Clinical diagnosis of rheumatic fever
- F. Hypertension: essential and secondary
- G. Pericarditis

### **H. Arrhythmias:**

- 1. Distinction between ventricular and supraventricular rhythms
- 2. Atrial fibrillation, atrial flutter
- 3. Heart block 1o, 2o, 3o
- 4. Bundle branch and hemiblocks
- 5. Main supraventricular tachycardias

### **II. History Skills**

- A. Obtain history of risk factors for coronary artery disease
- B. Obtain history for rheumatic fever or congenital heart disease
- C. Recognize importance of family history in assessment of cardiovascular disease
- D. Use all modalities in "pain" history to distinguish coronary artery disease from other causes of chest pain
- E. In hypertensive patient, obtain careful history of medication compliance

### **III. Physical Exam Skills**

- A. Determine venous pressure by examination of neck veins
- B. Assess arterial pulses and recognize pulsus alternans, bisferiens pulse, and paradoxical pulse
- C. Perform hepato-jugular reflux test to assess venous pressure
- D. On cardiac auscultation, recognize:
  - 1. Systolic and diastolic murmur--effects of physiologic and pharmacologic interventions
  - 2. Pericardial friction rub
- E. On cardiac auscultation, recognize:
  - 1. S-1, S-2, and normal physiologic splitting
  - 2. S-3, S-4, and how they are best appreciated
  - 3. Systolic and diastolic murmur--effects of physiologic and pharmacologic interventions
  - 4. Special characteristics of the murmur of MVP and HCM

5. Pericardial friction rub

**IV. Diagnostic Tests**

A. Recognize a normal EKG and common EKG abnormalities

B. Recognize a normal Chest X-ray

**V. Therapeutic Interventions**

A. Know therapeutic indications for angioplasty and other therapeutic applications of catheterization

B. Describe therapeutic approach to clinical syndromes described

**VI. Lectures Outline (4<sup>th</sup> and 6<sup>th</sup> years)**

| Topics & Objectives                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1.Common Signs and Symptoms of the CVS</b><br>*Revision of CVS symptoms<br>* DDx of each Symptom<br>* Important history points differentiating between differential diagnoses                                                                                       |
| <b>2. Investigations</b><br>* Invasive and noninvasive investigations used evaluate the heart<br>* Indications and precautions.<br>* Basic interpretation of the results                                                                                               |
| <b>3.Hypertension1&amp;2</b><br>*Primary HTN and Secondary HTN<br>* WHO classification of hypertension<br>* Investigations for HTN<br>* Complications & hypertensive emergencies<br>* Describe the classes of antihypertensive drugs<br>* Management of HTN            |
| <b>4.Acute Coronary syndrome and Ischemic Heart Disease 1&amp;2</b><br>*Signs & Symptoms<br>*Pathogenesis of IHD and different ACSs.<br>* Identify modifiable and non-modifiable risk factors.<br>* Investigations used to diagnose IHD<br>* Management of chronic IHD |
| <b>5.Valvular heart disease 1&amp;2</b><br>* <b>Mitral, Aortic, Tricuspid, Pulmonary Stenosis and Regurgitation:</b> Causes, Presentations, murmurs, investigations and management                                                                                     |
| <b>6.Arrhythmias</b><br>*Types, Mechanisms<br>* Presentation<br>* Investigations<br>*Treatment                                                                                                                                                                         |
| <b>7 Rheumatic Fever &amp; Infective Endocarditis</b><br>*Causes , Criteria for diagnosing<br>*Complications , Outline of treatment                                                                                                                                    |
| <b>8.Heart Failure (HF)</b><br>*Causes , Pathophysiology<br>*Manifestations , Investigations                                                                                                                                                                           |

|                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| * Treatment, Mortality                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>9 Congenital heart disease</b><br>* Cardiac embryology and anatomy<br>* fetal circulation and postnatal circulation<br>* Overview of Congenital heart diseases & Management                                                                                                                                                                                                                                          |
| <b>10 Cardiac arrest</b><br>* Causes, Pathophysiology<br>* Diagnostic methods, BLS & ALS                                                                                                                                                                                                                                                                                                                                |
| <b>11 Pericardial disease</b><br>* <b>Acute Pericarditis:</b> Etiology, Clinical features, investigations and management<br>* <b>Pericardial Effusion:</b> Clinical features, ECG changes and management<br>* <b>Pericardial Tamponade:</b> Typical physical findings and importance of urgent management<br>* <b>Constrictive Pericarditis:</b> Clinical features and associations and overview of surgical management |
| <b>12 Peripheral vascular disease</b><br>* Etiology<br>* Clinical manifestations and severity.<br>* Diagnostic methods<br>* Complications<br>* Treatments                                                                                                                                                                                                                                                               |
| <b>13 Lipid disorder</b><br>* Discuss varying lipid disorders and their pathophysiology<br>* Pointing Lipid profile normal values and therapy targets.<br>* Discuss complications of Lipid disorders<br>* Outline treatment                                                                                                                                                                                             |
| <b>14 Cardiomyopathies</b><br>* Etiology of Cardiomyopathies.<br>* Clinical manifestations.<br>* Diagnostic methods<br>* Complications<br>* Treatment                                                                                                                                                                                                                                                                   |
| <b>15 Myocarditis</b><br>* Etiology<br>* Clinical manifestations<br>* Diagnostic methods<br>* Treatment                                                                                                                                                                                                                                                                                                                 |

## **2) Disorders of the respiratory system:**

### **I. Knowledge/Mix of Diseases/Patients**

#### **A. Diseases of airflow limitation**

1. Asthma
2. Bronchitis
3. Emphysema

- 4. Bronchiectasis
  - 5. Cystic fibrosis
- B. Interstitial lung diseases
  - 1. Occupational lung disease
  - 2. Hypersensitivity pneumonias
  - 3. Sarcoidosis
  - 4. Idiopathic pulmonary fibrosis
- C. Infectious lung diseases
  - 1. Community acquired pneumonia
  - 2. Nosocomial pneumonias
  - 3. Tuberculosis
- D. Pulmonary vascular lung diseases
  - 1. Pulmonary thromboembolism
  - 2. Pulmonary hypertension
  - 3. Noncardiogenic pulmonary edema (ARDS)
- E. Neoplastic disease of the lung
  - 1. Bronchogenic carcinoma
  - 2. Paraneoplastic syndromes
- F. Diseases of the pleura
  - 1. Pleural effusion
  - 2. Pneumothorax

## **II. History Skills**

- A. Correctly characterize respiratory symptoms of dyspnea, cough, and expectoration
- B. Obtain careful history of accidental or occupational exposure to potential lung toxins
- C. Obtain a precise history of tobacco use, including passive cigarette smoke
- D. Obtain family history for cystic fibrosis, emphysema, asthma, tuberculosis, collagen vascular diseases, and lung neoplasm
- E. Obtain history of drug exposure and medication use
- F. Determine risk factors for HIV and TB

## **III. Physical Exam Skills**

- A. Examine the chest by inspection
  - 1. Identify abnormal respiratory patterns
  - 2. Recognize findings suggesting pulmonary disease such as deviated trachea, digital clubbing
- B. Examine the chest by palpation
  - 1. Appreciate the significance of supraclavicular adenopathy, crepitation, and tenderness
- C. Examine the chest by percussion
  - 1. Distinguish normal and abnormal resonance
  - 2. Further define areas of dullness by special maneuvers such as vocal and tactile fremitus
- D. Examine the chest by auscultation
  - 1. Recognize normal breath sounds and characterize
  - 2. Recognize adventitious breath sounds such as crackles, rhonchi, and wheezes
  - 3. Understand the diagnostic implications of the adventitious sound

#### **IV. Diagnostic Test Skills**

A. The student should be able to:

1. Interpret arterial blood gases
2. Understand the use of the pulse oxymeter
3. Interpret spirometry including Flow-Volume loops
4. Interpret the chemical profile of pleural effusions

B. The student should understand the indications for:

1. Pulmonary function tests
2. Thoracentesis
3. Pleural biopsy

#### **V. Therapeutic Skills**

A. The student must be familiar with the general management of all diseases listed in I.

B. The student should be able to:

1. Correctly select antimicrobial agents for respiratory infection
2. Recognize a significant reaction to PPD
3. Know the indications and side effects for the commonly used medications in pulmonary medicine

#### **VI. Lectures Outline (4<sup>th</sup> and 6<sup>th</sup> years)**

| <b>Topics &amp; Objectives</b>                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Respiratory System Anatomy &amp; Physiology &amp; PMT</b><br>* Review of RS Anatomy and physiology, URT & LRT<br>* Lung volumes and capacities and their normal values<br>* Abnormal lung function tests interpretation                                 |
| <b>2. Arterial Blood Gases (ABG) &amp; Acid-Base Disorders (ABD)</b><br>* Bases of ABD, A-a gradient, FiO <sub>2</sub> , O <sub>2</sub> dissociation curve, hypoxia<br>* Metabolic and respiratory ABD, simple and complex.<br>* Arterial blood gases in ABD. |
| <b>3. Bronchial Asthma</b><br>* Definition, Pathophysiology, risk factors, triggers.<br>* Clinical Manifestations<br>* Investigations<br>* Guidelines of Treatment                                                                                            |
| <b>4. Chronic Obstructive Pulmonary Disease (COPD)</b><br>* Pathophysiology<br>* Clinical Manifestations<br>* Investigations<br>* Guidelines of Treatment (including exacerbations)                                                                           |
| <b>5. Pneumonia</b><br>* Definition, clinical and radiological features, Causative agents.<br>* Classification (Community-acquired Vs. Hospital-acquired).<br>* Diagnosis of pneumonia and Prognosis<br>* Principles of management                            |
| <b>6. Hemoptysis</b><br>* Causes & Diagnostic approach to patients with hemoptysis                                                                                                                                                                            |

**7. Tuberculosis (TB)**

- \* Causative agents
- \* Pathology of TB and its risk factors.
- \* Clinical features & Complications
- \* Investigations & Treatment

**8. Bronchiectasis & Cystic Fibrosis**

- \* Causes; Clinical features, Management and prognosis.
- \* Cystic Fibrosis genetic basis and complications and management

**9. Interstitial Lung Diseases and Sarcoidosis**

- \* Types & Risk factors.
- \* Clinical presentation and Investigations in Sarcoidosis.
- \* Chest X-Ray findings & Prognosis & Treatment

**10. Thromboembolic Diseases:**

- \* Risk factors for DVT & PE.
- \* Clinical manifestations, Investigations
- \* Management Guidelines

**11 Obstructive Sleep Apnea**

- \* Definitions, Clinical Manifestations, Risk Factors
- \* Investigations (polysomnography)
- \* Treatment

**12 Bronchogenic Carcinoma**

- \* Risk factors, classification
- \* Clinical manifestations.
- \* Staging & Treatment.

**13 Pleural Effusion**

- \* Exudate Vs. Transudate
- \* Causes & Manifestations
- \* Investigations & Treatment

**14 Acute Respiratory Failure**

- \* Type 1 Vs. Type 2
- \* Causes
- \* Oxygen Therapy

**15 Acute Respiratory Distress Syndrome (ARDS)**

- \* Criteria, Causes
- \* Manifestations & Management

### **3)Gastroenterology:**

#### **I. Knowledge/Mix of Diseases/Patients**

- A. Diseases of the esophagus: anatomic and motor causes of esophagitis (GERD)
- B. H Pylori and PUD
- C. Disorders of absorption
- D. Inflammatory bowel disease
- E. Liver and biliary tract disease
  - 1. Acute and chronic hepatitis
  - 2. Cirrhosis and alcoholic liver disease
  - 3. Approach to patients with abnormal LFTs
- F. Pancreatic diseases
  - 1. Acute pancreatitis
  - 2. Chronic pancreatitis
  - 3. Pancreatic cancer
  - 4. Endocrine tumors

#### **II. History Skills**

In obtaining history from a patient with a GI complaint:

- A. Describe all characteristics of abdominal pain
- B. Recognize potential importance of family history and medication history and GI side effects of all drugs
- C. History of diet, weight, food intolerance, bowel pattern, and bleeding
- D. Compare and contrast history of inflammatory bowel disease vs. irritable bowel syndrome
- E. Precise history taking in GERD and dysphagia

#### **III. Physical Exam Skills**

- A. Students must do complete exam of abdomen and rectal exam including:
  - 1. Auscultation for bowel sounds and bruits
  - 2. Percussion for liver size
  - 3. Palpation for spleen
- B. Recognize need for additional physical exam maneuvers such as:
  - 1. Shifting dullness and fluid wave when ascites is suspected
  - 2. Murphy's sign for right upper quadrant pain or tenderness
  - 3. Eliciting signs of peritonitis
  - 4. Perform rectal digital exam and check for fecal blood

#### **IV. Diagnostic Studies**

- A. Know indications for paracentesis
- B. Know indications for placement of nasogastric tube
- C. Properly interpret the following laboratory tests:
  - 1. Serologic studies for viral and autoimmune hepatitis
  - 2. Liver function tests

## V. Therapeutic Skills

A. The student should know indications, side effects, interactions and follow-up for the most commonly used GI medications (e.g. PPIs, Laxatives, Prokinetic agents)

## VI. Lectures Outline (4<sup>th</sup> and 6<sup>th</sup> years)

| Topics & Objectives                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. GI History &amp; Examination &amp; Investigations :</b> <ul style="list-style-type: none"><li>* Overview of history and physical examination of patients with different GI symptoms</li><li>* Necessary workup to reach clinical diagnosis</li><li>* Common GI procedures, indications and contraindications</li></ul>                                                                 |
| <b>2. Esophageal Motility Disorders (Achalasia &amp; Diffuse Esophageal Spasm)</b> <ul style="list-style-type: none"><li>* Definition , pathophysiology</li><li>* Causes &amp; symptoms</li><li>* Workup &amp; Investigations</li><li>* Treatment &amp; Management</li></ul>                                                                                                                 |
| <b>3. Anatomic Disorders (Lower esophageal ring, Strictures, Plummer Vinson, Zencker's diverticulum) &amp; Transfer Disorders (Neurologic dysfunction, Scleroderma &amp; Systemic Sclerosis) :</b> <ul style="list-style-type: none"><li>* Causes &amp; Clinical Findings</li><li>* Workup &amp; Investigations</li><li>* Treatment &amp; Management</li></ul>                               |
| <b>4. GERD:</b> <ul style="list-style-type: none"><li>* Pathophysiology, Risk factors, Clinical features,</li><li>* Workup</li><li>* Treatment protocols: lifestyle modifications, medical treatment, surgical treatment.</li></ul>                                                                                                                                                          |
| <b>5. Barrett esophagus &amp; Esophageal cancer:</b> <ul style="list-style-type: none"><li>* Causes, histopathology findings and association with cancer , management in Barrett esophagus</li><li>* Histological types of Cancer &amp; Risk factors</li><li>* Diagnosis, lab and radiological studies and endoscopy</li><li>* Treatment options according to the stage of cancer.</li></ul> |
| <b>6. Stomach Normal physiology &amp; Dyspepsia :</b> <ul style="list-style-type: none"><li>* Normal Physiology, Enzymes of the stomach</li><li>* Definition, causes, workup and management</li></ul>                                                                                                                                                                                        |
| <b>7. Gastritis:</b> <p>Classification according to the cause</p> <p>Erosive gastropathy: causes, risk factors, preventive measures, and treatment</p> <p>H. pylori infection: Investigations and treatment</p>                                                                                                                                                                              |
| <b>8. Peptic ulcer disease:</b> <ul style="list-style-type: none"><li>* Causes, Risk factors</li><li>* Manifestation and Diagnosis</li><li>* Treatment and management</li></ul>                                                                                                                                                                                                              |
| <b>9. Gastric Tumors:</b> <ul style="list-style-type: none"><li>* Histological types, risk factors, clinical manifestations</li><li>* Diagnoses, staging, prognosis, and treatment options</li><li>* Post- gastrectomy syndromes: dumping syndrome, blind loop syndrome, afferent loop syndrome.</li></ul>                                                                                   |



|                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>10.Upper &amp; Lower Gastrointestinal Bleeding</b><br>*Causes & Manifestations<br>*Investigations & Management                                                                                                                                                                                                                              |
| <b>11.Inflammatory bowel disease</b><br>*Crohn's disease : Epidemiology, Signs and symptoms, Diagnosis, Medical and surgical Treatment<br>*Ulcerative colitis: Epidemiology, Signs and symptoms, Diagnosis, Medical and surgical Treatment                                                                                                     |
| <b>12.Malabsorption:</b><br>*Overview of causes of Acute and chronic diarrhea<br>*Different Causes of Malabsorption (Celiac disease, Tropical sprue, Whipple disease, Eosinophilic gastroenteritis, pancreatic insufficiency): Clinical features, Investigations & diagnosis and treatment                                                     |
| <b>13.Constipation &amp; IBS</b><br>*Causes Diagnosis and workup<br>*Treatment options<br>*Irritable bowel syndrome: clinical feature, Diagnosis of IBS ,Treatment                                                                                                                                                                             |
| <b>14. Bowel obstruction &amp; Diverticular disease:</b><br>*Causes of bowel obstruction , Investigations and Management<br>*Types of Diverticular disease, Clinical features Diagnostic studies, Treatment                                                                                                                                    |
| <b>15. Colorectal Cancer</b><br>*Risk factors,, types of adenomas ,<br>*Inherited colon cancer syndromes: (FAP, Juvenile polyposis, Peutz-Jeghers syndrome, Gardner, HNPCC)<br>*Screening protocol<br>*Staging system & Treatment                                                                                                              |
| <b>16.Acute &amp; Chronic Pancreatitis</b><br>*Causes, Manifestations, Prognostic scoring systems<br>*Investigations & Diagnosis & MRCP, ERCP<br>*Complications<br>*Management                                                                                                                                                                 |
| <b>17.Pancreatic Tumors</b><br>*Benign tumors : types and manifestations (glucagonoma, insulinoma, gastrinoma)<br>*Cancer : risk factors, presentation, diagnosis, staging, prognosis and treatment                                                                                                                                            |
| <b>18. Disorders of the Biliary Tract</b><br>*Cholelithiasis: risk factors , manifestations , diagnosis , treatment<br>*Cholestasis: types and pathophysiology<br>*Cholangitis: Causes , manifestations , diagnosis , management<br>*Primary sclerosing cholangitis & Primary biliary cirrhosis:etiology, manifestations, diagnosis, treatment |
| <b>19. Hepatitis (Acute &amp; Chronic )</b><br>Viral Hep. (A,B,C,D,E ) : virology , Manifestation, diagnosis , treatment and management, complications, vaccination.<br>Autoimmune Hep. : serologic studies, diagnosis, treatment<br>Drug- Induced Hep.: acetaminophen, alcohol, INH, methotrexate, Aspirin and Reye syndrome                  |
| <b>20.Liver Cirrhosis</b><br>*Causes , Manifestations , diagnosis , management<br>*Hepatorenal syndrome: definition, causes and management<br>*Hepatic encephalopathy: precipitating factors, manifestations, treatment<br>*Esophageal varices: management of bleeding.                                                                        |

## **21.Hepatocellular Cancer**

\*Risk factors, Clinical manifestations

\*Investigations & management

### **4)Diseases of the kidney & urinary tract:**

#### **I. Knowledge/Mix of Diseases/Patients**

A. Acute renal failure--The student must distinguish prerenal, renal, and post renal disease using clinical and laboratory parameters

B. Chronic renal failure and its associated metabolic-endocrine, GI, cardiovascular hematologic, and neuromuscular complications

C. The major glomerulopathies

D. Tubulointerstitial diseases

E. Vascular injury

#### **II. History Skills**

In the patient who presents with a problem of the urinary tract, the student will determine by history:

A. Frequency and volume of urine (polyuria, oliguria, anuria)

B. Urine color, hematuria

C. Dysuria, diminished stream

D. Effects of nephrotoxic drugs or drugs that effect bladder emptying or urine color

E. The clinical syndrome of uremia

#### **III. Physical Exam Skills**

A. Recognize signs of uremia--cognitive, asterixis, odor of breath

B. Auscultate for bruits

C. Attempt to palpate for kidneys

D. Percuss bladder size

#### **IV. Diagnostic Tests**

The student should be able to:

A. Calculate fractional excretion of sodium as a measure of prerenal vs post renal azotemia

B. Evaluate the patient with glomerulonephritis for multisystem disease

C. Choose the most appropriate imaging test for the specific patient problem

#### **V. Therapeutic Interventions**

The student should be able to:

A. Manage the patient with acute renal failure and know all indications for dialysis

B. Recognize the possibility of urinary tract obstruction

### **VI. Lectures Outline (4<sup>th</sup> and 6<sup>th</sup> years)**

| No. | Topic                  | Objectives                                                                               |
|-----|------------------------|------------------------------------------------------------------------------------------|
| 1.  | Renal Tests            | (Urine analysis ,GFR Detention ,Cock-gault formula ,Renal biopsy Indications )           |
| 2.  | Fluid and electrolytes | (Osmolality and volume status,<br>*Hyponatremia:(Causes Types Manifestations Treatment ) |

|                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| *Hypernatremia:(Causes Types Manifestations Treatment )                                                                                                                                                                                                                                                                                                                                                                 |
| <b>3.Acid- base disorders</b> (Anion gaps, Osmolar gap, Types, Etiologies, Management )                                                                                                                                                                                                                                                                                                                                 |
| <b>4.Normal renal physiology</b>                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>5.Electrolyte Disorders:</b><br>*Hyperkalemia, Hypokalemia (Causes ,Manifestations and treatment )<br>*Hyperaldosteronism (Aldosterone concentration and plasma renin activity)<br>*Hypercalcemia, Hypocalcemia (Causes ,Manifestations and treatment )<br>*Hypomagnesemia, Hypermagnesemia (Causes ,Manifestations and treatment )<br>*Hyperphosphatemia, Hypophosphatemia. (Causes ,Manifestations and treatment ) |
| <b>6.Acute kidney injury:</b> (Causes and investigations of Pre-renal AKI & Post-renal AKI)                                                                                                                                                                                                                                                                                                                             |
| <b>7.Acute tubular necrosis :</b> (Causes, Investigations, Treatment )                                                                                                                                                                                                                                                                                                                                                  |
| <b>8.Interstitial disease</b> (Acute interstitial nephritis & Chronic interstitial nephritis<br>Causes , Investigations , Treatment )                                                                                                                                                                                                                                                                                   |
| <b>9. Nephritic syndromes:</b> (post infectious GN,Membranoproliferative GN,IgA Nephropathy,Hereditary Nephritis ( Alport Syndrome),Anti-GBM Disease ,Vasculitides )                                                                                                                                                                                                                                                    |
| <b>10.Nephrotic syndrome</b> (Minimal Change Diseases,FSGN,membranous Nephropathy,Diabetic Nephropathy,Amyloidosis,Treatment)                                                                                                                                                                                                                                                                                           |
| <b>11.Drug-induced nephropathies</b>                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>12.Chronic kidney disease</b> (Staging,dynamic Bone Disease,Osteomalacia, Complications,Treatment, Dialysis, Renal transplant)                                                                                                                                                                                                                                                                                       |
| <b>13.Hereditary kidney diseases</b> (Alport ,Polycystic kidney disease, Medullary disease)                                                                                                                                                                                                                                                                                                                             |
| <b>14.Renal stones</b> (Causes , Investigations , Treatment )                                                                                                                                                                                                                                                                                                                                                           |

## 5)Endocrine & metabolism:

### **I. Knowledge/Mix of Diseases/Patients**

#### **A. Diseases of the pituitary**

1. Diabetes insipidus
2. Pituitary tumors
  - a. Acromegaly
  - b. Cushing Disease
  - c. Prolactinoma
3. Hypopituitarism
4. Empty Sella Syndrome

#### **B. Thyroid disease**

1. Hypothyroidism causes
2. Hyperthyroidism
  - a. Graves disease
  - b. Toxic multinodular goiter
  - c. Toxic adenoma
  - d. Factitious
3. Thyroiditis
  - a. Chronic thyroiditis (Hashimoto's)
  - b. Subacute thyroiditis (painful and painless)
4. Approach to thyroid nodule

- C. Diseases of the adrenal cortex
  - 1. Cushing Syndrome
  - 2. Hyperaldosteronism
  - 3. Addison's Disease
- D. Pheochromocytoma
- E. Diabetes mellitus
  - 1. Diagnosis
  - 2. Classification and pathogenesis
  - 3. Clinical features
  - 4. Complications
  - 5. Treatment
    - a. Diet
    - b. Insulin
    - c. Oral agents
- F. Hypoglycemia
  - 1. Fasting
  - 2. Reactive
- G. Disorders of the parathyroid gland and of calcium metabolism
- H. Metabolic bone disease
  - 1. Osteoporosis
  - 2. Osteomalacia
  - 3. Paget's
  - 4. Renal osteodystrophy

## **II. History Skills**

- A. Demonstrates knowledge necessary to take a proper history for a patient suspected of having an endocrine or metabolic disorder.
- B. In a patient with diabetes mellitus, the student must obtain and put in chronological order a detailed history of the disease, including all complications, hospitalizations, medications.

## **III. Physical Exam**

- A. Know importance of:
  - 1. Weight
  - 2. Height
  - 3. Skeletal proportions
- B. Recognize exophthalmus and abnormal ocular motility
- C. Evaluate thyroid size, nodularity, tenderness, and bruit
- D. Evaluate skin-temperature, moisture, pigmentation, pretibial myxedema, diabetic dermopathy
- E. Evaluate quality of voice
- F. Evaluate texture and pattern of hair
- G. Recognize diabetic retinopathy

## **IV. Diagnostic Skills**

- A. Understand the use of thyroid function tests
- B. Describe the tests necessary to diagnose diseases listed in I.

## **V. Therapeutic Interventions**

A. Understand the indications, side effects, and adverse reactions for each of the following:

1. L-thyroxine
2. Glucocorticoids
3. Antithyroid drugs
4. Oral hypoglycemics
5. Insulin (all forms)

## VI. Lectures Outline (4<sup>th</sup> and 6<sup>th</sup> years)

| Topics & Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1.Pituitarygland</b><br>*Anterior and posterior pituitary glands overview<br>*Acromegaly,Prolactinomas<br>*Diabetes insipidus: Neurogenic and Nephrogenic DI, Management<br>*SIADH: causes, manifestations and management                                                                                                                                                                                                                                                                                                                                          |
| <b>2.Hyperthyroidism</b><br>*Normal physiology, Thyroid function tests , uptake scan, ultrasound and biopsy.<br>*Abnormal findings in history, physical examination and lab and radiological studies, treatment.<br>*Graves disease: definition, clinical findings, diagnosis , treatment                                                                                                                                                                                                                                                                             |
| <b>3.Hypothyroidism:</b><br>*Clinical manifestations, diagnosis , Treatment and follow- up<br>*Thyroiditis: Types, causes, clinical manifestation, lab results, management .<br>*Euthyroid sick syndrome: Definition, management                                                                                                                                                                                                                                                                                                                                      |
| <b>4. Thyroid Nodules &amp; Carcinomas</b><br>*Nodules and goiters: risk factors, workup .<br>*Benign nodular disease and toxic adenoma: manifestations, investigations , management<br>*Thyroid carcinomas: overview of the 4 histological types of thyroid carcinoma, treatment modalities and long term follow- up<br>*Goiter: types of goiter, clinical manifestations, management                                                                                                                                                                                |
| <b>5.Adrenal gland Disorders</b><br>*Steroid synthesis pathway and the normal physiology of the adrenal glands<br>*Congenital adrenal hyperplasia:Types , Management and follow- up<br>*Cushing's syndrome: manifestations, causes ,workup, treatment<br>*Adrenal insufficiency: Types, causes, clinical manifestations, Lab results, Treatment<br>*Mineralocorticoids: rennin- angiotensin- aldosteron system<br>*Primary and secondaryHyperaldosteronism: causes and workup, management<br>*Pheochromocytoma: Risk factors,clinical manifestations,Workup,Treatment |
| <b>6.Hormonesofreproduction</b><br>*Amenorrhea:Primary and secondary, Causes and clinical manifestations, investigations,Management<br>*Hirsutism: causes, physical examination and lab studies, management<br>*Hypogonadism: Types and causes ,Clinical features and lab studies, management<br>*Erectile dysfunction & Gynecomastia .                                                                                                                                                                                                                               |
| <b>7.Lipoproteins</b><br>*Lipoproteins pathways : chylomicrons, VLDL, IDL, LDL and HDL<br>*Hereditary dyslipidemias: types and differentiating between them using lab studies and genetic techniques.                                                                                                                                                                                                                                                                                                                                                                 |

|                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| *Evaluation and treatment of hyperlipidemia:<br>* Lipids in ACS and goal levels in patients with CHD                                                                                                                                                       |
| <b>8.Diabetesmellitus</b><br>*Types of DM<br>*Diagnosis and screening<br>*Pathophysiology and clinical manifestations<br>*Complications and management<br>*Hyperglycemic state DKA& hyperosmolar hyperglycemic state : manifestations , linv. , management |
| <b>9.Hypoglycemia</b>                                                                                                                                                                                                                                      |
| <b>10.ParathyroidGland Disorders</b><br>*Normal calcium physiology and the effects of PTH, calcitonin, vit D and other hormones on the GI and renal systems, and bone.<br>*Hypercalcemia & Hypocalcemia: Clinical manifestations ,Treatment                |
| <b>11.Multipleendocrineneoplasia</b><br>*Types , clinical manifestations                                                                                                                                                                                   |

## **6)Hematology:**

### **I. Knowledge/Mix of Diseases/Patients**

- A. Pathophysiology of anemia
- B. Anemia of chronic disease
- C. Iron deficiency anemia
- D. Megaloblastic anemia
- E. Hemolytic anemias (congenital and acquired)
- F. Myeloproliferative disorders
- G. Leukemias (acute and chronic)
- H. Lymphoma (Hodgkins, non-Hodgkins and plasma cell myeloma)
- I. Clotting disorders
  1. Platelet and vessel wall
  2. Coagulation and thrombosis
  3. Hypercoagulable state

### **II. History Skills**

- A. Knowing presenting signs of anemia
- B. Recognize that dizziness, shortness of breath, headache, exercise intolerance, and sensitivity to cold may be presenting symptoms of anemia
- C. Recognize that symptoms of angina, claudication, TIA may be unmasked by anemia
- D. Recognize the value of reviewing all previous hematologic lab data in evaluation of hematologic disorders
- E. Recognize symptoms of platelet disorders (spontaneous mucocutaneous bleeding, immediate bleeding with trivial trauma) versus symptoms of clotting-factor deficiency (delayed bleeding, deep muscular hematomas, and hemarthroses)
- F. Recognize the importance of "B" symptoms (fever, night-sweats, weight loss) in patients with lymphoma
- G. Recognize the importance of the family history in patients with anemia and coagulation disorders

### III. Physical Diagnosis Skills

- A. Recognize ecchymotic or petechial rash
- B. Palpate all lymph node areas, spleen and liver

### IV. Diagnostic Skills

A. Know the value of the following tests in the work-up of a patient with hemolytic anemia:

1. Blood smear review
2. Reticulocyte count
3. Coombs test
4. Serum haptoglobin
5. Glucose 6 phosphate dehydrogenase deficiency
6. Hemoglobin electrophoresis
7. Urine hemosiderin

B. Know the proper evaluation for bleeding disorder

### V. Therapeutic Interventions

- A. Know the appropriate indications for transfusion of erythrocytes and platelets
- B. Know indications for fresh frozen plasma, cryoprecipitate, and purified factor concentrates

### VI. Lectures Outline (4<sup>th</sup> and 6<sup>th</sup> years)

| Topics & Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Approach to an anemic patient</b> <ol style="list-style-type: none"><li>1. Normal erythropoiesis</li><li>2. Detection of anemia</li><li>3. Taking history and physical examination of an anemic patient</li><li>4. Laboratory evaluation of anemia:<ul style="list-style-type: none"><li>• CBC (HB, RBC, MCV, RDW)</li><li>• Reticulocyte count</li><li>• Peripheral smear</li></ul></li><li>5. Hepcidin General features</li><li>6. Causes of Microcytic, Macrocytic and normocytic Anemia</li><li>7. Evolution of Iron deficiency anemia</li><li>8. Differential Diagnosis of iron deficiency anemia (Anemia of chronic disease and Thalassemia)</li><li>9. Specific etiologies of anemia :<ul style="list-style-type: none"><li>• G6PD deficiency</li><li>• Pyruvate kinase deficiency</li><li>• Sickle cell syndromes</li><li>• hereditary spherocytosis</li></ul></li></ol> |
| <b>2. Iron Deficiency anemia</b> <ol style="list-style-type: none"><li>1. General definition</li><li>2. Causes</li><li>3. Clinical presentation</li><li>4. Diagnosis</li><li>5. Stages of iron deficiency anemia</li><li>6. treatment</li></ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>3. Megaloblastic Anemia</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

1. Requirements for RBC production
2. Definition and laboratory findings in Megaloblastic anemia
3. Biochemistry of B12, DNA synthesis, dietary vitamin B12 and its absorption and Causes & manifestations of B12 deficiency
4. Definition, signs and symptoms of Pernicious Anemia
5. Schilling Test
6. Biochemistry of folate, Dietary Folate and its absorption and causes & manifestations of Folate deficiency.
7. Laboratory diagnosis of Megaloblastic Anemia

#### **4. Aplastic Anemia**

1. Hypoproliferative anemias
2. definition of Aplastic Anemia
3. Epidemiology and Etiology:
  - Radiation
  - Chemicals
  - Drugs
  - Infections
  - Immunologic Diseases
  - Pregnancy
4. Definition, symptoms, diagnosis and treatment of Paroxysmal Nocturnal Hemoglobinuria
5. Inherited (constitutional AA):
  - Fanconi's anemia
  - Dyskeratosis congenita
  - Shwachman-Diamond syndrome
6. Clinical features of Aplastic Anemia (History, physical examination and laboratory studies)
7. Diagnosis and prognosis
8. Treatment:
  - Stem cell transplantation
  - Immunosuppressant
  - Other and Supportive therapy

#### **5. Acquired Hemolytic Diseases**

1. G6PD Deficiency and its variants
2. Drugs that should be avoided by persons with G6PD Deficiency
3. Prevalence of G6PD
4. Clinical manifestations of G6PD deficiency
5. Symptoms and Characteristics of favism
6. G6PD and its resistance to malaria
7. Drugs causing Hemolysis in G6PD
8. Treatment of G6PD
9. Definition, inheritance, clinical & laboratory findings and treatment of Hereditary spherocytosis
10. Clinical indication for examination of a blood smear.

#### **6. Red Blood Cells**

1. Review of normal HB
2. Qualitative and quantitative hemoglobinopathies



3. Overview, epidemiology and pathogenesis of Sickle cell disease
4. Clinical manifestations of sickle cell disease (in the 1<sup>st</sup> 20 years, between 20-40 and beyond the 4<sup>th</sup> decade)
5. Diagnosis, prevention and treatment of sickle cell disease.
6. Overview and types of Thalassemia
7. Pathogenesis of alfa-Thalassemia
8. Pathogenesis, clinical features, diagnosis and treatment of beta-Thalassemia

### **7. Hereditary Hemochromatosis**

- Definition and classification
  - Epidemiology:
  - Prevalence
  - Penetrance
  - Inheritance
3. pathophysiology:
- Iron overload
  - Heparin-ferroportin interaction
  - Defects in heparin-ferroportin interaction
  - Consequences of iron deposition
4. diagnosis and treatment

### **8. Myeloproliferative disorders**

1. WHO classification of CMPD
2. True and apparent polycythemia
3. Causes of secondary polycythemia
4. Overview and pathogenesis of Polycythemia vera
5. Clinical features of polycythemia
6. Diagnostic Criteria and treatment of polycythemia
7. Clinical features, Investigations, diagnostic criteria and treatment for Essential Thrombocythemia

### **9. Lymphoma**

1. Types of Neoplasia of lymphoid origin
2. History, physical examination, investigations and diagnosis for lymphoid malignancies
3. Epidemiology and etiology of Hodgkin lymphoma
4. Diagnosis and variants of HL:
  - Nodular sclerosing type
  - Mixed cellularity type
  - Lymphocyte depleted type
  - Lymphocyte predominant type
5. Clinical presentation of HL
6. Origin and progression HL
7. Staging evaluation for lymphoma
8. Prognostic factors HL
9. Treatment of HL
10. Relapse of HL
11. Non Hodgkin lymphoma classification
12. epidemiology and Etiology of NHL

14. Chromosomes translocations in NHL
15. Commonest subtypes:
  - Diffuse large cell lymphoma
  - Follicular lymphoma
16. Clinical presentation of NHL
17. Prognostic factors in NHL
18. Follicular NHL
19. Large B cell lymphoma
20. Treatment options in advanced indolent lymphoma and in aggressive lymphoma
21. Burkitt's lymphoma
22. T cell lymphoma
23. Primary gastric lymphoma

#### **10. Acute Lymphoblastic Leukemia**

1. Common manifestation of ALL
2. Laboratory evaluation, etiology and diagnosis of ALL
3. Bone marrow in ALL
4. Biology of adult ALL:
  - Morphologic features
  - Immunophenotyping
5. Cytogenetic and molecular anomalies
  - Abnormalities of cell ploidy
  - Phenotype-specific chromosomal translocations
6. Treatment (Induction, intensification, maintenance, radiation and supportive therapy)
7. Definition, etiology, incidence and diagnosis of AML
8. French-American-British classification and WHO classification of AML
9. Clinical presentation, prognostic factors and treatment of AML

#### **11. Chronic Leukemia**

1. Definition, epidemiology, immunology, pathophysiology and Histopathology of Chronic Lymphocytic Leukemia
2. Immunophenotype, karyotype, clinical features and Diagnostic evaluation of CLL
3. Staging and prognosis of CLL:
  - Rai system
  - Binet System
4. Treatment of CLL
5. Definition, Epidemiology, Etiology, pathophysiology and Histopathology of Chronic Myeloid Leukemia.
6. Clinical presentation, physical findings, hematological findings and Chromosomal findings of CML
7. Treatment and response criteria in CML

#### **12. Plasma Cell Disorders**

1. Definition of plasma cell disorders
2. Definition, epidemiology, clinical manifestations of Multiple Myeloma
3. International Staging system for symptomatic MM

4. Durie-Salamon staging system
5. Initial diagnostic evaluation of MM
6. Management and therapy of MM
7. Definition of Monoclonal gammopathy of unknown significance

### **13. Approach to a Bleeding patient**

1. Quick review of Hemostasis
2. Clinical features of bleeding disorders
3. Coagulation factor disorder:
  - Inherited bleeding disorders (hemophilia A and B, vonWillebrand disease)
  - Acquired bleeding disorders (Liver disease, Vitamin K deficiency/warfarin overdose, DIC)
4. Approach to bleeding patient:
  - History and family history
  - Site of bleeding
  - Drug history
  - Systemic disease
  - Other associated signs and symptoms
5. Bleeding and screening Tests:
  - CBC, Platelets count, Blood film
  - PT, PTT, Thrombin Time
  - Clot retraction
  - Specialized tests (Platelets aggregation, factors assay)
6. Laboratory Evaluation of the coagulation Pathways
7. Treatment Approaches to the bleeding patient (platelet transfusion, fresh frozen plasma, cryoprecipitate, Homeostatic drugs)

### **14. Hemophilia**

1. Inherited Hemophilia:
 

Hemophilia A:

  - Mode of inheritance
  - prevalence
  - pathobiology
  - clinical features,
  - diagnosis
  - Lab findings
  - Treatment and prophylaxis in severe cases
  - Complications ( Inhibitor formation, infectious diseases)

Hemophilia B:

  - Mode of inheritance
  - Clinical features
  - Pathobiology
  - Treatment
2. Acquired Hemophilia
  - Epidemiology and pathobiology
  - Clinical Manifestation and diagnosis
  - Treatment

### **15. Platelets Disorders**

1. Qualitative platelets defects (Hereditary defects and acquired defects)
2. Glanzmann Thrombasthenia:
  - Clinical manifestations
  - Laboratory and diagnostic tests
3. Von-Willebrand's disease:
  - Clinical features
  - Classification
  - Treatment
  - Acquired von Willebrand Syndrome ( Immune mediated and Proteolysis mediated)

### **16. Factor 8 and Hemophilia**

1. The F8 gene
2. F8 intron 22 inversion
3. F8 intron 1 inversion
4. Severity of hemophilia
5. Genetic screening for Hemophilia A and F8 mutation in Jordanian HB patients

### **17. Thrombocytopenia**

1. Quick review of platelets
2. Definition and causes of thrombocytopenia
3. Clinical effects caused by different levels of platelets count.
4. Pathophysiology, clinical presentation, investigation and treatment of immune thrombocytopenic purpura
5. Pathophysiology, clinical features, workup of thrombotic thrombocytopenic purpura.
6. Causes of TTP/HUS
7. Treatment of TTP

### **18. Venous thromboembolism**

1. VTE (DVT and PE) as a leading cause of death in Europe and USA
2. Absolute risk of DVT
3. Causes of VTE ( inherited and acquired causes)
4. Medical patients at risk for VTE
5. Overview of Antiphospholipid Antibody Syndrome as a cause for VTE
6. VTE in Jordan
7. Factor V Leiden
8. PE and DVT treatment and duration of therapy
9. Complications of Heparin therapy.
10. Heparin induced thrombocytopenia as a clinic-pathological syndrome
  - HIT clinical manifestations
  - Approach to diagnose HIT
  - Thrombotic Complications of HIT
  - Risk for developing HIT
  - Factors Influencing frequency of HIT
  - Detection of HIT antibodies
  - Neurological Consequences of HIT
  - Cardiac Syndromes of HIT
  - Management of HIT

11. Heparin induced skin necrosis
12. Adrenal Hemorrhagic Infarction
13. Overview of warfarin, its resistance and sensitivity and its Complications.

## **7) Infectious diseases:**

### **I. Knowledge/Mix of Diseases/Patients**

#### **A. Clinical syndromes**

1. Gram-negative sepsis
2. Infective endocarditis
3. Upper and lower respiratory infections
4. Urinary tract infections
5. Soft tissue infection
6. Tuberculosis
7. Mycoplasma pneumoniae pneumonia

#### **B. Viral infection**

1. Influenza and prevention
2. Herpes infection,
3. Hepatitis A, B and C

#### **C. Fever of unknown origin**

### **II. History Skills**

A. Demonstrate at bedside ability to elicit history with special attention to relevant travel and residential history, animal contact, work and recreational activity, drug use and sexual history

B. Elicit any co-existing disease which may be relevant to pathogenesis of infection

### **III. Physical Examination**

A. Demonstrate ability to perform thorough physical exam in effort to determine source of infection

B. Recognize skin lesions which may provide diagnostic clues to etiology of infection

C. Recognize fever patterns and their possible diagnostic indications

D. Perform Kernig and Brudzinski tests in evaluating for meningitis

### **IV. Diagnostic Tests**

A. Obtain sputum on patients with pneumonia

B. Interpret body fluid results (CSF, pleural, peritoneal, joint)

### **V. Therapeutic Interventions**

A. Choose appropriate antibiotic regimens for most common infections

B. Know major side effects of antibiotics

## **VI. Lectures Outline (4<sup>th</sup> and 6<sup>th</sup> years)**

### **Topics & Objectives**

#### **1. Antibiotics**

- Overview; classification, mechanism of action, Antimicrobial spectrum, clinical examples, resistance, side effects and contraindications
- Subtypes: inhibitors of cell wall synthesis (Penicillins/ Cephalosporins/ Carbapenems/ Monobactams/ Bactiracin), protein synthesis inhibitors (Tetracyclines/

Aminoglycosides/ Macrolides/ Clindamycin), Quinolones.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• <u>Vancomycin</u>; mechanism of action, pharmacokinetics, spectrum, resistance</li> <li>• MIC definition and clinical use.</li> <li>• <u>Selection</u> according to Spectrum of activity, resistance, distribution, toxicity Synergy and antagonism.</li> </ul>                                                                                                                                                                                                    |
| <b>2.Antibioticresistance</b> <ul style="list-style-type: none"> <li>• Testing methods of antibiotic susceptibility; disc diffusion method, E-test (MIC level).</li> <li>• Mechanisms of resistance</li> <li>• MRSA, VRSA and other common resistant strains</li> <li>• Impact on health care</li> <li>• Therapeuticapproach</li> <li>• Prevention</li> </ul>                                                                                                                                               |
| <b>3.Sepsis</b> <ul style="list-style-type: none"> <li>• Definitions; bacteremia, septicemia, SIRS, sepsis, septic shock, MODS.</li> <li>• Pathophysiology; triggering factors, Host response, mediators.</li> <li>• Symptoms and signs, acid base disturbances, ARDS, electrolytes imbalance.</li> <li>• Diagnosis, empirical treatment, therapy plan.</li> </ul>                                                                                                                                          |
| <b>4.TB</b> <ul style="list-style-type: none"> <li>• Mycobacterium; microbiological description, life cycle, transmission.</li> <li>• Disease epidemiology, subtypes.</li> <li>• Diagnosis; sputum AFB smears, Lowenstein-Jensen medium cultures, PCR.</li> <li>• Treatment; lines of combined therapy (Anti-mycobacterial drugs), resistant strains.</li> </ul>                                                                                                                                            |
| <b>5.Gastroenteritis</b> <ul style="list-style-type: none"> <li>• Definition, underlying etiology.</li> <li>• Symptoms and alarming signs</li> <li>• Laboratory work up; stool culture.</li> <li>• Antibiotictherapy</li> <li>• Therapy management plan.</li> </ul>                                                                                                                                                                                                                                         |
| <b>6. Fever of unknown origin</b> <ul style="list-style-type: none"> <li>• Definition of fever and hyperthermia, Sites of temperature measurements, pathophysiology of fever.</li> <li>• Antipyretics; types and clinical use</li> <li>• Fever of unknown origin; definition, causes.</li> <li>• Approach methods to patient with fever of unknown origin; History&amp; physical examination, ESR, serological tests, liver function test, imaging studies, Cultures.</li> <li>• Managementplan.</li> </ul> |
| <b>7.Opportunisticinfections</b> <ul style="list-style-type: none"> <li>• Definition, examples, classification.</li> <li>• Prevention and prophylaxis.</li> </ul>                                                                                                                                                                                                                                                                                                                                           |
| <b>8.HIV</b> <ul style="list-style-type: none"> <li>• Introduction, HIV virology classification, structure, life cycle and transmission mode.</li> <li>• Epidemiology, diagnosis, clinical course and manifestation.</li> <li>• AIDS definition and diagnosis.</li> <li>• CDC classification for HIV infection</li> <li>• Antiviral drugs used</li> </ul>                                                                                                                                                   |

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| <ul style="list-style-type: none"> <li>• Prognosis and management methods (HAART)</li> </ul>                                                                                                                                                                                                                                                                                               |
| <b>9.Brucellosis</b> <ul style="list-style-type: none"> <li>• Malta fever definition</li> <li>• Brucella subtypes.</li> <li>• Clinical features, life cycle, differential diagnoses.</li> <li>• Approach methods, cultures, Brucella titers, imaging test, complete blood count, liver and bone marrow biopsies.</li> <li>• Follow-up and Treatment; combined therapy regimens.</li> </ul> |
| <b>10.StaphylococcalInfections</b> <ul style="list-style-type: none"> <li>• Microbiology; subtypes; coagulase positive (S. aureus), coagulase negative species.</li> <li>• Pathogenesis.</li> <li>• S. aureus; diseases, resistance, treatment and eradication.</li> </ul>                                                                                                                 |

## **8)Rheumatology:**

### **I. Knowledge**

- A. Clinical manifestations of SLE
- B. Rheumatoid arthritis
- C. Scleroderma
- D. Mixed connective tissue disease
- E. Sjogren's syndrome
- F. Ankylosing spondylitis
- G. Vasculitis syndromes
- H. Sarcoidosis
- I. Osteoarthritis
- J. Psoriatic arthritis and arthritis associated with GI diseases
- K. FMF
- L. Behcet's disease
- M. Gout

### **II. History Skills**

- A. Demonstrate ability to elicit history of multisystem disease. Know importance of extra-articular symptoms such as rash, uveitis, aphthous ulcers, alopecia, and pleuritic pain
- B. In patient with joint disease, determine presence or absence of morning stiffness, redness, heat, swelling, restricted movement

### **III. Physical Exam Skills**

- A. Know the physical findings associated with each of the diseases listed in I.
- B. Evaluate each joint for swelling, erythema, tenderness, crepitation, contracture, deformity.
- C. Determine range of motion and compare to normal. Identify Heberden node, Bouchard node, ulnar deviation, Swan neck deformity.
- D. Demonstrate joint effusion.
- E. Examine the spine. Evaluate chest expansion for spondylitis.

### **IV. Diagnostic Tests**



The student should be able to:

A. Know the basics of diagnostic joint aspiration

B. Know when to order the following tests: rheumatoid factor, anti DNA, anti SM, anti RNP, anti RO

(SSA), anti LA (SSB), ANCA

**V. Therapeutic Interventions**

A. Know general treatment options for all diseases listed in I

**VI. Lectures Outline (4<sup>th</sup> and 6<sup>th</sup> years)**

| Topics & Objectives                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1.Common Investigations:</b><br>*Auto-antibodies clinical measurement.<br>*ESR, CRP use in clinical medicine.<br>*ANA definitions<br>*Anti-ds DNA, (anti-Sm, anti-Ro, anti-La, anti-RNP), RF definition, measurement, clinical use<br>*C- & P- ANCA |
| <b>2.Osteoarthritis</b><br>*Definition, Symptoms and signs.<br>*Radiological assessment<br>*Management                                                                                                                                                 |
| <b>3. Rheumatoid arthritis</b><br>*Definition, epidemiology, pathogenesis.<br>*Clinical features & criteria for diagnosis<br>*Treatment plan.                                                                                                          |
| <b>4.Spondyloarthropathies</b><br>*Ankylosing Spondylitis, Reactive arthritis, Psoriatic arthritis, Acute anterior uveitis, Juvienile SpA, arthritis associated with IBD, Undifferentiated SpA).<br>*Manifestations , Investigations , Management .    |
| <b>5.PolymyalgiaRheumatica</b><br>*Manifestations<br>*Investigations<br>*Management                                                                                                                                                                    |
| <b>6.CrystalArthropathies</b><br>*Types and causes .<br>*Clinical Manifestations<br>*Diagnoses and Investigations<br>*Management                                                                                                                       |
| <b>7.SystemicLupusErythmatosus</b><br>*Definition,etiology<br>*Clinical Manifestations<br>*Diagnosis<br>*Treatment                                                                                                                                     |
| <b>8.Scleroderma</b><br>*Etiology, types, manifestations<br>*Diagnosis and Investigations                                                                                                                                                              |

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| *Complications & management                                                                                                                                                                                                    |
| <b>9. Septic Arthritis</b><br>*Definition, pathology.<br>*Diagnosis; symptoms, signs, laboratory tests, imaging studies.<br>*Treatment.                                                                                        |
| <b>10. Polymyositis &amp; Dermatomyositis</b><br>*Classification.<br>*Criteria for diagnosis, investigations.<br>*Complications and Treatment.                                                                                 |
| <b>11. Behcet's disease</b><br>*Manifestations, Investigations, Management                                                                                                                                                     |
| <b>12. Vasculitis</b><br>*Takayasu's arteritis; Giant cell arteritis; Henoch-shönlein purpura<br>Polyarteritis Nodosa and Wegner's vasculitis.<br>*Classification, etiology; genes, manifestations, investigations, management |

### Geriatric Medicine Lectures :

|                                                                                                                                                                                                                                                                                                                                                                            |
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| <b>1. GERIATRIC MEDICINE:</b><br>• How are elderly patients different?<br>• Common patterns of disease in old age<br>• Alteration in pain and temperature responses<br>• Atypical presentation<br>• Complications of Illness<br>• Non specific presentations<br>• Masking by known disease<br>• History taking in the elderly<br>• Physical Examination of the old patient |
| <b>2. INVESTIGATIONS IN THE ELDERLY:</b><br>• Policy<br>• Interpretation<br>• Radiological, Hematological & Biochemical investigations<br>• ECG<br>• Urinalysis<br>• Radio isotope tests<br>• Bone Scan<br>• Imaging – Ultrasound, CT Scan, MRI<br>• How much to investigate?<br>• Concept of Normal Range                                                                 |
| <b>3. IMMUNOLOGICAL ASPECT IN ELDERLY:</b><br>• Genetic aspects of Immunity and Immunological Diseases<br>• Mutation<br>• Alternative theories of Aging<br>• Cancer<br>• Immunological Surveillance                                                                                                                                                                        |
| <b>4. NUTRITION IN GERIATRICS:</b><br>• Nutritional requirement                                                                                                                                                                                                                                                                                                            |

- Changes in total body mass and body composition
- Nutritional Assessment
- Nutritional deficiency in old age
- Osteoporosis
- Osteomalacia and Vitamin D
- Iron and Vitamins
- Recommended intake of nutrients
- Prevention of Nutritional Deficiency

#### **5.CARDIOVASCULARSYSTEMDISEASESIN ELDERLY:**

- Physiology and Pathology of Cardiovascular system in old age
- Investigation of Heart Diseases in Old age
- CardiacArrhythmias
- Coronary Artery Disease and Acute Myocardial Infarction
- Hypertension and Hypertensive Heart Disease
- Postural Hypotension
- Valvular Heart Disease
- Cor Pulmonale
- Chronic Congestive Heart Failure
- Aortic aneurysm
- Bacterial Endocarditis
- Peripheral Vascular Disease

#### **6.ENDOCRINE AND METABOLIC DISORDERS DISEASES IN ELDERLY:**

- Changes with Aging
- Diabetes Mellitus
- Diseases of the Pituitary, Parathyroid and Thyroid
- Obesity
- Sexual dysfunction
- Disorders of Sodium, Potassium, Calcium, Magnesium and Zinc
- Disturbances of Fluid Metabolism
- Hyperpyrexia / Heat Stroke

#### **7.CENTRAL NERVOUS SYSTEM DISEASES IN ELDERLY:**

- The Aging Brain
- Vascular lesions of the Central Nervous System
- Dementia
- Degenerative disorders including Parkinsonism
- Head Trauma
- Infections of the Nervous System
- Epilepsy
- Peripheral Neuropathy
- Disorders of Spinal cord & Nerve Roots
- Neoplasia

#### **8.GENITOURINARY SYSTEM DISEASES IN ELDERLY:**

- Structural changes with aging
- Acute and Chronic Renal Failure
- Infections of the Genito Urinary Tract

- Diseases of the Bladder and Prostate
- Urinary Incontinence
- Aging changes in the Genital Tract
- Post Menopausal Bleeding
- Gynaecological disorders in the Elderly

#### **9.DISORDERS OF THE SPECIAL SENSES IN ELDERLY:**

- Disorders of the Eye
- Hearing Disturbances
- Disturbance of Taste and Smell
- Dental Problems

#### **10.INFECTIONS IN THE ELDERLY:**

- Host Defences – Natural Barriers
- White Cell response, Immune mechanism
- Diagnosis of Fevers
- Urinary Infection – Diagnosis and Treatment
- Pneumonias – Cause, Diagnosis and Treatment
- Septicemia
- Bacterial Endocarditis
- Antibiotic Treatment
- Rational Use of Antibiotics

#### **11.GASTRO INTESTINAL DISEASES IN ELDERLY:**

- Changes with Age
- Investigations of the Gastro intestinal Tract
- Disorders of the Mouth
- GERD / Hiatus Hernia
- Acid Peptic Disease
- Disease of the Pancreas
- Diseases of the small Intestine
- Diseases of the Large Intestine
- Fecal Incontinence
- GI Malignancy
- Disease of the liver and Biliary System

#### **12.RESPIRATORY DISEASES IN ELDERLY:**

- Changes with Age
- Infections of the Respiratory System
- Chronic Obstructive Airway Disease
- Bronchial Asthma
- Bronchogenic carcinoma
- Respiratory Abnormalities in Extra-pulmonary conditions
- Respiratory Failure

#### **13.MUSCULOSKELETAL ISSUES IN ELDERLY:**

- The aging joints
- Degenerative Joint Disease
- Gout, Pseudogout
- Rheumatoid Arthritis

- Infective Arthritis
- Myopathy, Myositis, Polymyalgia Rheumatica
- Temporal arthritis
- Osteoporosis
- Osteomalacia

#### **14. HEMATOPOIETIC DISORDERS IN GERIATRICS:**

- Changes with Aging
- Anaemia in the elderly
- The Leukaemias and Lymphomas
- Paraproteinaemia
- Myelodysplastic syndromes
- Disorders of Haemostasis

#### **15. MALIGNANCY IN THE ELDERLY:**

- Incidence, Clinical Significance
- Presentation
- Investigation and Management
- Counselling

#### **16. PHARMACOLOGICAL ASPECTS OF AGING:**

- Pharmacokinetics in the elderly
- Pharmacodynamics
- Drug Selection and Dosage
- Drug Interactions
- Adverse Drug Reactions
- Drug Compliance
- Drug Misuse

#### **17. SPECIAL PROBLEMS IN GERIATRICS:**

- Pressure Sore
- Care of the Chronically ill
- Care of patients with terminal illness
- Religion and Illness
- Falls
- Nursing home placement
- Syncope
- Frailty
- Palliative care

#### **18. SKIN DISORDER IN ELDERLY:**

- The Aging Skin
- Pruritus
- Cancers / Benign Lesions
- Pemphigus & Pemphigoid
- Senile Purpura
- Herpes Zoster
- Intertrigo
- Leg Ulcer
- Hansen's Disease

## 10) Palliative Care Lectures

### 1.Special Populations: Cardiac and Pulmonary Disease

1. Know the disease trajectory in patients with advanced cardiopulmonary disease.
2. Describe prognostication in patients with advanced cardiopulmonary disease.
3. Manage physical symptoms specific to this patient population.
4. Describe role of hospice in caring for these patients.

### 2.Artificial Nutrition and Hydration

1. Define the following terms.  
Non-oral feeding  
Artificial hydration
2. Describe the benefits and burdens of artificial hydration/feeding (ANH) at the end of life.  
A. TPN
  - a) In cancer patients
  - b) In patients with dementia  
B. Enteral feedings
  - a) In cancer patients
  - b) In patients with dementia  
C. IV hydration at the end of life
  - a) In cancer patients
  - b) In patients with dementia
3. Review ethical and religious issues associated with ANH.

### 3.Palliative Uses of Radiation Therapy

1. To understand different radiotherapy techniques, how they are applied, and possible side effects.
2. To understand indications for radiation therapy in the setting of palliative care.

### 4.Conducting a Family Conference

1. Describe three philosophical reasons for talking to surrogates about end of life care decisions.
2. Describe five purposes of a family conference.
3. Describe a five stage approach to facilitating a family meeting.
4. Describe how one might talk to a surrogate about forgoing life sustaining treatment.

### 5.Bereavement

1. Outline a general approach to evaluation of grief and bereavement in the dying patient and his or her family.
2. Summarize theories of the tasks of grief and bereavement.
3. Demonstrate a willingness and ability to refer grieving persons to other caregivers when appropriate.
4. Demonstrate understanding of differences in cultural approaches to death and dying.
5. Summarize the concepts of stages of grief.
6. List several factors which commonly complicate grief.
7. List adverse outcomes of prolonged or complicated grief.

### 6.Communication: Discussing Goals of Care

1. Describe a method for discussing treatment options.
2. Describe a values-based approach to discussing palliative care.
3. Be able to ask five key questions that help elicit patient values.

4. Understand how managing transitions is often linked to giving bad news.
5. Discuss how this conversation may differ in non-Oncological palliative care.

**7.The Role of Function in Palliative Care**

1. Define frailty
2. Name oneself report and two performance based measures of function
3. Define the role of palliative care can help maintain function

**8.Comprehensive Palliative Care Assessment and Interdisciplinary Team Work**

1. Know the domains required to complete a whole person assessment.
2. Identify role of each member of interdisciplinary team.
3. Describe strategies to manage interdisciplinary team conflict.

**9.Cultural Issues in End of Life Care**

1. Appreciate the effects of culture, socioeconomic status, ethnicity, and gender on the experience of illness and health care.
2. Identify areas of potential conflict and confusion in the delivery of end-of-life care across cultures.
3. Describe methods of inquiry to elicit expectations and preferences that reflect cultural factors.

**10.Withdrawal of Life Support**

1. Know the principles for withholding and withdrawing life-sustaining therapy.
2. Apply the principles to:
  - a. artificial nutrition and hydration
  - b. ventilation
  - c. cardiopulmonary resuscitation

**11.Religious Traditions and Spiritual Care**

1. Appreciate spiritual and existential concerns of patients and families near the end of life.
2. Distinguish “spirituality” from “religion.”
3. Identify ethical aspects of the exploration of spirituality in the physician-patient relationship.





**COURSENUMBER:** 111502403  
**COURSETITLE:** Urology  
**CREDIT HOURS:** 2.25 credit hours

**CourseInformation:**

Urology is one of the clinical medical courses. Urology is the set of science and skills that manage the pathologies, anomalies and diseases of the Urinary Tract in females and the Genito-urinary tract in females. It also deals with the psychological aspects of Urological diseases and their related function. Through patterns of class lectures with PowerPoint presentation on data Shaw, small group seminars, X-ray rounds, interaction with the Urology residents and staff members, as well as, ward rounds, the students will be exposed to the basic knowledge and theory of Urology and the cystoscopic and laparoscopic anatomy of the internal organs of the Urinary Tract. Students also accompany their instructors in their every-day clinic work and operations. They will also be exposed to the ethical questions and dilemmas that face Urologists in their practice. Students also are expected to learn hands-on skills. Starting from History taking to physical examination concentrating on genital and digital rectal examinations. Then the students move on to learn Urethral catheterization and suprapubic catheterization as well as, basic skills of suturing. In addition, attention is paid to cultivate the students' abilities to use the syllabus, textbook, and all other resources available online or at the library to study by themselves, for elevating the students' English language level. This course demands the student to master main English technical terms which are also included in the examination. Through studying this course the students will be given the basis for studying other clinical medical courses. By the end of the rotation the students are expected to know and handle Urological emergencies, and be competent in the management of general Urological ailments like UTI, Renal Colic, erectile dysfunction and to perform urethral catheterization whenever needed. Better still, they are expected to become accustomed when not to do urethral catheterization. All students are expected to do one over-night on-call if suitable accommodation is available. They will also have exposure and chances to participate in clinical research.

In the following paragraphs, brief objectives of subjects taught in the syllabus will be listed as follow.

**GENERALOBJECTIVES:**

- 1- To describe specialized and summarized history taking customized to Urology.
- 2- To know how to integrate General surgery and medical problems related to Urology.
- 3- To learn male genital examination and digital rectal examination, DRE.
- 4- To learn the etiologies of Urological pathologies and diseases

- 5- To learn the management of common urological problems.
- 6- To promote self-teaching and initiative taking.
- 7- To observe common urological procedures like cystoscopy.
- 8- To have hands-on experience in urethral and suprapubic catheterization.
- 9- To recognize the urological emergencies and manage them.
- 10- To describe the basic structure and function of the genitor-urinary tract.
- 11- To experience on-call life.
- 12- To be exposed to ethical questions and dilemmas in Urology.
- 13- To explore basic research potentials.

#### **RECOMMENDED TEXTBOOK:**

General Urology, Emil A. Tanagho & Jack W. McAninch, 12<sup>th</sup> edition or latest, McGraw-Hill Lange Medical Publishing Division.

#### **Exams:**

- Evaluation of the attendance, attitude, and participation and diligence in the seminars and rounds during the 2-week course: 20%
- Oral Exam 10%
- Written MCQ rotation exam 20%
- Final Exams:-Written MCQ exam 50%

#### **Important notes:**

- **Attendance** at lectures, seminars, rounds as well as on-call nights is mandatory.
- **Lab coat and professional look is a must.**
- Attendance starts 7:30 am the first day of the 2-week rotation.
- Every student is expected to do at least one on-call night to be exposed to emergencies at first hand.
- Students are encouraged to attend resident's activities.
- Students are encouraged to interact with the nursing staff as well as residents at the hospital in a positive way. They can be a source of unlimited help and important skill teachers.
- The primary reference in any issue is your Urology Course coordinator. You are encouraged to communicate directly for any difficulties or questions.

#### **Urology Lectures**

| Days                                         | Specific Objectives                                                                                                                                                                                                                                                                                    |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| First Sunday morning session                 |                                                                                                                                                                                                                                                                                                        |
| <b>Signs and Symptoms of Urinary Disease</b> | <ol style="list-style-type: none"> <li>1) To understand symptoms and signs of genitor-urinary disease</li> <li>2) To be familiar with the description and significance of pain, haematuria, and other urologic symptoms.</li> <li>3) To know briefly about different Urological pathologies</li> </ol> |
| First Sunday afternoon session               | <ol style="list-style-type: none"> <li>1) To describe the general features &amp; characteristics of each Urological investigation, blood, urine, and discharges examination.</li> <li>2) To understand the basic Urodynamic studies and other functional</li> </ol>                                    |

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| <b>Investigations in Urology</b><br><br>First Monday morning session<br><b>Urinary Tract Infections</b>                                                                                                                                                                                             | studies.<br>3) To understand the basic radiological modalities (X-rays, IVP, Ultrasounds, CT scans, MRI, Nuclear scans) used in Urologic diagnosis and the features of Urologic pathologies on these images.<br>1) To describe the etiologies of UTIs.<br>2) To classify the UTIs.<br>3) To be familiar with the signs and symptoms of UTIs.<br>4) To master diagnosis and treatment of UTIs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| First Monday afternoon session<br><b>Catheterization</b>                                                                                                                                                                                                                                            | 1) To understand the structure & function of types of catheters.<br>2) To describe basic techniques of catheterization<br>3) To understand the indications, contra-indications and complications of catheterization.<br>4) Hands-on training on catheterization.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| First Tuesday morning session<br><b>Etiology of Stone disease</b><br><br>First Tuesday afternoon session<br><b>Management of Stone disease</b><br><br>First Wednesday morning session<br><b>Prostate Cancer</b><br><br>First Wednesday morning session<br><b>Prostate Cancer</b><br>First Wednesday | 1) To understand the basic features & characteristics of stone formation.<br>2) To recognize the different types of stones, their consistency and presentation.<br>3) To describe the main differences between stones physically, and on Radiological imaging.<br>1) To describe and classify stones according to their presentation and site, size, shape and consistency.<br>2) To explore the basic techniques of investigation of stone disease<br>3) To describe the approach to investigation and management.<br>4) To understand the different modalities of treatment (conservative, medical, cystoscopic, ureteroscopic, percutaneous, and open surgery) and their indications and<br><br>1) To describe the etiology of prostate cancer<br>2) To understand the diversity of aggressiveness and natural course of prostate cancer<br>3) To become competent in prostate cancer screening and its importance in our population.<br>4) To describe the presentations of prostate cancer.<br>5) To explore the approach for investigation and diagnosis.<br>6) To classify and stage prostate cancer according to TNM staging system.<br>7) To learn the types of management modalities available to treat prostate cancer and their proper indications, contra-indications and limitations.<br>8) To touch upon the volume of research done world-wide on prostate cancer.<br><br>1- To describe the etiology of Urinary bladder, UB cancer<br>2- To understand the diversity of aggressiveness and natural course of |

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| <p>afternoon session</p> <p><b>Urinary Bladder Cancer</b></p>                                                                                | <p>UB cancer</p> <ol style="list-style-type: none"> <li>3- To become competent in UB cancer screening and its importance in our population.</li> <li>4- To describe the presentations of UB cancer.</li> <li>5- To explore the approach for investigation and diagnosis.</li> <li>6- To classify and stage UB cancer according to TNM staging system.</li> <li>7- To learn the types of management modalities available to treat UB cancer and their proper indications, contra-indications and limitations.</li> <li>8- To touch upon the volume of research done world-wide on UB</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p>First Thursday morning session</p> <p><b>Renal Cancer</b></p>                                                                             | <ol style="list-style-type: none"> <li>1) To describe the etiology of Renal Cancer.</li> <li>2) To understand the diversity of aggressiveness and natural course of Renal Cancer.</li> <li>3) To become competent in Renal Cancer screening and its importance in our population.</li> <li>4) To describe the presentations of Renal Cancer.</li> <li>5) To explore the approach for investigation and diagnosis.</li> <li>6) To classify and stage Renal Cancer according to TNM staging system.</li> <li>7) To learn the types of management modalities available to treat Renal Cancer and their proper indications, contra-indications, limitations and future modalities of treatment.</li> <li>8) To touch upon the volume of research done world-wide on Renal</li> </ol>                                                                                                                                                                                                                                                                                                                                       |
| <p>First Thursday afternoon session</p> <p><b>Testicular Cancer</b></p> <p>Second Sunday morning session</p> <p><b>Urological Trauma</b></p> | <ol style="list-style-type: none"> <li>1) To describe the etiology of Testicular Cancer.</li> <li>2) To understand the diversity of aggressiveness and natural course of Testicular Cancer.</li> <li>3) To become competent in Testicular Cancer screening and its importance in our population.</li> <li>4) To describe the presentations of Testicular Cancer.</li> <li>5) To explore the approach for investigation and diagnosis.</li> <li>6) To classify and stage Testicular Cancer according to TNM staging system.</li> <li>7) To learn the types of management modalities available to treat Testicular Cancer and their proper indications, contra-indications, limitations and future modalities of treatment.</li> <li>8) To touch upon the volume of research done world-wide on Testicular Cancer.</li> <li>1) To describe the classification and presentation of renal, ureteral, UB, urethral, penile and scrotal trauma.</li> <li>2) To understand the mechanisms of injuries and their clinical importance</li> <li>3) To learn to manage Urological trauma in the context of generalized</li> </ol> |

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Second Sunday afternoon session</p> <p><b>Benign Prostatic Hyperplasia, BPH</b></p> <p>Second Monday morning session</p> <p><b>Infertility</b></p>                                                                     | <p>trauma with emphasis on the contraindications of urethral catheterization.</p> <ol style="list-style-type: none"> <li>4) To understand specific Urological trauma, their suspicion, investigation and management.</li> <li>5) To apply their newly acquired knowledge to clinical scenarios of trauma and its management.</li> <li>1) To describe the etiology and benign course of BPH</li> <li>2) To become familiar with the presentation of BPH</li> <li>3) To understand the AUA IPSS scoring system for Lower Urinary Tract Symptoms, LUTS and its application to the diagnosis and management of BPH.</li> <li>4) To describe different (medical &amp; surgical &amp; minimally invasive) management options and their effectiveness and limitations.</li> <li>5) To understand Transurethral Resection of the Prostate, TURP and the diagnosis and management of its complications like post-TUR</li> <li>1) To describe the definition and classification of infertility.</li> <li>2) To understand the etiologies of male infertility</li> <li>3) To become familiar with the investigations of infertility.</li> <li>4) To describe the approach to the management of an infertile couple.</li> </ol>                                                                                                                                                                                                                                                                                                                                                               |
| <p>Second Monday afternoon session</p> <p><b>Erectile Dysfunction, ED</b></p> <p>Second Tuesday morning session</p> <p><b>Pediatric Urology</b></p> <p>Second Tuesday afternoon session</p> <p><b>Vesico-ureteric</b></p> | <ol style="list-style-type: none"> <li>1) To understand the anatomy and physiology of erection in males.</li> <li>2) To understand the levels of arousal and types of erection.</li> <li>3) To appreciate the delicacies and etiquette of sexual history taking.</li> <li>4) To be exposed to the fact of presence of aberrations of sexual practice and how to approach such subjects.</li> <li>5) To describe different types of ED ( impotence, ejaculation problems, psychological aspects)</li> <li>6) To approach the investigation of ED</li> <li>7) To describe the different modalities of treatment available at the time being and their indications, contra-indications and</li> <li>1) To understand the anatomy, embryology and physiology of Urological anomalies.</li> <li>2) To understand the entities of anomalies in the kidneys, ureters, Uro-genital sinus, vestibule and testis.</li> <li>3) To appreciate the delicacies and etiquette of history taking in children.</li> <li>4) To be exposed to the different pediatric urological anomalies.</li> <li>5) To approach the investigation of anomalies and antenatal diagnosis.</li> <li>6) To describe the different modalities of treatment available at the time being and their indications, contra-indications and</li> <li>1) To understand the anatomy, embryology and physiology of VUR.</li> <li>2) To understand the grading of VUR.</li> <li>3) To appreciate the prophylactic antibiotics given in VUR.</li> <li>4) To approach the investigation of VUR and antenatal diagnosis.</li> </ol> |

|                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Reflux, VUR</b>                                                                                                                            | 5) To describe the different modalities of treatment available at the time being and their indications, contra-indications and limitations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <p>Second Wednesday morning session<br/><b>Incontinence</b></p> <p>Second Wednesday afternoon session<br/><b>Emergencies &amp; Review</b></p> | <p>1) To understand the anatomy, embryology and physiology of voiding</p> <p>2) To understand the types of incontinence.</p> <p>3) To appreciate the approach to investigation and Urodynamic studies.</p> <p>4) To be exposed to the different modalities of minimally invasive therapies.</p> <p>5) To describe the different modalities of treatment available at the time being and their indications, contra-indications and</p> <p>1) To understand the different types of emergencies:</p> <ul style="list-style-type: none"> <li>a. Infections (pyelonephritis, prostatitis, orchitis, etc...)</li> <li>b. Traumatic ( renal injuries, UB &amp; urethral, testicular injuries, and penile fracture)</li> <li>c. Obstruction (urine retention, ureteral obstruction)</li> <li>d. Congenital ( Congenital Adrenal Hyperplasia )</li> <li>e. Iatrogenic ( urethral, ureter, kidney injuries)</li> <li>f. Testicular torsion</li> <li>g. Painless haematuria and its high significance</li> </ul> <p>2) To understand importance of presentation of each.</p> <p>3) To appreciate the approach to investigation and immediate management tactics.</p> <p>4) To be exposed to the different modalities of therapies.</p> <p>5) To describe the different modalities of treatment available at the</p> |
| Second Thursday morning session                                                                                                               | <i>End of Rotation Oral Examination</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Second Thursday afternoon session                                                                                                             | <i>End of rotation Written Examination</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

### Typical Rotation Schedule

| Day<br>Time | 1                                                                                                                                                 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10                 |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|--------------------|
| 7:30        | Morning Report<br>( All cases admitted or seen in ER are discussed)                                                                               |   |   |   |   |   |   |   |   |                    |
| 8:00        | Morning Seminar                                                                                                                                   |   |   |   |   |   |   |   |   | Oral<br>Exam       |
| 9:00        | Ward Rounds vs. Clinic attendance vs. OR observation<br>(Students are subdivided into smaller groups and each group rotates with all instructors) |   |   |   |   |   |   |   |   |                    |
| 12:00       | Lunch Break                                                                                                                                       |   |   |   |   |   |   |   |   |                    |
| 13:00       | Afternoon seminar                                                                                                                                 |   |   |   |   |   |   |   |   | Written<br>Exam    |
| 14:00       | Resident's Activities                                                                                                                             |   |   |   |   |   |   |   |   | End of<br>Rotation |
| 15:00       | Afternoon management rounds                                                                                                                       |   |   |   |   |   |   |   |   |                    |
| 16:00       | On-call starts                                                                                                                                    |   |   |   |   |   |   |   |   |                    |

**Coursetitle:**            **Neurosurgery**  
**CourseCode:**        **111502402**  
**Course credits:**     **2.25**  
**CourseDuration:**    **2 weeks**

**TOPICS:**

1. Applied Surgical Anatomy and Physiology of the CNS.
2. Clinical Examination of the CNS.
3. Principles of Brain Tumors adults and pediatrics.
4. CNS trauma and management.
5. Principles of Vascular diseases of the CNS and management.
6. Hydrocephalus and Spinal Dysraphism basics of management.
7. Essentials of Degenerative Spine Diseases.
8. CNS Infections.
9. Principles of Spine Tumors.
10. Classification of Spine Injuries and Management.

**RecommendedReadings:**

1. Youmans Neurological Surgery, 5th edition, 2009.
2. Handbook of Neurosurgery by Mark S. Greenberg, 2010.
3. Essential Neurosurgery; Andrew H. Kaye. Wiley-Blackwell; 3rd edition, 2005.

**Methodsofinstruction:**

1. Lectures.
2. Seminars.
3. Clinics.
4. Operative room.
5. Case discussion.

**Distribution of marks:**

- clinical exam 40%
- evaluation 20%
- written exam 40%



2 weeks time frame neurosurgery rotation for 5th year medical students at royal medical services

| Day                | 8:00 - 8:30 AM                | 8:40 AM - 11:00 AM | 11:30 AM - 1:30 PM   | 2:00 - 4 PM             |  |
|--------------------|-------------------------------|--------------------|----------------------|-------------------------|--|
|                    |                               |                    |                      |                         |  |
| <b>Sunday1</b>     | morning report                | clinical round     | seminar as scheduled | case discussion         |  |
| <b>Monday1</b>     | morning report                | grand round        | seminar as scheduled | journal club            |  |
| <b>Tuesday1</b>    | morning report                | operative room     | seminar as scheduled | case discussion         |  |
| <b>Wednesday 1</b> | morning report                | clinical round     | seminar as scheduled | neuroradiology meeting  |  |
| <b>Thursday1</b>   | morning report                | Clinics            | seminar as scheduled |                         |  |
| <b>Sunday2</b>     | morning report                | clinical round     | seminar as scheduled | specialist seminar      |  |
| <b>Monday2</b>     | morning report                | grand round        | seminar as scheduled | pain management meeting |  |
| <b>Tuesday2</b>    | morning report                | clinical round     | seminar as scheduled | case discussion         |  |
| <b>Wednesday 2</b> | morning report                | clinical round     | seminar as scheduled | revision notes          |  |
| <b>Thursday2</b>   | End of Rotation clinical Exam |                    |                      |                         |  |

**Coursetitle:** DiagnosticRadiology  
**Coursecode:** 111503402  
**Courseduration:** 2 weeks  
**Coursecredit hours:** 2 credit hours

### **ROTATION OUTLINE**

#### **I Rotation Description**

1. Introduction to Diagnostic Radiology, Nuclear Medicine and Interventional Radiology.
2. Introduction to radiation safety.
3. Overview of various diagnostic procedures, in a system oriented fashion.

#### **I Rotation Objectives**

1. To develop sound knowledge of the indications of various radiological investigations with the necessary related precautions.
2. To acquire basic skills in the interpretations of the main and common radiological exams and procedures.

#### **I Rotation Expected Outcomes**

1. Students should be able to select the most appropriate radiological investigation for the most and relatively common clinical conditions.
2. Ability to interpret common and typical radiological findings.

#### **V Suggested Textbook(s) and Readings**

X-Ray Diagnosis by Peter Armstrong

#### **V Teaching Materials Made Available to Student's**

1. Textbook and references
2. Lecture Notes
3. X-ray films with common and typical radiological findings
4. X-ray review sessions
5. Soft copy teaching images

## VI. Educational Facilities

- Classroom with whiteboard and projection facilities - College library
- Internet
- Hard copy film covers common pathologies

**VII. Rotation Outline** The following topics will be covered in this rotation:

|    | Topic                                                                                                                                                                                                                                                                                       | Number of Hours                         |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| 1. | Introduction to Diagnostic Radiology, Nuclear Medicine and Interventional Radiology                                                                                                                                                                                                         | 8am – 5pm<br>5 day a week for two weeks |
| 2. | Introduction to radiation safety                                                                                                                                                                                                                                                            |                                         |
| 3. | Introduction, indications, contra-indications and principles, image interpretation of various radiological procedures in the following systems:<br>a. Respiratory and CVS system<br>b. Gastro-intestinal and Genito-urinary tract<br>c. Musculoskeletal system<br>d. Central nervous system |                                         |

## VIII. Instructional Methods

1. Lecture/Problem solving sessions
2. Homework and Quizzes
3. Seminars
4. Case Studies

## IX. Student Rotation Evaluation Methods

Evaluation will be done based on the following:-

1. Quizzes
2. Homework assignments
3. End of Rotation Examination

## X. Major Evaluation Dates

|                           |                                     |
|---------------------------|-------------------------------------|
| Rotation Final Evaluation | End of Rotation ( )                 |
| End of Year Final Exam    | As suggested by University Calendar |

5<sup>TH</sup> YEAR MEDICAL STUDENTS  
2 WEEKS RADIOLOGY ROTATION PROGRAM

| TIME<br>DAY |                      | 8:00-9:00                  | 9:00-12:00                  | 12:00-1:00 | 1:00 - 4:00                     |
|-------------|----------------------|----------------------------|-----------------------------|------------|---------------------------------|
| SUNDAY      | 1 <sup>ST</sup> WEEK | DAILY<br>MORNING<br>REPORT | CHESTIMAGING                | BREAK      | SEMINAR &<br>CASE<br>DISCUSSION |
|             | 2 <sup>ND</sup> WEEK |                            | CONTRAST<br>IMAGING         |            |                                 |
| MONDAY      | 1 <sup>ST</sup> WEEK |                            | ABDOMEN<br>& PELVIS IMAGING |            |                                 |
|             | 2 <sup>ND</sup> WEEK |                            | ULTRASOUND                  |            |                                 |
| TUESDAY     | 1 <sup>ST</sup> WEEK |                            | BONE IMAGING                |            |                                 |
|             | 2 <sup>ND</sup> WEEK |                            | CT SCAN                     |            |                                 |
| WEDNESDAY   | 1 <sup>ST</sup> WEEK |                            | ISOTOPE SCAN                |            |                                 |
|             | 2 <sup>ND</sup> WEEK |                            | MRI                         |            |                                 |
| THURSDAY    | 1 <sup>ST</sup> WEEK |                            | CHESTIMAGING                |            |                                 |
|             | 2 <sup>ND</sup> WEEK |                            | EXAM                        |            |                                 |

INSTRUCTORS: DR. AHMAD ABU AIN / PRINCE HAMZA HOSPITAL DR.  
HUSAM AL QADI / PRINCE HAMZA HOSPITAL

**CourseTitle: Neurology**  
**CourseCode: 111503403**  
**CreditHours: 4.5 hours**  
**Courseduration: 4 weeks**  
**Course Designation: 4th year / all year**  
**Department: Dept. of Medicine**

**CourseSyllabus:**

**1- *Neurological examination:***

History taking, level of consciousness, cranial nerves, motor function, sensation, autonomic function.

**2- *Neurological investigation:***

Neuroimaging, clinical neurophysiology, fluid and tissues (CSF and others).

**3- *Headache and facial pain:***

Raised ICP, benign ICP. Meningeal Irritation, temporal arteritis, migraine, tension headache.

**4- *Epilepsy:***

Definition

Classification

Causes

Investigation and diagnosis

Management

**5- *Stroke:***

- Etiology and pathogenesis
- Pathophysiology
- Clinical features
- Complication
- Treatment

**6- *Parkinson disease and other movement disorders:***

- Parkinson disease
- Etiology and pathogenesis, clinical features, diagnosis, treatment
- Other movement disorders
- Chorea, athetosis, tremor, others.

**7- *CNS infection:***

Bacterial meningitis: Etiology, clinical features, investigations, treatment.

Brain abscess: Etiology, diagnosis, treatment.

Viral infections: (Meningitis & Encephalitis), etiology and pathogenesis, clinical features, investigations and treatment.

#### **8- Spinal cord disease:**

- Neuroanatomy
- Symptoms and signs
- Specific syndromes; Brown-Sequard, Syringomyelia, Subacute combined, degeneration, others.

#### **9- Multiple sclerosis and others demyelinating disorders:**

- Pathology
- Pathogenesis
- Epidemiology
- Clinical features
- Causes
- Investigation
- Treatment

#### **10- Nerve and muscle:**

- Peripheral nerve disorders
  - Classification: Mononeuropathies, multifocal.
  - Neuropathies, polyneuropathies.
  - Causes
  - Investigations
  - Treatment
- Myopathies:
  - Classification: Hereditary and acquired
  - Diagnosis
  - Treatment

#### **11- Neuromuscular junction, disorders:**

- Myasthenia gravis: Pathogenesis, clinical features, investigations, treatment
- Others

#### **12- Development and degeneration:**

- Congenital disorders.
- Cerebral palsy: Definition, causes, clinical features, management
- Neurogenetics: Huntington's chorea, Wilson disease, Friedrich ataxia, and others.
- Neurodegeneration:
  - Dementia: causes, clinical features, diagnosis, management.
    - Motor neuron disease:  
Epidemiology, etiology and pathogenesis, clinical features, diagnosis, management.

#### **13- Neurology and other medical specialties:**

- Metabolic encephalopathy
- Vitamin deficiencies
- Alcohol and the nervous system
- Neuro oncology: metastases, paraneoplastic disorders.

- Connective tissue disorders: SLE, others.
- Porphyna
- Endocrine disease, thyrotoxicosis diabetes mellitus, others

**14- Neurology of pregnancy:**

- Effect on preexisting neurological disease: Epilepsy, M.S. tumors, migraine.
- Neurological complications of pregnancy: Eclampsia, others.

**15- Neurology and psychiatry:**

- Somatoform disorders.
- Hysteria
- Chronic fatigue syndrome.

**Methods of instruction:**

1. Lectures.
2. Seminars.
3. Clinics.
4. Operative room.
5. Case discussion.

**Distribution of marks:**

- clinical exam 40%
- evaluation 20%
- written exam 40%

**Course Title:** Emergency Medicine and Anesthesia  
**Course Code:** 111500401  
**Credit Hours:** 2 hours  
**Course duration:** 2 weeks  
**Course Designation:** 4th year / all year

This course involves the training of students in emergency and accident medicine covering the study of diseases and trauma requiring the provision of urgent care. This includes the study of clinical manifestations, their diagnosis and management. The course also involves training in the field of anesthesia including preparation of patients before surgery, methods and types of anesthesia and drugs used and patient recovery. Students are also trained in the intensive care unit.

Main Topics in emergency medicine for 4<sup>th</sup> Year of Medical Students

**Seminar:**

1. Introduction and orientation to ER
2. Chest pain
3. Traumatic chest pain
4. Non-traumatic Abdominal pain
5. Traumatic Abdominal pain
6. Burns
7. Fractures
8. Shock
9. CPR

**ER procedures:**

- 1- pericardiocentesis
- 2- central line
- 3- chest tube
- 4- intubation
- 5- intraosseous line
- 6- diagnostic peritoneal lavage
- 7- FAST

**References from NMS Emergency Medicine & Scott S. & E.M Latha, Stead**

**Methods of instruction:**

1. Lectures.
2. Seminars.
3. Clinics.
4. Operative room.
5. Case discussion.

**Distribution of marks:**

- clinical exam 40%
- evaluation 20%



- written exam 40%

#### **Course information**

#### **Anesthesia:**

The course rotation starts with a 4-day sub-rotation in the Skills Lab in the faculty of medicine where they are taught some essential life support & anesthesia skills. They then continue in the Department of anesthesia & Intensive Care where they spend **16 working days divided into 4- day rounds**. At the end of each round students move to a different working area in the department. They spend 3 rounds in the Operating Rooms and one round in the Intensive Care Unit. During that, they are exposed to a different discipline in the specialty and its interaction with different surgical and medical teams. They are provided with necessary theoretical and practical knowledge throughout their rotation.

#### **Rotation Objective:**

By the end of the Rotation, students are expected to:

- 1- Be learned of the necessary knowledge about Anesthesia and Intensive Care.

This knowledge is intended to be adequate for their graduation as general practitioners.

- 2- Master specific skills that will be vital in their future medical profession.
- 3- Develop communication skills in and about anesthesia and Intensive Care.
- 4- Adopt an integrated way of thinking when decisions about Anesthesia and Intensive Care are taken.

#### **Rotation Expected Outcomes:**

The Course is intended to achieve the following outcomes:

- 1- Student is fully enlightened about anesthesia and Intensive Care and their integrated role among other medical disciplines.
- 2- Student is able to provide a best guess decision, advice, and interaction when anesthetic management plans are discussed with his/her future patients.
- 3- Student is armored with important techniques capabilities necessary for his future practice as a doctor.
- 4- Student develops adequate communication skills pertaining to Anesthesia and Intensive Care.

### **Suggested Textbooks and Readings:**

- 1- Lecture Notes: Clinical Anesthesia: Carl Gwinnutt, 3rd edition.
- 2- Perioperative Care, Anesthesia, pain Management, and Intensive Care: An Illustrated Colour Text: by Michael Avidan, Andrea M. R. Harvey, Jose Ponte, Julia Wendon, and Robert Ginsburg
- 3- International Anesthesia Journals.
- 4- Websites of National and International Anesthesia Colleges and Associations

### **SKILLSTOBELEARNED**

1. Intravenous cannulation
2. Setting up intravenous infusion
3. Connecting monitoring device
4. Maintenance of the airway in unconscious patient
5. Observation of induction of anesthesia
6. Observation of endotracheal intubation
7. Observation and monitoring recovery from general anesthesia
8. Observation of local and regional blocks

## **CourseOutline**

### **I. Anaesthetic agents (Intravenous Anesthetic)**

#### **1.1. Barbiturate : (Thiopentone)**

Physical, chemical properties and presentation-

Pharmacokinetics-

- Pharmacodynamics (effect on the different organ systems) Dosage and administration
- Indications and contraindications (absolute and relative)
- Adverse effects (extravascular, intraarterial, allergy.....)

#### **1.2. Non-barbiturate (propofol, ketamine)**

##### **Propofol:**

\_Physical, chemical properties and presentation

\_Pharmacodynamics(effect on the different organ systems)

\_Dosage and administration

\_Indications and contraindications

#### **Ketamine:**

\_Physical,chemical properties and presentation

\_Pharmacokinetics and mechanism of action

\_Dosage and administration

\_Indications and contraindications

#### **Other adjuvant intravenous anaesthetic agents:**

\_Benzodiazepines(only midazolam and diazepam) and antagonist.

\_Narcotic agonists and antagonists:definition,site of action,effect on organ systems,fentanyl and morphine.

\_Narcotic antagonist:Naloxone.

## **II.anaesthetic agents (Inhalational**

### **Agents)**

- MAC and factors which alter MAC.
- Factors determining how quickly the inhalational agent reaches the alveoli
- Factors determining how quickly the inhalational agent reaches brain from the alveoli in order to establish anaesthesia
- MAC value of N<sub>2</sub>O,halothane,Isoflurane,Sevoflurane

#### **Nitrous Oxide (N<sub>2</sub>O):**

- Physical properties
- MAC Value of N<sub>2</sub>O
- The second gas effect
- Diffusion hypoxia
- Effect on closed gas spaces

#### **Halothane,Isoflurane,Sevoflurane**

- IN DETAILS
- Enflurane . And Desflurane Just the value of MAC

### III. Muscle relaxant & anticholinergic drugs & cholinesterase inhibitors

#### 1. Physiology of neuromuscular transmission

#### 2. depolarizing muscle relaxant :

- **Suxamethonium:**

- \*structure and mechanism of action

- \*dose onset and duration of action

- \*indications and contraindications

- \*side effects of suxamethonium

- \*factor affecting duration of suxamethonium

#### 3. non-depolarizing muscle relaxant :

- \*mechanism of action

- \*factor affecting duration of non-depolarizing muscle relaxant

- **Atracurium and cis-Atracurium (tracrium): in details**

- **Rocuronium bromide (Esmeron): in details**

- **Pancuronium bromide (Pavulon): in details**

- **Vecuronium bromide (Norcuron): in details**

- \*mivacurium

- \*alcuronium

- \*tubocurarine

#### 4. anticholinergic drugs : (mainly atropine)

- \*effect on the different organ systems:

- (Cardiovascular, salivary glands, smooth muscles and pupils)

- \*dose.

- \*(scopolamine and glycopyrrolate : differences to atropine)

#### 5. cholinesterase inhibitors : (mainly neostigmine)

- \*mechanism of action

- \*effect on the different organ systems:

- (cardiovascular, salivary glands, smooth muscles and pupils)

- \*dose.

#### 6. the role of anticholinergic drugs (atropine) and anticholinesterase (neostigmine)

in the anesthesia?

### IV. Conduct of anesthesia

#### 1. Inhalational Induction:

## **IV. Conduct of anesthesia**

### **1. Inhalational Induction:**

\*procedure

\*Indications

\*difficulties and complications

### **2. Maintenance of anaesthesia**

2.1. conduct of Inhalational anaesthesia with spontaneous ventilation

2.2. Airway maintenance delivery of Inhalational agents

\*face mask

\*laryngeal mask

\*tracheal intubation (Indications)

### **3. . Anaesthesia for tracheal intubation :**

4.1. Inhalational technique for intubation

4.2. relaxant anaesthesia \*indications

### **4. conduct of extubation:**

\* procedure

\* complications of tracheal extubation

## **V. Intubation and anatomy of the airway and anesthesia apparatus**

1. assessment of patients airway including 1-2-3- test

2. different classifications of airway structures

3. the technique of tracheal intubation (the 5 steps in detail)

4. the anatomical structures seen in region of intubation (name of these structures)

5. laryngoscopes and type of blades

6. tracheal tubes: size and type of tubes shape of tube and specialized tubes

7. the laryngeal mask

8. Other apparatus including oro- and nasopharyngeal airways.

## **VI. Monitoring in Anesthesia**

1. anesthesia depth.

2. Guidelines to the practice of anesthesia and patient monitoring.
3. What and how we monitor the oxygenation, ventilation, circulation , temperature.
4. Monitoring: ECG, pulse oximetry, blood pressure, CVP, capnography EtCO<sub>2</sub>.
5. how to identify cyanosis.
6. O<sub>2</sub>-Hb-dissociation curve.
7. the normal values of monitored parameters for a healthy adult undergoing general anaesthesia.

## **VII. Local Anaesthetic Agents**

The pharmacology of local anaesthetic

1. Definition
2. Classification of local anaesthetic agents
  - 2.1. Comparison between the two classes
3. Mode of action
4. Preparation of local anaesthetic agents
5. Addition of vasoconstrictors
  - 5.1. Indications and contraindications and dosage
  - 5.2. How can I prepare adrenaline 1:200000
6. Clinical uses of local anesthetic agents
7. Lidocaine
8. Toxicity (causes, prevention and treatment)
  - 8.1. Systemic toxicity

## **VII. Local Anaesthetic Techniques**

1. Central Block :Spinal and Epidural Anaesthesia
  - 1.1 Procedure including Anatomy
  - 1.2. Indications and contraindications
  - 1.3. Complications (Prevention and Treatment)
2. I.V.R.A. (Bier's Block)
  - 1.1. Procedure
  - 1.2. Indications and contraindications
  - 1.3. complications (Prevention and Treatment)

## **IX. Preoperative assessment and premedication .**

1. purposes

## 2.history and physical examination

- family history
- history of diseases
- history of previous anesthetic
- history of infection
- smoking
- alcohol

## 3. physical examination .

- airway assessment

## 4. laboratory investigation.

## 5. ASA grading .

Mortality for each class (classes)

## **X.Anaesthetic equipment .**

- gas supplies of anaesthetic gases .
- Anaesthetic machine (components).
- classification of breathing system.

**course title: Community Medicine**

**Coursenumber:111501401**

**Credit hours: 9**

**Course description:**

This course is intended to let students have Training in Community Medicine.

The first four weeks would be devoted to lectures, seminars and workshop to ALL class. Four lectures per day, from 8 AM to 1 PM (a break of 1 hr. in between).

The last four weeks would be devoted to field practice: The class will be divided into FOUR groups of about 34 students each. Each major group shall be working with their own tutor. Every one of these major groups would be divided into subgroups. The students in subgroups start their work on one area of public health "cross-sectional survey" depending on their particular selected subject.

In the Field Practice, there are tasks required to be done by the student:

Select appropriate Research problem, Formulate aim and research objectives, Plan a cross-sectional household survey or case-control study, State sampling technique and sample size, Prepare relevant questionnaire, Collect the required data, Prepare a plan for analysis, Analyze the data, Comment on results and make conclusion using references and prepare the report.

**Learning outcomes:**

*The student by the end of field training should be able to:*

1. perform data collection from household members
2. Write case history of relevant clinical and social cases
3. practice data entry using line listing on SPSS software program
4. Formulate frequency tables of relevant variables
5. present findings in a summary tables or graphs
6. Write the report in a "Scientific Research Format" consisting of:
  - a. Introduction
  - b. Review of literature
  - c. Participants and Methods
  - d. Result
  - e. Conclusion
  - f. References
7. Submit the report containing case history and research findings.

**Instructional methods:**

- Lectures-Power Point presentations
- Departmental hand-outs
- animations, educational movies, illustrations
- Self-readings
- Field practice

**Grading Policy:**

- A. Continuous assessment = 20 marks:
  - A1. Professionalism and communications skills = 10 marks.
  - A2. Attendance to field work = 10 marks
- B. Field project = 40 marks:
  - B1. Project report = 20 marks
  - B2. Oral examination = 20 marks
- C. Final - MCQ (based on lectures) online examination = 40 marks



**Text Book:**

Handouts pertaining Students Needs in Areas: Epidemiology, Research Method MCH Care and Environmental Health, Wayne Daniel, Biostatistics 8<sup>th</sup> Edition John Wiley, New York 2005

**Course Policies:****Missed exams:**

Students who are absent in any exam are allowed to sit a make-up exam after presenting an approved sick leave or any accepted certificate of absence to the assistant of the faculty dean within 72 hours. The Course Coordinator will determine the time of the exam make-up session. Also, according to the Curriculum Committee and the University regulations, the student will be given a similar examination given to the other students. All examinations must be made up within one week of returning to class. Those absents who do not present a clue will be given a zero mark.

**Absence**

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students will be accountable and personally responsible for attending all educational activities (lectures, labs, examinations, etc.). Unexcused absences reflect negatively on the goals and objectives of the medical curriculum and demonstrate unprofessional behavior by the respective student.

Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Attendance is mandatory. Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he has to notify the Course Coordinator and present an approved sick leave or any accepted certificate of absence by the faculty dean assistant.

Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

**Cheating:**

Cheating will not be tolerated. Each individual student is responsible for his behavior and is expected to maintain standards of academic honesty and professionalism. If any instance of academic dishonesty (cheating, plagiarism, etc.) is discovered by a coordinator or an instructor, it is his or her responsibility to take appropriate action. Such action may include giving a failing grade to the student in the course and/or referring the student for Judicial Procedures Office review and possible disciplinary action, which may include disciplinary suspension or dismissal from the College.

**Classroom Protocol:**

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students respond politely to faculty, staff, and student colleagues, exemplifying their maturity and empathy. Students agree to abide by appropriate biosafety practices when required.

All students are expected to be quiet in their seats in the lecture theatre before the start of the lecture. Engagement in class discussions is encouraged without side chatting.

Cell phones are not allowed to be used during lectures and exams unless prior approval has been taken from the course instructor.

## Course Schedule :

### Training in Community Medicine

(111501401, 9 credit hours 8-week duration)

#### Student's Manual

#### Time Table –Community Medicine Practice

| Week  | Date | Main Activities               |
|-------|------|-------------------------------|
| One   | -    | Lectures (case studies)       |
| Two   | -    | Lectures (case studies)       |
| Three | -    | Lectures (case studies)       |
| Four  | -    | lectures and workshop         |
| Five  | -    | Field practice                |
| Six   | -    | Field practice                |
| Seven | -    | Field practice Assessment PHH |
| Eight | -    | Written Evaluation week HU    |

#### NOTES:

The first four weeks would be devoted to lectures, seminars and workshop to ALL class. Four lectures per day, from 8 AM to 1 PM (a break of 1 hr. in between). The venue is lecture halls in Prince Hamza Hospital. topics are as follows:

|                                               |                |                       |
|-----------------------------------------------|----------------|-----------------------|
| Introduction                                  |                | Total 1 hour          |
| Children with special needs.                  | Total 4 hours  |                       |
| School health:                                |                | Total 4 hours         |
| Health education:                             |                | Total 4 hours         |
| Mother & Child health:.                       |                | Total 4 hours         |
| Patient Care:                                 |                | Total 4 hours         |
| Environmental Health:.                        | Total 4 hours  |                       |
| Consultation & counseling:                    | Total 4 hours  |                       |
| Research design:.                             | Total 4 hours  |                       |
| Epidemiology & Biostatistics (I).             |                | Total 4 hours         |
| Epidemiology & Biostatistics (II)             | Total 4 hours  |                       |
| Computer application using (SPSS) (4 groups): | Total 16 hours |                       |
| <u>Workshop (4 groups)</u>                    |                | <u>Total 8 hours</u>  |
|                                               |                | <b>TOTAL 65 hours</b> |

The last four weeks would be devoted to field practice: The class will be divided into FOUR groups of about 34 students each. Each major group shall be working with their own tutor. Every one of these major groups would be divided into subgroups. The students in subgroups start their work on one area of public health "cross-sectional survey" depending on their particular selected subject.

#### Assessment:

1. Forty percent of the total marks are allocated to students' presentations, in the 7<sup>th</sup>. Week. Another 20% of the marks go to daily activities.
2. Written exam. 40% of the marks are allocated to written assessment (MCQs) that should take place in the 8<sup>th</sup>. Week on. The written assessment is based on lectures covered in the first 2 weeks of the course.

## Field Schedule

| Group # | Tutor | Village (sector)                            | Dates Of Field work |
|---------|-------|---------------------------------------------|---------------------|
| 1       |       | Health Center Area or Secondary School Area |                     |
| 2       |       | Health Center Area or Secondary School Area |                     |
| 3       |       | Health Center Area or Secondary School Area |                     |
| 4       |       | Health Center Area or Secondary School Area |                     |

University buses will be available for students to go from university to the villages and vice versa on the following schedule: (leaving FACULTY at 9:00 AM and returning from village to the FACULTY at 3:00PM)

One bus for each group

## The Field Practice

### {Guide to Field Research}

{ Cross-sectional Survey OR Case-control Study}

### The Tasks required to be done by the student:

1. Select appropriate Research problem
2. Formulate aim and research objectives.
3. Plan a cross-sectional household survey or case- control study
4. State sampling technique and sample size
5. Prepare relevant questionnaire.
6. Collect the required data.
7. Prepare a plan for analysis.
8. Analyze the data.
10. Comment on results and make conclusion using references
11. Prepare the report.
12. Present the report

## Objectives of Field Training in Community Medicine

### *The student by the end of field training should be able to:*

8. perform data collection from household members
9. Write case history of relevant clinical and social cases
10. practice data entry using line listing on SPSS software program
11. Formulate frequency tables of relevant variables
12. present findings in a summary tables or graphs
13. Write the report in a "Scientific Research Format" consisting of:
  - a. Introduction
  - b. Review of literature
  - c. Participants and Methods
  - d. Result
  - e. Conclusion
  - f. References

Submit the report containing case history and research findings.

Study groups and Task forces

Field Training in Community Medicine (111505401)\_\_\_\_\_

**Group:** there are 4 groups in the 4<sup>th</sup> Year class of 2011/12. The total of 136 students is divided into 4 groups. Each group of 34 students is named after its own tutor:

**Subgroup:** Each group is divided into 3 subgroups. There are 12 students in each of these subgroups. The subgroups are designated as: A; B; C;

**Study group:** Each subgroup is divided into 3 study groups. There are 4 students in each of these study groups. The name of each study group is derived from the particular study allocated to it:

1. Under five years old Children Morbidity Pattern
2. Five to Fifteen years old Children Morbidity Pattern
3. Women Reproductive Morbidity Pattern

**Task Force:** Task force is created to perform the task of data collection. One student from each of the 3 study groups come together to form a task force. Each task force is composed of 3 students. There would be 4 task forces in every subgroup. Data collection for the 3 studies is done by every one of the 4 task forces. Task forces are created to increase data collection coverage and in the same time keeping house visit by the students to a minimum.

**Sampling and Data collection coverage:** It is expected that each task force covers 7 households per day. That would come to 14-20 households for the period of data collection of 2 days. This means that each member of a study group would be able to cover 14-20 households. The 4 members of each study group covers 56-80 houses during the 2 field-work days.

The minimum number of households to be analyzed and reported is 56 households by each one of the three sub groups. To increase the sample, the study groups of a particular subject (under5, 5-15, and reproductive morbidity) from the 3 subgroups can merge together and analyze **the data for a total of 168-240 households covered by each sub group**

OUTCOME: Each study group is expected to write a report of their activities that focus on:

1. Detailed case history of 12 relevant public health and/or clinical cases encountered during their house visits. Supplement includes photographs & imaging of cases.
2. Study outcome: Objectives, study design & setting, participants & sampling technique, main outcome measures, results and discussion of the study with relevant references.

Some details on OUTCOME

Study one (Under five year's old children morbidity pattern): Each student of this particular study is required to submit a report containing the following at the end of field work period i.e. during the 7<sup>th</sup> week of the course. The report should be based on the analysis of the 14-20 households that have been visited by that particular student.

#### **Student one:**

(1) A detailed case history for (one) of relevant public health or clinical case encountered during his or her 14-20 households visits supplemented with relevant photographs and images. The case history should at least include: Main complaint; personal history; family history; social history; job characteristic; diagnosis (problem); treatment; prognosis; effect of the problem on social and job functions; effect of the problem on other family members; utilization of health services (health center, referral hospital) cost of the problem in family context.

(2) Study outcome: Objectives, study design & setting, participants & sampling technique, main outcome measures, results and discussion of the study with relevant references.

The student should concentrate on frequency distribution of: gender; age; Domestic animals; and average number of persons sleeping in one room.

#### **Student two:**

(1) Case history as applied to student one above

(2) Study outcome as applied to student one above

Concentrating on Frequency distribution of: property of the House; health insurance; family income; immunization status.

#### **Student three:**

(1) Case history as applied to student one above

(2) Study outcome as applied to student one above

Concentrating on Frequency distribution of:

utilization of health service; breast feeding; acute diseases (prevalence); acute disease (incidence)

*Student four:*

(1) Case history as applied to student one above

(2) Study outcome as applied to student one above

Concentrating on Frequency distribution of:

Chronic diseases (prevalence); chronic diseases (incidence); prominent problem.

Study two (five to fifteen years old children morbidity pattern): Each student of this particular study is required to submit a report containing the following at the end of field work period i.e. during the 7<sup>th</sup> week of the course. The report should be based on the analysis of the 14 households that have been visited by that particular student.

*Student one:*

(1) A detailed case history (one) of relevant public health or clinical case encountered during his or her 14 households visits supplemented with relevant photographs and images. The case history should at least include: Main complaint; personal history; family history; social history; job characteristic; diagnosis (problem); treatment; prognosis; effect of the problem on social and job functions; effect of the problem on other family members; utilization of health services (health center, referral hospital) cost of the problem in family context.

(2) Study outcome: Objectives, study design & setting, participants & sampling technique, main outcome measures, results and discussion of the study with relevant references.

Concentrating on frequency distribution of: gender; age; domestic animals;  
number of Persons sleeping in one room.

*Student two:*

(1) Case history as applied to student one above

(2) Study outcome as applied to student one above

Concentrating on Frequency distribution of: property of the House; health insurance; family income; healthy behavior.

*Student three:*

(1) Case history as applied to student one above

(2) Study outcome as applied to student one above

Concentrating on Frequency distribution of: Exercises; utilization of health  
Service; prominent problem.

*Student four:*

(1) case history as applied to student one above

(2) Study outcome as applied to student one above

Concentrating on Frequency distribution of: acute diseases (prevalence); acute  
diseases (incidence); chronic diseases (prevalence); chronic diseases  
(incidence).

Study three (women Reproductive morbidity pattern): Each student of this particular study is required to submit a report containing the following at the end of field work period i.e. during the 7<sup>th</sup> week of the course. The report should be based on the analysis of the 20 households that have been visited by that particular student.

*Student one:*

(1) a detailed case history (one) of relevant public health or clinical case encountered during his or her 20 households visits supplemented with relevant photographs and images. The case history should at least include: Main complaint; personal history; family history; social history; job characteristic; diagnosis (problem); treatment; prognosis; effect of the problem on social and job functions; effect of the problem on other family members; utilization of health services (health center, referral hospital) cost of the problem in family context.

(2) Study outcome: Objectives, study design & setting, participants & sampling technique, main outcome measures, results and discussion of the study with relevant references. Concentrating on frequency distribution of: age; literacy level; occupation; matrimonial status.

*Student two:*

(1) case history as applied to student one above

(2) Study outcome as applied to student one above  
Concentrating on Frequency distribution of:  
prevalence of pregnancy according to trimester of pregnancy; use of  
contraceptives; prominent problem.

*Student three:*

- (1) case history as applied to student one above
- (2) Study outcome as applied to student one above  
Concentrating on Frequency distribution of:  
(according to age) average number of pregnancies; abortions; live births;  
child deaths.

*Student four:*

- (1) case history as applied to student one above
- (2) Study outcome as applied to student one above  
Concentrating on Frequency distribution of:  
acute diseases (prevalence); acute diseases (incidence); chronic diseases  
(prevalence); chronic diseases (incidence).

#### Study Groups & Task Forces

4 Groups

(Each group 34 students)

( 3 groups named as:.)

Each group is divided into 3 subgroups

| Subgroup (A)          | subgroup (B)          | subgroup (C)          |
|-----------------------|-----------------------|-----------------------|
| (12 students)+ leader | (12 students)+ leader | (12 students)+ leader |

**Each subgroup is divided into 3 study groups**

Each subgroup is divided into 3 study groups

Under 5 children  
morbidity pattern  
(4 students)

5-15 children  
morbidity pattern  
(4 students)

Women reproductive  
morbidity pattern  
(4 students)

One student from each of the 3 study groups in a subgroup form a **TASK FORCE** (3 students)

The duty of the task forces (5 task forces per subgroup) is to collect data.

Each task force covers 7 households per day. I.e. covers 14 households in 2 days.

Each student is responsible to:

1. Collect data from 14 house holds
2. Present tables on the particular area assigned to him (detailed above) using SPSS.
3. Write a report on one case-history of public health/ clinical medicine importance.

The study groups within the subgroup (4 students) are responsible to:

1. Collect data (on their particular study) from 70 households (14 x 4 students)
2. Write a report following research methodology about their particular study.
3. Submit a report on 4 case-histories of public health/ clinical medicine importance.

Each study group (12 students) is expected to write a report that focus on:

1. Detailed case history of 15 relevant public health and/or clinical cases encountered during their house visits. Supplement includes photographs & imaging of cases.
2. Study outcome: Objectives, study design & setting, participants & sampling technique, main outcome measures, results and discussion of the study with relevant references.

### The Cross- Sectional Surveys

Objectives:

Study one: **Under five years old children morbidity pattern**

Compare between prevalence and incidence of acute and chronic diseases among children less than 5 years old.

Study two: **Five to fifteen years old children morbidity pattern**

Estimate prevalence and incidence of behavioral as well as medical conditions affecting children aged between 5 to 15 years.

Study three: **Women reproductive morbidity pattern**

Describe women reproductive morbidity status. Incidence and prevalence of acute and chronic conditions that affect women during their reproductive age are examined.

### **Cluster sampling:**

The population in the study area is around **20000** persons consisting of 4 villages:

Obvious landmarks like mosque or market or school are used to divide each village into districts or **clusters**.

Over all there would be **3 clusters** in the village. These clusters are:

1 clusters in center of the village

1 Clusters in south and east area

1 cluster = north and west area

*Each group of students (34 students) will be allocated a village.*

Each group should at least have 168 households with about 6 persons living in these house holds.

Since there are 3 subgroups in each group, each cluster is itself divided into 3 areas. One area will be allocated to a subgroup of student (11 students). Each subgroup is allocated at least 56 households with about 336 persons.

The 4 task forces of a subgroup should cover 56 households during the period of data collection.

It is thus highly recommended that the 3 subgroups should merge their data together to produce robust estimates of rates.

The number of households and number of persons living in the households for the 3 subgroups are **168-200** households and 700-800 persons respectively.

The works of subgroups in clusters are mutually exclusive, i.e. each area of a cluster has only one subgroup surveying it during the entire period of investigation. This implies that each household is visited **once and only once** by students during the entire period of field training.

### **The Questionnaires**

Study one: **Under five years old children morbidity pattern**

In a cross –sectional household survey the targeted morbidity indicators could be best determined by addressing relevant questions to the parent of the child.

The questionnaire includes the following:

The family identification number, the gender and exact age (in years) of the child, presence of domestic animals, average number of persons sleeping in one room, property of the house, type of health insurance, family income per month, immunization status of the child, medical consultation pattern, breast feeding, diseases or medical problems encountered during the time of the visit, and diseases and medical and social problems that occurred during the previous one month.

Any written statement by a physician or a health agency or a laboratory or imaging report could help in putting the correct

|                                                                                                                                                                                             |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 1. Village                                                                                                                                                                                  |  |
| 2. Students' subgroup/study group #:                                                                                                                                                        |  |
| 3. Family #: ( from 1 to 20 per each students' taskforce)                                                                                                                                   |  |
| 4. Sex: male (1) female (2)                                                                                                                                                                 |  |
| 5. Age: -1 -2 -3 -4 -5                                                                                                                                                                      |  |
| 6. Domestic animals: None (0) animals-inside (1) animals-outside (2)<br>birds-inside (3) birds-outside (4)                                                                                  |  |
| 7. Average # sleeping in one room: (1 to 7)                                                                                                                                                 |  |
| 8. Is the house? own property (1) rented (2)                                                                                                                                                |  |
| 9. Type of health insurance: none (0) government (1) armed forces (2) other (3)                                                                                                             |  |
| 10. Family income per month in ( JD): <100(1) 100–199(2) 200-299(3)<br>300– 499(4) 500-999(5) 1000+ (6)                                                                                     |  |
| 11. Immunization status of 12-23 months babies: none (0) complete (1) partial (2)                                                                                                           |  |
| 12. In case the child become sick, you usually consult (First time):<br>PHC (1) Private doctor (2) Gov. hospital (3) Private hospital (4)<br>Use home remedies (5) Alternative medicine (6) |  |
| 13. Breast feeding during 1 <sup>st</sup> year of life: none (0) partial (1) complete (2)                                                                                                   |  |
| 14. Presence of acute disease(s) at time of visit: no (0) ARI (1) Diarrhea (2)<br>Injury (3) Others (4) (specify disease)                                                                   |  |
| 15. Presence of chronic disease(s) at time of visit: no (0) Congenital (1)<br>Metabolic (2) Infection (3) Others(4) (specify disease)                                                       |  |
| 16. Incidence of acute diseases during last month: no (0) ARI (1) Diarrhea (2)<br>Injury (3) Others (4) (specify disease)                                                                   |  |
| 17. Incidence of chronic diseases during last month: no (0) Congenital (1)                                                                                                                  |  |



|                                                                                 |               |                             |  |
|---------------------------------------------------------------------------------|---------------|-----------------------------|--|
| Metabolic (2)                                                                   | Infection (3) | Others(4) (specify disease) |  |
| 18. Prominent Complaint, or Disease or Problem : no (0) Please specify and code |               |                             |  |

For each question, insert (9) for unknown or refused to answer or not applicable.

### Five to Fifteen years old Children Morbidity Pattern

Please use separate form for each Child aged 5 to 15 years old

|                                                                                                                                                                                                         |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 1. Village #:                                                                                                                                                                                           |  |
| 2. Students' subgroup/study group #:                                                                                                                                                                    |  |
| 3. Family #: ( from 1 to 20 per each students' taskforce)                                                                                                                                               |  |
| 4. Sex: male (1) female (2)                                                                                                                                                                             |  |
| 5. Age: 5-7 (1) 8-10 (2) 11-13 (3) 14-15 (4)                                                                                                                                                            |  |
| 6. Domestic animals: None (0) animals-inside (1) animals-outside (2)<br>birds-inside (3)birds-outside (4)                                                                                               |  |
| 7. Average # sleeping in one room: (1 to 7)                                                                                                                                                             |  |
| 8. Is the house? own property (1) rented (2)                                                                                                                                                            |  |
| 9. Type of health insurance: none (0) government (1) armed forces (2) other (3)                                                                                                                         |  |
| 10. Family income per month in ( JD): <100(1) 100–199(2) 200-299(3)<br>300– 499(4) 500-999(5) 1000+ (6)                                                                                                 |  |
| 11. Healthy behaviors: none (0) yes – example (Teeth Brushing) (1)                                                                                                                                      |  |
| 12. Exercises: none (0) occasionally (1) regularly (2)                                                                                                                                                  |  |
| 13. In case the child become sick, you usually consult (First time):<br>PHC (1) Private doctor (2) Gov. hospital (3) Private hospital (4)<br>Use home remedies (5) Alternative medicine (6)             |  |
| 14. Presence of acute disease(s) at time of visit: no (0) ARI (1) Allergic Rhinitis (2)<br>Asthma (3) Injury (4) Dental caries (5) Others (6) (specify disease)                                         |  |
| 15. Presence of chronic disease(s) at time of visit: no (0) Congenital (1)<br>Allergic Rhinitis (2) Asthma (3) learning problem (4) Metabolic (5) Obesity<br>(6) Tumor (7) Others(8) (specify disease)  |  |
| 16. Incidence of acute diseases during last month: no (0) ARI (1) Allergic Rhinitis (2)<br>Asthma (3) Injury (4) Dental caries (5) Others (6) (specify disease)                                         |  |
| 17. Incidence of chronic diseases during last month: no (0) Congenital (1)<br>Allergic Rhinitis (2) Asthma (3) learning problem (4) Metabolic (5) Obesity (6)<br>Tumor (7) Others(8) (specify disease)) |  |
| 18. Prominent Complaint, or Disease or Problem : no (0) Please specify and code                                                                                                                         |  |

For each question, insert (9) for unknown or refused to answer or not applicable.

## Women Reproductive Morbidity Pattern

Women 15 years old and over. (Please use separate form for each women)

|                                                                                                                                                                    |   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 1. Village #:                                                                                                                                                      |   |
| 2. Students' subgroup/study group #:                                                                                                                               |   |
| 3. Family #: ( from 1 to 20 per each students' taskforce)                                                                                                          |   |
| 4. Age in years: 15-19 (1)    20–24 (2)    25-29 (3)    30 –34 (4)    35-39 (5)    40-44 (6)    45-49 (7)    50+ (8)                                               | — |
| 5. Literacy:    illiterate (1)    basic school (2)    high school (3)    college or univer. (4)                                                                    |   |
| 6. Occupation: house – wife (1)    student (2)    professional eg. teacher (3)    skilled worker (4)                                                               |   |
| Unskilled worker (5)    Retired (5)    Military (6)    Other (7)                                                                                                   |   |
| 7. Ever-married :    no(0)    yes(1)<br><u>Terminate questionnaire here if not married</u>                                                                         |   |
| 8. Pregnant at time of visit: no(0)    yes-1 <sup>st</sup> . trimester (1)    yes- 2 <sup>nd</sup> . trimester (2)    yes-3 <sup>rd</sup> . trimester (3)    NA(9) |   |
| 9. Contraceptive :    no (0)    yes-pills (1)    yes-IUD (2)    yes-others (3)    ex-user (4)    NA (9)                                                            |   |
| 10. # of pregnancies :    none(0)    1    2    3    4    5    6-9 (6)    10+ (7)    NA (9)                                                                         |   |
| 11. # of Abortions: :    none(0)    1    2    3    4    5    6-9 (6)    10+ (7)    NA (9)                                                                          |   |
| 12. # of live births: :    none(0)    1    2    3    4    5    6-9 (6)    10+ (7)    NA (9)                                                                        |   |
| 13. # of child deaths ( after being born alive ):    none (0)    1    2    3    4    5+ (5)    NA (9)                                                              |   |
| 14. Presence of acute disease(s) related to pregnancy at time of visit:    no (0)    specify disease & code                                                        |   |
| 15. Presence of chronic disease(s) related to pregnancy at time of visit:    no (0)    specify disease & code                                                      |   |
| 16. Incidence of acute diseases related to pregnancy during last month:    no (0)    specify disease & code                                                        |   |
| 17. Incidence of chronic diseases related to pregnancy during last month:    no (0)    specify disease & code                                                      |   |
| 18. Prominent <u>Complaint, or Disease or Problem</u> related to pregnancy:    no (0)    Please specify & code                                                     |   |

For each question, insert (9) for unknown or refused to answer or not applicable.

Line Listing for Under 5 Children

Students' Groups Presentations

{7th. Week of training}

The subgroups of each major group shall submit their presentation in the 7<sup>th</sup>. Week to be assessed by their own tutor.

Content:

Results of field practice – research outcome

Case histories

Venue:

1. One lecture halls in PHH.
2. Discussion rooms on PHH premises

#### Student Assessment Criteria

Please use check list and rating scale

D. Continuous assessment = 20 marks:

A1. Professionalism and communications skills = 10 marks.

A2. Attendance to field work = 10 marks

E. Field project = 40 marks:

B1. Project report = 20 marks

B2. Oral examination = 20 marks

F. Final - MCQ (based on lectures) online examination = 40 marks

Items for continuous assessment = 20 marks

|   | Item                                   | Observed | Not observed |
|---|----------------------------------------|----------|--------------|
| 1 | Professional & ethical conduct         |          |              |
| 2 | Communication with peers & public      |          |              |
| 3 | Leadership & management                |          |              |
| 4 | Team work                              |          |              |
| 5 | Care provider                          |          |              |
| 6 | Attendance during Field Work (5 marks) |          |              |

Subtract one (1) mark or each day of absence during entire course

Items for project assessment (Project report = 20 marks)

| Item |                                            | Done | Not done |
|------|--------------------------------------------|------|----------|
| 1    | Data collection                            |      |          |
| 2    | Data entry                                 |      |          |
| 3    | data management (organization & reduction) |      |          |
| 4    | Construction frequency tables              |      |          |
| 5    | Data analysis and manipulation             |      |          |
| 6    | Data presentation (tables and figures)     |      |          |
| 7    | Comments on presented data                 |      |          |
| 8    | Report submission                          |      |          |
| 9    | Case history selection                     |      |          |
| 10   | Case history presentation                  |      |          |

Department of Public Health  
Faculty of Medicine  
Hashemite University  
Field Training in Community Medicine

## STUDENTS' GUIDEBOOK

Community Medicine Course  
9 Credit Hours  
8 weeks Field Training

Edited by: Dr Hasan Hawamdeh

### Content

| Topic                                    | Contributor |
|------------------------------------------|-------------|
| Identifying causes of disease            |             |
| Improving clinical diagnosis             |             |
| Measuring disease occurrence             |             |
| Assessing Efficacy of therapy            |             |
| Investigating natural history of disease |             |
| Data entry and analysis (SPSS)           |             |
| Stat. test using SPSS                    |             |
| Children with special needs              |             |
| School Health Service                    |             |
| Developing Health Education programs     |             |
| Research Design                          |             |
| Community Diagnosis                      |             |
| MCH care                                 |             |
| Maternal & child health assessment       |             |
| Consultation & counseling                |             |
| Evidence Based Practice                  |             |
| Environment and medicine                 |             |
| Environmental health hazards             |             |
| Occupational medicine                    |             |
| Investigating occupational asthma        |             |
| Workshop                                 |             |

### **Course information**

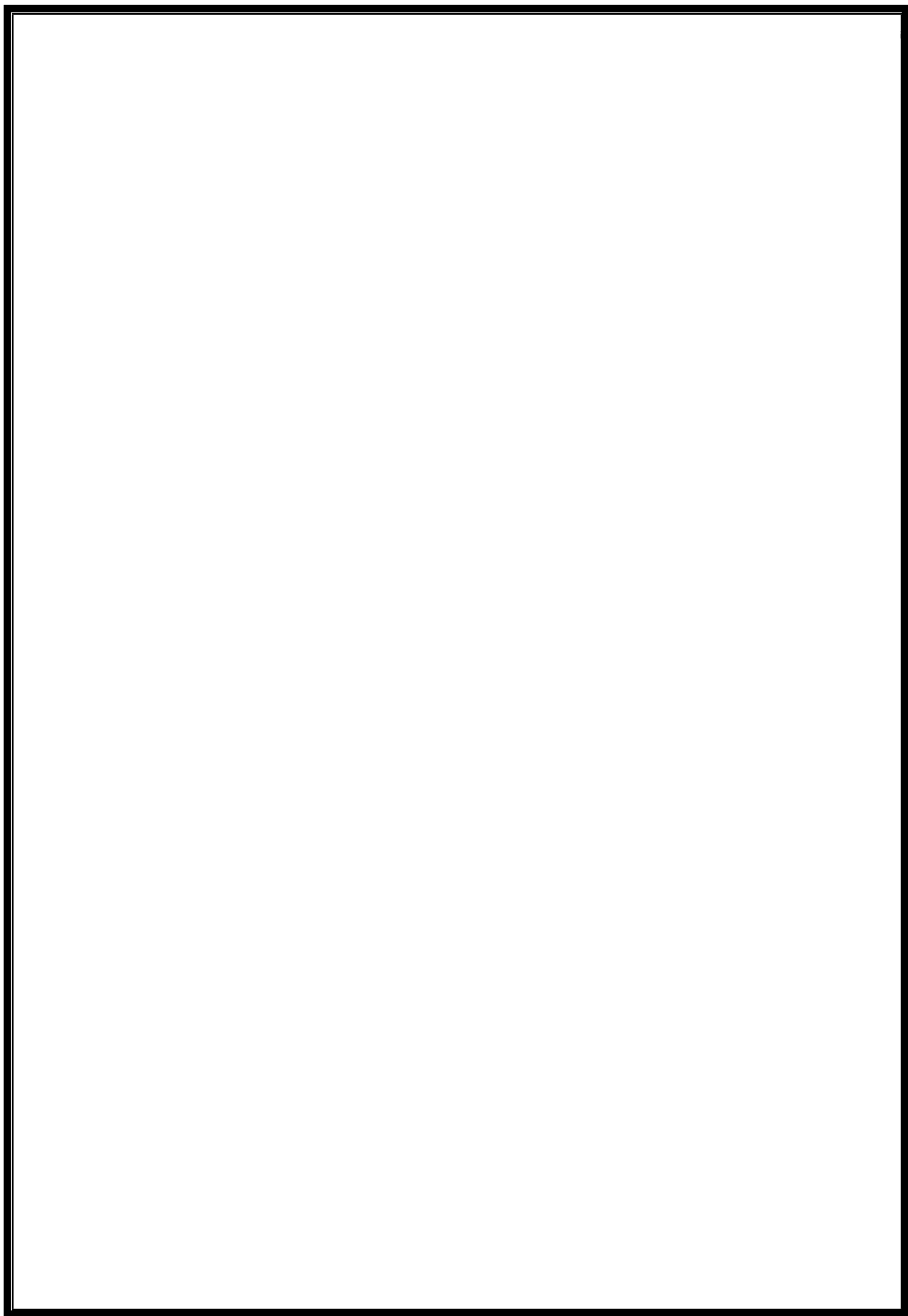
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|---------------|--------------------|
| Course title  | Dermatology Course |
| Course number | 0111503604         |
| Credit hours  | 2.25               |

### **Coursedescription:**

This rotation enables the student to develop basic knowledge of dermatology, and provides clinical experience in dermatology. Student will develop competency in the description of the common lesions, be able to give a differential diagnosis, and be familiar with general treatments of the common disorders in dermatology. Under direct supervision of a dermatology specialist, students will ideally be encouraged to participate in the decision making process and clinical reasoning.

### **Learningoutcomes:**

1. Collect and record relevant patient history.
2. Be able to give a proper description of a given lesion
3. Generate a differential diagnosis list for dermatologic problems. Be able to demonstrate logical thinking and analytical skills, utilizing the information obtained from the physical examination and other diagnostic tests.
4. Understanding the common diagnostic tests in dermatology, diascopy, Tzanck smear, KOH, patch test, and histopathology.
5. Learn general treatment plans; medical or surgical, including all relevant treatment options.
6. Develop a familiarity with common dermatological disease, including those in the following categories of manifestations:
  - Psoriasis, lichen planus, pityriasis rosea
  - Eczema: Atopic, allergic, irritant, seborrheic
  - Reactive erythema and vasculitis
  - Approach to vesiculobullous disorders
  - Disorders of sebaceous glands: Acne and rosacea
  - Infections: virals, bacterial, and fungal.



- Disorders of pigmentations

### **Instructional methods:**

Students are assessed by the clinical instructors using a standard evaluation form. At the end of the 2<sup>nd</sup> wk rotation, a clinical exam will be performed. A final exam is to be done at the end of the 5<sup>th</sup> year.

Daily morning clinic from 9-1 pm

Afternoon seminar daily

End rotation slide review before the end rotation exam

### **TOPICS COVERED ( SEMINARS/ LECTURES):**

1. Skin structure and function: to identify the anatomical structure and function of:

Epidermis, dermis, epidermal- dermal junction, epidermal appendages, dermis, and subcutis.

2. History taking , examination and special tools in dermatology: to differentiate between a macule, papule, vesicle, bullae, plaque, nodule, scale, tumour, crust, erosion, and ulcer.

To learn about diascopy, patch test, Tzanck smear, KOH, and cytology.

3. Acne and Rosacea:

S. & S, pathophysiology , types, and treatment plan.

4. Contact dermatitis: Allergic and irritant

Atopic dermatitis, Seborrheic dermatitis

5. Psoriasis, Parapsoriasis, lichen planus, and pityriasis rosea

6. Reactive erythemas and vasculitis: urticaria, erythema multiforme, Erythema nodosum, Vasculitis, and HSP .

7. Approach to vesiculobullous disorders:

- Pemphigous vulgaris
- Bullous Pemphigoid
- Dermatitis Herpetiformis
- Epidermolysis Bullosa

8. Infections : S & S and Rx. Of:

H. Simplex, H. Zoster, Warts

Impetigo contagiosum, Ecthyma, Erythrasma, folliculitis

Tinea capitis, corporis, pedis onychomycosis

9. Disorders of pigmentation:

Albinism, vitiligo

Freckles, lentigo, Melasma

### **Textbook and material:**

Recommended resources include:

- Clinical Dermatology: John Hunter

Color Atlas & synopsis of clinical dermatology: Fitzpatrick

### **Grading Policy:**

In-course evaluation: 20%

End of rotation exam: 35%

Final written exam: 45%

Total Points 100

### **Course Policies:**

- **Late Assignments:** Unexcused absence at the day of the seminar will affect the grade by 10 points
- **Missed exams:** The student will do with exam with the following group if he has an excuse that the department accepts
- **Absence :** Absence will affect evaluation mark  
If its more than 2 days, the student will have to repeat the rotation all over again
- **Cheating:** Will be referred to the department and be dealt with according to the regulations of the university

### **Classroom Protocol:**

Attendance – Attendance and participation in clinical activities and related discussion is required in order to optimize the educational benefit for all students. Notification of absence must be directed to clinical instructors and the program director (Dr. Hanadi Al Quran). Unexcused absence will result in a failing grade for the rotation.

Professional behavior - Professional behavior is essential for successful learning environment. Therefore professional behavior is expected of all students during clinical rotations. Professional behavior includes but is not limited to arriving on time, and being prepared for daily activities and discussions.

Equipment/Clothing – During clinical activities, appropriate clothing should be worn, professional clothing and a white coat are adequate.



### **Important Dates to Remember:**

The course is based on a 2wk rotation

The 2<sup>nd</sup> Thursday will be the last day of the rotation and the end rotation exam day

Final exam date will be determined by the end of the 5th academic year

### **Students rights and responsibilities:**

As per University policy and regulations

All students' rights presented by the University will be respected during Dermatology course

### **Course Schedule:**

#### **Topics covered in lectures and seminars**

1. Skin structure and function: to identify the anatomical structure and function of:

Epidermis, dermis, epidermal- dermal junction, epidermal appendages, dermis, and subcutis.

2. History taking , examination and special tools in dermatology: to differentiate between a macule, papule, vesicle, bullae, plaque, nodule, scale, tumour, crust, erosion, and ulcer.

To learn about diascopy, patch test, Tzanck smear, KOH, and cytology.

3. Acne and Rosacea:

S. & S, pathophysiology , types, and treatment plan.

4. Contact dermatitis: Allergic and irritant

Atopic dermatitis, Seborrheic dermatitis

5. Psoriasis, Parapsoriasis, lichen planus, and pityriasis rosea

6. Reactive erythemas and vasculitis: urticaria, erythema multiforme, Erythema nodosum, Vasculitis, and HSP .

7. Approach to vesiculobullous disorders:

- Pemphigous vulgaris
- Bullous Pemphigoid
- Dermatitis Herpetiformis
- Epidermolysis Bullosa

8. Infections : S & S and Rx. Of:

H. Simplex, H. Zoster, Warts

Impetigo contagiosum, Ecthyma, Erythrasma, folliculitis

Tinea capitis, corporis, pedis onychomycosis

9. Disorders of pigmentation:

Albinism, vitiligo



The Hashemite University

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Freckles, lentigo, Melasma

### **Course information**

|               |                                         |
|---------------|-----------------------------------------|
| Course title  | Family Medicine and Primary Health Care |
| Course number | 111503502                               |
| Credit hours  | 2.25                                    |

### **Course description:**

| (A) Lecture / Seminar                                | Objectives                                                                                                                                                                                                                                                                          |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1) Principles of Family Medicine                     | 1) Identify the characteristics of Family Medicine as discipline in medicine<br>2) Describe the elements of cost-effective practice<br>3) Learn the ways for successful patient-doctor relationship<br>4) Define the role of family physician in the continuity of care for patient |
| 2) Prevention & Screening and Immunization           | 1) Describe the types of prevention<br>2) List criteria's for screening<br>3) Define the contents of screening program<br>4) Discuss the indication, contraindication and side effects of immunization                                                                              |
| 3) Diabetes Mellitus (D. M )                         | 1) Define criteria for diagnosis<br>2) Discuss clinical features & complications<br>3) Describe the treatment strategies<br>4) Discuss the value of diabetic clinic                                                                                                                 |
| 4) Psychosomatic disorders                           | 1) Define psychosomatic disorders<br>2) List the presentation<br>3) Discuss the importance of psychosomatic disorders<br>4) Define the role of clinician in minimizing the psychosomatic disorders                                                                                  |
| 5) Diarrhea in Childre                               | 1) Lists causes of diarrhea in children<br>2) Describe the plan of management<br>3) Discuss the role of parents in management                                                                                                                                                       |
| 6) Antibiotics and Upper Respiratory Tract Infection | 1) Define the role of antibiotics in treating patients with URTI<br>2) Identify factors participating in antibiotics abuse in treating patients with URTI and ways to overcome them<br>3) Establish guidelines for management of U.R.T.I                                            |

|                                  |                                                                          |
|----------------------------------|--------------------------------------------------------------------------|
| 7) Evidence-Based Medicine (EBM) | 1) Discuss the role of EBM in medical practice                           |
|                                  | 2) Define the steps involved in EBM                                      |
|                                  | 3) Describe ways for selection proper literatures and ways of appraisal  |
|                                  |                                                                          |
| 8) Dizziness                     | 1) Discuss the causes of dizziness                                       |
|                                  | 2) Select the appropriate investigations                                 |
|                                  | 3) Describe the management plan for dizziness                            |
| 9) Chest pain                    | 1) List causes of chest pain                                             |
|                                  | 2) Learn how to differentiate between cardiac and non cardiac chest pain |
|                                  | 3) Define role of ECG and CXR in handling patient with chest pain        |
|                                  | 4) Discuss management plan                                               |
| 10) Headache and back ache       | 1) List causes of headache                                               |
|                                  | 2) Describe the approach in investigating patient with headache          |
|                                  | 1) List the alarming symptoms and signs of backache                      |
|                                  | 2) ) Discuss the effect of backache on patients                          |
|                                  | 3) ) Describe the management plan for backache                           |

### **Learning outcomes:**

By the end of this course students are expected to be able to:

1. Describe the principles of Family Medicine.
2. Master the consultation skills.
3. Master diagnoses and manage undifferentiated problems.
4. Diagnose and manage common diseases.
5. Approach the patient as a whole with emphasis on wellness and health promotion.
6. Develop primary care-problem solving skills.
7. Establish an effective physician – patient relationship.
8. Take into consideration the care of the family as a unit with emphasis on physical, psychological and social components of the illness.
9. Take into consideration the impact of the community and occupation in the outcome.
10. Use consultation and referrals in a continuity-of-care-model.

Learn the appropriate utilization of community resources for patients and practicing cost-effective medicine

### **Instructional methods:**

- Lectures
  - Seminars: clinical cases, x-rays and equipments.
  - Bed-side teaching sessions: Clinical case, x-rays and lab tests.
  - Outpatient clinics.
  - Tutorials and presentations (Data show, slides)
  - Audio visual material

### **Textbook and material:**

- \* Essentials of Family Medicine; ed. Slone PD, Slatt LM, Baker RM.  
Williams & Wilkins, Baltimore..

- \* Taylor RD, Family Medicine-Principles and Practice,
- \* Rakel MD, TEXT BOOK OF FAMILY PRACTICE, Sixth ed.,
- \*blueprint family medicine.

### **Grading Policy:**

Grades can be based on the following:

In-course evaluation: 20%

End of rotation exam: 35%

Final Exam: 45 %

Total Points 100

### **Course Policies:**

- ❓ **Late Assignments:** Students are expected to present their assignment on scheduled time, if not, a new date is given to the student to present his assignment. Late assignment will affect the grade by 5 points unless there is an excuse.
- ❓ **Missed exams:** Make up exam will be held to students who missed their exam when they have an excuse accepted by the department (within 2 weeks)
- ❓ **Absence:** Orthopedic rotation is 20 working days, absence by 2 means 10 % of days and mandates a warning letter, if more than 15 % , then the university rules will be applied ( course repetition is mandatory ), each absence will affect the evaluation by 2 points.
- ❓ **Cheating:** Cheating is extremely prohibited and will be dealt with according to university policies

### **Classroom Protocol:**

- Students are expected to arrive at 8:00 am Sunday to Thursday Attendance is each daily activity, absence in one activity considered as full day absence.
- Students are expected to respect other students and instructors.
- Participation is graded according to seminar presentation, attending daily activities, good behavior, patient care, theoretical knowledge, communication skills, and professionalism.

### **Important Dates to Remember:**

The course is based on a 2wk rotation

The 2<sup>nd</sup> Thursday will be the last day of the rotation and the end rotation exam day

Final exam date will be determined by the end of the 5th academic year

### **Student rights and responsibilities:**

As per University policy and regulations

All students' rights presented by the University will be respected during Family Medicine course

## **Course Schedule:**

### **Topics covered in lectures and seminars**

#### **1) Principles of Family Medicine**

- 1) Identify the characteristics of Family Medicine as discipline in medicine
- 2) Describe the elements of cost-effective practice
- 3) Learn the ways for successful patient-doctor relationship
- 4) Define the role of family physician in the continuity of care for patient

#### **2) Prevention & Screening and Immunization**

- 1) Describe the types of prevention
- 2) List criteria's for screening
- 3) Define the contents of screening program
- 4) Discuss the indication, contraindication and side effects of immunization

#### **3) Diabetes Mellitus (D. M )**

- 1) Define criteria for diagnosis
- 2) Discuss clinical features & complications
- 3) Describe the treatment strategies
- 4) Discuss the value of diabetic clinic

#### **4) Psychosomatic disorders**

- 1) Define psychosomatic disorders
- 2) List the presentation
- 3) Discuss the importance of psychosomatic disorders
- 4) Define the role of clinician in minimizing the psychosomatic disorders

#### **5) Diarrhea in Children**

- 1) Lists causes of diarrhea in children
- 2) Describe the plan of management
- 3) Discuss the role of parents in management

#### **6) Antibiotics and Upper Respiratory Tract Infection**

- 1) Define the role of antibiotics in treating patients with URTI
- 2) Identify factors participating in antibiotics abuse in treating patients with URTI and ways to overcome them
- 3) Establish guidelines for management of U.R.T.I

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## 7) Evidence-Based Medicine (EBM)

- 1) Discuss the role of EBM in medical practice
- 2) Define the steps involve in EBM
- 3) Describe ways for selection proper literatures and ways of appraisal

## 8) Dizziness

- 1) Discuss the causes of dizziness
- 2) Select the appropriate investigations
- 3) Describe the management plan for dizziness

## 9) Chest pain

- 1) List causes of chest pain
- 2) Learn how to differentiate between cardiac and non cardiac chest pain
- 3) Define role of ECG and CXR in handling patient with chest pain
- 4) Discuss management plan

## 10) Headache and back ache

- 1) List causes of headache
- 2) Describe the approach in investigating patient with headache
  - 1) List the alarming symptoms and signs of backache
  - 2) Discuss the effect of backache on patients
  - 3 ) Describe the management plan for backache

### **Course information**

|               |                                |
|---------------|--------------------------------|
| Course title  | Forensic Medicine & Toxicology |
| Course number | 111501501                      |
| Credit hours  | 2.25                           |

### **Course description:**

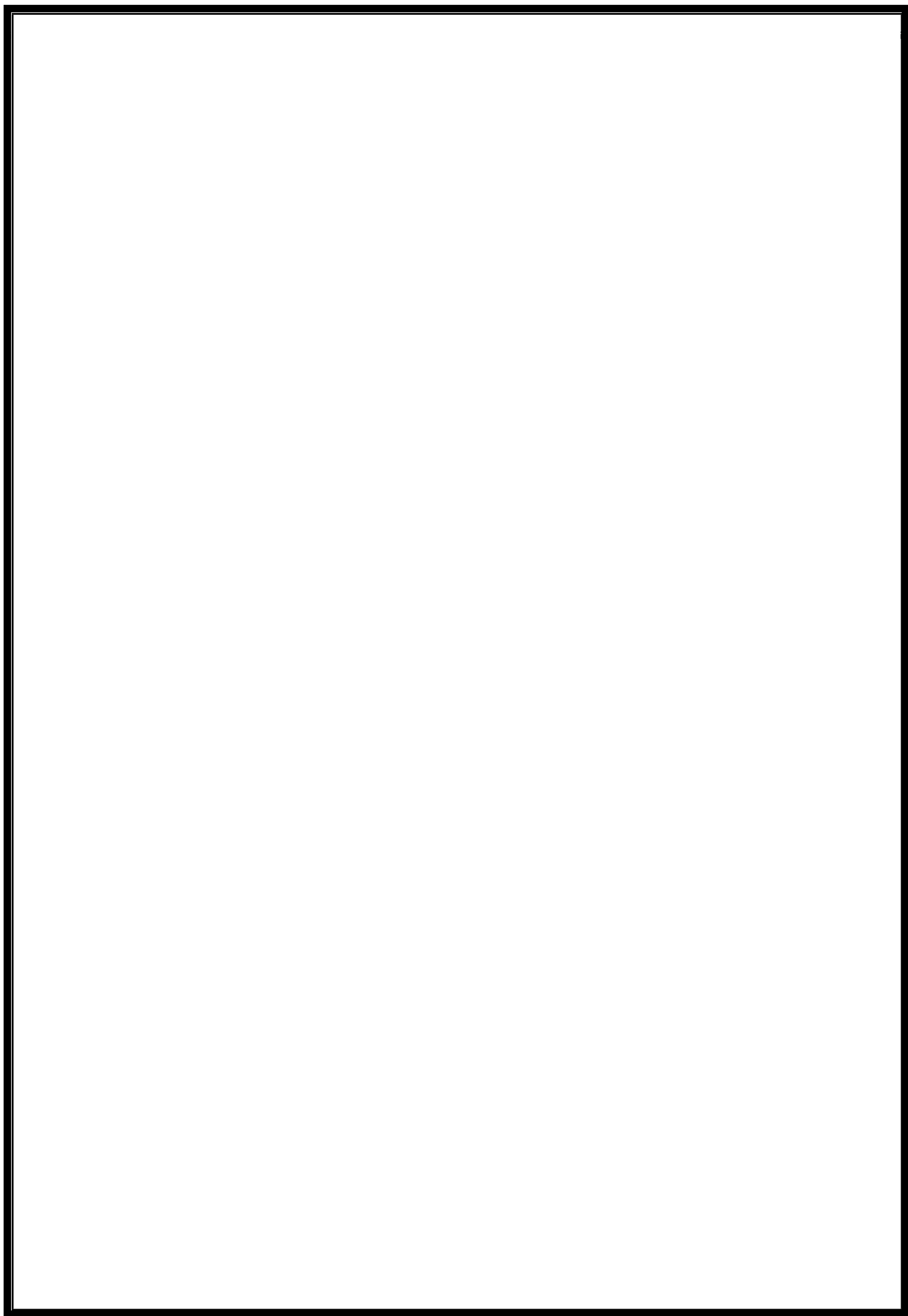
The aim of this rotation is to provide information about the forensic aspects of medicine and related fields for those who will be involved in the clinical and pathologic aspects of health care, forensic assessment, investigation and diagnosis for victims, assailants and others involved in police or judicial systems.

### **Learning outcomes:**

At the end of the course:

- 1 – The student will be able to deal with medico-legal cases due to natural and unnatural conditions and poisonings.
- 2- The student will be able to recognize relationship between the doctor of medicine and the law and they will be aware of applicable court events related to the medico-legal cases.
- 3 - The student will be able to visit scene of crime and shall detect, describe, interpret the observations
- 4 - The student will be able to recognize, investigate and prepare medico-legal certificate in accordance with Jordanian Law.
- 5- The student will be able to offer consultancy services to the health, home and law departments in connection with medico-legal work, crime investigation process and courts.
- 6 - The student will be familiar with medical negligence and legal Responsibilities of the physicians towards patients, profession, society, state and humanity at large.
- 7- The student will be able to manage medico-legal implications, diagnosis and principles of therapy of common poisons.





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### **TOPICS COVERED (SEMINARS/LECTURES):**

Definition of Legal medicine and Medical Jurisprudence

Medico-legal certificates and medical reports (births, fitness, illness and death.)  
Courts in Jordan and their powers, types of witnesses, recording of evidence, conduct of doctor in witness box.

Death Scene Investigation

Death and postmortem changes (Def., types, body change after death, rigor mortis, instantaneous rigidity, heat and cold rigidity, hypostasis, postmortem decomposition, adipocere formation, mummification, maceration and estimation of time of death)

Sudden natural death: definition and classification of causes

Wounds and regional injuries (def., types, medico-legal importance, age estimation, complications, causes of death and wounding and the law)

Gunshot and explosion (The mechanics of missile injury, Types of weapon, Shotgun and rifled wounds, exit wounds, estimating the range of discharge and the autopsy findings)

Injury and death on the road (Pedestrians, Vehicular occupants, seatbelts and airbags injuries and manner of death)

Mechanical asphyxia (Hanging, Strangulation, Throttling, Suffocation, Smothering, Overlying, choking and drowning)

Burns and scalds (Classification, gross appearance at autopsy and ante-mortem versus post-mortem burns)

Medico-legal aspects of virginity, pregnancy, delivery and criminal abortion.

Sexual offences (examination of the victim, examination of the accused and medico legal aspects)

Infant and childhood deaths: Viability, determination of age of foetus, live birth, still birth and dead born child, sudden infant death syndrome, child abuse, and medico-legal aspects of precipitate labour.

Manifestations and medico-legal aspects of death from cold, heat, electricity and lightning

Medico-legal aspects of medical malpractice

Duties of doctor in cases of poisoning, medico-legal autopsy in poisoning, preservation and dispatch of viscera for chemical analysis.

## General treatment of poisoning

Alcohols (ethyl alcohol, methyl alcohol, isopropyl alcohol and ethyleneGlycol) acute poisoning, chronic poisoning, measuring alcohol, treatment and post-mortem appearances

Carbon monoxide and carbon dioxide poisoning (Sources, Acute poisoning, Chronic Poisoning, Treatment, Autopsy findings and Toxicology interpretation)

Opium, Cannabis, Cocaine, (mode of action, absorption and excretion, signs and symptoms, fatal dose, fatal period, treatment and post-mortem appearances)

Cholinesterase inhibitor pesticides (acute poisoning, chronic poisoning, fatal dose, fatal period, treatment and post-mortem appearances)

Metallic poisons (lead, mercury, cadmium, thallium and arsenic):acute poisoning, chronic poisoning, treatment and post-mortem appearances)

Drug abuse and dependence.

### **Instructional methods:**

Structured interactive sessions, Small group discussion, Practical including demonstrations, Problem based exercises, Video clips, Written case scenario, Self learning tools, Interactive learning and e-modules

### **Text book and material:**

Forensic Pathology Principles and Practice, David Dolinak, Evan W. Matshes, Emma O. w, ISBN:0-12-219951-0

Forensic Medicine :Clinical and Pathological Aspects.J.James,A.Busutti,W.Smock. . ISBN 1841100269 publishers Greenwich Medical Media Ltd

Forensic Pathology. Bernard Knight. . ISBN 0340588977 Publishers Arnold : 2<sup>nd</sup> Edition

Forensic Pathology, Second Edition, by Vincent J. M. Di Maio and Dominick Dimaio ISBN-13: 9780849300721

Principles of Forensic Toxicology, edited by B. Levine, AACC Press, 3<sup>rd</sup> Edition, 2010.

Drug Abuse Handbook, edited by S.B. Karch, CRC Press, 2nd Edition 2007

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## **JOURNALS**

Journal of Analytical Toxicology

Journal of Forensic Sciences

Forensic Science International

Science and Justice

## **Grading Policy:**

Grades can be based on the following:

Assignments: 30%

Final Exam: 50 %

Class attendance 10 % / participation: 10 %

Total Points 100

## **Course Policies:**

- **Late Assignments:** Students are expected to present their assignment on scheduled time, if not, a new date is given to the student to present his seminar. Late assignment will affect the grade by 5 points unless there is an excuse.
- **Missed exams:** Make up exam will be held to students who missed their exam when they have an excuse accepted by the department.
- **Absence :** Absence by 2 or more days requires repeating the rotation.
- **Cheating :** Cheating is prohibited and will be dealt with according to university policies.

## **Classroom Protocol:**

Attendance and participation in clinical activities and related discussion is required in order to optimize the educational benefit for all students. Notification of absence must be directed to clinical instructors and the program director (Dr. Mohammed Azab). Unexcused absence will result in a failing grade for the rotation.

Professional behavior is essential for a successful learning environment. Therefore professional behavior is expected of all students during clinical rotations. Professional behavior is not limited to arriving on time, and being prepared for daily activities and discussions.

**Equipment/Clothing** – During clinical activities, appropriate clothing should be worn, professional clothing and a white coat are adequate.

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**Important Dates to Remember:**

Final exam will be set by department .

End of rotation exam will be on Thursday in the second week of each rotation.

**Student rights and responsibilities:**

Will be respected during Forensic Medicine course.

**Course Schedule :**

Scheduling of activities during the clinical rotation is determined by the clinical instructor and should be communicated to the student at the beginning of the rotation. Changes to scheduled activities should be communicated to the student as soon as possible during the rotation.

### **Course information**

|               |                           |
|---------------|---------------------------|
| Course title  | Obstetrics and Gynecology |
| Course number | 111505501                 |
| Credit hours  | 9                         |

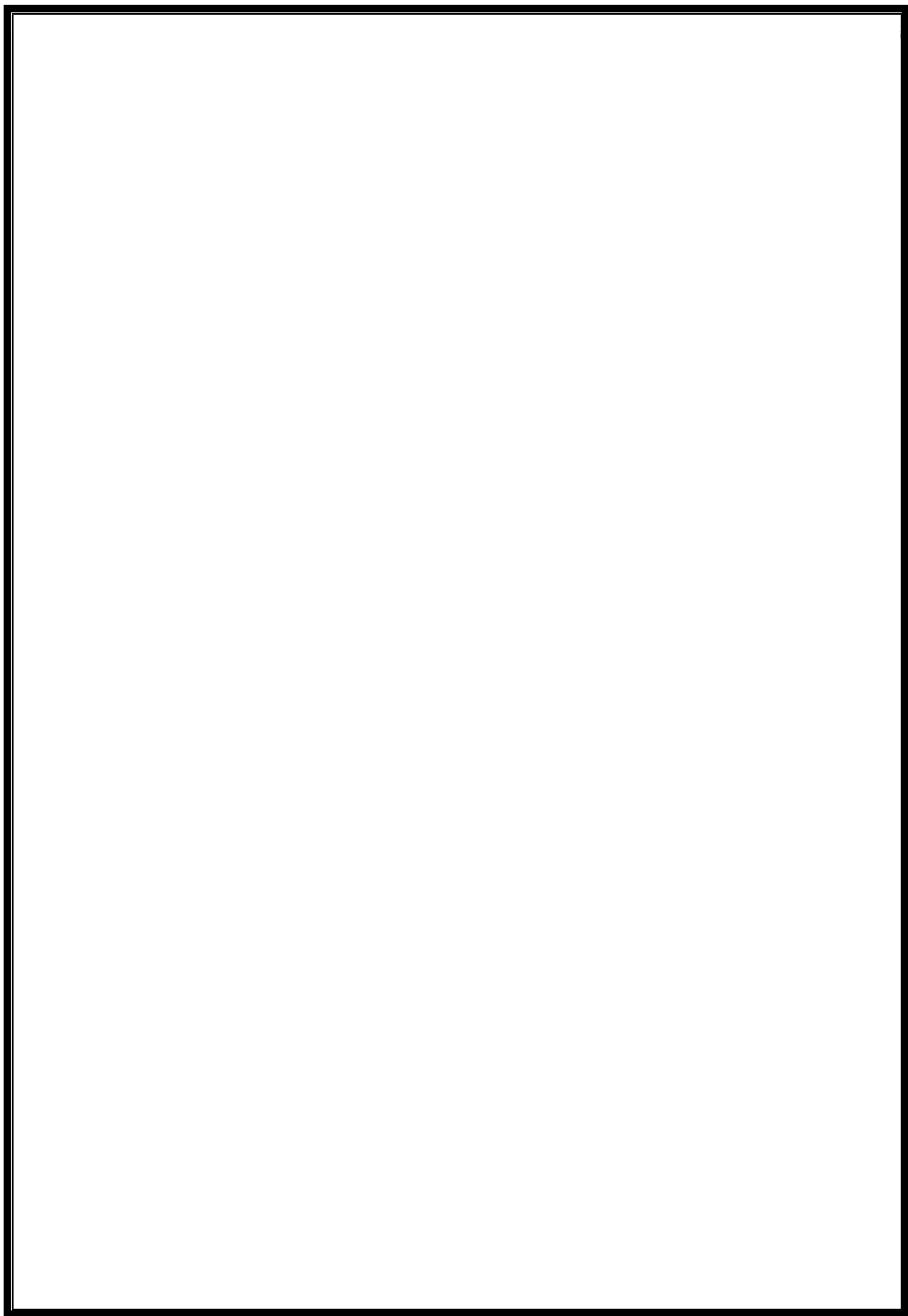
### **Course description:**

This course offers a general obstetrics-gynaecology experience over eight weeks. Rotating within four hospitals, the students will be exposed to a variety of cases including antenatal, postnatal patients, Obstetric and gynaecological assessment, pre-operative patients in a clinic setting. Hospital rounds, assisting in patient deliveries, including operative deliveries (Instrumental and C/Sections) and Gyn Surgery, are expected.

Course Expectations: Progressive levels of responsibility, culminating in the ability to evaluate and formulate an appropriate treatment, care plan.

### **Learning outcomes:**

- **By the end of this course students will be able to adequately perform and develop;**
  1. Complete assessment of obstetric and gynecologic patient
  2. Obtain complete obstetric and gynecologic history according to general medical guidelines
  3. Communication skills necessary for basic doctor-patient interaction
  4. Identify normal and abnormal conditions in labour



5. Formulate differential diagnosis of common obstetric and gynecologic presentations
6. Demonstrate knowledge in continued and extended care to an obstetric and gynecologic patient
7. Identify important obstetric emergencies
8. Recognize medical conditions that might affect obstetrics and gynecology and vice versa
9. Awareness of the prevalence of various obstetric and gynecologic conditions
10. Interpret basic laboratory results in the field of obstetrics and gynecology

### **Knowledge and understanding**

By the end of the course, students should be able to describe, explain, recognize and demonstrate understanding of;

#### ➤ GYNECOLOGY

1. The basic anatomy of the female genital tract, including histology
2. The development of the female genital tract and their clinical applications.
3. Normal sex differentiation, chromosomal sex, inter sex disorders and their management
4. The physiology of menstruation, physiology of ovulation, abnormal uterine bleeding, and its management
5. The causes of primary and secondary dysmenorrhea, clinical picture and management, premenstrual syndrome, possible etiology, clinical picture and management
6. The physiology of puberty, precocious puberty, its causes and management, delayed puberty, its causes and management
7. The causes of primary amenorrhea, clinical picture and management of secondary amenorrhea, causes and management, including hyperprolactinaemia and polycystic ovary syndrome
8. The normal human sexual response, common sexual problems and their management.
9. The magnitude of the infertility problem and its different etiologies, basic diagnostic tools, and treatment of infertility including assisted conception outlines



10. The causes, types and methods of diagnosis and management of lower and upper genital tract infections with emphasis on methods of prevention of serious complications of sexual transmitted diseases
11. Various contraceptive methods (types, mode of action, advantages, disadvantages, indications, contraindications, and complications)
12. The physiology of menopause and its management, hormone replacement therapy indications, contraindications and routes of administration
13. The magnitude of endometriosis and adenomyosis, their causes, diagnostic and management options
14. The causes, diagnosis and management of uterovaginal prolapse
15. Urogynaecological conditions including urinary incontinence (types of incontinence) urodynamic studies, voiding difficulties, frequency and urinary tract infections
16. The pathology, classification and clinical picture of cervical, uterine, ovarian, fallopian tube, vaginal and vulval benign and malignant tumors with emphasis on screening methods and early recognition and broad lines of their management
17. Medico-legal aspects of gynecology and psychological aspects
18. The etiology of bleeding in early pregnancy (abortion, ectopic, vesicular mole) and their management
19. Recurrent miscarriage and mid-trimester miscarriage, causes and management

➤ OBSTETRICS

1. The basic physiological background of fertilization, implantation, and early development of the fetus, placenta, cord, placental functions, formation and functions of liquor, and the basis of fetal circulation
2. The physiological changes produced by pregnancy
3. The basic principles of antenatal care, and recognize high-risk pregnancies and their magnitude with emphasis on preventable and avoidable causes and their management
4. Different medical disorders occurring during pregnancy and their management (e.g. Hyperemesis, anemia, thromboembolic diseases, diabetes, urinary tract infections, cardiac diseases, respiratory diseases, thyroid diseases, autoimmune diseases etc...)

5. Pregnancy induced hypertension, pre-eclampsia, and eclampsia (definitions proteinuria, pathophysiology, predisposing factors, clinical picture and, management of eclampsia, and HELLP syndrome)
6. Different methods of assessment of fetal well-being (non-stress test, biophysical profile, and color Doppler)
7. The physiology, mechanism, and management of normal labor (including partogram and fetal monitoring)
8. The fetal lie, presentation, position, and discuss malpresentation (occipito-posterior, face, brow, breech, shoulder) causes, clinical picture and management
9. The causes, outline and management of complications of third stage of labor
10. The types, causes, investigation and management of ante-partum hemorrhage (placenta previa and abruptio placenta)
11. The etiology, pathology, diagnosis and management of amniotic fluid disorders (oligo/polyhydramnios), fetal growth disorders and Rh-immunization
12. The basic and surgical anatomy of the female pelvis and the fetal skull
13. The physiological changes during puerperium and the recommended program of postnatal visits with abnormalities occurring in puerperium and their management
14. The indices, causes and prevention of maternal and perinatal morbidity and mortality
15. The indications, techniques, and complications of induction of labor
16. The types, indications, techniques and complications of obstetric forceps, ventouse and cesarean section
17. The causes, complications, diagnosis and treatment of the common types of contracted pelvis, soft tissue obstruction, abnormal uterine action, obstructed labor, ruptured uterus, and genital tract injuries during labor
18. The causes, diagnosis, and management of post-term pregnancy and hazards of post-maturity, prematurity, and intrauterine fetal death
19. Multiple gestation, definition, prevalence, classification, etiology, complications, differential diagnosis, antenatal and intrapartum management
20. The causes and management of intra-uterine growth restriction

- 
21. Various obstetric emergencies including uterine rupture, uterine inversion, amniotic fluid embolism and shock in an obstetric patient
  22. The definition, prevalence, classification, etiology, clinical features and treatment of preterm labour
  24. Normal fetal development and growth

### **Instructional methods:**

Various learning approaches and activities are incorporated into this course including

❑ **Bedside teaching/ward rounds**

Students prepare the cases and present them. Physical examination is demonstrated and students are observed doing the examination with a feedback.

❑ **RIMEwithReasons**

RIME is a classification measure of a student's progression from that of a **Reporter** to **Interpreter**, to **Manager/Educator**. Most medical students should be able to demonstrate they can reliably gather the facts on patients and present this information in an organized manner. It is expected that the students will progressively synthesize this information, learning to connect signs and symptoms with tests, and to develop a differential diagnosis.

❑ **Prompting students** by asking questions to think and search evidence based resources.

Students value questioning, especially when we ask their opinion and ask them to formulate a plan. Active questioning will give them the opportunity to demonstrate their knowledge, reasoning and management skills.

❑ **Presentations/Seminars**

These are done by both the instructors and the students in big and small groups. The students are asked to attend morning reports and departmental meetings.

- ? **Shadowing in the outpatient clinics**
- ? **Attending/Assisting in the operating theatre**
- ? **Attending the labour ward**, the student will interpret Non-stress test, do obstetric and vaginal examination, watch normal and instrumental deliveries and have hands on practice.
- ? **Log books to check competencies and tailor individual plans if needed**
- ? **OSCE assessment at the end of the 8-week rotation**

### **Textbook and material:**

Recommended books:

1. Monga A. Gynaecology by Ten Teachers
2. Baker PN. Obstetrics by Ten Teachers
3. Magowan B, Owen P, Drife J. Clinical Obstetrics and Gynaecology
4. Callahan TL, Caughey AB, Heffner LJ. Blueprints Obstetrics and Gynaecology
5. Edmonds DK. Dewhurst Textbook of Obstetrics and Gynecology
6. Morgan M, Siddighi S. National Medical Series for Independent Study Obstetrics and Gynecology
7. Novak's Gynaecology
8. Williams Obstetrics
9. Current clinical strategies, gynecology and obstetrics
10. Essentials in Obstetrics and Gynecology

### **Grading Policy:**

Grades can be based on the following:  
Assignments/End of course OSCE: 30%  
Final Exam: 50 %  
Class attendance/participation: 20%  
Total Points 100

### **Course Policies:**

- **Late Assignments:** will not be accepted

**Missed exams:** OSCE will only be repeated if there is an acceptable excuse at the departmental meeting. The exam will be done with the following group.

Theory and oral exams follow the HU guidelines and need approval at the Faculty meeting.

- **Absence:** as per the HU guidelines 10% of the rotation without an excuse, 15% with an excuse. Missing any part of the daily allocated activities will be counted for as absence.
- **Cheating:** will be treated as per the HU guidelines

### **Classroom Protocol:**

The students should demonstrate the following professional and ethical behavior and skills:

1. Each student is dutiful, arrives on time & stays until all tasks are complete
2. Consistently follows through on patient care responsibilities
3. Accepts and readily responds to feedback, is not resistant to advice
4. Assures professionalism in relationships with patients, staff & peers
5. Displays integrity & honesty in medical ability and documentation
6. Acknowledges errors, seeks to correct errors appropriately
7. Is well prepared for and seeks to provide high quality patient care
8. Identifies the importance to care for underserved populations in a non-judgmental manner

### **Important Dates to Remember:**

Last Thursday of the 8-week rotation: OSCE assessment

Final Exam Preparation holiday: 11-17/5/2014

Final Exams: 18-29/5/2014

### **Student rights and responsibilities:**

Students are expected to be present for the various elective activities that will be noted by the clinical staff in the department.

Attendance is expected at the various clinical activities including morning ward rounds, operating room when assigned, afternoon rounds, conferences, and any activity specifically requested by the attending instructor.

Students are expected to be punctual for all of the various activities noted on the weekly schedule.

Failure to adhere to the schedule will result in undue delays and inconveniences to patients, students and faculty.

**Dress Code:** It is expected that students carry themselves in professional manner; this includes appropriate clothing while engaged in patient care. This also applies to the operating room where scrubs are needed.

### **Responsibilities of the Instructors:**

1. Treat all learners with respect and fairness.
2. Treat all learners equally regardless of age, gender, race, ethnicity, national origin, religion, disability, or sexual orientation.
3. Provide current materials in an effective format for learning.
4. Be on time for didactic, investigational, and clinical encounters.
5. Provide timely feedback with constructive suggestions and opportunities for improvement/remediation when needed.

### **Course Schedule:**

The group will be subdivided into four smaller groups rotating in four hospitals.

|               |   |   |   |   |
|---------------|---|---|---|---|
| PHH           | 1 | 2 | 3 | 4 |
| QAH           | 2 | 3 | 4 | 1 |
| Prince Hashem | 3 | 4 | 1 | 2 |
| Al-Bashir     | 4 | 1 | 2 | 3 |

Lectures will be presented twice weekly, on Sundays & Tuesdays 1300-1600hrs

|   | <b><u>Lecture</u></b>         | <b><u>Objectives</u></b>                                                        |
|---|-------------------------------|---------------------------------------------------------------------------------|
| 1 | <b>Embryology and Anatomy</b> | Demonstrate understanding of embryology and anatomy of:<br>- External genitalia |

|   |                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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|   |                                               | <ul style="list-style-type: none"> <li>- Vagina</li> <li>- Uterus</li> <li>- Fallopian tubes</li> <li>- Ovaries</li> <li>- Clinical presentation of transverse vaginal septum</li> <li>- Imperforate hymen (clinical picture and management)</li> </ul>                                                                                                                                                                                                                                                                                                                                  |
| 2 | <b>Normal and abnormal sexual development</b> | <p>Describe and recognize;</p> <ul style="list-style-type: none"> <li>- Stages of puberty</li> <li>- Disorders of sexual development</li> <li>- Precocious puberty (causes and management)</li> <li>- Ambiguous genitalia (investigations and management)</li> </ul>                                                                                                                                                                                                                                                                                                                     |
| 3 | <b>The normal menstrual cycle</b>             | <p>Demonstrate understanding of;</p> <ul style="list-style-type: none"> <li>- Characteristics</li> <li>- Proliferative phase/ Follicular phase</li> <li>- Ovulation</li> <li>- Secretary/ luteal phase</li> </ul> <p>Disorders of menstruation</p> <ul style="list-style-type: none"> <li>- Premenstrual syndrome (definition, etiology, diagnostic criteria, treatment)</li> <li>- Dysmenorrhea (definition, primary and secondary dysmenorrhea, diagnostic criteria, treatment)</li> <li>- Abnormal uterine bleeding</li> </ul> <p>Menorrhagia (definition, causes and management)</p> |
| 4 | <b>Amenorrhea (primary and secondary)</b>     | <p>Describe;</p> <ul style="list-style-type: none"> <li>- Definition</li> <li>- Etiology</li> <li>- History</li> <li>- Physical examination</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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|   |                                           | <ul style="list-style-type: none"> <li>- Investigations</li> <li>- Treatment</li> </ul>                                                                                                                                                                                                                                             |
| 5 | <b>Physiological changes in pregnancy</b> | <p>Demonstrate understanding of the normal physiological changes that occur in pregnancy including;</p> <p>Integumentary system</p> <p>Cardiovascular system</p> <p>Hematologic system</p> <p>Respiratory system</p> <p>Gastrointestinal system</p> <p>Genitourinary system</p> <p>Neurological system</p> <p>Endocrinal system</p> |
| 6 | <b>Disorders of early pregnancy</b>       | <p>Describe the following subjects;</p> <ul style="list-style-type: none"> <li>- Miscarriage (definition, types, causes and management)</li> <li>- Recurrent miscarriage (causes, investigations and management)</li> </ul>                                                                                                         |
| 7 | <b>Ectopic pregnancy</b>                  | <p>Demonstrate understanding of;</p> <ul style="list-style-type: none"> <li>- Definition</li> <li>- Epidemiology</li> <li>- Etiology</li> <li>- Risk factors</li> <li>- Differential diagnosis</li> <li>- Clinical features</li> <li>- Investigations</li> <li>- Treatment</li> <li>- Prognosis</li> </ul>                          |
| 8 | <b>Trophoblastic Diseases</b>             | <p>Describe the following items;</p> <ul style="list-style-type: none"> <li>- Epidemiology</li> <li>- Hydatidiform mole (complete mole, incomplete</li> </ul>                                                                                                                                                                       |



|    |                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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|    |                                  | <p>mole; risk factors, clinical features, investigations and treatment)</p> <ul style="list-style-type: none"> <li>- Malignant GTN (types, staging, follow-up, treatment)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 9  | <b>Contraception</b>             | <p>Demonstrate advanced knowledge of</p> <ul style="list-style-type: none"> <li>- Natural and barrier methods</li> <li>- IUCD (mechanism of action, absolute and relative C/I, side effects)</li> <li>- Oral contraceptives including combined pills and progesterone only pills (mechanism of action, health benefits, drug interactions, absolute and relative contraindications, treatment options, missed pills, side effects, types,</li> <li>- Emergency contraception</li> <li>- LARC long acting reversible contraception (IUCD, Depo-provera, implants)</li> <li>- Hormone releasing-IUS</li> <li>- Male and female sterilization</li> </ul> |
| 10 | <b>Subfertility</b>              | <p>Recognize the following items;</p> <ul style="list-style-type: none"> <li>- Approach to infertile couple</li> <li>- History</li> <li>- Physical examination</li> <li>- Etiology (ovulatory dysfunction, tubal factors, cervical factors, uterine factors, multiple factors, unknown factors) Treatment</li> </ul>                                                                                                                                                                                                                                                                                                                                  |
| 11 | <b>Gynaecological infections</b> | <p>Recognize the following aspects;</p> <ul style="list-style-type: none"> <li>- Physiological discharge</li> <li>- Noninfectious vulvovaginitis (pre-pubertal, postmenopausal)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

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|    |                                                                                            | <ul style="list-style-type: none"> <li>- Infectious vulvovaginitis (candidiasis, bacterial vaginosis, trichomoniasis)</li> <li>- Sexually transmitted diseases (Chlamydia, gonorrhea, genital warts, molluscum contagiosum, herpes simplex of the vulva, syphilis, chancroid, donovanosis, lymphogranuloma venereum)</li> </ul>                                                  |
| 12 | <b>P I D<br/>and chronic pelvic<br/>pain</b>                                               | <p>Recognize the following aspects;</p> <ul style="list-style-type: none"> <li>- Definition</li> <li>- Etiology</li> <li>- Risk factors</li> <li>- Clinical presentation</li> <li>- Investigations</li> <li>- Diagnosis</li> <li>- Treatment</li> <li>- Complications</li> </ul> <p>Differential Diagnosis of chronic pelvic pain, definition, investigations and management</p> |
| 13 | <b>Fetal development<br/>and growth<br/>&amp;<br/>Intra-uterine growth<br/>restriction</b> | <p>Describe the normal fetal development and growth</p> <p>Recognize the following aspects;</p> <ul style="list-style-type: none"> <li>- Symmetrical</li> <li>- Asymmetrical</li> <li>- Causes</li> <li>- Investigations</li> </ul> <p>Management</p>                                                                                                                            |
| 14 | <b>Menopause</b>                                                                           | <p>Describe the definition, etiology, clinical features, investigations, treatment, hormone replacement therapy</p> <p>Osteoporosis definition, risk factors, management</p>                                                                                                                                                                                                     |

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| 15 | <b>Perinatal infection</b>                                                             | Describe the clinical features, investigations and management of; <ul style="list-style-type: none"> <li>- Rubella</li> <li>- Toxoplasmosis</li> <li>- CMV</li> <li>- Chicken pox</li> <li>- Hepatitis</li> <li>- Herpes Simplex</li> </ul>                                                                                                                                                         |
| 16 | <b>Antenatal care and minor problems of pregnancy</b><br><b>Prepregnancy education</b> | Recognize antenatal care issues and minor problems of pregnancy including screening tests, frequency of visits                                                                                                                                                                                                                                                                                      |
| 17 | <b>Assessment of fetal well-being</b>                                                  | Describe the following items; <ul style="list-style-type: none"> <li>- CTG</li> <li>- Doppler ultrasound</li> <li>- Biophysical profile</li> <li>- prenatal diagnosis (amniocentesis, chorionic villus sampling, fetal blood sampling)</li> </ul>                                                                                                                                                   |
| 18 | <b>Medical diseases complicating pregnancy (1)</b>                                     | Describe the epidemiology, risk factors, clinical features, investigations, treatment, prophylaxis <ul style="list-style-type: none"> <li>- iron deficiency anemia</li> <li>- folate deficiency anemia</li> <li>- Hemoglobinopathies</li> <li>- Sickle cell syndrome</li> <li>- Thrombocytopenia</li> <li>- Respiratory infections</li> <li>- Bronchial asthma</li> <li>- Systemic lupus</li> </ul> |

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| 19 | <b>Medical diseases complicating pregnancy (2)</b>           | <ul style="list-style-type: none"> <li>- Endocrine disorders including hypo- and hyperthyroidism</li> <li>- Hyperemesis gravidarum</li> <li>- Heartburn</li> <li>- Cholestatic jaundice</li> <li>- Constipation</li> <li>- UTI and asymptomatic bacteruria</li> </ul> |
| 20 | <b>Thromboembolic and cardiac disease in pregnancy</b>       | Describe the epidemiology, risk factors, clinical features, investigations, treatment, prophylaxis                                                                                                                                                                    |
| 21 | <b>Diabetes in pregnancy</b>                                 | Recognize pertinent facts relating to the classification and definitions, etiology, epidemiology, risk factors, management during pregnancy, labor, postpartum, gestational DM, long term complications                                                               |
| 22 | <b>Pre-eclampsia and hypertensive disorders of pregnancy</b> | Describe the following items; classification, definitions, etiology, risk factors, management                                                                                                                                                                         |
| 23 | <b>Hirsutism</b>                                             | Definition, etiology, diagnostic criteria, treatment)<br>Polycystic Ovarian Syndrome (etiology, diagnosis, clinical features, investigations, treatment                                                                                                               |
| 24 | <b>Rhesus iso-immunization and non-immune hydrops</b>        | <ul style="list-style-type: none"> <li>- Causes of fetomaternal bleeding</li> <li>- Detection of affected babies</li> <li>- Management</li> </ul>                                                                                                                     |
| 25 | <b>Multiple gestations</b>                                   | <ul style="list-style-type: none"> <li>- Epidemiology</li> <li>- Types</li> <li>- Clinical features</li> <li>- Management and mode of delivery</li> <li>- Twin-twin transfusion syndrome</li> </ul>                                                                   |
| 26 | <b>Preterm labour</b>                                        | Definition, etiology, epidemiology, risk factors, clinical                                                                                                                                                                                                            |

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|    |                                                                                         | features, management, prognosis, prevention)<br>PROM (definition, etiology, epidemiology, risk factors, clinical features, management, prognosis, prevention)                                                                                                                                                                                                                                                                |
| 27 | <b>Post-term pregnancy</b>                                                              | <ul style="list-style-type: none"> <li>- Definition</li> <li>- Epidemiology</li> <li>- Etiology</li> <li>- Clinical features</li> <li>- Investigations</li> <li>- Treatment</li> </ul>                                                                                                                                                                                                                                       |
| 28 | <b>Antepartum haemorrhage</b>                                                           | <ul style="list-style-type: none"> <li>- placenta previa (definition, etiology, epidemiology, risk factors, clinical features, investigations, treatment)</li> <li>- Placental abruption (definition, etiology, epidemiology, risk factors, clinical features, investigations, treatment)</li> <li>- Vasa previa (definition, etiology, epidemiology, risk factors, clinical features, investigations, treatment)</li> </ul> |
| 29 | <b>Normal Labour</b>                                                                    | Definition, stages of labour, fetal movement chart, fetal monitoring in labour<br>Partogram, pain management in labour including epidural                                                                                                                                                                                                                                                                                    |
| 30 | <b>Induction on Labour including termination of pregnancy (TOP) for fetal anomalies</b> | Definition, prerequisites, indications, risks, contraindications, methods, complications<br>Ethical issues of TOP                                                                                                                                                                                                                                                                                                            |
| 31 | <b>Malposition and malpresentation</b>                                                  | Definition, epidemiology, risk factors, clinical features and management of; <ul style="list-style-type: none"> <li>- Abnormal presentation</li> <li>- Transverse lie</li> <li>- Breech</li> </ul>                                                                                                                                                                                                                           |

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|    |                                                                                  | <ul style="list-style-type: none"> <li>- O.P</li> <li>- Face</li> <li>- Brow</li> </ul>                                                                                                                                                                                        |
| 32 | <b>Operative Delivery</b>                                                        | <ul style="list-style-type: none"> <li>- C.S; epidemiology, indications, types, risks, complications during operation, early and late postoperative periods</li> <li>- Instrumental delivery including forceps and vacuum indications, prerequisites, complications</li> </ul> |
| 33 | <b>Postpartum haemorrhage (PPH) &amp; other complications of the third stage</b> | Definition, epidemiology, etiology, investigations, treatment                                                                                                                                                                                                                  |
| 34 | <b>Puerperium</b>                                                                | Definition, post-partum care, postpartum pyrexia, postpartum mood alterations                                                                                                                                                                                                  |
| 35 | <b>Maternal and perinatal mortality</b>                                          | <p>Maternal mortality (definition, causes and how to reduce it)</p> <ul style="list-style-type: none"> <li>- Perinatal mortality (definition, causes and how to reduce it)</li> </ul>                                                                                          |
| 36 | <b>Psychological aspects of obstetrics and gynaecology</b>                       | <ul style="list-style-type: none"> <li>- Normal sexual response</li> <li>- Sexual disorders</li> <li>- Psychological aspects of gynaecology</li> <li>- Causes and management of vaginismus, anorgasmia, impotence, premature ejaculation</li> </ul>                            |
| 37 | <b>Endometriosis and adenomyosis</b>                                             | <ul style="list-style-type: none"> <li>- Definition</li> <li>- Etiology</li> <li>- Risk factors</li> <li>- Sites of occurrence</li> <li>- Clinical features</li> <li>- Investigations</li> </ul>                                                                               |

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|    |                                                                      | - Treatment                                                                                                                                                                                                                            |
| 38 | <b>Uterovaginal prolapse</b>                                         | <ul style="list-style-type: none"> <li>- Definition</li> <li>- Etiology</li> <li>- Types (uterine, vault, cystocele, rectocele, enterocele)</li> <li>- Clinical presentation</li> <li>- Investigations</li> <li>- Treatment</li> </ul> |
| 39 | <b>Urogynaecology</b>                                                | <ul style="list-style-type: none"> <li>- Types of incontinence</li> <li>- Causes</li> <li>- Urodynamic studies</li> <li>- Treatment</li> </ul>                                                                                         |
| 40 | <b>Benign diseases of the uterus</b>                                 | <ul style="list-style-type: none"> <li>- Leiomyomata (definition, epidemiology, pathogenesis, clinical features, investigations, treatment)</li> </ul>                                                                                 |
| 41 | <b>Endometrial cancer and PMB</b>                                    | Epidemiology, risk factors, classification and types, clinical features, FIGO staging, investigations, spread, treatment)                                                                                                              |
| 42 | <b>Premalignant and malignant disease of cervix</b>                  | Benign cervical lesions<br>Epidemiology, risk factors,<br>Pap smear<br>classification and types, clinical features, FIGO staging, investigations, spread, treatment, screening                                                         |
| 43 | <b>Benign and malignant tumours of the ovary and fallopian tubes</b> | Epidemiology, risk factors, classification and types, clinical features, FIGO staging, investigations, spread, treatment                                                                                                               |
| 44 | <b>Conditions affecting vulva and vagina</b>                         | Benign vulvar lesions<br>Malignant vulvar lesions (Epidemiology, risk factors,                                                                                                                                                         |

|    |                                                                    |                                                                                                                                |
|----|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
|    |                                                                    | classification and types, clinical features, FIGO staging, investigations, spread, treatment)                                  |
| 45 | <b>Operative procedures in gynaecology And consenting patients</b> | Procedure, indications and possible complications of D&C<br>ERPC, suction evacuation<br>Laparoscopy<br>Laparotomy<br>TAH+/-BSO |
|    | <b><u>Total number of lectures</u></b>                             | <b><i>45 lectures in 8 weeks</i></b>                                                                                           |

This will be followed by OSCE exam on the last Thursday in the 8<sup>th</sup> week.



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### **Course information**

|               |                 |
|---------------|-----------------|
| Course title  | Ophthalmology 1 |
| Course number | 111502503       |
| Credit hours  | 2.25            |

### **Course description:**

This is a short course covering the common Ophthalmic diseases and the serious ones that any general practitioner will be exposed to. Through the course there would be both lectures covering the theoretical part and clinics to cover the practical part.

There will be coverage for both the basic and clinical sciences that are of particular interest.

The interaction will be multidisciplinary between lecturer, students, and patients.

### **Learning outcomes:**

- 1- To be able to take appropriate case history with emphasis on ophthalmic pathologies and its symptomatology.
- 2- To be alerted to serious vision-threatening problems based on history.
- 3- To conduct a focused eye exam with emphasis on the following techniques:
  - a- Visual acuity (including use of pinhole).
  - b- Confrontation visual fields
  - c- External inspection of ocular adnexae
  - d- Pupillary examination including direct, consensual and swinging-light test
  - e- Pen-light exam of anterior segment.
  - f- Extraocular muscle motility and ocular alignment.
  - g- Direct ophthalmoscopy.
- 4- To be able to formulate a list of differential diagnosis and plan of management and timely referral to more specialized ophthalmic service.

### **Instructional methods:**

- Lectures.
- Seminars.
- Clinics.
- Operative room.
- Case discussion.

### **Text book and material:**

The Hashemite University

- 1- Lecture notes on Ophthalmology by Bruce James , Chris Chew and Anthony Bron. 10<sup>th</sup> edition. Blackwell science .
- 2- Clinical ophthalmology by Kanski , 6<sup>th</sup> edition. Butterworth-Heinman company

### **Grading Policy:**

Grades can be based on the following:

In-course evaluation = 20%

Final clinical exam = 30%

Final written exam = 50%

Total mark=100%

### **Course Policies:**

- **Late Assignments:** Students are expected to present their assignment on scheduled time, if not, a new date is given to the student to present his seminar. Late assignment will affect the grade by 5 points unless there is an excuse.
- **Missed exams:** Make up exam will be held to students who missed their exam when they have an excuse accepted by the department.
- **Absence :** Ophthalmology rotation is 10 working days, absence by 2 or more days requires repeating the rotation.
- **Cheating :** Cheating is extremely prohibited and will be dealt with according to university policies.

### **Classroom Protocol:**

Students are expected to arrive at 8:00 AM.

Attendance is taken each day.

Students are expected to respect other students and instructors.

Participation is graded according to presenting seminars, attending daily activities, good behavior, patient care, medical knowledge, communication skills, and professionalism.

### **Important Dates to Remember:**

Final exam will be set by department of surgery

End of rotation exam will be on Thursday in the second week of each rotation

### **Student rights and responsibilities:**

- Group coordinator should contact course instructor before starting the rotation to assure that students are aware of the rotation instructions and contents.
- The students' major group will be split into two subgroups.
- Students are not allowed to attend the clinic without a white coat and a penlight.
- Each student should bring his/her surgical scrub to be used during OR sessions.
- Students should distribute the seminars between them before starting their rotation: one student for each seminar. Seminars 3 and 5 may take two students.

- Total allocated time for the seminar is 2 hours. Seminar should be presented by the assigned student aided by powerpoint slides. Emphasis should be on incorporating lots of figures and images. Number of slides should be just enough to cover one-hour presentation leaving enough time for discussion.
- The OSCE exam is held on the last day of the rotation (day 10).

### Course Schedule :

| No. | Title                                                                  | Objectives                                                                                                                                                                                                                                                                                                                                          |
|-----|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Ocular anatomy and physiology( <b>Handout</b> )                        | <ul style="list-style-type: none"> <li>• Surface ocular anatomy</li> <li>• Details of layers of the globe and its structure.</li> <li>• Physiologic mechanism of vision and ocular function</li> </ul>                                                                                                                                              |
| 2   | History and examination in ophthalmology ( <b>presented by staff</b> ) | <ul style="list-style-type: none"> <li>• History taking for ophthalmic diseases.</li> <li>• Eye examination: external and pen-light exam.</li> <li>• Perform specific essential techniques such as funduscopy, pupillary examination, motility assessment and visual field assessment</li> </ul>                                                    |
| 3   | Refractive errors                                                      | <ul style="list-style-type: none"> <li>• Physics of refractive errors</li> <li>• Different states of refractive errors and management</li> <li>• Overview of refractive surgery</li> <li>• Special cases including keratoconus and aphakia</li> </ul>                                                                                               |
| 3   | Red eye                                                                | <p>To know symptoms, signs and management of the following diseases:</p> <ol style="list-style-type: none"> <li>1. Keratitis</li> <li>2. Uveitis</li> <li>3. Angle-closure glaucoma</li> <li>4. Scleritis/Episcleritis</li> <li>5. Infectious conjunctivitis</li> <li>6. Allergic conjunctivitis</li> <li>7. Subconjunctival hemorrhages</li> </ol> |
| 4   | Acute visual loss                                                      | <p>To know symptoms, signs and management of the following diseases:</p> <ol style="list-style-type: none"> <li>1. Central retinal vein occlusion</li> <li>2. Central retinal artery occlusion</li> <li>3. Retinal detachment</li> </ol>                                                                                                            |

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| 5 | Chronic visual loss                  | To know symptoms, signs and management of the following diseases:<br>1. Cataract<br>2. Glaucomas<br>3. Age related macular degeneration<br>4. Diabetic macular edema<br>5. Retinal dystrophies and degenerations |
| 6 | Ocular trauma                        | <ul style="list-style-type: none"> <li>Mechanism of ocular trauma</li> <li>Intervention</li> <li>Visual prognosis</li> </ul>                                                                                     |
| 7 | Selected neurophthalmic topics       | To know symptoms, signs and management of the following diseases:<br>1. Pupillary disorders<br>2. Cranial nerves: III, IV and VI palsies.<br>3. Ischemic optic neuropathies<br>4. Optic neuritis                 |
| 8 | Eye involvement in Systemic Diseases | <ul style="list-style-type: none"> <li>Emphasis will be on:</li> <li>1. Hypertensive retinopathy</li> <li>2. Diabetic retinopathy</li> <li>3. Blood disorders</li> <li>4. Thyroid Ophthalmopathy</li> </ul>      |
| 9 | Pediatric Ophthalmology topics       | <ul style="list-style-type: none"> <li>Discussion should focus on:</li> <li>1. Congenital cataract</li> <li>2. Congenital glaucomas</li> <li>3. Strabismus</li> </ul>                                            |

### Daily schedule of Ophthalmology rotation for Fifth year students:

|       | Subgroup 1  | Subgroup 2  | Seminar                                                      |
|-------|-------------|-------------|--------------------------------------------------------------|
| Day 1 | Clinic (AM) | OR (AM)     | <b><u>2:00 PM</u></b> Introduction to clinical ophthalmology |
| Day 2 | Clinic (AM) | OR (AM)     | <b><u>2:00 PM</u></b> Refractive errors                      |
| Day 3 | Clinic (AM) | OR          | <b><u>9:00 AM</u></b> Red eye                                |
| Day 4 | Clinic (AM) | Clinic (AM) | <b><u>9:00 AM</u></b> Pediatric Ophthalmology by             |

|              |                 |             |                                  |
|--------------|-----------------|-------------|----------------------------------|
| <b>Day5</b>  | Ward            | Ward        | <u>Chronic</u> Vision Loss       |
| <b>Day6</b>  | Clinic (AM)     | Clinic (AM) | Oculrtrauma                      |
| <b>Day7</b>  | OR (AM)         | Clinic (AM) | <u>Acute</u> Vision Loss         |
| <b>Day8</b>  | OR              | Clinic (AM) | Eyes in Systemic Disease         |
| <b>Day9</b>  | Clinic (AM)     | Clinic (PM) | <u>Neuroph</u> thalmology topics |
| <b>Day10</b> | OSCE Exam (30%) |             |                                  |

**AM:** morning session starting at 8:00 AM , **PM:** afternoon session starting at 12:30 PM , **OR:** Day case.

### **Course information**

|               |                    |
|---------------|--------------------|
| Course title  | Orthopedic surgery |
| Course number | 0111502501         |
| Credit hours  | 4.5 hours          |

### **Course description:**

Orthopedic rotation in our faculty is a 4 weeks rotation during which the students are divided into 2 groups to attend different clinical teaching modalities (clinical rounds, emergency and outpatient clinics) that are planned in advance on daily basis. Beside the clinical teaching sessions there is also morning and evening seminars that should be attended by both groups under the supervision of one of the academic teaching staff or clinical instructors from the ministry of health that are assigned by the faculty for this purpose. Each seminar should be prepared and presented by 1 or 2 students according to the topics proposed in this syllabus. During the clinical teaching sessions either in clinic or bedside teaching every student should learn how to take history and perform a proper musculoskeletal physical examination, as well as constructing a comprehensive differential diagnosis and developing the required skills in planning a treatment strategy. This can be achieved by taking one or two histories by each student and discussing it with the clinical instructor.

At the end of each rotation there will be an OSCE exam with 3 stations, long case, short case and x-ray case.

### **TEACHING METHODS:**

- Daily morning Seminar at 8:15 am for one hour
- Daily evening Seminar at 1 or 2 pm for one hour
- Clinical teaching consists of outpatient clinics, clinical rounds or emergency room.
- Students are divided into groups and are expected to be in one of the following activities:
  - Outpatient clinics
  - Clinical rounds and physical examination sessions
  - Emergency room under the supervision of the ER senior resident

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### **Learning outcomes:**

At the end of the rotation, each student is expected to:

- 1- HAVE THE BASIC SKILLS CONCERNING THE HISTORY TAKING AND PHYSICAL EXAMINATION OF AN ORTHOPAEDIC PATIENT.
- 2- KNOW HOW TO DEAL WITH MULTITRAUMA PATIENT.
- 3- UNDERSTAND THE BIOLOGY OF BONE AND BONE METABOLISM INCLUDING THE FRACTURE HEALING PROCESS, AND DISORDERS AFFECTING THE BONE METABOLISM
- 4- BE ABLE TO DEAL WITH COMMON FRACTURES (DIAGNOSIS, CLASSIFICATION, TREATMENT AND SIMPLE REDUCTION MANEUVERS) IN ADULTS AND PAEDIATRICS
- 5- UNDERSTAND THE BASICS OF CONSERVATIVE MANAGEMENT OF FRACTURES (CAST, PLASTER OF PARIS, TRACTION, STRAPPING ...etc)
- 6- DIAGNOSE THE COMMON ORTHOPAEDIC PROBLEMS IN ADULTS AND PAEDIATRIC AGE GROUPS, INCLUDING THE BASIC TREATMENT METHODS.
- 7- BE ABLE TO DIAGNOSE AND TREAT OSTEOMYELITIS AND SEPTIC ARTHRITIS
- 8- DEAL WITH COMMON ORTHOPAEDIC EMERGENCIES.
- 9- READ X-RAYS.

### **Instructional methods:**

Each activity will be supervised by a clinical instructor (as mentioned in the daily activity program) and the students' attendance will be recorded daily in all activities

### **Text book and material:**

- 1- APLEY'S SYSTEM OF ORTHOPAEDICS AND FRACTURES
- 2- McRae CLINICAL ORTHOPAEDIC EXAMINATION

### **Grading Policy:**

Grades will be divided as following:

End rotation exam: 30 %

Assignments/Class attendance/participation: 20 %

Final written exam: 50 %

Total Points 100

### Course Policies:

- **Late Assignments:** Students are expected to present their seminars on scheduled time, if not, a new date is given to the student to present his seminar (within 1 week). Late assignment will affect the grade by 5 points unless there is an excuse.
- **Missed exams:** Make up exam will be held to students who missed their exam when they have an excuse accepted by the department (within 2 weeks)
- **Absence :** Orthopedic rotation is 20 working days, absence by 2 means 10 % of days and mandates a warning letter, if more than 15 % , then the university rules will be applied ( course repetition is mandatory ), each absence will affect the evaluation by 2 points.
- **Cheating:** Cheating is extremely prohibited and will be dealt with according to university policies

### Classroom Protocol:

Students are expected to arrive at 8:00 AM.

Attendance is taken each day at 8:15, after that, absence will be recorded

Students are expected to respect other students and instructors as well as patients and nurses

Students are expected to respect the privacy of patients

Noisy behavior will not be accepted and this will affect the evaluation

Participation is graded according to presenting seminars, attending daily activities, good behavior, patient care, medical knowledge, communication skills.

### Student rights and responsibilities:

Students have the right to talk to patients, examine them and discuss with them their disease

**but they are not allowed to criticize the proposed management plan in front of patients or criticize other colleagues.**

Students have the right to ask about patients medical conditions and to see their medical records under the supervision of the clinical instructor

Students are allowed to participate in simple orthopedic procedures (ex: Cast, P.O.P, wound dressings)

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### **Course Schedule:**

#### **TOPICS:**

- 1- ORTHOPAEDIC HISTORY, PHYSICAL EXAMINATION, DIAGNOSTIC IMAGING AND TOOLS
- 2- BONE METABOLISM AND HISTOLOGY, METABOLIC BONE DISORDERS
- 3- PRINCIPLES OF FRACTURES, FRACTURE HEALING, GUIDELINES OF FRACTURE TREATMENT
- 4- COMPLICATIONS OF FRACTURES AND MAJOR TRAUMA
- 5- INJURIES OF UPPER LIMB (JOINTS+LONG BONE FRACTURES) (2 SEMINARS)
- 6- INJURIES OF LOWER LIMB, PELVIS AND ACETABULUM (JOINTS+LONG BONE FRACTURES) (2 SEMINARS)
- 7- PRINCIPLES OF PAEDIATRIC FRACTURES AND GROWTH PLATE INJURIES
- 8- OSTEOMYELITIS AND SEPTIC ARTHRITIS
- 9- PAEDIATRIC HIP DISORDERS (DDH, PERTHE'S DISEASE, SLIPPED CAPITAL FEMORAL EPIPHYSIS)
- 10- PAEDIATRIC FOOT DISORDERS
- 11- ANKLE AND FOOT DISORDERS
- 12- GAIT (NORMAL AND DISORDERS)
- 13- DISORDERS OF SHOULDER JOINT, ELBOW AND WRIST JOINT
- 14- DISORDERS AND INFECTION OF HAND
- 15- PERIPHERAL NERVE INJURIES AND ENTRAPMENT SYNDROMES
- 16- OSTEONECROSIS AND RELATED DISORDERS, OSTEOARTHRITIS
- 17- CRYSTAL DEPOSITION DISORDERS, RHEUMATIC DISORDERS
- 18- INJURIES OF SPINE
- 19- SPINAL DEFORMITIES AND DISORDERS

### **Course information**

|               |                |
|---------------|----------------|
| Course title  | Otolaryngology |
| Course number | 0111502502     |
| Credit hours  | 2.25           |

### **Course description:**

This is an introductory two weeks clinical rotation offered to fifth year medical students. During the rotation: common diseases of the ear, nose, oral cavity, pharynx, and larynx are emphasized. Students see patients in the clinic with the attending staff and gain preliminary experience in performing otoscopic examination of the ears, examination of the nose, oral cavity, pharynx, larynx, and neck. Students will be familiar with the diagnosis and management of the common presenting problems in otolaryngology cases. Skills necessary to take relevant medical history and examination are well emphasized.

### **Learning outcomes:**

By the end of this course, students are expected to:

1. Take proper history and perform physical examination for Otolaryngology common cases.
2. Know the investigation of patients with Otolaryngology disorders.
3. Diagnose and treat emergency situation of Otolaryngology.
4. Know a wide spectrum of Otolaryngology diseases
5. Be able to recognize complaints or disease patterns that require referral to specialist care

### **Instructional methods:**

- Morning report.
- Seminars.
- Outpatient clinics

### **Text book and material:**

For the rounds-

- Lecture Notes on the diseases of the ear, nose and throat.  
Oxford Handbook of ENT head and neck surgery
- Otolaryngology and Head and Neck Surgery (Oxford Specialist Handbooks in Surgery)

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Textbooks: Current or Essentials in otolaryngology

### **Grading Policy**

- In-course evaluation = 20%
- End rotation clinical exam. = 30%
- Final written exam. = 50%

### **Course Policies:**

- **Late Assignment:** Students are expected to present their assignment on scheduled time, if not, a new date is given to the student to present his seminar. Late assignment will affect the grade by 5 points unless there is an acceptable excuse.
- **Missed exams:** Make up exam will be held to students who missed their exam when they have an excuse accepted by the department as per Faculty of Medicine and University policy described in students manual.
- **Absence :** ENT rotation is 10 working days. Absence by 2 or more days requires repeating the rotation. As per Faculty of Medicine and University policy described in students manual.
- **Cheating :** Cheating is extremely prohibited and will be dealt with according to university policies.

### **Class room Protocol:**

Students are expected to arrive at 8:00 AM.

Attendance is taken each day.

Students are expected to respect other students and instructors.

Participation is graded according to presenting seminars, attending daily activities, good behavior, patient care, medical knowledge, communication skills, and professionalism.

### **Important Dates to Remember:**

Final exam will be set by department of surgery

End of rotation exam will be on Thursday in the second week of each rotation

### **Student rights and responsibilities:**

All students' rights presented by the university will be respected during ENT course

### Course Schedule:

| <u>DAY</u><br><u>WEEK 01</u>    | <u>8:00 am-9:00 am</u>                                      | <u>9:00 am-9:30 am</u>                                      | <u>10:00 am-12:30 am</u> | <u>1:00 pm-3:00 pm</u>                             |
|---------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|--------------------------|----------------------------------------------------|
| <u>SUNDAY</u>                   | <u>Introduction to ENT(historytaking and physical exam)</u> | <u>Introduction to ENT(historytaking and physical exam)</u> | <u>Practice session</u>  | <u>Practice session</u>                            |
| <u>Monday</u><br><u>wk01</u>    | <u>nasal obstruction</u>                                    | <u>Epistaxis and facial trauma</u>                          | <u>clinic</u>            | <u>Clinic or ER room training at the 3ed floor</u> |
| <u>Tuesday</u><br><u>wk01</u>   | <u>Otitis media and its complications</u>                   | <u>Clinic</u>                                               | <u>clinic</u>            | <u>Otalgia and otitis externa</u>                  |
| <u>Wednesday</u><br><u>wk01</u> | <u>Sore throat and adenotonsillar diseases</u>              | <u>clinic</u>                                               | <u>clinic</u>            | <u>Neck masses</u>                                 |
| <u>Thursday</u><br><u>wk01</u>  | <u>Vertigo and nystagmus</u>                                | <u>Hearing loss</u>                                         | <u>Practice session</u>  | <u>Practice session</u>                            |
| <u>Sunday</u><br><u>wk02</u>    | <u>Forign bodies of ear,nose,and aerodigestive tract</u>    | <u>Acute and chronic rhinosinusitis</u>                     | <u>Practice session</u>  | <u>Pharyngeal tumours</u>                          |
| <u>Monday</u><br><u>wk02</u>    | <u>Hoarsness of voice,andbenign laryngeal conditions</u>    | <u>Laryngeal cancer</u>                                     | <u>clinic</u>            | <u>Clinic or ER room training</u>                  |
| <u>Tuesday</u><br><u>wk02</u>   | <u>Stridor</u>                                              | <u>Clinic</u>                                               | <u>Clinic</u>            | <u>Acute upper airway management</u>               |
| <u>Wednesday</u><br><u>wk02</u> | <u>Deep neck space infection</u>                            | <u>Clinic</u>                                               | <u>Clinic</u>            | <u>Acute Facial palsy</u>                          |
| <u>Thursday</u><br><u>wk02</u>  | <u>End rotation exam</u>                                    |                                                             |                          |                                                    |
|                                 |                                                             |                                                             |                          |                                                    |

### **Course information**

|               |            |
|---------------|------------|
| Course title  | PEDIATRICS |
| Course number | 111504501  |
| Credit hours  | 9 CREDITS  |

### **Course description:**

This course introduces general pediatric principles to the 5th year medical students where students will have exposure to many common pediatric problems; this goal will be met through lectures, tutorials and clinical bed side teaching

### **Learning outcomes:**

Upon completion of the course, students should be able to:

1. Recognize normal growth and development in children
2. Acquire essential knowledge about common pediatric diseases affecting various organ systems
3. Obtain detailed and proper clinical history
4. Conduct proper clinical examination
5. Identify physical signs of common pediatric illnesses
6. Generate a problem list and differential diagnosis for common pediatric problems
7. Interpretation of common investigations performed for pediatric patients
8. Build up proper communication skills colleagues, patients, and staff members
9. Respect patients' rights regarding privacy and confidentiality

### **Instructional methods:**

1. Supervised direct interaction with the patients
2. Bedside clinical teaching by faculty staff
3. Lectures
4. Tutorials

### **Text book and material:**

- Nelson textbook of pediatrics
- Forfar textbook of pediatrics
- Nelson Essential of pediatrics.

### **Grading Policy:**

- In-course evaluation = 20%
  - End of rotation clinical exam = 35%
  - Final Written Exam = 45%
- Total Points 100



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### **Course Policies:**

- ❓ **Late Assignments:** Students are expected to present the assigned task as case presentation or seminars on scheduled time, if not, the course director will assign new date within the 2 weeks rotation in the hospital. Late assignment without accepted excuse will affect the evaluation.
  
- ❓ **Missed exams:** Students missed their end of rotation clinical examination with acceptable excuse provided within 72 hours can reset for the exam, the date will be determined by the course instructor, if no excuse provided within 72 hours or if the excuse was not accepted, then the student score for that exam will be zero.  
If the student missed final exam with acceptable excuse provided within 72 hours, then he can reset for the exam not later than one week prior to starting new semester, if no excuse provided within 72 hours or the excuse was not accepted then his score for the exam will be zero.
  
- ❓ **Absence:**
  1. Absence of any educational activity without acceptable excuse in any day of the rotation will be considered as one whole day absence.
  2. Absence of more than 10% of rotation days (i.e absence for more than 4 days) without accepted excuse, the student will be forbidden from setting to all following pediatric exams for the year including makeup examination
  
- ❓ **Cheating :** Cheating is extremely prohibited, in case it occurred, then the Hashemite university policy will be applied

### **Classroom Protocol:**

1. Students are expected to arrive on time for the scheduled activity as morning report, lecture or seminar or clinical round,.
2. Students should show respectful attention during the educational activity, no mobile phones and no side talks.
3. Students should respect each other, patients, nurses and physicians
4. Students are expected to respect the privacy and confidentiality of patients' information
5. Students are expected to comply with the faculty dress code policy during their clinical training in the hospitals
6. Participation is graded according to interaction during teaching tutorials and clinical rounds, completion of assigned tasks, attending educational activity, punctuality and communication skills.

### **Students rights and responsibilities:**

Students have the right to have direct interaction with the patients to obtain history and perform clinical examinations, to review the medical files including investigations results and radiological tests done but not to disclose results and information to patients

Students should be responsible to respect and protect patients' privacy and confidentiality

### **Course Schedule :**

1. Total of 8 weeks rotation in pediatrics distributed over 4 hospitals (Prince Hamzah hospital, Queen Alia hospital, Prince Hashim hospital and Zarqa ministry of health hospital)
2. Students attend morning reports 8-9 AM, then will attend morning clinical rounds with faculty staff.
3. Students will have direct interaction with patients to obtain history and perform physical examination
4. Clinical tutorial in form of case presentation , topic discussion will be held by assigned faculty staff daily
5. Lectures covering major pediatric topic

|                   | Lecture               | Objectives                                                                                                                                                                                                                                                 |
|-------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>NEPHROLOGY</b> |                       |                                                                                                                                                                                                                                                            |
| 1                 | UTI                   | Define UTI<br>List causes of UTI<br>Identify the clinical manifestations of UTI<br>Suggest a diagnostic approach to patients with UTI<br>Outline the principles of management of UTI                                                                       |
| 2                 | NEPHROTIC SYNDROME    | Define NS<br>List causes of NS<br>Suggest a diagnostic approach to patients with NS<br>Identify the indications and role of renal biopsy in the management of NS<br>List the complications of NS<br>Outline the treatment of NS                            |
| 3                 | 1. GLOMERULONEPHRITIS | Define GN<br>List causes of GN<br>Identify the clinical manifestations of GN<br>Suggest a diagnostic approach to patients with GN<br>List the indications for renal biopsy and identify common histological patterns of GN<br>Outline the management of GN |

|           |                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4         | 2. ACUTE RENAL FAILURE                                      | <p>Define ARF</p> <p>List major causes of ARF</p> <p>Discuss how to assess renal function using creatinine clearance and radiological/ultrasonographic studies</p> <p>List the indications for renal biopsy</p> <p>Discuss briefly lines of management for ARF</p>                                                                                                                                                                                                              |
| 5         | 3. RICKETS                                                  | <p>Describe etiopathogenesis of rickets</p> <p>describe clinical features of rickets</p> <p>Interpret the biochemical and radiological findings.</p> <p>Suggest a diagnostic approach to patients with rickets</p> <p>Suggest relevant investigations for diagnosis</p> <p>Outline differential diagnosis and management of nutritional and the other forms of rickets</p>                                                                                                      |
| <b>GI</b> |                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 6         | GER/GASTRITIS                                               | <p>Review the anatomy and physiology of the esophagus</p> <p>List common esophageal diseases Describe the pathogenesis of gastroesophageal reflux disease (GERD)</p> <p>Identify the clinical manifestations of GERD</p> <p>Identify the complications of GERD</p> <p>Outline the management of GERD</p>                                                                                                                                                                        |
| 7         | MALABSORPTION CELIAC+ CYSTIC FIBROSIS+ CHRONIC DIARRHEA/IBD | <p>Background</p> <p>Pathophysiology including the genetic and acquired form</p> <p>the disorder including fat, protein, carbohydrate, electrolytes and vitamins</p> <p>Identify the clinical manifestations the different forms of disorder</p> <p>Identify laboratory investigations use for diagnosing the disorder</p> <p>Identify the complications of disorder</p> <p>Outline the management of disorder including the public health measures to prevent the disorder</p> |
| 8         | NEONATAL CHOLESTASIS                                        | <p>Definition</p> <p>Stages of evaluation</p> <p>Identify the clinical manifestation</p> <p>Imaging studies (ultrasonography, scintigraphy)</p> <p>Additional tests (ERCP, MRCP, liver biopsy)</p>                                                                                                                                                                                                                                                                              |

|                    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9                  | VIRAL HEPATITIS                                                                 | <p>Outline the epidemiology of viral hepatitis</p> <p>Classify viral hepatitis</p> <p>Describe the clinical manifestations of acute viral hepatitis</p> <p>Interpret serologic tests to accurately diagnose the specific cause of acute hepatitis</p> <p>Identify complications of acute hepatitis</p> <p>Outline the treatment for viral hepatitis</p>                                                                                                                                                                                                                                                                                 |
| 10                 | METABOLIC LIVER DISEASE (willson's disease, Alpha-1 antitrypsin deficiency)     | <p>Outline the different forms of metabolic liver diseases</p> <p>Identify clinical manifestation of different forms</p> <p>Suggest relevant investigations for diagnosis</p> <p>Outline principles of management for each</p>                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>NEONATOLOGY</b> |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 11                 | PREMATURITY AND ITS COMPLICATION                                                | <p>Define the live birth, neonatal period,</p> <p>Review the care of the normal newborn in the first week of life.</p> <p>Classify the live birth according to weight and gestational age (LBW, SGA, and LGA)</p> <p>Describe risk factors and complications</p>                                                                                                                                                                                                                                                                                                                                                                        |
| 12                 | RESPIRATORY DISORDERS OF THE NEWBORN, ASPHYXIA & RESPIRATORY DISTRESS SYNDROME  | <p>Define neonatal asphyxia.</p> <p>Outline the causes of newborn asphyxia</p> <p>Describe the clinical features of asphyxia</p> <p>Suggest diagnostic approach to patient with asphyxia</p> <p>Discuss the complication of asphyxia</p> <p>Outline the principles of management and prevention</p> <p>Define respiratory distress syndrome</p> <p>Identify the role of surfactant in different respiratory disease and in improving lung physiology</p> <p>Identify signs of RDS</p> <p>Provide differential diagnosis of RDS</p> <p>Outline Supportive and specific management of respiratory distress in neonates and pneumonias</p> |
| 13                 | NEONATAL HYPERBILIRUBINEMIA (breast feeding jaundice, physiological, hemolysis) | <p>Classify neonatal hyperbilirubinemia (direct and indirect)</p> <p>Review the pathophysiology of neonatal hyperbilirubinemia</p> <p>Define physiological jaundice</p> <p>List relevant laboratory tests for diagnosis of</p>                                                                                                                                                                                                                                                                                                                                                                                                          |

|                  |                                 |                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                  |                                 | different type of jaundice with emphasis on ABO/Rh and minor group incompatibility<br>Outline the management steps of neonatal hyperbilirubinemia and its complication                                                                                                                                                                                                                                  |
| 14               | NEONATAL SEPSIS                 | Define neonatal infection, sepsis and congenital infection<br>Outline the aetiology of each<br>Identify clinical manifestations of each<br>List relevant laboratory tests for diagnosis, for each<br>Outline principles of management for each                                                                                                                                                          |
| <b>PULMONARY</b> |                                 |                                                                                                                                                                                                                                                                                                                                                                                                         |
| 15               | BRONCHIAL ASTHMA                | Define bronchial asthma<br>Classify asthma and list triggering factors of asthma<br>Describe clinical features of asthma with emphasis on markers of severity<br>Outline the different kind of investigations used to diagnose asthma<br>Outline the stepwise approach to management of asthma based on established international guidelines                                                            |
| 16               | PNEUMONIA AND ITS COMPLICATIONS | Define pneumonia and bronchiolitis<br>Outline the epidemiology of pneumonia and possible etiologies in different age group<br>Describe the clinical and radiological features of pneumonia and bronchiolitis<br>Differentiate between upper and lower respiratory tract infection<br>Outline the general role of management for lower respiratory tract infection according to the age and presentation |
| 17               | TUBERCULOSIS                    | Outline the epidemiology of TB<br>Describe the pathogenesis of TB<br>Discuss the risk factors of disease<br>Identify the clinical manifestations of the different forms of TB including the pulmonary and extrapulmonary<br>Suggest appropriate investigations including x-rays, PPD and serological test<br>Outline the treatment and prophylactic measures for the disease                            |



|                  |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 18               | URTI(CROUP,EPIGLOTTITIS<br>BRONCHIOLITIS,TRACHEATIS) | Define URTI<br>Outline the epidemiology of URTI and possible etiology in different age group<br>Describe the clinical feature of URTI Outline the general role of management for URTI according to the age and presentation                                                                                                                                                                                                                                                                                                                                 |
| <b>Endocrine</b> |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 19               | THYROID AND PARATHYROID<br>DISORDERS                 | Review important points in the anatomy and physiology of the thyroid gland<br>Describe common thyroid diseases causing thyrotoxicosis or hypothyroidism<br>Describe the clinical manifestations of common thyroid diseases<br>Outline the management of common thyroid diseases<br>Review anatomy and physiology of parathyroid gland.<br>Identify parathyroid gland disorders and its effect on body calcium<br>Discuss aetiology, clinical features and diagnostic procedures of hypo and hyperparathyroidism<br>Outline the principle management of each |
| 20               | DM AND DKA                                           | Define DM<br>Classify DM<br>Describe clinical manifestations of DM<br>Describe investigation methods used to diagnose DM<br>Identify complications of DM including DKA<br>Outline the management of DM including DKA                                                                                                                                                                                                                                                                                                                                        |
| 21               | ADRENOGENITALDISORDERS/<br>AMBIGOUSGENITALIA         | Define adrenogenital syndrome<br>Review anatomy and physiology of adrenal gland<br>Identify causes of adrenogenital syndrome<br>Discuss major clinical manifestations of adrenogenital syndrome in males and females<br>Outline relevant laboratory and radiological investigations for diagnosis adrenogenital syndrome.<br>Outline the principle management of adrenogenitalsyndrome                                                                                                                                                                      |



|                   |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 22                | PUBERTY DISORDERS, DELAYED AND PRECOCIOUS                         | <p>What is puberty</p> <p>Onset of puberty</p> <p>Puboarche</p> <p>Gonadoarche</p> <p>Signs of puberty</p> <p>Discuss major clinical manifestation of delayed and precocious puberty</p>                                                                                                                                                                                                                                          |
| <b>NEUROLOGY</b>  |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 23                | SEIZURES DISORDERS INCLUDING NEONATAL SEIZURES, FEBRILE, EPILEPSY | <p>Define seizure</p> <p>List the types and causes of seizure disorders</p> <p>Describe the presentation and clinical manifestations of seizure disorders in different age groups</p> <p>Suggest a diagnostic approach to patients with seizure disorders</p> <p>Outline the principle of treatment of seizure disorders</p>                                                                                                      |
| 24                | UPPER AND LOWER MOTOR NEURON DISORDERS                            | <p>Definition</p> <p>Etiology</p> <p>Basic features of upper motor neuron &amp; lower motor neuron lesion including <u>hereditary spastic paraparesis (HSP)</u></p> <p>Sclerosis, Progressive bulbar palsy (PBP), including hereditary forms, <u>spinal muscular atrophy (SMA)</u> and X-linked spinobulbar muscular atrophy</p> <p>Differential diagnosis</p> <p>Prognosis</p>                                                   |
| 25                | METABOLIC STORAGE DISEASE AND NEURODEGENERATIVE DISORDERS         | <p>Discuss the background of disorders</p> <p>Describe the etiopathogenesis of disorder</p> <p>List the different forms of disorders</p> <p>Identify the clinical features of the different forms of disorders including <b>Gaucher disease, leukodystrophy</b>, Tay-Sachs disease, Lysosomal storage diseases, Rett syndrome</p> <p>Investigation and workup needed including genetic and 6.MMR for diagnosing the disorders</p> |
| <b>HEMATOLOGY</b> |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 26                | HEMOLYTIC ANEMIAS                                                 | <p>define hemolytic anemia</p> <p>Identify the types of hemolytic anaemia</p> <p>Discuss clinical manifestation and diagnostic tests for common hemolytic anemia</p> <p>Discuss the line of treatment for each type</p>                                                                                                                                                                                                           |



|                                |                             |                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 27                             | LEUKEMIA/LYMPHOMA           | <p>Define acute leukemia</p> <p>Identify the clinical manifestations of acute Leukemia</p> <p>Suggest appropriate investigations for Leukemia &amp; lymphoma with emphasis on histopathological, immunological and cytogenetics classification</p> <p>Identify the prognostic criteria of leukemia</p> <p>Outline the principle management of Leukemia</p>  |
| 28                             | COAGULATION DISORDERS       | <p>Discuss the mechanisms of homeostasis</p> <p>Provide a diagnostic approach for bleeding disorder</p> <p>List major clinical examples of coagulation defect</p> <p>Outline the principles of management of coagulation defect</p>                                                                                                                         |
| 29                             | PLATELETS DISORDERS         | <p>Discuss causes of thrombocytopenia including ITP, discuss platelets function disorders, diagnostic work up in thrombocytopenia and general and specific management</p>                                                                                                                                                                                   |
| <b>RHEUMATOLOGY+IMMUNOLOGY</b> |                             |                                                                                                                                                                                                                                                                                                                                                             |
| 30                             | IMMUNE DEFICIENCY DISORDERS | <p>Review the function of immunity system</p> <p>Describe the etiopathogenesis of the different form of ID</p> <p>Immune deficiency, (autoimmune deficiency, primary and chronic immune deficiency</p> <p>Outline the clinical manifestations of ID</p> <p>Identify laboratory investigations use for diagnosing ID</p> <p>Outline the management of ID</p> |
| 31                             | CONNECTIVE TISSUE DISEASE   | <p>Describe the etiopathogenesis of diseases</p> <p>Discuss clinical manifestation of diseases</p> <p>Differential diagnosis</p> <p>Suggest a diagnostic approach to patients with the diseases</p> <p>Describe complications of the diseases</p> <p>Discuss the lines of treatment and prophylaxis for the diseases</p>                                    |
| 32                             | VASCULITIS IN CHILDREN      | <p>Etiology of Kawasaki disease</p> <p>Discuss clinical manifestation of disease</p> <p>Discuss differential diagnosis</p> <p>Outline the management</p> <p>Describe the etiopathogenesis of HSP</p> <p>Discuss clinical manifestation of disease</p>                                                                                                       |

|                           |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |                      | <p>Discuss differential diagnosis</p> <p>Outline the management</p> <p>Describe the etiopathogenesis of HSP</p>                                                                                                                                                                                                                                                                                                                                        |
| 33                        | ARTHRITIS            | <p>Describe the etiopathogenesis of Juvenil Rheumatoid Arthritis</p> <p>Identify the clinical features of Juvenil Rheumatoid .Arthritis subgroups including pauciaricular, polyarticular and systemiconset</p> <p>Suggest a diagnostic approach to patients with Juvenile Rheumatoid Arthritis including laboratory and imaging studies</p> <p>Differential diagnosis</p> <p>Outline the principles of management of Juvenile Rheumatoid Arthritis</p> |
| <b>CARDIOLOGY</b>         |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 34                        | CYANOTIC CHD         | <p>Identify the clinical significance and types of cyanosis</p> <p>List types and causes of CHD</p> <p>Describe signs, symptoms, and diagnostic tests for common CHD</p> <p>Discuss lines of treatment for common CHD</p>                                                                                                                                                                                                                              |
| 35                        | ACYANOTIC CHD        | <p>List types and causes of ACHD</p> <p>Review pathophysiology of low perfusion lesions and left to right shunt ACHD</p> <p>Discuss signs, symptoms, diagnostic tests and treatment of common ACHD</p>                                                                                                                                                                                                                                                 |
|                           | ENDOCARDITIS         | <p>Describe the etiopathogenesis of diseases</p> <p>Discuss clinical manifestation of diseases</p> <p>Differential diagnosis</p> <p>Suggest a diagnostic approach to patients with the diseases</p> <p>Describe complications of the diseases</p> <p>Discuss the lines of treatment and prophylaxis for the diseases</p>                                                                                                                               |
| 36                        | RHEUMATIC FEVER      | <p>Define the RHD</p> <p>Describe the etiopathogenesis of RHD</p> <p>Discuss clinical manifestations of RHD</p> <p>Identify diagnostic methods for RHD</p> <p>Describe complications of RHD requiring surgical treatment</p> <p>Discuss the lines of treatment for the disease</p>                                                                                                                                                                     |
| <b>INFECTIOUS DISEASE</b> |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 37                        | BRUCELLA AND TYPHOID | <p>Identify local endemic infectious diseases.</p> <p>Discuss epidemiology, clinical presentation</p> <p>treatment of salmonellosis, and Brucellosis.</p>                                                                                                                                                                                                                                                                                              |

|                           |                                            |                                                                                                                                                                                                                                                                                                                    |
|---------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |                                            | Explore public health measures to prevent these diseases                                                                                                                                                                                                                                                           |
| 38                        | SEPTIC ARTHRITIS AND OSTEOMYELITIS         | Describe the etiopathogenesis<br>Identify the clinical manifestations<br>Suggest a diagnostic approach to patients with septic arthritis and osteomyelitis including laboratory and imaging studies<br>Differential diagnosis<br>Outline the principles of management of septic arthritis and osteomyelitis        |
| 39                        | MENINGITIS/ENCEPHALITIS                    | List the pathogens<br>Describe the pathogenesis.<br>Discuss the clinical manifestations in different age group<br>Suggest investigations used for diagnosis<br>Outline general rules of emergency management<br>Discuss common complication                                                                        |
| 40                        | GASTROENTERITIS                            | Causes of acute GE in children, clinical picture, electrolytes disturbances, diagnostic work up, management                                                                                                                                                                                                        |
| <b>GENERAL PEDIATRICS</b> |                                            |                                                                                                                                                                                                                                                                                                                    |
| 41                        | IMMUNIZATION                               | Define immunization both passive and active<br>Discuss national program and WHO program of vaccination<br>List different types of vaccine preparation<br>Identify adverse reaction after vaccination<br>List transient and permanent contraindication of vaccination<br>Discuss special vaccine and its indication |
| 42                        | FLUIDS AND ELECTROLYTES, ACID BASE BALANCE | Discuss common electrolytes imbalance, causes, Dx and management, discuss different types of acid base disturbances, ABG interpretation and general management                                                                                                                                                     |
| 43                        | CHROMOSOMAL DISORDERS                      | Identify different inheritance patterns, discuss Down syndrome, trisomy 13 and 18 and Turner in details (causes, features, associated anomalies)                                                                                                                                                                   |

### **Course information**

|               |                   |
|---------------|-------------------|
| Course title  | Psychiatry Course |
| Course number | 111503501         |
| Credit hours  | 2.25              |

### **Course description:**

Classes consist of a formal presentation along with group discussion of all major child, adolescent and adult psychiatric disorders and the impact that these diagnoses have on patient lives, their families and the community at large. The discussion includes how to differentiate the diagnoses and prepare a proper treatment plan for the patient. The treatment plan needs to include all pertinent bio-psycho-social issues which need to be addressed.

This course will equip each medical student with basic diagnostic skills for common child, adolescent and adult diagnoses. They will first gain an understanding of normal child development and human behavior. Later, they will be able to formulate a treatment plan, both with medications and various other forms of therapies for each of the common childhood and adult diagnoses described in The Diagnostic & Statistical Manual TR-IV.

Medical students are expected to read and study materials outside of the scheduled sessions and be prepared for oral quizzes and discussions with the faculty during the sessions. Each session will consist of 4 1-hour blocks on Tuesday afternoons – unless otherwise specified.

### **Learning outcomes:**

There are three major learning objectives for this course:

1. Define the criteria to diagnose common child, adolescent and adult psychiatric conditions.
2. Compare differential diagnoses across the spectrum of illness.
3. Formulate appropriate treatment plans for each of the major psychiatric disorders discussed.

At completion of this course in Psychiatry, all medical students are expected at a minimum to have the following basic competencies:

1. Differentiate between the major mood disorders and bereavement.
2. Construct treatment plans utilizing appropriate antidepressant medications and mood stabilizers.
3. Compare the various types of Psychotic Disorders.
4. Design treatment approaches that utilize antipsychotic medications.
5. Evaluate patients with eating disorders.
6. Compare the various types of Sleep Disorders.

7. Manage patients with common General Medical Conditions that cause psychiatric symptoms – including neurologic and endocrine disorders.
8. Categorize the groupings of Personality Disorders.
9. Differentiate between the Somatoform Disorders including Factitious Disorder and Malingering.
10. Demonstrate the ability to diagnose Anxiety Disorders.
11. Formulate treatment with Anxiolytics and sedative-hypnotic medications.
12. List stages of normal childhood development.
13. Identify common Child and Adolescent Disorders.
14. Distinguish common etiologies for Adjustment Disorders.
15. List common Geriatric Disorders including Delirium and Dementia.
16. Manage treatment plans utilizing Stimulants and Non-stimulants utilized for Attention Deficit Hyperactivity Disorder.
17. Contrast Drug & Alcohol Abuse versus Dependence.

### **Instructional methods:**

Students are assessed by the clinical instructors using a standard evaluation form. At the end of the 2<sup>nd</sup> wk rotation, a clinical exam will be performed. A final exam is to be done at the end of the 5<sup>th</sup> year.

Daily morning clinic from 9-1 pm

Afternoon seminar daily

End rotation slide review before the end rotation exam

### **Text book and material:**

All students will be given an electronic course study guide entitled "Top Shelf – A Systemic Approach to Preparing for the End of Clerkship Examination."

### **Grading Policy:**

In-course evaluation: 20%  
End of rotation exam: 35%  
Final written exam: 45%  
Total Points 100

### **Course Policies:**

- **Late Assignments:** Unexcused absence at the day of the seminar will affect the grade by 10 points

- **Missed exams:** The student will do with exam with the following group if he has an excuse that the department accepts
- **Absence :** Absence will affect evaluation mark

If its more than 2 days, the student will have to repeat the rotation allover again

- **Cheating :** Will be referred to the department and be dealt with according to the regulations of the university

### **Classroom Protocol:**

Attendance – Attendance and participation in clinical activities and related discussion is required in order to optimize the educational benefit for all students. Notification of absence must be directed to clinical instructors and the program director (Dr. Hanadi Al Quran). Unexcused absence will result in a failing grade for the rotation.

Professional behavior - Professional behavior is essential for successful learning environment. Therefore professional behavior is expected of all students during clinical rotations. Professional behavior includes but is not limited to arriving on time, and being prepared for daily activities and discussions.

Equipment/Clothing – During clinical activities, appropriate clothing should be worn, professional clothing and a white coat are adequate.

### **Important Dates to Remember:**

The course is based on a 2wk rotation

The 2<sup>nd</sup> Thursday will be the last day of the rotation and the end rotation exam day

Final exam date will be determined by the end of the 5th academic year

### **Student rights and responsibilities:**

As per University policy and regulations

### **Course Schedule :**

#### **Topics covered in lectures and seminars**

I. Mood Disorders

II. Antidepressants & Mood Stabilizers

III. Psychotic Disorders

IV. Antipsychotics

V. Anxiety Disorders

VI. Anxiolytics, Etc.

VII. Personality Disorders

- 
- VIII. Eating & Sleeping Disorders
  - IX. Adjustment Disorders
  - X. Psychiatric Emergencies & Substance Abuse
  - XI. Somatoform Disorders
  - XII. General Medical Conditions
  - XIII. Delirium & Dementias
  - XIV. Additional Medications
  - XV. Normal Growth & Development
  - XVI. Child & Adolescent Psychiatry

### **Course information:**

|               |                      |
|---------------|----------------------|
| Course title  | General Medicine (2) |
| Course number | 0111503601           |
| Credit hours  | 9                    |

### **Coursedescription:**

- Hospital Bedside Teaching: 8 weeks subdivided into five sub-rotations in four different hospitals (hospital names mentioned above). Students are divided in groups of 10 – 11 students, each group of students are supervised one clinical instructor.
- Seminars: Problem based seminars, 6 seminars per week, each seminar is presented by 2 students.

### **Learning outcomes:**

#### **General Learning outcomes**

**By the end of this course, students are expected to:**

1. Obtain a comprehensive history for medical problems.
2. Acquire the basic skills of physical examination.
3. Identify and explain abnormal signs.
4. Formulate a case summary and differential diagnosis list.
5. Suggest relevant investigations.
6. Suggest management plan.

#### **Specific Learning outcomes**

(The specific learning outcomes are provided later in this syllabus)



### **Instructional methods:**

- Seminars: Problem based topic discussion, integration of knowledge & clinical approach
- Bed-side teaching sessions: Clinical case discussion; discussion of history, physical examination findings and investigations including lab and radiological investigation so as to formulate differential diagnosis list and management plan
- Visits to outpatient clinics

### **Text book and material:**

- KUMAR & CLARK. Clinical Medicine
- MACLEOD'S Clinical Examination
- DAVIDSON Textbook of Medicine

### **Grading Policy:**

- In –course evaluation = 10%
- taking in consideration the following:
  - Students attendance, motivation, commitment and behavior
  - Students competence and skills
  - Students participation in activities in the clinical sessions and seminars
- Final clinical exam (OSCE) =30%
- Final written exam (MCQS)= 45%
- Final oral exam = 15%
- Total Points 100

### **Course Policies:**

- **Late Assignments :**Students are expected to present their assignment on scheduled time, if not, a new date is given to the student to present his assignment. Late assignment will affect the grade by 5 points unless there is an excuse.
- **Missed exams:** If a student misses an examination then they will have the opportunity for a make-up examination, according to the University Regulations.
- **Absence:** If a student is absent for a teaching session then they must discuss this with the course instructor. If a student is absent for more than 25% of the course then they may be liable to fail the course.
- **Cheating:** Cheating is forbidden in any form. Any students who are caught cheating will be reported to the Medical Dean and further action taken as necessary.

### **Classroom Protocol:**

- Students are expected to arrive at 8:00 am Sunday to Thursday Attendance is each daily activity, absence in one activity considered as full day absence.
- Students are expected to respect other students and instructors.
- Participation is graded according to seminar presentation, attending daily activities, good behavior, patient care, theoretical knowledge, communication skills, and professionalism.

### **Student rights and responsibilities:**

According to regulations and policies of the university and the faculty which is written in the students manual issued to them each academic year

### **Course Schedule :**

#### **Topics covered in seminars and bed-side teaching**

##### **CARDIOVASCULAR SYSTEM**

##### **I. Knowledge/Mix of Diseases/Patients**

- A. Ischemic heart disease: unstable angina and myocardial infarction.
- B. Heart failure.
- C. Congenital heart disease with onset of manifestations in the adult.
- D. Valvular heart disease—causes.
- E. Clinical diagnosis of rheumatic fever.
- F. Hypertension: essential and secondary.
- G. Cardiomyopathy and Pericardial diseases.
- H. Arrhythmias.
  - 1. Distinction between ventricular and supraventricular rhythms.
  - 2. Atrial fibrillation, atrial flutter.
  - 3. Heart block 1o, 2o, 3o.
  - 4. Bundle branch and hemiblocks.
  - 5. Main supraventricular tachycardias.
- I. Infective endocarditis
- J. Cardiac tumors
- K. Pulmonary cardiac diseases
- L. Hyperlipidemia

##### **II. History Skills**

- A. Obtain history of risk factors for coronary artery disease.
- B. Obtain history for rheumatic fever or congenital heart disease.
- C. Recognize importance of family history in assessment of cardiovascular disease

- D. Use all modalities in "pain" history to distinguish coronary artery disease from other causes of chest pain.
- E. In hypertensive patient, obtain careful history of medication compliance.

### III. Physical Exam Skills

- A. Determine venous pressure by examination of neck veins.
- B. Assess arterial pulses and recognize pulsus alternans, bisferiens pulse, and paradoxical pulse.
- C. Perform hepatjugular reflux test to assess venous pressure.
- D. On cardiac auscultation, recognize:
  1. Systolic and diastolic murmur--effects of physiologic and pharmacologic interventions.
  2. Pericardial friction rub.
- E. On cardiac auscultation, recognize:
  1. S-1, S-2, and normal physiologic splitting.
  2. S-3, S-4, and how they are best appreciated.
  3. Systolic and diastolic murmur--effects of physiologic and pharmacologic interventions.
  4. Special characteristics of the murmur of MVP and HCM.
  5. Pericardial friction rub.

### IV. Diagnostic Tests

- A. Recognize a normal EKG.
- B. Recognize a normal Chest X-ray.

### V. Therapeutic Interventions

- A. Know therapeutic indications for angioplasty and other therapeutic applications of catheterization.
- B. Describe therapeutic approach to clinical syndromes described in I.

## DISEASES OF THE KIDNEY AND URINARY TRACT

- I. Knowledge/Mix of Diseases/Patients
  - A. Renal anatomy and physiology
  - B. Acute renal failure--The student must distinguish prerenal, renal, and post renal disease using clinical and laboratory parameters.
  - C. Chronic renal failure and its associated metabolic-endocrine, GI, cardiovascular hematologic, and neuromuscular complications.
  - D. Glomerulonephritis: Nephritis syndrome
  - E. Nephrotic syndrome
  - F. Tubulointerstitial disease.
  - G. Renal cystic disease
  - H. Acid base disorders
  - I. Water disorders
  - J. K disorders
  - K. Calcium disorders
  - L. UTI and pyelonephritis

## II. History Skills

In the patient who presents with a problem of the urinary tract, the student will determine by history:

- A. Frequency and volume of urine (polyuria, oliguria, anuria).
- B. Urine color, hematuria.
- C. Dysuria, diminished stream.
- D. Effects of nephrotoxic drugs or drugs that effect bladder emptying or urine color
- E. The clinical syndrome of uremia.

## III. Physical Exam Skills

- A. Recognize signs of uremia--cognitive, asterixis, odor of breath.
- B. Auscultate for bruits.
- C. Attempt to palpate for kidneys.
- D. Percuss bladder size.

## IV. Diagnostic Tests

The student should be able to:

- A. Calculate fractional excretion of sodium as a measure of prerenal vs post renal azotemia.
- B. Evaluate the patient with glomerulonephritis for multisystem disease.
- C. Choose the most appropriate imaging test for the specific patient problem.

## V. Therapeutic Interventions

The student should be able to:

- A. Manage the patient with acute renal failure and know all indications for dialysis.
- B. Recognize the possibility of urinary tract obstruction.

## DISORDERS OF THE RESPIRATORY SYSTEM

### I. Knowledge/Mix of Diseases/Patients

#### A. Diseases of airflow limitation

1. Asthma.
2. Bronchitis.
3. Emphysema.
4. Bronchiectasis.
5. Cystic fibrosis.

#### B. Interstitial lung diseases

1. Occupational lung disease.
2. Hypersensitivity pneumonias.
3. Sarcoidosis.
4. Idiopathic pulmonary fibrosis.

#### C. Infectious lung diseases

1. Community acquired pneumonia.
2. Nosocomial pneumonias.
3. Tuberculosis.

- D. Pulmonary vascular lung diseases
  - 1. Pulmonary thromboembolism.
  - 2. Pulmonary hypertension.
  - 3. Noncardiogenic pulmonary edema (ARDS).
- E. Neoplastic disease of the lung
  - 1. Bronchogenic carcinoma.
  - 2. Paraneoplastic syndromes.
- F. Diseases of the pleura
  - 1. Pleural effusion.
  - 2. Pneumothorax.

## II. History Skills

- A. Correctly characterize respiratory symptoms of dyspnea, cough, and expectoration.
- B. Obtain careful history of accidental or occupational exposure to potential lung toxins.
- C. Obtain a precise history of tobacco use, including passive cigarette smoke.
- D. Obtain family history for cystic fibrosis, emphysema, asthma, tuberculosis, collagen vascular diseases, and lung neoplasm.
- E. Obtain history of drug exposure and medication use.
- F. Determine risk factors for HIV and TB.

## III. Physical Exam Skills

- A. Examine the chest by inspection
  - 1. Identify abnormal respiratory patterns.
  - 2. Recognize findings suggesting pulmonary disease such as deviated trachea, digital clubbing.
- B. Examine the chest by palpation
  - 1. Appreciate the significance of supraclavicular adenopathy, crepitation, and tenderness.
- C. Examine the chest by percussion
  - 1. Distinguish normal and abnormal resonance.
  - 2. Further define areas of dullness by special maneuvers such as vocal and tactile fremitus.
- D. Examine the chest by auscultation
  - 1. Recognize normal breath sounds and characterize.
  - 2. Recognize adventitious breath sounds such as crackles, rhonchi, and wheezes.
  - 3. Understand the diagnostic implications of the adventitious sound.

## IV. Diagnostic Test Skills

- A. The student should be able to:
  - 1. Interpret arterial blood gases.
  - 2. Understand the use of the pulse oximeter.
  - 3. Interpret spirometry including Flow-Volume loops.
  - 4. Interpret the chemical profile of pleural effusions.
- B. The student should understand the indications for:
  - 1. Pulmonary function tests.

2. Thoracentesis.

3. Pleural biopsy.

#### V. Therapeutic Skills

A. The student must be familiar with the general management of all diseases listed in 1.

The student should be able to:

1. Correctly select antimicrobial agents for respiratory infection.

2. Recognize a significant reaction to PPD.

3. Know the indications and side effects for the commonly used medications in pulmonary medicine.

### ENDOCRINOLOGY AND METABOLISM

#### I. Knowledge/Mix of Diseases/Patients

##### A. Diseases of the pituitary

1. Diabetes insipidus.

2. Pituitary tumors

a. Acromegaly.

b. Cushing Disease.

c. Prolactinoma.

3. Hypopituitarism.

4. Empty Sella Syndrome.

##### B. Thyroid disease

1. Hypothyroidism causes.

2. Hyperthyroidism.

a. Graves disease.

b. Toxic multinodular goiter.

c. Toxic adenoma.

d. Factitious.

3. Thyroiditis.

a. Chronic thyroiditis (Hashimoto's).

b. Subacute thyroiditis (painful and painless).

4. Approach to thyroid nodule

##### C. Diseases of the adrenal cortex

1. Cushing Syndrome.

2. Hyperaldosteronism.

3. Addison's Disease.

##### D. Pheochromocytoma.

##### E. Diabetes mellitus.

1. Diagnosis.

2. Classification and pathogenesis.

3. Clinical features.

4. Complications.

5. Treatment.

a. Diet.

b. Insulin.

c. Oral agents.

d. Hypoglycemia

1. Fasting.
2. Reactive.

G. Disorders of the parathyroid gland and of calcium metabolism.

H. Metabolic bone disease.

1. Osteoporosis.
2. Osteomalacia.
3. Paget's.
4. Renal osteodystrophy.

II. History Skills

A. Demonstrates knowledge necessary to take a proper history for a patient suspected of having an endocrine or metabolic disorder.

B. In a patient with diabetes mellitus, the student must obtain and put in chronological order a detailed history of the disease, including all complications, hospitalizations, medications.

III. Physical Exam

A. Know importance of:

1. Weight.
2. Height.
3. Skeletal proportions.

B. Recognize exophthalmus and abnormal ocular motility.

C. Evaluate thyroid size, nodularity, tenderness, and bruit.

D. Evaluate skin-temperature, moisture, pigmentation, pretibial myxedema, diabetic dermopathy.

E. Evaluate quality of voice.

F. Evaluate texture and pattern of hair.

G. Recognize diabetic retinopathy.

IV. Diagnostic Skills

A. Understand the use of thyroid function tests.

B. Describe the tests necessary to diagnose diseases listed in 1.

V. Therapeutic Interventions

A. Understand the indications, side effects, and adverse reactions for each of the following:

1. L-thyroxin.
2. Glucocorticoids.
3. Antithyroid drugs.
4. Oral hypoglycemics.
5. Insulin (all forms).

## GASTROENTEROLOGY

I. Knowledge/Mix of Diseases/Patients

A. Diseases of the esophagus: anatomic and motor causes of esophagitis (GERD).

B. H Pylori and PUD.

C. Disorders of absorption.

D. Inflammatory bowel disease.

E. Liver and biliary tract disease

1. Acute and chronic hepatitis.

2. Cirrhosis and alcoholic liver disease.
3. Approach to patients with abnormal LFTs.

F. Pancreatic diseases

1. Acute pancreatitis.
2. Chronic pancreatitis.
3. Pancreatic cancer.
4. Endocrine tumors.

II. History Skills

In obtaining history from a patient with a GI complaint:

- A. Describe all characteristics of abdominal pain.
- B. Recognize potential importance of family history and medication history and GI side effects of all drugs.
- C. History of diet, weight, food intolerance, bowel pattern, and bleeding.
- D. Compare and contrast history of inflammatory bowel disease vs. irritable bowel syndrome.
- E. Precise history taking in GERD and dysphagia.

III. Physical Exam Skills

- A. Students must do complete exam of abdomen and rectal exam including:
  1. Auscultation for bowel sounds and bruits.
  2. Percussion for liver size.
  3. Palpation for spleen.
- B. Recognize need for additional physical exam maneuvers such as:
  1. Shifting dullness and fluid wave when ascites is suspected.
  2. Murphy's sign for right upper quadrant pain or tenderness.
  3. Eliciting signs of peritonitis.
  4. Perform rectal digital exam and check for fecal blood.

IV. Diagnostic Studies

- A. Know indications for paracentesis.
- B. Know indications for placement of nasogastric tube.
- C. Properly interpret the following laboratory tests:
  1. Serologic studies for viral and autoimmune hepatitis.
  2. Liver function tests.

V. Therapeutic Skills

- A. The student should know indications, side effects, interactions and follow-up for the most commonly used GI medications (e.g. PPIs, Laxatives, Prokinetic agents).

**HEMATOLOGY**

I. Knowledge/Mix of Diseases/Patients

- A. Pathophysiology of anemia.
- B. Anemia of chronic disease.
- C. Iron deficiency anemia.
- D. Megaloblastic anemia.
- E. Hemolytic anemias (congenital and acquired).
- F. Myeloproliferative disorders.



- G. Leukemias (acute and chronic).
- H. Lymphoma (Hodgkin's, non-Hodgkin's and plasma cell myeloma).
- I. Clotting disorders
  - 1. Platelet and vessel wall.
  - 2. Coagulation and thrombosis.
- 3. Hypercoagulable state.
  
- II. History Skills
  - A. Knowing presenting signs of anemia.
  - B. Recognize that dizziness, shortness of breath, headache, exercise intolerance, and sensitivity to cold may be presenting symptoms of anemia.
  - C. Recognize that symptoms of angina, claudication, TIA may be unmasked by anemia.
  - D. Recognize the value of reviewing all previous hematologic lab data in evaluation of hematologic disorders.
  - E. Recognize symptoms of platelet disorders (spontaneous mucocutaneous bleeding, immediate bleeding with trivial trauma) versus symptoms of clotting-factor deficiency (delayed bleeding, deep muscular hematomas, and hemarthroses).
  - F. Recognize the importance of "B" symptoms (fever, night-sweats, weight loss) in patients with lymphoma.
  - G. Recognize the importance of the family history in patients with anemia and coagulation disorders.
  
- III. Physical Diagnosis Skills
  - A. Recognize ecchymotic or petechial rash.
  - B. Palpate all lymph node areas, spleen and liver.
  
- IV. Diagnostic Skills
  - A. Know the value of the following tests in the work-up of a patient with hemolytic anemia:
    - 1. Blood smear review.
    - 2. Reticulocyte count.
    - 3. Coombs test.
    - 4. Serum haptoglobin.
    - 5. Glucose 6 phosphate dehydrogenase deficiency.
    - 6. Hemoglobin electrophoresis.
    - 7. Urine hemosiderin.
  - B. Know the proper evaluation for bleeding disorder.
  
- V. Therapeutic Interventions
  - A. Know the appropriate indications for transfusion of erythrocytes and platelets.
  - B. Know indications for fresh frozen plasma, cryoprecipitate, and purified factor concentrates.

## INFECTIOUS DISEASES

- I. Knowledge/Mix of Diseases/Patients
  - A. Clinical syndromes
    - 1. Gram-negative sepsis.
    - 2. Infective endocarditis.
    - 3. Upper and lower respiratory infections.

4. Urinary tract infections.
5. Soft tissue infection.
6. Tuberculosis.
7. Mycoplasma pneumonia.
- B. Viral infection
  1. Influenza and prevention.
  2. Herpes infection.
  3. Hepatitis A, B and C.
- C. Fever of unknown origin.

## II. History Skills

- A. Demonstrate at bedside ability to elicit history with special attention to relevant travel and residential history, animal contact, work and recreational activity, drug use and sexual history.
- B. Elicit any co-existing disease which may be relevant to pathogenesis of infection.

## III. Physical Examination

- A. Demonstrate ability to perform thorough physical exam in effort to determine source of infection.
- B. Recognize skin lesions which may provide diagnostic clues to etiology of infection.
- C. Recognize fever patterns and their possible diagnostic indications.
- D. Perform Kernig and Brudzinski tests in evaluating for meningitis.

## IV. Diagnostic Tests

- A. Obtain sputum on patients with pneumonia.
- B. Interpret body fluid results (CSF, pleural, peritoneal, joint).

## V. Therapeutic Interventions

- A. Choose appropriate antibiotic regimens for most common infections.
- B. Know major side effects of antibiotics.

## RHEUMATOLOGY

### I. Knowledge

- A. Clinical manifestations of SLE.
- B. Rheumatoid arthritis.
- C. Scleroderma.
- D. Mixed connective tissue disease.
- E. Sjogren's syndrome.
- F. Ankylosing spondylitis.
- G. Vasculitic syndromes.
- H. Sarcoidosis.
- I. Osteoarthritis.
- J. Psoriatic arthritis and arthritis associated with GI diseases.
- K. FMF.
- L. Behcet's disease.
- M. Gout.

## II. History Skills

- A. Demonstrate ability to elicit history of multisystem disease. Know importance of extra-articular symptoms such as rash, uveitis, aphthous ulcers, alopecia, and pleuritic pain.
- B. In patient with joint disease, determine presence or absence of morning stiffness, redness, heat, swelling, restricted movement.

## III. Physical Exam Skills

- A. Know the physical findings associated with each of the diseases listed in 1.
- B. Evaluate each joint for swelling, erythema, tenderness, crepitation, contracture, deformity.
- C. Determine range of motion and compare to normal. Identify Heberden node, Bouchard node, ulnar deviation, Swan neck deformity.
- D. Demonstrate joint effusion.
- E. Examine the spine. Evaluate chest expansion for spondylitis.

## IV. Diagnostic Tests

The student should be able to:

- A. Know the basics of diagnostic joint aspiration.
- B. Know when to order the following tests: rheumatoid factor, anti DNA, anti SM, anti RNP, anti RO (SSA), anti LA (SSB), ANCA.

## V. Therapeutic Interventions

- A. Know general treatment options for all diseases listed in 1

### **Course information:**

|               |                                                                                                                                              |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Course title  | General Surgery 2 (includes: General surgery, Urology, Pediatric surgery, Neurosurgery, Plastic Surgery, vascular surgery, thoracic surgery) |
| Course number | 0111502601                                                                                                                                   |
| Credit hours  | 9 hours                                                                                                                                      |

### **Course description:**

The course aims at exposing the students to real patients with different pathologies of general and gastrointestinal surgery, urology, pediatric surgery, neurosurgery, plastic surgery, vascular surgery and thoracic surgery, in order to develop their knowledge and skills in taking comprehensive history, do skilled physical examination, formulate differential diagnosis and suggest a proper plan of management (investigations and treatment). This takes place at bedside in surgical wards, clinics, OR and seminar classes over a period of 8 weeks.

### **Learning outcomes:**

By the end of this course, students are expected to:

1. Obtain a comprehensive history for surgical diseases.
2. Acquire the basic skills of physical examination.
3. Identify and explain abnormal signs.
4. Formulate a case summary and differential diagnosis.
5. Suggest relevant investigations.
6. Suggest treatment – more surgical orientation

### **Instructional method**

- Seminars: clinical cases, x-rays and equipments.
- Bed-side teaching sessions: Clinical case, x-rays and lab tests.
- Visits to outpatient clinics
- Visits to operating theatres.
- Clinical skill lab
- Tutorials and presentations (Data show, slides)

### **Textbook and material:**

- Bailey & Love's Short Practice of Surgery.
- Forest Principles of Surgery.
- Browse's Introduction to the Symptoms & Signs of Surgical Disease.
- Schwartz's Principles of Surgery (Reference)
- Sabiston Textbook of Surgery. The Biological Basis of Modern Surgical Practice (Reference)

### **Grading Policy:**

- In-course evaluation (includes assignments, attendance and participation) = 10%
  - End rotation clinical exam = 30%
  - Final oral exam = 15%
  - Final written exam = 45%
- Total=100%

### **Course Policies:**

#### **Late Assignments**

As per University policy .Students are expected to present their assignment on scheduled time, if not, a new date is given to the student to present his assignment. Late assignment will affect the grade by 5 points unless there is an excuse.

#### **Missed exams**

If a student misses an examination then they will have the opportunity for a make-up examination, according to the University Regulations.

#### **Absence**

- Each student should attend 40 academic days of the 8 weeks
- Absence of any part of the academic day (morning report, bedside teaching, OPC, OR, seminars) is considered as full day absence

#### **Cheating**

Cheating is forbidden in any form. Any students who are caught cheating will be reported to the Medical Dean and further action taken as necessary.

### **Classroom Protocol:**

- All students are expected to attend the teaching sessions, they should arrive before the activity starts and verbal warnings will be issued to late arrival within the 1st 10 minutes of the class and will be considered absent if more than that.
- All the students are expected to participate freely and when asked to do so
- All the students expected to behave and dress properly in professional manner.

### **Important Dates to Remember:**

- OSCE exams at the final Wednesday of each 8 weeks rotation for the group
- Final written surgery exam: 01/05/2017
- Final oral exam: 12-15/5/2017
- Holidays and vacations: according to the University calendar published at the university web site ([www.hu.edu.jo](http://www.hu.edu.jo))

### **Student rights and responsibilities:**

According to regulations and policies of the university and the faculty which is written in the students manual issued to them each academic year

### **Course Schedule :**

The course will take place throughout the academic year, each 8 weeks with different group of students. After studying the material covered in the seminars and bed-side teaching sessions throughout the 8 weeks of this course, the student is expected to achieve the followings:

| No. | Title                                            | Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Fluids and electrolytes                          | <ul style="list-style-type: none"> <li>Fluid compartments</li> <li>Recognize disturbances in water and electrolytes</li> <li>Outline methods of management</li> </ul>                                                                                                                                                                                                                                                                              |
| 2   | Blood transfusion                                | <ul style="list-style-type: none"> <li>Outline the importance of major and minor blood groups</li> <li>Describe how to obtain and store blood</li> <li>List the indications for blood transfusion in surgical practice</li> <li>Recognize hazards of blood transfusion and how to avoid them (Infections, reactions).</li> <li>Identify the different components of blood and how to order each of them</li> </ul>                                 |
| 3   | Shock                                            | <ul style="list-style-type: none"> <li>Define shock; General Discuss pathophysiology of shock</li> <li>Recognize types of shock (hypovolemic, cardiogenic, septicemic, neurogenic).</li> <li>Identify the importance of physiologic monitoring of the surgical patient (urine output, cardiac output, central venous pressure, Swan-Ganz catheter)</li> <li>Discuss the management of different types.</li> </ul>                                  |
| 4   | Burns and skin coverage                          | <ul style="list-style-type: none"> <li>Obtain relevant history for burns (flame, scold, closed space, exposure time, possible associated injuries)</li> <li>Determine percentage of burns</li> <li>List indications for admission</li> <li>Discuss pain management.</li> <li>Outline fluid replacement.</li> <li>Discuss wound management (open, closed, principles of antiseptic solutions).</li> <li>Know the value of skin grafting.</li> </ul> |
| 5   | Surgical infections and prophylactic antibiotics | <ul style="list-style-type: none"> <li>Discuss pathophysiology of surgical infection.</li> <li>Identify of surgical infections</li> <li>Outline of principles of antibiotic usage in surgical patients.</li> </ul>                                                                                                                                                                                                                                 |
| 6   | Surgical disease of the spleen                   | <ul style="list-style-type: none"> <li>Anatomy and physiology review</li> <li>Classification of the splenic diseases – nontraumatic</li> <li>Clinical presentation</li> <li>Investigation</li> </ul>                                                                                                                                                                                                                                               |

|    |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                          | <ul style="list-style-type: none"> <li>• Modality of treatment</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 7  | Hernias                                  | <ul style="list-style-type: none"> <li>• Anatomy of the abdominal wall</li> <li>• Definition of hernias and type</li> <li>• Examination</li> <li>• Modality of treatment</li> </ul>                                                                                                                                                                                                                                                                                                                 |
| 8  | Multiple injuries: first aid and triage. | <ul style="list-style-type: none"> <li>• Classify types of trauma</li> <li>• List types of injuries</li> <li>• Recognize risk factors and trauma scores</li> <li>• Identify the value of first aid measures and methods of resuscitation</li> </ul>                                                                                                                                                                                                                                                 |
| 9  | Head Injuries                            | <ul style="list-style-type: none"> <li>• Glasgow coma scale</li> <li>• Define differentiate between the pathology of primary &amp; secondary head injury.</li> <li>• Use the different diagnostic tools to evaluate head injury patient.</li> <li>• Understand &amp; apply the treatment modalities for the different condition of head injury.</li> <li>• Discuss prognosis of head injury</li> <li>• List the complication of head injury.</li> </ul>                                             |
| 10 | Spinal Injury                            | <ul style="list-style-type: none"> <li>• Differentiate between the pathology of primary &amp; secondary spinal injury.</li> <li>• List diagnostic modalities.</li> <li>• Outline the treatment modalities for the different condition of spinal injury.</li> <li>• Discuss of spinal injury</li> <li>• List the complication of spinal injury.</li> </ul>                                                                                                                                           |
| 11 | Abdominal trauma                         | <ul style="list-style-type: none"> <li>• Recognize the mechanism of injury (penetrating, Blunt).</li> <li>• Recognize the wide spectrum of possible presentations.</li> <li>• Discuss ABC (Airway, Breathing, Circulation) management.</li> <li>• Identify the role of US ultrasound, CT scan computed tomography, lavage, and peritoneal manometry in the diagnosis.</li> <li>• Discuss specific injury of different intraabdominal organs (spleen, liver, kidney, pancreas intestine).</li> </ul> |
| 12 | Chest trauma                             | <ul style="list-style-type: none"> <li>• Understand mechanism of trauma.</li> <li>• Recognize the major life threatening injuries (tension pneumothorax, tamponade, major vascular injury, massive lung contusion, major tracheal or bronchial injuries).</li> <li>• Recognize how and when to ask for relevant investigations).</li> <li>• Know the principles of treating pneumothorax and hemothorax.</li> </ul>                                                                                 |
| 13 | Infertility                              | <ul style="list-style-type: none"> <li>• Anatomy of genital organs</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                       |

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|----|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                        | <ul style="list-style-type: none"> <li>• Definition</li> <li>• Etiology</li> <li>• Investigation</li> <li>• Modality of treatment</li> </ul>                                                                                                                                                                                                                                                      |
| 14 | Parenteral and enteral feedings:       | <ul style="list-style-type: none"> <li>• Definition</li> <li>• Indication</li> <li>• Side effect of parental and enteral feeding</li> <li>• Follow up investigation during feedings</li> </ul>                                                                                                                                                                                                    |
| 15 | Neck and vascular trauma               | <ul style="list-style-type: none"> <li>• Appreciate the symptoms that may indicate a hidden trauma to the neck.</li> <li>• Discuss soft tissue trauma to the neck.</li> <li>• Discuss briefly injuries to the carotid artery, larynx, trachea and esophagus.</li> <li>• Recognize the common methods of stopping arterial bleeding.</li> <li>• Review the basic anatomy of the neck.</li> </ul>   |
| 16 | Peripheral vascular diseases           | <ul style="list-style-type: none"> <li>• Identify pain due to peripheral ischemia (claudication, rest pain, critical limb).</li> <li>• Suggest relevant investigations such as Doppler ultrasound and angiography.</li> <li>• Define common vascular procedures.</li> </ul>                                                                                                                       |
| 17 | Aneurysms and vascular anomalies       | <ul style="list-style-type: none"> <li>• Describe different types of aneurysms and the possible symptomatology for each one (subclavian, aortic, dissecting, popliteal)</li> <li>• Appreciate the etiology of each</li> <li>• Differentiate between false and true aneurysm.</li> <li>• Suggest relevant investigations and treatments.</li> <li>• List the common vascular anomalies.</li> </ul> |
| 18 | Varicose veins and lymphatic diseases. | <ul style="list-style-type: none"> <li>• Review venous and lymphatic anatomy</li> <li>• Discuss principles of physical examination.</li> <li>• Differentiate between primary varicose veins and a post phlebetic limb.</li> <li>• Suggest modalities of treatment.</li> <li>• Differentiate between different types of lymphedema and their clinical implications.</li> </ul>                     |
| 19 | Pneumothorax, empyema & lung cysts     | <ul style="list-style-type: none"> <li>• List the different types of pneumothorax and empyema.</li> <li>• List signs of pneumothorax and empyema.</li> <li>• Discuss the etiology of pneumothorax.</li> <li>• Outline the treatment for empyema and pneumothorax</li> <li>• List the cystic lesions of the lung.</li> </ul>                                                                       |
| 20 | Gastrointestinal anomalies             | <ul style="list-style-type: none"> <li>• Review the embryogenesis</li> <li>• Identify presentation and diagnostic methods.</li> <li>• Outline principles of management</li> </ul>                                                                                                                                                                                                                 |



|    |                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| 21 | Diseases of the salivary glands  | <ul style="list-style-type: none"> <li>• Review the anatomy of major salivary glands.</li> <li>• Patterns of presentation, investigations, and treatment of sialiectasis.</li> <li>• Describe common infections affecting the major salivary glands (including postoperative parotitis).</li> <li>• Understand the clinical presentation of benign and malignant salivary gland tumours.</li> <li>• Classify malignant salivary gland tumours.</li> </ul>                                                                                                              |
| 22 | Gastric malignancy<br>Esophagous | <ul style="list-style-type: none"> <li>• Recognize the clinical presentation</li> <li>• Recognize the predisposing factors</li> <li>• Identify relevant diagnostic and staging investigations.</li> <li>• Outline modalities of treatment</li> <li>• Identify features of gastric cancer among Jordanians.</li> </ul>                                                                                                                                                                                                                                                  |
| 23 | Gall bladder diseases            | <ul style="list-style-type: none"> <li>• Understand the wide spectrum of different clinical presentation and to diagnose them clinically (Biliary colic, cholecystitis, cholangitis, pancreatitis, jaundice, carcinoma).</li> <li>• Understand the role of U/S, CT, ERCP, MRCP in the diagnosis and management of gallstone disease.</li> <li>• Outline the principles of treatment of cholecystitis, cholangitis, and obstructive jaundice.</li> <li>• Discuss the mechanism of gall stone formation.</li> <li>• Define the term acalculous cholecystitis.</li> </ul> |
| 24 | Ischemic heart disease           | <ul style="list-style-type: none"> <li>• Recognize the clinical presentation</li> <li>• Predisposing factors</li> <li>• identify relevant diagnostic investigation</li> <li>• Cardiac angiogram review</li> <li>• Modalities of treatment</li> </ul>                                                                                                                                                                                                                                                                                                                   |
| 25 | Mediastinal disorder             | <ul style="list-style-type: none"> <li>• Anatomy</li> <li>• Classification of diseases of mediastinum</li> <li>• identify relevant diagnostic investigating</li> <li>• Chest X-R, Y, MRI, CT-Scan review</li> <li>• Treatment</li> </ul>                                                                                                                                                                                                                                                                                                                               |
| 26 | Congenital heart disease         | <ul style="list-style-type: none"> <li>• ( embryology ) of the heart.</li> <li>• Identify the different anomalies</li> <li>• Appreciate that such anomalies may be related to other anomalies</li> <li>• Formulate a list of relevant investigations</li> <li>• Treatment modality</li> </ul>                                                                                                                                                                                                                                                                          |
| 27 | Valvular heart disease           | <ul style="list-style-type: none"> <li>• Definition</li> <li>• Type of valvular heart disease</li> <li>• Pathology</li> <li>• Clinical presentation</li> <li>• Modality of treatment</li> </ul>                                                                                                                                                                                                                                                                                                                                                                        |

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| 28 | Thoracic aortic surgery                           | <ul style="list-style-type: none"> <li>• Anatomy of the aorta</li> <li>• Type of aortic aneurysm and dissection</li> <li>• Diagnostic modality</li> <li>• CT – scan review</li> <li>• Indication for surgery</li> </ul>                                                                                                                                                                        |
| 29 | Pancreatitis                                      | <ul style="list-style-type: none"> <li>• Define pancreatitis and describe its pathogenesis.</li> <li>• List the common etiological factors (gallstones, alcohol).</li> <li>• Understand the role of different investigations (lab, U/S, CT, ERCP) in diagnosis and treatment.</li> <li>• List complications of pancreatitis.</li> <li>• Understand the general lines of management.</li> </ul> |
| 30 | Pancreatic tumors                                 | <ul style="list-style-type: none"> <li>• Classify pancreatic tumors.</li> <li>• Discuss the clinical presentation</li> <li>• Understand the role of ERCP, CT, MRI, U/S in diagnosis and treatment</li> <li>• Describe staging of the disease</li> <li>• Know the prognosis and principles of treatment</li> </ul>                                                                              |
| 31 | Hepatic tumors and cysts                          | <ul style="list-style-type: none"> <li>• Discuss hepatocellular carcinoma in brief.</li> <li>• Understand the importance of liver secondaries and how to prove the diagnosis.</li> <li>• Discuss the lifecycle of hydatid cyst.</li> <li>• List the relevant tests to diagnose hydatid cyst (plain X-Ray, U/S, CT, serology).</li> </ul>                                                       |
| 32 | Colonic tumors                                    | <ul style="list-style-type: none"> <li>• Epidemiology, Discuss, List, Outline management of colon cancer.</li> </ul>                                                                                                                                                                                                                                                                           |
| 33 | Diverticulosis and mesenteric ischemia            | <ul style="list-style-type: none"> <li>• Definition, presentation, investigations and management of patients with diverticulosis and mesenteric ischemia</li> </ul>                                                                                                                                                                                                                            |
| 34 | Anorectal diseases                                | <ul style="list-style-type: none"> <li>• Types, presentation, investigations and management of the different pathologies.</li> </ul>                                                                                                                                                                                                                                                           |
| 35 | Congenital anomalies of the genito-urinary system | <ul style="list-style-type: none"> <li>• Identify the different anomalies (Agenesis, Horseshoe Kidney, PUJ, Reflux, hypospadias)</li> <li>• Appreciate that such anomalies may be related to other anomalies</li> <li>• Formulate a list of relevant investigations</li> <li>• Suggest the treatment modality</li> </ul>                                                                       |
| 36 | Renal stones                                      | <ul style="list-style-type: none"> <li>• Discuss epidemiology &amp; etiology of renal stones.</li> <li>• List complications</li> <li>• Discuss metabolic incidents associated with stones</li> <li>• Outline principles of management</li> </ul> <p>Factors that influence treatment</p>                                                                                                       |
| 37 | Surgical abdominal incision                       | <ul style="list-style-type: none"> <li>• Abdominal wall anatomy review</li> <li>• Type of incisions and indication</li> <li>• Technique of laparotomy and closure</li> </ul>                                                                                                                                                                                                                   |

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|    |                                                     | <ul style="list-style-type: none"> <li>• Complications</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 38 | Erectile dys – function                             | <ul style="list-style-type: none"> <li>• Anatomy of the male genitalia</li> <li>• Etiology of days function</li> <li>• Clinical presentation</li> <li>• Investigation</li> <li>• Surgical and conservative management</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 39 | Diseases of the prostate                            | <p>Specific objectives:</p> <ul style="list-style-type: none"> <li>• Outline the main embryological, anatomical, physiological and histopathological features of prostate gland.</li> <li>• List the main congenital prostate anomalies</li> <li>• Discuss in brief the natural history and etiology of both inflammatory and neoplastic prostate diseases</li> <li>• Analyze the main clinical points related to prostatitis (acute and chronic) with reference to chronic pelvic pain syndrome</li> <li>• Provide a general overview of prostate tumors with reference to benign hyperplasia and Adenocarcinoma.</li> <li>• Discuss of the role of screening methods.</li> </ul>                                                |
| 40 | Kidney and bladder tumors                           | <ul style="list-style-type: none"> <li>• Appreciate the clinical presentation and the indirect signs</li> <li>• Understand the methods and importance of staging</li> <li>• Identify the relevant investigations and confirmative measures</li> <li>• Appreciate the role of surgery in the treatment</li> <li>• Appreciate the role of Laparoscopic surgery and other minimally invasive treatments</li> <li>• Appreciate the role of other treatment modalities.</li> </ul>                                                                                                                                                                                                                                                     |
| 41 | Testicular tumors and diseases                      | <ul style="list-style-type: none"> <li>• Acute scrotum Vs painless swelling of scrotum.</li> <li>• Staging and clinical implications management.</li> <li>• Epididymitis, causes and treatment</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 42 | Surgical aspects of thyroid & parathyroid diseases. | <ul style="list-style-type: none"> <li>• Formulate a differential diagnosis for a goiter</li> <li>• list tumors of thyroid gland</li> <li>• appreciate the role of surgery</li> <li>• list possible post operative complications</li> <li>• elicit signs and symptoms related to thyroid disease (thyrotoxicosis, hypothyroidism, eye manifestations, tremors, Reflexes)</li> <li>• appreciate the relevance of performing TFT, hormone measurements, U/S, FNA, radioactive scans.</li> <li>• Elicit sign and symptoms of hypercalcemia</li> <li>• Briefly list etiologies of hypercalcemia and how to differentiate between them</li> <li>• Differentiate between primary, secondary and tertiary hyperparathyroidism</li> </ul> |

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| 43 | Back pain,<br>Mechanical | <ul style="list-style-type: none"> <li>• Diagnose and understand the natural history and management principles of whiplash and soft tissue injury.</li> <li>• Recognize the broad categories of spinal pain and radiculopathy.</li> <li>• The signs and symptoms (including cauda equina syndrome).</li> <li>• Their common causes, their diagnosis and their management (cervical and lumbar disc herniation, osteoarthritic disease, spondylolisthesis).</li> <li>• Their differential diagnosis and management (including metastatic disease and primary spinal tumors).</li> <li>• recognize the broad categories of myelopathy.</li> <li>• the signs and symptoms (including comparison of acute and chronic spinal cord injury).</li> <li>• the common causes, their diagnosis and their management (cervical and lumbar disc herniation and osteoarthritic disease).</li> <li>• Differential diagnosis and management (including transverse myelopathy, metastatic disease and primary spinal tumors).</li> </ul> |
| 44 | CNS Tumors               | <ul style="list-style-type: none"> <li>• Understand the differentiate types of primary CNS tumors &amp; metastatic tumors.</li> <li>• Be able to know the basic pathological factors of CNS tumors.</li> <li>• To understand the clinical presentation (general &amp; specific)</li> <li>• To know &amp; apply the diagnostic tools with specific features of each type.</li> <li>• To be able to apply the management protocol &amp; apply the different treatment modalities, surgery, radiotherapy &amp; chemotherapy.</li> <li>• The prognosis of brain tumor in front &amp; with specific types.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                         |
| 45 | Morbid obesity – surgery | <ul style="list-style-type: none"> <li>• Definition of morbid obesity</li> <li>• General complication</li> <li>• Indication for surgery</li> <li>• Type of surgery</li> <li>• Post operative complication</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 46 | Skin tumors              | <ul style="list-style-type: none"> <li>• Anatomy of the skin</li> <li>• Type of tumors</li> <li>• Predispose factors</li> <li>• Prophylactic measurement from skin tumors</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

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|----|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                             | <ul style="list-style-type: none"> <li>• Clinical presentation</li> <li>• Investigation</li> <li>• Treatment</li> </ul>                                                                                                                                                                                                                                                                                      |
| 47 | Hand injuries and infection | <ul style="list-style-type: none"> <li>• Surgical anatomy of the hand</li> <li>• Type of injuries</li> <li>• Clinical review of hand injuries</li> <li>• Nerve's evaluation of affected nerve</li> <li>• Modality of surgical treatment</li> </ul>                                                                                                                                                           |
| 48 | Breast disease              | <ul style="list-style-type: none"> <li>• Anatomy of the breast</li> <li>• Blood supply to the breast</li> <li>• Classification of the breast disease's depend on benign and malignant</li> <li>• Course clinical presentation</li> <li>• Modality of investigation</li> <li>• Indication for surgery</li> <li>• Type of surgery</li> <li>• Postoperative follow up inpatient with breast cancers.</li> </ul> |
| 45 | Chemotherapy                | <ul style="list-style-type: none"> <li>• Definition</li> <li>• Type of chemotherapy</li> <li>• General consideration about the common used chemotherapy and mode action</li> <li>• Follow of patients can chemotherapy</li> <li>• Complication during and post chemotherapy course</li> </ul>                                                                                                                |
| 46 | Cleft lip and palate        | <ul style="list-style-type: none"> <li>• Embryology of the lips and palate</li> <li>• Identify presentation and diagnostic methods</li> <li>• Preoperative care</li> <li>• Outline principles of management</li> </ul>                                                                                                                                                                                       |
| 47 | Dysphagia                   | <ul style="list-style-type: none"> <li>• Definition</li> <li>• Anatomy of the esophagus</li> <li>• Physiology of the esophagus</li> <li>• clinical presentation</li> <li>• investigation</li> <li>• modality of treatment.</li> </ul>                                                                                                                                                                        |

### Prince Hamza Hospital

#### General Surgery

|           | 6 <sup>th</sup> yr    |
|-----------|-----------------------|
| Sunday    | Ward + OPC            |
| Monday    | Ward + OPC<br>Seminar |
| Tuesday   | Ward + OR             |
| Wednesday | Ward + OR<br>Seminar  |
| Thursday  | Ward                  |

|           | 6 <sup>th</sup> yr        |
|-----------|---------------------------|
| Sunday    | Pediatric sur. OR         |
| Monday    | Urology                   |
| Tuesday   | Pediatric sur. clinic     |
| Wednesday | Urology                   |
| Thursday  | Cardiothoracic sur clinic |

## Seminars for 6<sup>th</sup> year medical students

### On Monday

#### Basic Surgical Principles

Fluid and Electrolyte Management of the Surgical Patient, Shock

Surgical Infections and Choice of Antibiotics, Surgical Wounds and Wound Healing, Nutrition and the Surgical Patient

### On Wednesday

#### Basic Surgical Principles and Burn

1. Systemic Response to Injury, Hemostasis, Surgical Bleeding, and Transfusion

2. Management of Burn patients

### On Monday

#### Trauma ( Dr. N Hammouri, Dr.M. Diab)

1. Approach and Management of Trauma Patients

Trauma by Organs and Systems

## On Wednesday

### Head and Neck, Breast

- |                                                |
|------------------------------------------------|
| Approach to Head and Neck Masses and Swellings |
| Approach to Common Breast Complaints           |

## On Monday

### Endocrine Surgery and Acute Abdomen

- |                                                                             |
|-----------------------------------------------------------------------------|
| 1. The Common Endocrine Pathologies                                         |
| 2. Acute Abdominal Pain and Intestinal Obstruction, Approach and Management |

## On Wednesday

### Abdomen and Gastrointestinal Tract 1

- |                                                                           |
|---------------------------------------------------------------------------|
| 1. Approach to Patient with Gastrointestinal Bleeding (Upper and Lower)   |
| 2. Approach to Patient with Jaundice, Approach to Patients with Dysphagia |

## On Monday

### Abdomen and Gastrointestinal Tract 2

- |                                                                     |
|---------------------------------------------------------------------|
| Approach to Patient with Abdominal Mass, Gastric Outlet Obstruction |
| Principles of laparoscopic surgery                                  |

## On Wednesday

### Surgical Oncology, Abdomen and Gastrointestinal Tract

- |                                                                                                            |
|------------------------------------------------------------------------------------------------------------|
| 1. Principles of surgical oncology, Tumor Markers, Melanoma and Cutaneous Malignancies, Soft Tissue tumors |
| 2. Colorectal Polyps and Carcinoma, Benign Ano-rectal conditions                                           |

## On Monday

### Perioperative care and Obesity

- |                                                                                             |
|---------------------------------------------------------------------------------------------|
| 1. Medical therapy for surgical patients (pain management, DM and surgery, anticoagulation, |
| 2. Surgical Management of Obesity                                                           |

## On Wednesday

### Pediatric and vascular surgery (

- |                                              |  |
|----------------------------------------------|--|
| 1. Emergency Pediatric Surgical Conditions   |  |
| 2. Approach and Management of Chronic Ulcers |  |

All seminars will be on Mondays and Wednesday at 1:30 PM in Prince Hamza Hospital/3<sup>rd</sup> floor, starting from  
All students must consult the tutors during preparation of seminar

### **Course information:**

|               |                                      |
|---------------|--------------------------------------|
| Course title  | Obstetrics and Gynaecology Number II |
| Course number | 111505601                            |
| Credit hours  | 9                                    |

### **Course description:**

This course offers a general obstetrics-gynaecology experience over eight weeks. Rotating within four hospitals, the students will be exposed to a variety of cases including antenatal, postnatal patients, Obstetric and gynaecological assessment, pre-operative patients in a clinic setting. Hospital rounds, assisting in patient deliveries, including operative deliveries (Instrumental and C/Sections) and Gyn Surgery, are expected.

Course Expectations: Progressive levels of responsibility, culminating in the ability to evaluate and formulate an appropriate treatment, care plan.

### **Learning outcomes:**

Upon completion of the basic clerkship, each student should be able to:

- A. Demonstrate skills in independent learning and critical thinking.
- B. Obtain and record clearly a complete medical history, conduct a complete Physical Examination, and,
  - (1). Identify normal and abnormal patterns (physical, intellectual and social).
  - (2). Identify and accurately record the patient's problems (physical, intellectual and social).
  - (3). Assess the data in the context of the patient's status; formulate a problem list for both acute and long-term problems, and a provisional diagnostic and



therapeutic plan.

4). Obtain necessary supplementary information and reassess the patient's status at appropriate intervals

(5). Present verbally at bedside or in conference, a concise summary of the patient.

C. Establish a relationship of mutual respect between the physician, patient and the patient's family, and acquire the basic interpersonal skills which facilitate this relationship.

D. Appreciate the role of community agencies, practicing physicians and community health care programs in facilitating optimal care.

E. Develop positive attributes which will serve as the basis for a successful Professional career.

F. Develop study habits which will enhance lifelong learning.

#### Medical Knowledge:

- The student will be able to describe the maternal physiologic and anatomic changes associated with pregnancy and the physiologic functions of the fetus and placenta.
- The student will be able to describe the stages, mechanisms and management of normal labor and delivery and identify common problems in obstetrics.
- The student will be able to describe potential consequences of medical and surgical conditions in pregnancy.
- The student will be able to explain the physiologic or pharmacologic basis of action, effectiveness, benefits and risks and financial considerations of various methods of contraception.
- The student will be able to describe the endocrinology and physiology of the normal menstrual cycle, including menopause, and to describe causes, evaluation methods and therapeutic options for abnormal uterine bleeding.

#### Patient Care:

- The student will demonstrate the ability to perform a thorough Ob/Gyn history, including menstrual history, obstetric history, gynaecologic history, contraceptive history and sexual history.
- The student will demonstrate the ability to perform an obstetric-gynaecologic

examination, including breast examination and complete pelvic examination that is comfortable for the patient.

• **For the obstetrical patient** the student should be able to:

1. Assess the presence /absence of normal labour
2. Assess and diagnose ruptured membranes
3. Assess common problems in pregnancy such as perception of decreased fetal movement, abdominal pain and vaginal bleeding
4. Assess fetal well being during labor and delivery and the student will demonstrate the ability to interpret electronic fetal monitoring.
5. Assess analgesia /anesthesia needs for a labouring patient
6. Assess and manage postpartum complications

• **For the gynaecology patient** the student should be able to:

1. To describe the age appropriate screening procedures and recommended time-intervals for routine health maintenance and disease prevention in women.
2. Assess common emergency gynaecologic problems such as abortion, ectopic pregnancy, pelvic inflammatory disease, appendicitis and torsion
3. Manage common gynaecological issues such as contraception, menopausal symptoms, dysfunctional uterine bleeding, sexually transmitted infections, vaginal and vulvar disorders
4. Assess pelvic masses
5. Interpret cervical cytology results.
6. Have a working knowledge of infertility
7. Have a working knowledge of incontinence
8. List possible surgical complications and methods to minimize them

#### Instructional methods:

Various learning approaches and activities are incorporated into this course including

#### **Bedside teaching/ward rounds**

Students prepare the cases and present them. Physical examination is demonstrated and students are observed doing the examination with a feedback.

## ? **RIME with Reasons**

RIME is a classification measure of a student's progression from that of a Reporter to Interpreter, to Manager/Educator. Most medical students should be able to demonstrate they can reliably gather the facts on patients and present this information in an organized manner. It is expected that the students will progressively synthesize this information, learning to connect signs and symptoms with tests, and to develop a differential diagnosis.

## ? **Prompting students**

by asking questions to think and search evidence based resources.

Students value questioning, especially when we ask their opinion and ask them to formulate a plan. Active questioning will give them the opportunity to demonstrate their knowledge, reasoning and management skills.

## ? **Presentations/Seminars**

These are done by both the instructors and the students in big and small groups.

The students are asked to attend morning reports and departmental meetings.

## ? **Shadowing in the outpatient clinics**

## ? **Attending/Assisting in the operating theatre**

## ? **Attending the labour ward,**

the student will interpret Non-stress test, do obstetric and vaginal examination, watch normal and instrumental deliveries and have hands on practice.

## ? **Logbooks**

to check competencies and tailor individual plans if needed

## ? **OSCE assessment at the end of the 8-week rotation**

Text book and material:

Recommended books:

1. Monga A. Gynaecology by Ten Teachers
2. Baker PN. Obstetrics by Ten Teachers
3. Magowan B, Owen P, Drife J. Clinical Obstetrics and Gynaecology
4. Callahan TL, Caughey AB, Heffner LJ. Blueprints Obstetrics and Gynaecology
5. Edmonds DK. Dewhurst Textbook of Obstetrics and Gynecology

6. Morgan M, Siddighi S. National Medical Series for Independent Study Obstetrics and Gynecology
7. Novak's Gynaecology
8. Williams Obstetrics
9. Current clinical strategies, gynecology and obstetrics
10. Essentials in Obstetrics and Gynecology

Grading Policy:

Grades can be based on the following:

Class attendance/participation: 10%

End of Course OSCE evaluation: 30%

Final MCQ Exam: 45%

Final Oral exam: 15%

Total points 100

Course Policies:

**Late Assignments** will not be accepted

**Missed exams:** OSCE will only be repeated if there is an acceptable excuse at the departmental meeting. The exam will be done with the following group.

Theory and oral exams follow the HU guidelines and need approval at the Faculty meeting.

**Absence:** as per the HU guidelines 10% of the rotation without an excuse, 15% with an excuse. Missing any part of the daily allocated activities will be counted for as absence.

**Cheating:** will be treated as per the HU guidelines

Classroom Protocol:

The students should demonstrate the following professional and ethical behavior and skills:

1. Each student is dutiful, arrives on time & stays until all tasks are complete
2. Consistently follows through on patient care responsibilities
3. Accepts and readily responds to feedback, is not resistant to advice
4. Assures professionalism in relationships with patients, staff & peers
5. Displays integrity & honesty in medical ability and documentation
6. Acknowledges errors, seeks to correct errors appropriately
7. Is well prepared for and seeks to provide high quality patient care

8. Identifies the importance to care for underserved populations in a non-judgmental manner

Student rights and responsibilities:

Students are expected to be present for the various elective activities that will be noted by the clinical staff in the department.

Attendance is expected at the various clinical activities including morning ward rounds, operating room when assigned, afternoon rounds, conferences, and any activity specifically requested by the attending instructor.

Students are expected to be punctual for all of the various activities noted on the weekly schedule.

Failure to adhere to the schedule will result in undue delays and inconveniences to patients, students and faculty.

Dress Code: It is expected that students carry themselves in professional manner; this includes appropriate clothing while engaged in patient care. This also applies to the operating room where scrubs are needed.

Responsibilities of the Instructors:

1. Treat all learners with respect and fairness.
2. Treat all learners equally regardless of age, gender, race, ethnicity, national origin, religion, disability, or sexual orientation.
3. Provide current materials in an effective format for learning.
4. Be on time for didactic, investigational, and clinical encounters.
5. Provide timely feedback with constructive suggestions and opportunities for improvement/remediation when needed.

Course Schedule:

The group will be subdivided into three smaller groups rotating in three hospitals.

|           |   |   |   |
|-----------|---|---|---|
| PHH       | 1 | 2 | 3 |
| QAH       | 2 | 3 | 1 |
| Al-Bashir | 3 | 1 | 2 |

- Seminars will be presented twice weekly, on Sundays & Tuesdays 1300-1600hrs

| Date   | Seminars                                                                            |
|--------|-------------------------------------------------------------------------------------|
| Week 1 | Management of patient with abnormal smear                                           |
|        | Management of abnormal vaginal bleeding                                             |
| Week 2 | Abnormal labour                                                                     |
| Week 3 | Maternal & neonatal mortality<br>Management of early pregnancy bleeding             |
|        | Management of obstetric haemorrhage                                                 |
| Week 4 | Management of subfertile couple                                                     |
| Week 5 | Approach to fetal anomalies<br>Urinary problems in gynaecology                      |
|        | Principles of gynaecological surgery                                                |
| Week 6 | Management of abdominal pain in pregnancy                                           |
|        | Operative delivery                                                                  |
| Week 7 | Management of pelvic mass                                                           |
|        | Management of patient with severe PET & eclampsia                                   |
| Week 8 | Management of recurrent miscarriage                                                 |
|        | Management of obstetric emergencies including trauma and resuscitation in pregnancy |

- Outline for topics to be discussed during the OB/GYN rotation:

### Obstetrics

First week:

#### ❓ **Antepartum Care**

- Distinguish an at-risk pregnancy
- Assess fetal growth, well-being & maturity

Be Able to Describe:

- Appropriate diagnostic studies
- Patient education programs
- Nutritional needs of pregnant women
- Adverse effects of drug & environment

Be able to do:

- Perform a physical exam on obstetrical patients
- Answer commonly asked questions regarding pregnancy, labour & delivery

## ❓ **Intrapartum Care**

- Pain management during labour
- Methods of monitoring the mother and fetus
- Management of normal delivery
- Vaginal repair
- Indication for operative delivery

## ❓ **Intrapartum Fetal Surveillance**

- Give the standards of monitoring in labor using clinical and electronic monitoring

## ❓ **Postpartum Care**

Describe:

- Normal maternal physiologic changes of the postpartum period
- Normal postpartum care
- Appropriate postpartum patient counseling including in regards to postpartum depression
- Risk factors for postpartum infection
- List most common infectious organisms
- Indications for use of prophylactic antibiotics

## **Second week:**

### • **Medical Complications of Pregnancy**

Know the interaction between

- Pregnancy and the following medical and surgical conditions:
  - Anemia
  - Diabetes Mellitus
  - Urinary Tract infection
  - Infectious Diseases including:
    - Herpes
    - Rubella
    - Group B Streptococcus
    - Hepatitis
    - HIV, HPV & other sexually transmitted infections
    - Cytomegalovirus (CMV)
    - Toxoplasmosis
    - Varicella & parvovirus

- b) Cardiac Disease
- c) Asthma
- d) Alcohol, tobacco, other substance abuse

### **Third week:**

#### **• Preterm Labour**

- a) Factors predisposing to preterm labour
- b) Signs & symptoms of premature uterine contractions
- c) Causes of preterm labour
- d) Differential Diagnoses
- e) Management of preterm labour, including:
  - i. Tocolytics
  - ii. Steroids
  - iii. Antibiotics

#### **• Premature Rupture of Membranes (PROM)**

- a) History, physical findings, and diagnostic method to confirm ROM
- b) Factors predisposing to PROM
- c) Risk & benefit of expectant management versus immediate delivery
- d) Methods to monitor maternal and fetal status during expectant management

### **Fourth week:**

#### **? Dysfunctional labor**

- a) Discuss the principles of Active Management of Labor
- b) Methods of evaluating fetopelvic disproportion
- c) Indications and contraindications for oxytocin administration
- d) Management of abnormal fetal presentations
- e) Vaginal birth after caesarean delivery

#### **? Shoulder Dystocia**

- a) Risk factors for shoulder dystocia
- b) Demonstrate immediate management
- c) Discuss options if immediate management not available



## **Fifth week:**

### **? Second and third-Trimester Bleeding**

- Describe the approach to patient
- Compare symptoms, physical findings, diagnostic methods, that differentiate patients with placenta previa, abruption placenta, and other causes of 3rd trimester bleeding
- Describe complications of placenta previa & abruption placenta
- Describe immediate management of shock secondary to 3rd trimester bleeding
- Describe the components of various blood products and indications for their use

### **? Postpartum Haemorrhage**

- Risk factors for postpartum haemorrhage
- Differential Diagnosis of postpartum haemorrhage
- Immediate management of the patient with postpartum haemorrhage including:
  - Inspection for lacerations
  - Use of uterine contractile agents
  - Management of volume loss
  - Management of coagulopathy
- Knows the importance of active management of the third stage of labor
- Physiologic adaptations of the body to accommodate blood loss
- Pregnancy adaptations protective against blood loss during pregnancy

## **Sixth week:**

### **? Gestational Hypertension**

- Definition and classification of hypertension in pregnancy
- Pathophysiology of Preeclampsia-Eclampsia Syndrome
- Symptoms, physical findings, and diagnostic methods
- Approach to management
- Maternal and fetal complications

### **? Multi-fetal Gestation**

- Aetiology of monozygotic, dizygotic, mutizygotic gestation
- Altered physiologic states of multifetal gestation
- Symptoms, physical findings, and diagnostic methods
- Approach to antepartum, intrapartum, and postpartum management
- Complications of multifetal gestation

## **Seventh week:**

### **? Fetal Death**

- a) Common causes of fetal death in each trimester
- b) Symptoms, physical findings, and diagnostic methods to confirm the diagnosis
- c) Management of a patient with fetal death
- d) Emotional reactions and the effect on management

### **? Fetal Growth Abnormalities**

- a) Define Macrosomia and fetal growth restrictions
- b) Describe etiologies of abnormal growth
- c) Cite methods of detection of fetal growth abnormalities
- d) Cite associated morbidity and mortality

## **Eighth week:**

### **? Isoimmunization**

- a) Describe the Red blood cell antigens
- b) Use of immunoglobulin prophylaxis during pregnancy
- c) Clinical circumstances under which isoimmunization is likely to occur
- d) Methods used to determine maternal isoimmunization and severity of fetal involvement
- e) Describe the methods of treatment pre and post natally.

## **Gynecology**

### **First week**

### **? Ectopic Pregnancy**

- a) Develop a differential diagnosis of 1st trimester bleeding
- b) List risk factors predisposing patients to ectopic pregnancy
- c) Describe symptoms and physical findings suggestive of ectopic pregnancy
- d) Understand methods and tests used to confirm the diagnosis of ectopic pregnancy
- e) Explain treatment options

### **? Abortion**

- a) Surgical and non-surgical pregnancy termination methods
- b) Potential complication:
  - a. Haemorrhage
  - b. Infection
  - c. Psychosocial considerations

## Second week

### ? Contraception

- a) Council patients on the various methods of contraception:
- b) Physiologic or pharmacologic basis of action
- c) Effectiveness
- d) Benefits and risks
  - a. Methods of male & female surgical sterilization
  - b. Risks and benefits of procedures
  - c. Factors needed to help the patient make informed decisions, including:
    - i. Potential surgical complications
    - ii. Failure rates
    - iii. Reversibility
- e) Financial considerations
- f) Sterilization

## Third week

### ? Sexually Transmitted Infections

List Organisms and methods of transmission, symptoms, physical findings, evaluation and management of each of the following:

- a) Gonorrhoea
- b) Chlamydia
- c) Herpes Simplex Virus
- d) Syphilis
- e) Human Papillomavirus Infection
- f) Human immunodeficiency virus (HIV) infection
- g) Hepatitis B virus infection Council patients on public health concerns, including:
- h) Screening programs
- i) Costs
- j) Prevention and immunizations
- k) Partner evaluation and treatment

## Fourth week

### ? Pelvic Relaxation and Urinary Incontinence

Knowledge of the following:

- a) Predisposing risk factors for pelvic organ prolapse and incontinence
- b) Anatomic changes
- c) Signs and symptoms of pelvic organ prolapse and incontinence

- d) Physical exam
  - a. Cystocele
  - b. Rectocele
  - c. Enterocele
  - d. Vaginal vault or uterine prolapse
- e) Methods of Diagnosis
  - a. Urine culture
  - b. Post-void residual
  - c. Cystoscopy
  - d. Urodynamic testing
  - e. Bladder diary
- f) Nonsurgical and surgical treatments:
  - a. Behavioral and physiotherapy
  - b. Pessary
  - c. Medications
  - d. Reconstructive Surgery

### **Fifth week**

#### **• Amenorrhea List:**

- a) Definitions of primary and secondary amenorrhea, and oligomenorrhea
- b) Causes of amenorrhea
- c) Evaluation methods
- d) Treatment options

### **Hirsutism and Virilization**

- a) Cite normal variations in secondary sex characteristics
- b) List definition of hirsutism and virilization
- c) List causes including ovarian, adrenal, pituitary and pharmacological
- d) Evaluate patient with hirsutism or virilization

### **Sixth week**

#### **Normal and Abnormal Uterine Bleeding**

- a) Distinguish abnormal uterine bleeding from dysfunctional uterine bleeding
- b) List causes of abnormal uterine bleeding
- c) Evaluate and diagnose abnormal uterine bleeding
- d) Describe
  - a. Prevalence of uterine leiomyomas

- b. Symptoms and physical findings
- c. Methods to confirm the diagnosis
- d. Indications for medical and surgical treatment

### **Seventh week**

#### **? Oncology**

Describe

- a) Endometrial cancer
- b) Ovarian Cancer
- c) Cervical Dysplasia
- d) Cervical Cancer
- e) Vulvar Cancer

### **Eighth week**

#### **? Infertility**

- a) Define primary & secondary infertility
- b) Causes of male & female infertility
- c) Evaluation & management
- d) Psychosocial issues associated with infertility
- e) Ethical consideration

➤ This will be followed by OSCE exam on the last Thursday in the 8<sup>th</sup> week.

### **Course information:**

|               |                |
|---------------|----------------|
| Course title  | Pediatrics 2   |
| Course number | 111504601      |
| Credit hours  | 9 credit hours |
|               |                |
|               |                |
|               |                |
|               |                |
|               |                |
|               |                |

### **Coursedescription:**

During 8 weeks pediatric rotation students will be exposed to general pediatric problems as well as different pediatric subspecialties cases including neonatology. Being sixth year medical students, they will be actively involved in their patients in form of follow up, interpretation of investigation, treatment options and discharge planning

### **Learningoutcomes:**

At the end of rotation, students should be able to:

1. Take focused clinical history and relevant examination, and able to integrate these into disease process and differential diagnosis list
2. List common investigation used to establish diagnosis and recognize indications and Limitations of these investigations
3. Outline plan of management for common pediatric diseases
4. Demonstrate good communication skills
5. Demonstrate understanding and respect for patients' privacy and confidentiality

### **Instructional methods:**

1. Supervised direct interaction with the patients
2. Bedside clinical teaching by faculty staff
3. Seminars
4. Tutorials

### **Text book and material:**

(Recommended/supportingmaterials)

- Nelson textbook of pediatrics
- Forfar textbook of pediatrics
- Nelson Essential of pediatrics.

Grades can be based on the following:

Evaluation 10%

End of rotation exam 30%

Final clinical exam: 15 %

Final written exam: 45 %

Total Points 100

### **Course Policies:**

Students are expected to present the assigned task as case presentation or seminars on scheduled time, if not, the course director will assign new date within the 2 weeks rotation in the hospital. Late assignment without accepted excuse will affect the evaluation.

### **Absence**

1. Absence of any educational activity without acceptable excuse in any day of the rotation will be considered as one whole day absence.
2. Absence of more than 10% of rotation days (i.e absence for more than 4 days) without accepted excuse, the student will be forbidden from setting to all following pediatric exams for the year including makeup examination

### **Cheating**

Cheating is extremely prohibited and Hashemite University regulation will be applied

### **Classroom Protocol:**

1. Students are expected to arrive on time for the scheduled activity as morning report, lecture or seminar or clinical round,.
2. Students should show respectful attention during the educational activity, no mobile phones and no side talks.
3. Students should respect each other, patients, nurses and physicians
4. Students are expected to respect the privacy and confidentiality of patients' information
5. Students are expected to comply with the faculty dress code policy during their clinical training in the hospitals
6. Participation is graded according to interaction during teaching tutorials and clinical rounds, completion of assigned tasks, attending educational activity, punctuality and communication skills

### **Student rights and responsibilities:**

Students have the right to have direct interaction with the patients to obtain history and perform clinical examinations, to review the medical files including investigations results and radiological tests done but not to disclose results and information to patients

Students should be responsible to respect and protect patients' privacy and confidentiality

Under direct supervision of physicians, the students can participate in performing minor pediatric procedures such as blood drawing, intravenous canulation, nasogastric tube insertion and urinary catheterization

### Course Schedule:

1. Total of 8 weeks rotation in pediatrics distributed over 4 hospitals (Prince Hamzah hospital, Queen Alia hospital, Prince Hashim hospital and Al Basheer ministry of health hospital)
2. Students attend morning reports 8-9 AM, then will attend morning clinical rounds with faculty staff.
3. Students will have direct interaction with patients to obtain history and perform physical examination
4. Clinical tutorial in form of case presentation , topic discussion will be held by assigned faculty staff daily
5. Seminars covering major pediatric topics

### **Schedule of seminars**

| No | Subject                                                                                                                                                                                                                                                                                                                                               |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Child with skin rash/ lesions (viral, chicken pox, kawasaki rash, meningococemia rash, scarlet fever, pseudomonas infection, allergic rash,)<br><b>Objectives:</b> identify rash in each category, type, distribution, and main associated signs/ feature of each diagnostic entity                                                                   |
| 2  | Approach to child with recurrent infections according to age of presentation, types of infection<br><b>Objectives:</b> identify different immune deficiency disorders and diagnostic work up                                                                                                                                                          |
| 3  | Approach to child with arthritis<br><b>Objectives:</b> Etiopathogenesis. Identify the clinical features. Arthritis subgroups including pauciaricular, polyarticular and systemic onset<br>Diagnostic. laboratory and imaging studies<br>Differential diagnosis<br>principles of management of Juvenil Rheumatoid Arthritis                            |
| 4  | Approach and D.Dx of hypo/hyperglycemia<br><b>Objective:</b> Define DM and hypoglycemia<br>Classify DM<br>Describe clinical manifestations of DM and hypoglycemia<br>Describe investigation methods used to diagnose DM and hypoglycemia<br>Identify complications of DM including DKA<br>Outline the management of DM including DKA and hypoglycemia |
| 5  | Puberty delayed and precocious<br><b>Objective:</b> identify normal Tanner stages, discuss precocious and delayed puberty, possible etiology , diagnosis and management according to cause                                                                                                                                                            |
| 6  | Approach to wheezy child.<br><b>Objectives:</b> identify etiology, discuss bronchiolitis, foreign body aspiration and asthma as etiology, diagnostic work up and specific and general management                                                                                                                                                      |
| 7  | Approach to chronic cough<br><b>Objectives:</b> definition of chronic cough, discuss the possible etiology, diagnostic workup and specific management                                                                                                                                                                                                 |



|    |                                                                                                                                                                                                                                                                          |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8  | Chronic renal failure in children.<br><b>Objectives:</b> identify clinical presentation ,diagnosis, complications (including hypertension)management                                                                                                                     |
| 9  | Renal Tubular acidosis<br><b>Objectives:</b> define types of RTA disorders , etiology of each type , diagnosis , specific management of each type , complications                                                                                                        |
| 10 | Poisoning (ion, acetaminophen, organophosp, corrhosives, kerosene<br><b>Objectives:</b> incidence rate, describe physiopathology of each disorder<br>Describe clinical manifestation of each poisoning. Identify complication. Outline the management of each poisoning  |
| 11 | Encopresis and enuresis<br><b>Objective:</b> definition, causes, management                                                                                                                                                                                              |
| 12 | Approach to child with developmental delay<br><b>Objective:</b> approach to etiology by history, physical exam and investigations                                                                                                                                        |
| 13 | Approach to child with cholestasis (infants/children)<br><b>Objectives:</b> Define cholestasis, clinical presentation ,causes, diagnostic work up, general and specific management of cholestasis                                                                        |
| 14 | Approach to a child with chronic/ recurrent abdominal pain<br><b>Objective:</b> list possible causes as differential diagnosis of abd pain, discuss functional abd pain in details, discuss constipation and FMF in details as possible etiologies                       |
| 15 | Arrhythmias/ ECG<br><b>Objectives:</b> types of arrhythmias, causes, ECG findings and management                                                                                                                                                                         |
| 16 | Approach to a child with anemia<br><b>Objectives:</b> define anemia, identify the types anaemia<br>discuss clinical manifestation and diagnostic tests for common anemia<br>discuss the line of treatment for each type                                                  |
| 17 | Approach to bleeding disorders<br><b>Objectives:</b> Discuss the mechanisms of homeostasis.<br>Provide a diagnostic approach for bleeding disorder.<br>List major clinical examples of coagulation defect.<br>Outline the principles of management of coagulation defect |
| 18 | Approach to fever of unknown origin.<br><b>Objectives:</b> define FUO, differential diagnosis, and diagnostic approach                                                                                                                                                   |
| 19 | Obesity in children and failure to thrive<br><b>Objective:</b> define each according to growth parameters using growth charts, how to calculate BMI, causes of FTT, diagnostic approach and management, discuss obesity complications and prevention / management        |