كلية الطب البشري
Faculty of Medicine

الجامعة الهاشمية
The Hashemite University

Course information:

Course title	Clinical Decision Making
Course number	111501307
Credit hours	3 hours / theory
Course date	June –August
Course meeting time	Variable
Course location	Faculty of Medicine
Instructor	Dr Eman A. Al- Kamil
	Office 3034
	Office Hours : Sunday 12-2 / Tuesday 12-1/ Thursday 12-1
	phone:5568 / e-mail: emanadnan@ hu.edu.jo

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 heath 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

Text book 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, severs 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

a. Duties and responsibilities of doctors
b. Providing a good standard of practice and care
c. Maintaining good medical practice
d. Maintaining trust and professional relationships
e. Sharing vision on challenges in health improvement.
   i. Relevance,
   ii. Quality,
   iii. Cost-effectiveness and
   iv. Equity
f. The emergence of five star doctors.
g. Personal and professional attributes
h. 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

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

First exam

Lectures 19- 30

III. Medical uncertainty in clinical practice:

1. The chain of uncertainty
2. Patient and physician factors causing medical uncertainty
3. Sources of uncertainty

A. Aleatory uncertainty (Inherent)
B. Epistemic uncertainty (External)

4. 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)
Calendar Description	2nd Semester / 3rd Year
Course date	Course start on the first day of the 2nd Semester
Course meeting time	Monday & Wednesday of each week
Course location	Lecture Theater 301, College Building
Instructors	Dr Rafat Aburuman (Consultant in Behavioral Medicine) Course Co-coordinator: Dr. Mohammad Kamel Alwiswasi Office 3029, 3rd Floor Office hours: Sun, Mon and Wednesday, 1-4 pm Phone: 053903333 ext. 5376 / E-mail: mkalwiswasy@yahoo.com

Course description:

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 & Statically 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 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 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	**First Exam**
Lecture	**The Biological Bases of Behavior:-**
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
Lecture	**Social Behavior:-**
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
Lecture	**The Doctor-Patient Relationship:-**
28	Doctor – Patient Communication
29	Non-verbal communication
30	Breaking Bad News
31	Ethical and Legal Issues in Psychological Medicine
32	**Second Exam**
Lecture	**Psychopathology:-**
33	Signs and Symptoms of Mental illnesses.
34	Anxiety, Stress and Maladjustment.
35	Psychological Medicine & physical illnesses
Lecture	**Treatment in Psychiatry:-**
36	Drugs in Psychiatry (antipsychotics)
37	Drugs in Psychiatry 11 (antidepressants, mood stabilizers, benzodiazepines)
38	Psychotherapy
Lecture	**Epidemiology and Biostatistics:-**
39	The Principles of Psychiatric Epidemiology, Biostatistics
40	Health Care System in Jordan
41	Free
42	**Final Examination**

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Faculty of Medicine

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The Hashemite University

Course information:

Course title	Clinical Skills Course 3
Course number	0111500303
Credit hours	1
Course date	1st Semester third year
Course meeting time	usually Monday and Wednesday afternoons 12:30 – 3:30pm
Course location	Clinical Skills Education and Testing Centre Laboratories, Faculty of Medicine
Pre-requested course	Clinical Skills Course 1 and 2
Instructor	Dr Katherine Miles Office hours Tuesday and Wednesday 9am – 12pm Office No: 3033 Phone :0779803235/ E-mail katemiles@doctors.org.uk

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
- Pap 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

Text book 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%
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	

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Faculty of Medicine

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The Hashemite University

Course information:

Course title	Clinical Skills Course 4
Course number	0111500301
Credit hours	1
Course date	2nd Semester third year
Course meeting time	usually Monday and Wednesday afternoons 12:30 – 3:30pm
Course location	Clinical Skills Education and Testing Centre Laboratories, Faculty of Medicine
Pre-requested course	Clinical Skills Course 1, 2 and 3
Instructor	Dr Katherine Miles Office hours Tuesday and Wednesday 9am – 12pm Office No: 3033 Phone :0779803235/ E-mail katemiles@doctors.org.uk

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

Text book 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%
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 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	

كلية الطب البشري
Faculty of Medicine

الجامعة الهاشمية
The Hashemite University

Course information:

Course title	Clinical Skills Course 5
Course number	0111500302
Credit hours	1
Course date	2nd Semester third year
Course meeting time	usually Monday and Wednesday afternoons 12:30 – 3:30pm
Course location	Clinical Skills Education and Testing Centre Laboratories
Pre-requested course	Clinical Skills Course 1, 2, 3 and 4
Instructor	Dr Katherine Miles Office No: 3033 Office hours Tuesday and Wednesday 9am – 12pm, 0779803235 katemiles@doctors.org.uk

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 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

Text book and material:

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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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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 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	

كلية الطب البشري
Faculty of Medicine

الجامعة الهاشمية
The Hashemite University

Course information:

Course title	Endocrine system (E.S.)
Course number	0111501301
Credit hours	5 credit hours
Course date	first four weeks of the first semester.
Course meeting time	a module type on daily basis for four weeks
Course location	Room 301
Instructor	Mohammad A. Shaban Room 3020 Office hours 11-1a.m. on Sunday and Tuesday and on any other time on appointment with the department secretary phone # 5433. email mshaban54@yahoo.com

Course description:

This course describes the endocrine system as a regulator of different important growth, metabolic and developmental body functions. It covers the origin, microscopic and gross structures. It describes its role and the intergration with nervous system on maintaining the harmony of the internal function adaptation to the variability of the external environments.

Learning outcomes:

By the end of this module, students are expected tofullfill the following general objectives:

*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

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:

ANATOMY (Theory & Practical)

ANAT 1. List all endocrine glands.
ANAT 2. Describe the location, gross and microscopic structure of hypothalamus, pituitary, thyroid, parathyroid, suprarenal, and endocrine pancreas..
ANAT 3. Describe the relation, blood, nerve supply and lymphatic drainage of hypothalamus, pituitary, thyroid, parathyroid, suprarenal, and endocrine pancreas.
ANAT 4. Describe the hypothalamic-pituitary axis and the hypothalamic -hypophyseal Portal Circulation
ANAT 5. Describe fetal development of the endocrine system.

Practical

ANAT 5. Identify different parts of the thyroid gland and its relations.
ANAT 6. Identify the adrenal gland and its relations.
ANAT 7. Identify the pituitary gland and its relations.
ANAT 9. Identify the ultra-structural components of the following glands and correlate between them:

Pituitary gland
Thyroid gland
Parathyroid glands
Pancreas
Adrenal glands

BIOCHEMISTRY

BCHM1. Identify the nature of different hormones.
BCHM2. Classify hormone types (steroids, proteins and short peptides, and amino acids)
BCHM3. Describe hormone biosynthesis, storage, secretion and transport of different hormone groups.
BCHM4. Compare life span of different hormones and effect on duration of hormone action
BCHM5. Illustrate targeting, delivery and response of hormones.
BCHM6. Illustrate hormonal interactions (systemic, cellular, synergistic and inhibitory).
BCHM7. Describe general aspects, governs regulation of hormone secretion.
BCHM8. Describe intracellular and molecular changes as a result of hormone binding to target tissue receptors
BCHM9. Define the concept of second messenger and list all second messengers
BCHM10. Illustrate PIP2 turnover (Ca+2/protein kinase C systems).
BCHM11. List actions of diacylglycerol (DAG)
BCHM12. Characterize cAMP as a second messenger.
BCHM13. List intracellular actions of cAM
BCHM1. Describe thyroid hormone biosynthesis: monoiodotyrosines, diiodotyrosines, T3, T4 and reverse T3.
BCHM14. Describe metabolism of iodide and iodine.

BCHM15. Discuss the role of peroxidase, iodinase, coupling, protease, dehalogenase and thyroglobulin.
BCHM16. Explain thyroid stimulating hormone action via cAMP.
BCHM17. Describe the synthesis and storage of insulin
BCHM18. Describe enzymatic changes of glucose metabolic pathways in the well-fed state and during starvation in various tissues (liver, brain, muscle and adipose tissues).
BCHM19. Describe the regulation of glycogen metabolism, glycolysis, hexose monophosphate pathway and gluconeogenesis by insulin/counter-regulatory hormones ratio
BCHM20. Describe the biosynthesis of steroid hormones.
BCHM21. Describe the role of cytochromes P-450 in steroidogenesis.
BCHM22. Describe the biosynthesis of epinephrine
BCHM23. Explain how hormonal lab tests are used to reach a clinical diagnosis.
BCHM24. Describe the importance of dynamic hormonal testing in the evaluation of hormone functions.

PHYSIOLOGY

PHYS1. 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.
PHYS2. Describe how feedback relationship is important in determining the level of circulating hormones
PHYS3. Characterize the major hormonal bio rhythms.
PHYS4. Describe intracellular, molecular and functional changes as a result of hormone binding to target tissue receptors.
PHYS5. Identify hormones working through membrane receptors and nuclear receptors
PHYS6. Justify the site of hormone receptor to its hormone structure, transport modality and hormone duration of action
PHYS7. List adenohypophyseal & neurohypophyseal hormones
PHYS8. Describe the regulation of anterior pituitary hormones by the hypothalamus.
PHYS9. Explain physiological role of portal circulation
PHYS10. Design an experiment to show the importance of pituitary gland in close proximity to the hypothalamus
PHYS11. Describe regulation of growth hormone secretion.
PHYS12. List the physiological factors which stimulates and inhibits growth hormone secretion
PHYS13. Describe the role of the hypothalamus, growth hormone releasing hormone and somatostatin in the control of growth hormone secretion
PHYS14. Describe the growth and metabolic functions of growth hormone in different age periods
PHYS15. Describe the regulation of prolactin secretion
PHYS16. Explain the importance of inhibitory mechanism in prolactin regulation
PHYS17. Illustrate the pattern of prolactin secretion in different age period and its importance in breast development and function.
PHYS18. Describe the posterior pituitary gland relationship with the hypothalamus.

PHYS19. Compare antidiuretic hormone and oxytocin in relation to their structure.
PHYS20. List the physiological effects of antidiuretic hormone.
PHYS21. Describe the regulation of antidiuretic hormone secretion.
PHYS22. List the major physiological effects of oxytocin.
PHYS23. Describe the regulation of oxytocin secretion.
PHYS24. Describe the regulation of thyroid stimulating hormone by thyroid releasing hormone and T4, T3, somatostatin and dopamine.
PHYS25. Discuss T4 and T3 transport and duration of action.
PHYS26. Describe physiological aspects related to the formation and secretion of thyroid hormones.
PHYS27. Characterize physiological consequences of thyroid hormones binding to transporting proteins.
PHYS28. List the main physiological actions of thyroid hormones.
PHYS29. Describe the regulation of thyroid hormones secretion
PHYS30. Explain the physiological basis of signs and symptoms seen in hyo and hyperthyroid state
PHYS31. Assess the physiological importance of ionized calcium in different physiological functions
PHYS32. Illustrate calcium compartments in the body
PHYS33. Illustrate calcium and phosphate absorption, metabolism and excretion.
PHYS34. Describe the role of vitamin D in calcium and phosphate absorption
PHYS35. Outline the effect of calcium ion concentration on the regulation of the active form of vitamin D levels
PHYS36. List the major physiological effects of PTH
PHYS37. Explain the regulation of PTH secretion
PHYS38. List the major physiological actions of calcitonin
PHYS39. Illustrate the regulation of calcitonin secretion.
PHYS40. Compare between PTH and calcitonin as regulators of calcium levels.
PHYS41. Describe plasma glucose level in well fed and poor fed state
PHYS42. Illustrate plasma pattern of glucose, Insulin and glucagon after a meal and in between meals
PHYS43. Explain principal hormones that affect blood glucose concentration in well and poor fed state.
PHYS44. Explain metabolic effects of presence and absence of insulin .
PHYS45. Explain the regulation of insulin secretion.
PHYS46. Explain physiological effects of glucagon.
PHYS47. Describe the regulation of glucagon secretion
PHYS48. Explain metabolic, short and long term physiological changes of high level of plasma glucose
PHYS49. Describe physiological changes in diabetes mellitus type I and type II.
PHYS50. Discuss complications of diabetes from physiological perspective
PHYS51. Describe the role of adrenal in preparing the body to face stress
PHYS52. List the catecholamines secreted by the adrenal medulla.
PHYS53. Describe the actions of catecholamines in human body
PHYS54. List the factors that regulate adrenal medullary secretion

PHYS55. Describe the hypothalamic pituitary adrenal axis.
PHYS56. Describe the role of the adrenal cortex in regulation of plasma sodium, potassium and blood volume.
PHYS57. Describe the major physiological effects of mineralococorticoids.
PHYS58. Describe the regulation of mineraloocorticoids secretion.
PHYS59. Describe the major physiological effects of glucocorticoids.
PHYS60. Describe the regulation of glucocorticoids secretion.
PHYS61. Describe defects and consequences of enzymatic deficiency in the pathway of steroid synthesis (BP, blood volume, androgens and blood glucose).

PATHOLOGY (Theory & Practical)

PATH1. List the causes & effects of anterior pituitary gland diseases (hyper- & hypopituitarism).
PATH2. Classify adenomas of the anterior lobe of pituitary gland according to their (i) functional status & (ii) type of hormone production.
PATH3. Describe the pathogenesis, gross & microscopic features of pituitary adenomas in general.
PATH4. describe the pathologic & clinical effects of: prolactinomas, growth hormone-producing, corticotroph cell (cushion disease), & gonadotroph, & thyrotroph adenomas
PATH5. Describe the causes & clinical manifestations of hypopituitarism.
PATH6. Enumerate the Types, causes, & effects of diabetes insipidus.
PATH7. Define the syndrome of inappropriate anti diuretic hormone (SIADH) secretion.
PATH8. Enumerate the causes & diagnostic criteria of: thyrotoxicosis & hypothyroidism.
PATH9. Describe cretinism & myxedema.
PATH10. Enumerate the main types of thyroiditis
PATH11. Describe the etiology, pathogenesis, gross & microscopic features & diagnosis of:
(1) thyroiditis: including hashimoto's, de quervain, subacute lymphocytic, & riedel.
(2) graves disease.
(3) diffuse multinodular goiters, both endemic & sporadic.
PATH12. List the main types of thyroid tumors.
PATH13. Describe the etiology, pathogenesis, pathological features & diagnosis of benign thyroid adenomas.
PATH14. Describe the etiology, pathogenesis, pathological features, diagnosis & rotes of spread of each type of the thyroid carcinomas (papillary, follicular, medullary, & anaplastic).
PATH15. List the causes & effects of primary hyperparathyroidism.
PATH16. Describe the molecular pathogenesis, types, pathological changes (in the parathyroid glands, bones, & kidneys), & the clinical features of parathyroid tumors
PATH17. List the causes of hypercalcemia.
PATH18. List the causes of secondary hyperparathyroidism.
PATH19. Describe the causes & effects of hypoparathyroidism.
PATH20. Describe the pathogenesis of :
(1) type 1 & 2 diabetes mellitus (DM);

(2) the complications of DM.

PATH21. Describe the pathological changes of:
(1) DM in the pancreas.
(2) DM Late complications, including diabetic macrovascular disease, microangiopathy, nephropathy, neuropathy, & the ocular complications of DM.

PATH22. Describe the pancreatic endocrine neoplasms, including insulinomas, gastrinomas, glucagonomas, VIPoma [vasoactive intestinal peptide (VIP) producing tumor].

PATH23. Describe the causes & pathological features of the different forms of:
(1) hypercortisolism (cushing syndrome);
(2) hyperaldosteronism.

PATH23. Describe the causes & pathological features of primary (acute & chronic) & secondary adrenocortical insufficiency (hypoadrenalism).

PATH24. Describe the pathological features & effects of the main adrenal tumors (adenomas, carcinomas, & pheochromocytomas)

PATH25. Describe the multiple endocrine neoplasia syndromes (Type 1, Type 2A & 2B).

Practical

PATH26. Pathology of the thyroid gland.
Describe the morphology of various types of thyroiditis.
Describe the features of nodular colloid goitre.
Describe the features of adenomas.
Describe the features of various carcinomas.

PATH27. Pathology of the pituitary gland.
Identify various types of adenomas and the significance of using immunological stains in their categorization.
Describe the morphology of craniopharyngioma.

PATH28. Parathyroid gland.
Identify the morphological features of hyperplastic gland and compare with adenoma.

PATH29. Endocrine pancreas.
Identify the morphological features of the pancreas in diabetes.
Identify the morphological features of islet cell adenoma.

PATH30. Adrenal gland
Identify the morphological features of atrophic and hyperplastic glands.
Compare with the features of cortical adenoma.
Identify the morphological features of pheochromocytoma.
Identify the morphological features of neuroblastoma.

PHARMACOLOGY

PHRM1. List synthetic analogs of hypothalamic hormones.

PHRM2. Describe mechanism of action of these synthetic analogs.

PHRM3. Illustrate their clinical uses and routes of administration.
List side effects hypothalamic synthetic analogs

PHRM4. Describe growth and metabolic effects of growth hormone.

PHRM5. List the principal insulin-like growth factors and describe their relationship to the actions of growth hormone
PHRM6. Describe pharmacology of anterior pituitary hormones, review their pharmacological actions.
PHRM7. List synthetic analogs and describe their routes of administration.
PHRM8. Describe their clinical uses and adverse reactions
PHRM9. Illustrate the pharmacology of thyroid hormones.
PHRM10. Describe the pharmacology of antithyroid drugs.
PHRM11. Describe the clinical uses, routes of administration and adverse reactions of antithyroid drugs
PHRM12. Characterize the pharmacology of the parathyroid hormone, vitamin D and calcitonin
PHRM13. List synthetic analogs and describe their routes of administration, clinical uses and their adverse reactions
PHRM14. Integrate growth hormone vit.D and parathyroid gland roles in growth
PHRM15. Explain the pharmacology of insulin.
PHRM16. Illustrate the pharmacology of oral hypoglycemic drugs.
PHRM17. Describe clinical uses, administration and adverse reactions.
PHRM18. Describe the synthetic analogs and their routes of administrations.
PHRM19. Explain the rationale of replacement therapy.
PHRM20. Illustrate the pharmocology of glucocorticoids in terms of pharmacokinetics, mechanism of action and adverse reactions.
PHRM21. Describe the synthetic analogs and their routes of administration.
PHRM22. Explain the rationale of replacement therapy

COMMUNITY MEDICINE

COMM1. Describe epidemiology of diabetes mellitus (DM)
COMM2. Classify DM
COMM3. Describe signs and symptoms
COMM4. List the causes
COMM5. Explain pathophysiology
COMM6. Describe the epidemiological aspects of DM regarding age distribution, incidence and prevalence risk factors and trend
COMM7. Identify the diagnostic methods
COMM8. List general public awareness policies
COMM9. Describe epidemiology of thyroid diseases
COMM10. Classify goiters, hypo and hyperthyroidism
COMM11. Describe signs and symptoms
COMM12. List the causes
COMM13. Explain pathophysiology
COMM14. Describe the epidemiological aspects of goiter regarding age distribution, incidence and prevalence risk factors and trend
COMM15. Identify the diagnostic methods.
COMM16. Describe public protective measures to prevent neonatl hypothyroidism
COMM17. List general public awareness policies

By the end of the module the student will be able to

*Create (PREDICT) chemical, functional and structural models for cases of excess and deficiency of GH, THYROXINE, ADH, PTH, CORTICAL ADRENAL GLAND HORMONES

*Review the whole course of endocrinology.

Discuss the negatives during the course and how to make it better

Instructional methods:

Lectures
Practical's
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

***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.

***PHARMACOLOGY:**

- Lipincott's Illustrated Reviews: Pharmacology.

Grading Policy:

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

Course Policies:

Late Assignments
Students must give an explanation to the course instructor for any assignment which is submitted late. The instructor may decide if marks will be deducted.

Missed exams
A make up exam may be done according to the university regulation if the student verifies a reasonable cause of his absence which is accepted by the dean.

Absence
The university regulation allows 25% absence limit. Otherwise the student will be reported as a failure in the course

Cheating
Cheating is forbidden. Any case of cheating is reported to the dean where further action which may reach failure in the whole year can be acted on the student.

Classroom Protocol:
Attendance on time is mandatory for all lectures and practicals. Good conduct and behavior is mandatory. Discussion in the lectures is favorable and stimulated. Mobile phones and any noise are not allowed in the classroom.

Important Dates to Remember:
Date of the exams will be announced to the student at the beginning of each semester.

Student rights and responsibilities:
Are detailed in the university regulation.

Course Schedule :

Look attached Excel sheet

SEP , 2013	WK 1		8-9	9-10
8	SUN			ANAT 1
				د.سعد ألسبتي
				Morphology of the endocrine glands
9	MON			PATH 1
				د. محمد ألوسولسي
				Diseases of the pituitary gland
10	TUE			PHYS 3
				د.محمدشعبان
				Hypothamic/pit
11	WED			PHRM 1
				د. خليل مكي
				Growth Hormone
12	THR			PHYS 4
				د.محمدشعبان
				Hypothamic/pit
SEP 15, 2013	WK 2		8-9	9-10
15	SUN		PATH 2	PHYS 6
			د. محمد ألوسولسي	د.محمدشعبان
			Dis. of the Thyroid gland (I)	Thyroid
16	MON		PATH 4	BCHM 4
			د. محمد ألوسولسي	د. مؤيد عبود
			Dis.of the parathyroid gland	Biochemistry of Steroid hormones
17	TUE		PHYS 7	BCHM 5
			د.محمدشعبان	د. مؤيد عبود
			Steroidogenesis	Biochemistry of Steroid hormones

18	**WED**		**PATH 5**	**PHYS 8**
			د. محمد ألوسولي	د.محمدشعبان
			Diseases of the endocrine pancreas	Adrenal
19	**THR**		**PHRM 4**	**PHRM 5**
			د. خليل مكي	د. خليل مكي
			Adrenocorticosteroids	Adrenocorticosteroids
SEP 22, 2013	**WK 3**		**8-9**	**9-10**
22	**SUN**		**PATH 6**	**BCHM 6**
			د. محمد ألوسولي	د. مؤيد عبود
			Diseases of the endocrine pancreas	Hormonal control of blood glucose level
23	**MON**		**PATH 7**	**PHYS 9**
			د. محمد ألوسولي	د.محمدشعبان
			Adrenal gland Diseases	Glucose homeostasis
24	**TUE**			
25	**WED**		**PATH 8**	PHYS 10
			د. محمد ألوسولي	د.محمدشعبان
			Adrenal gland Diseases	DM/Calcium
26	**THR**			**PHRM 7**
				د. خليل مكي
				Insulin/Antidiabetic agents
SEP 29, 2013	**WK 4**		**8-9**	**9-10**
29	**SUN**			
30	**MON**			
1	**TUE**			
OCT 2, 2013	**WED**			
OCT 3, 2013	**THR**			

10-11	11:30-12:30	12:30-1:30			
PHYS 1	**BCHM 1**		**3**	**ANAT**	**3**
د.محمدشعبان	د. مؤيد عبود		**5**	**PHYS**	**5**
Introduction	Introduction to biochemical endocrinology		**3**	**BCHM**	**3**
			1	**PATH**	**1**
PHYS 2	**ANAT2**		**3**	**PHARM**	**3**
د.محمدشعبان	د.سعد ألسبتي		**0**	**CM**	**0**
General endocrinology	Histology and embryology of endocrine glands I		**15**		**15**
ANAT 3	**BCHM 2**	**CLI SKLS LCTUR 1**			
د.سعد ألسبتي	د. مؤيد عبود	كاثرين			
Histology and embryology of endocrine glands II	Mechanism of hormone action				
PHRM 2	**PHRM 3**	**CLI SKLS LCTUR 2**			
د. خليل مكي	د. خليل مكي	كاثرين			
GH& other pit Hormones/thyroid hormones	Antithyroid drugs				
BCHM 3	**PHYS 5**				
د. مؤيد عبود	د.محمدشعبان				
Mechanism of hormone action	posterior Pit/Thyroid				
10:30-11:30	**11:30-12:30**	**12:30-1:30**			
PATH LAB 11-1 GRP CD; 1-3 AB			**0**	**ANAT**	**3**
			3	**PHYS**	**8**
			2	**BCHM**	**5**
			4	**PATH**	**5**
PATH 3	**12:30-3:30 CLI. SKILS GROUP A**		**3**	**PHARM**	**6**
د. محمد ألوسولسي		كاثرين	**0**	**CM**	**0**
Dis. of the thyroid gland (II)			**13**		**27**
10-11:00 CLI SKLS LCTUR 3	**AL 11-1 GROUP D; 1-3 GROUP C**				

CM 1	**AL 12-2 GROUP A; 2-4 GROUP B**				
	12:30-3:30 CLI. SKILS GROUP C				
PHRM 6					
د. خليل مكي					
Insulin/Antidiabetic agents					
10:30-11:30	**11:30-12:30**	**12:30-1:30**	**0**	**ANAT**	**3**
PATH LAB 11-1 GRP CD; 1-3 AB			**3**	**PHYS**	**11**
			1	**BCHM**	**7**
			3	**PATH**	**8**
			2	**PHARM**	**8**
CM 2	**12:30-3:30 CLI. SKILS GROUP B**		**2**	**CM**	**2**
			11		**39**
office reviews					
PHYS 11	**12:30-3:30 CLI. SKILS GROUP D**				
د.محمدشعبان					
calcium hmoeostasis					
PHRM 8					
د. خليل مكي					
Ca, Phosphorus, osteoporosis					
10:30-11:30	**11:30-12:30**	**12:30-1:30**			
office reviews					
office reviews					
office reviews					
office reviews					
MIDTERM EXAM 10:30-					

Course information:

Course title	Gastrointestinal tract (GIT)
Course number	0111501302
Credit hours	6 (Six)
Course date	The course teaching will start after the end of the endocrine module teaching
Course meeting time	every day according to the time table
Course location	Lecture Theater 301, College Building
Calendar Description	5 working weeks/ 1st Semester / 3rd Year
Teaching Approaches	Partially Integrated System Course
Instructor	Dr. Dr. Mohammad Altamimi Office 3038, 3rd Floor Office hours: Monday and Wednesday, 10-12 am Phone: 053903333 ext. 5563 E-mail: mohammad.altamimi@hu.edu.jo

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

Recommended Text Books, Atlases and 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, 9th 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 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 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
GIT Anatomy, Histology & Embryology: 13 Lectures & 6 Practical's:	
Anatomy 1st Lecture Anatomy of GIT	1. Outline the parts & functions of GIT. 2. Understand the general structure of digestive tract wall. 3. Describe the anatomy of oral cavity (parts, structure, blood & lymph vessels, motor and sensory supply. 4. Describe briefly the teeth (types & structure). 5. Describe the gross features & histology of tongue. 6. Describe muscles & movements of tongue, blood & nerve Supply, lymphatic drainage.

2nd Lecture Anatomy & Histology of Salivary Glands	1. Outline the types & function of minor and major salivary Glands. 2. Describe location, shape, facial sheaths & gross features of parotid gland. 3. Understand the relations, blood supply, nerve supply and lymph drainage of parotid gland supply. 4. Describe the histology of parotid gland. 5. Describe the location, extension, fascial sheaths & relations of submandibular gland. 6. Study the blood supply, nerve supply & lymph drainage of submandibular gland. 7. Describe the histology of submandibular gland.
3rd Lecture Anatomy & Histology of Salivary Glands, Palate & Pharynx	1. Describe the location, relations, blood supply, nerve and lymphatic drainage of sublingual gland. 2. Describe the histology of sublingual gland. 3. Describe the parts and structure of palate. 4. Understand the muscles, movements, blood supply, nerve supply & lymph drainage of soft palate. 5. Describe the extension, relations and parts of pharynx. 6. Describe muscles, blood supply, nerve supply & lymph drainage of pharynx. 7. Study the histological features of palate & pharynx.
4th Lecture Anatomy & Histology of Esophagus & Anatomy of Anterior Abdominal Wall	1. Describe the extension, parts, relations, blood and nerve supply, lymph drainage of esophagus. 2. Describe the histology of esophagus. 3. Outline the layers, blood supply, nerve supply & lymph drainage of anterior abdominal wall of anterior. 4. Describe the abdominal lines, planes, quadrants and regions. 5. Describe the muscles of anterior abdominal wall.
5th Lecture Anatomy of Anterior Abdominal Wall & Scrotum	1. Describe the structure & content of rectus sheath. 2. Understand the inguinal ligament; the extension, walls and content of inguinal canal. 3. Understand the anatomy of spermatic cord, scrotum & the descend of testis. 4. Introduce the important clinical condition of anterior abdominal wall & scrotum.
6th Lecture Anatomy of Peritoneum	1. Describe the parts and reflection of peritoneum. 2. Describe the parts of peritoneal cavity (lesser & greater sacs). 3. Describe the peritoneal omenta, ligaments, folds, recesses, gutter & pouches. 4. Understand the histology, blood supply, nerve supply & lymph drainage of peritoneum.
7th Lecture Anatomy & Histology of Stomach	1. Describe the location, shape, openings, surfaces and areas of stomach. 2. Describe the relations, blood & nerve supply, and the lymph drainage of stomach. 3. Describe the histology of stomach.

8th Lecture Anatomy & Histology of Small Intestine	1. Describe the parts of small intestine. 2. Understand the relations of the four parts of duodenum, and the blood & nerve supply and the lymph drainage. 3. Describe the gross features, blood supply, nerves and lymph drainage of jejunum & duodenum. 4. Describe the histology of small intestine. 5. Outline the arteries and veins of GIT.
9th Lecture Anatomy of Large Intestine	1. Outline the parts of the large intestine. 2. Describe the location, relations, blood supply, nerves and lymph drainage of appendix, colon and rectum.
10th Lecture Anatomy & Histology Anal Canal	3. Describe location, internal features, relations, sphincters, blood & nerve supply, lymph drainage and histology of anal canal. 1. Describe the location, relations, blood & nerve supply, lymph drainage and the histology of pancreas.
11th Lecture Anatomy of Liver & Gall Bladder	1. Describe the location, lobes, peritoneal covering, surfaces and relations, blood & lymph vessels and nerve supply of liver. 2. Describe the histology of liver & gall bladder.
12th & 13th Lectures Anatomy Embryology of GIT	1. Describe the formation of gut tube. 2. Outline the derivatives of foregut, midgut & hindgut. 3. Outline important congenital anomalies of GIT
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	
1st Path Lecture Diseases of the oral cavity	★ Describe the Etiology, Pathogenesis, & Pathologic Features Of Oral Leukoplakia, Candidiasis, & Herpes Simplex Virus Infection, & Aphthous. ★ Describe the Causes & Pathological Features Of Acute & Chronic Sialadenitis. List Salivary Gland Tumors & Describe Pleomorphic & Warthin Tumor.
2nd Path Lecture	Describe the: ★Etiology, Pathogenesis & Pathologic Features Of Esophageal Laceration, Achalasia & Hiatus Hernia. ★Pathological Features Of Reflux Esophagitis.

Diseases of the esophagus	★Cause, Pathological Features, & Clinical Significance Of Esophageal Varices. ★Barrett's Esophagus. ★The Risk Factors & Pathological Features Of Squamous Cell & Adeno-carcinomas Of The Esophagus.
3rd Path L Diseases of the stomach (gastritis & peptic ulcer)	Classify diseases of the Stomach. ★ Describe the Pathogenesis, Pathologic Features, & Complications Of (I) Chronic Gastritis (H Pylori-Induced & Drug-Induced Gastritis), & (Ii) Acute Gastritis. ★ Describe The Etiology, Pathogenesis, & Pathological Features, & Complications Of Both Acute & Chronic Peptic Ulcers.
4th Path L Gastric Ca	★ Describe the Types, Risk Factors, Gross & Microscopic Features, Spread & Prognosis Of Gastric Adenocarcinoma.
5th Path L Diseases of the intestines	★ Describe the Small & Large Intestinal: Developmental Anomalies. ★ Etiology, Types & Pathological Features Of Ischemic Bowel Diseases, ★ Angiodysplasia, & Hemorrhoids ★ Diverticular diseases of the bowel. ★ Causes, Features, Clinical Significance, & Complications Of Malabsorption. List The Main Causes Of Bowel Obstruction, & ★ Describe the 4 major causes: Strangulated Internal Or External Hernias + Adhesions + Intussusception + Volvulus.
6th Path L (IBD)	★ Describe the Types, Etiology, Pathologic, Endoscopic & Clinical Features Of Chronic Inflammatory Bowel Disease (IBD). Identify the Differences between Crohn's disease & Ulcerative colitis.
7th Path L Intestinal polyps	Provide a Simplified Classification Of Small & Large Intestinal Non-Neoplastic & Neoplastic Polyps. ★ Describe the Types & Pathological Features Of Different Intestinal Polyps.
8th Path L Colorectal carcinoma	★ Describe the Adenoma-Carcinoma Sequence & The Two-Hit Hypothesis Of Development Of Colorectal Carcinoma. ★ Describe the Pathological Features, Spread, Stages & Prognosis Of Colorectal Carcinoma.
9th Path L Tumors of small intestine & Appendix	★ Describe the Types & Pathological Features Of Intestinal Lymphomas, Carcinoids, & Small Intestinal Adenocarcinomas. List the main diseases of Appendix, & ★ Describe the Etiology, Pathological & Clinical Features & Complications Of Acute Appendicitis.
10th Path L Cirrhosis, & hepatic failure	★ Describe the Patterns of Hepatic Cell Injury & the Liver Cell Responses to Injury. List the main Causes Of Hepatic Failure. ★ Describe the Pathogenesis, Pathologic Features, & Complications of Hepatic Failure ★ Describe the Causes, Pathological & Clinical Features, & Complications Of Cirrhosis. Define jaundice & List its main Causes
11th Path L Viral Hepatitis	Identify the Causes, Types, Routes, Pathological Features, & Complications Of Viral Hepatitis. ★ Describe the role of the Liver biopsy in Hepatitis.
12th Path L	Discuss the Pathogenesis & Pathologic Manifestations Of Alcohol Liver Disease. ★ Describe the other (Non-Alcohol) Drug Induced Liver Diseases.

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 Intrahepatic Biliary Tract Diseases	Define & Describe the Pathogenesis, Pathological Features, & Complications of: ★Primary Biliary Cirrhosis (PBC) ★Primary Sclerosing Cholangitis {PSC}
14th Path L Hepatic Tumors	List & Describe The Types Of Hepatic Nodules & Benign Hepatic Tumors. ★ Describe the Predisposing Factors, Pathogenesis, Morphological Features, & Methods Of Spread Of Hepatic Cell Carcinoma
15th &16th Path Lectures Diseases of the gall bladder Diseases of the extra hepatic biliary tree	★ Describe the: ★Types, Etiology, Risk Factors For The Development, Effects, & Complications Of Gallstones. ★Pathological Features & Complications Of Acute & Chronic Cholecystitis. ★Pathological Features& Complications Of Choledocholithiasis & Cholangitis ★Tumors of the Gall Bladder & Biliary Tree.
17th & 18th Path Lectures Diseases of exocrine pancreas	List the main Congenital Anomalies Of The Pancreas. ★ Describe the Causes, Pathogenesis, & Pathologic Feature Of Acute & Chronic Pancreatitis. ★ Types & Pathological Features Of Pancreatic Cysts ★ Risk Factors & Pathological Features Of Pancreatic Carcinoma
GIT Microbiology: 9 Lectures	
1st Microbiology L Gastritis & Helicobacter pylori	Understand the role of Helicobacter in gastritis as well as laboratory diagnosis & sensitivity to antibiotics.
2nd Microbiology L Bacterial infections of GIT	Recognize morphology, culture, & the pathogenesis of causative bacteria (Salmonella, Shigella & Campylobacter); & Appreciate their epidemiology & treatment.
3rd Microbiology L 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 Food poisoning & Cholera	Understand the role of E. Coli, Clostridium perfringens, C. botuliunum, Staphylococcus aureus and B. cerius in food poisoning. Appreciate their pathogenesis & epidemiology. Recognize morphology, culture & pathogenesis of Vibrio cholerae.
5th Microbiology L Diarrhea due to viruses	Identify the characteristics of Rota viruses & to a lesser extent those of adenoviruses 40 & 41 Norwalk, Coronaviruses & Enteroviruses. ★Describe the infection mechanism, define antibody response, & understand epidemiology, laboratory diagnosis, & control.
6th Microbiology L Amebiasis	Understand the differences between Entamoeba histolytica & other amoeba, laboratory diagnosis, treatment. ★Describe both intestinal extra intestinal infections.
7th Microbiology L Diarrhea due to parasites I	★Describe the morphology, life cycle, pathogenesis, epidemiology, & treatment of Giardia lamblia, Strongyloides, Balantidium, & Cryptosporidium parvum.
8th Microbiology L Intestinal infections	Understand infections arising from Ascaris, Enterobius, Trichuris & Toxocara parasites.

with parasites II	Recognize the life cycle, morphology & treatment of each parasite. Understand infection caused by Taenia, Himenolepis nana, Ancylostoma & Fasciola, their laboratory diagnosis, epidemiology & treatment.
9th (Last) Microbiology Lecture Schistosomiasis & Hydatid disease	Recognize the life-cycle, pathogenesis & the infection caused by Schistosoma Mansoni & Echinococcus granulosus. Understand the epidemiology & treatment of Schistosomiasis & Hydatid disease.
GIT Pharmacology: 5 Lectures	
1st Pharmacology Lecture Antiemetics & drugs affecting gastric motility	★Describe the mechanism of drug-induced vomiting. List drug classes employed as antiemetics & the mechanism of action each class. Explain the clinical implications of drugs affecting gastric emptying.
2nd & 3rd Pharmacology Lectures Drugs used in peptic ulcer disease	List major drugs or groups of drugs associated with GI ulceration & ways of preventing or reducing this risk. ★Describe the mechanism of action of drugs or groups of drugs commonly employed in the management of peptic ulcer disease. Explain the rationale behind the use of drug combination in peptic ulcer disease. List important antimicrobial drugs employed in peptic ulcer disease, & explain the therapeutic basis of their inclusion in the management of peptic ulcer disease. Enumerate the adverse effects of drugs commonly used in peptic ulcer disease.
4th Pharmacology L Laxative agents	Review the physiological aspects of normal bowel habits. List the major classes of drugs employed as laxatives & describe their mechanism of action. List the major indications & contraindications of laxatives. Indicate the specific adverse effects associated with the commonly used laxative agents.
5th Pharmacology L Antidiarrheal drugs	★Describe the therapeutic aims of antidiarrheal drugs. List the major classes of antidiarrheal drugs & describe their mechanism of action. Indicate the major adverse effects possibly encountered in patients using antidiarrheal drugs.
GIT Community Medicine: 2 Lectures	
1st Community Medicine Lecture Nutrition	★Recognize the use of nutritional terms. ★Recognize the basis for categorizing the nutrients as macro, micro, and essentials. ★Classify the common domestic food items according to nutritional category. ★Understand the use of Recommended Daily Allowances (RDA) tables. ★Identify the difference between reference and non-reference individuals.
2nd Community Medicine Lecture Dietary roughage	★List the mechanism by which dietary fibers affect normal functions. ★Discuss the effect of fiber on nutrient absorption rates. ★Describe how dietary fiber help preventing health disorders.

B. PRACTICAL LABORATORY SESSIONS:

PRACTICLE SESSION Number & TITLE	OBJECTIVES
1st anatomy practical session Anatomy & Histology of Upper GIT	1. Study the structure of circum oral area (lips & cheeks) 2. Study the structure, blood vessels, nerves of mouth cavity 3. Study the location, gross features, structure, muscles, vessels & nerves of the tongue 4. Study the structure, muscles, vessels & nerves of soft palate & pharynx 5. Study the Histology of soft palate, tongue 6. Study the location, shape, surfaces, relations, blood vessels, nerves, lymph drainage and histology of parotid, submandibular & sublingual glands
2nd anatomy practical session. Anatomy & Histology of Esophagus, & Anatomy of the Anterior Abdominal Wall & the Peritoneum	1. Study the structure, extension, relations, blood & lymph vessels, nerves and histology of esophagus 2. Study the layers, muscles, blood & nerve supply, lymph drainage of anterior abdominal wall 3. Study the structure & content of rectus sheath 4. Understand the inguinal ligament; and the extension, wall & content of inguinal canal in male and female 5. Describe the structure of spermatic cord & scrotum 6. Study the reflection, organization, ligaments and folds of Peritoneum Understand the parts of peritoneal cavity
3rd anatomy practical session Anatomy & Histology of Stomach	1. Study the location, extension, shape, surfaces & relations of stomach 2. Study the regions, openings, borders, peritoneal covering & Ligaments 3. Study the blood supply, nerves and lymphatic drainage of stomach 4. Understand the histology of different regions of stomach
4th anatomy practical session Anatomy & Histology of Small intestine	1. Study the parts, location, peritoneal covering, structure, relations, blood & nerve supply and lymph drainage of duodenum 2. Study the location, gross features, blood & nerve supply & lymphatic drainage of jejunum and ileum 3. Understand the histology of small intestine (duodenum, jejunum, ileum)
5th anatomy practical session Anatomy & Histology of Large Intestine	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 2. Study the anatomy of rectum & anal canal 3. Histology of the appendix, colon, rectum & anal canal
6th (last) Anatomy practical session Anatomy & Histology of Liver, Gall Bladder & Pancreas	1. Study the location, gross features, structure , peritoneum, blood, lymph, nerves and ducts of liver, gall bladder & pancreas 2. Understand the histology of liver, gall bladder & pancreas

1st pathology practical session	▶Describe the morphology of the ◘ Mucocele, ◘ Sialolithiasis, ◘Sjögren syndrome, & ◘ Tumors of the salivary glands ▶Describe the morphology of the ◘ Esophagitis, ◘ Barrett's esophagus & adenocarcinoma, ◘ Esophageal varices; & ◘ Squamous cell carcinoma ▶Describe the morphology of ◘ Gastritis, ◘ Gastric ulceration, & ◘ Gastric adenocarcinoma
2nd pathology practical session	▶Describe the morphology of the following: Small intestine disorders: ◘ Enteritis; ◘ Tumors (carcinoid, lipoma, lymphoma, & adenocarcinoma); & ◘ Celiac disease & other causes of malabsorption. Large intestinal disorders: ◘Colonic polyps & adenomas; ◘ Colonic adenocarcinoma; ◘ Diverticular disease.
3rd pathology practical session	▶Describe the morphology of inflammatory bowel disease: ◘Ulcerative colitis, ◘Crohn's disease, ◘Pseudomembranous colitis.
4th (Last) pathology practical session	▶Describe the morphology of the following: Liver disorders: ◘ Steatosis, ◘ Hepatitis, ◘ Cirrhosis, & ◘Tumors Gall bladder & biliary disorders: ◘ Chololelithiasis & cholecystitis, ◘ Carcinoma of the gall bladder; & ◘ Cholestasis.
1st microbiology practical session (Stool examination)	Examine wet preparation for fecal leucocytes RBCs. Prepare stool culture for Salmonella & Shigella.
2nd (Last) microbiology practical session (Parasite identification)	Identify the following parasites in slides: Ascaris, Trichuris, Enterobius, Hookworm, Tinea saginata.

1st Week Day/ Date-2013	8 - 9	9 - 10	10.30- 11.30	11.30- 12.30	12.30-2.0	2.0-3.30
Sun 6/10		A 1	Phy 1	A 2	Path L1 (A+B)	Path L1 (C+D)
Mon 7/10		Phy 2	A 3	Path 1	CS L1	
Tue 8/10		Phy 3	Micro 1	A 4		
Wed 9/10	Path 2	Phy 4	Path 3	11.30–1.30		1.30–3.30
				AL 1 B		AL 1 A
Thu 10/10	Phy 5	Micro 2	A 5	AL 1 C		AL 1 D

Aid Holiday, From Sunday 13/10 to Friday 18/10/2013

2nd Week Day/ Date	8 - 9	9 - 10	10.30– 11.30	11.30- 12.30	12.30-2.0	2.0 - 3.30
Sun 20/10		Path 4	Micro 3	A 6	Path L2 (A+B)	Path L2 (C+D)
Mon 21/10	Path 5	Path 6	A 7	11.30–1.30		1.30–3.30
				AL 2 A		AL 2 B
				Micro Lab 1 (C+B)		Micro Lab 1 (D+A)
Tue 22/10	Phy 6	Bio 1	A 8	AL 2 D		AL 2 C
				Skill Lab A		
Wed 23/10	Path 7	A 9	Path 8	AL 3 C		AL 3 D
Thu 24/10	Phy 7	Phar 1	Phar 2	AL 3 B		AL 3 A
				Skill Lab C		

3rd Week Day/ Date	8 - 9	9 - 10	10.30- 11.30	11.30- 12.30	12.30-2.00	2.00- 3.30
Sun 27/10		Path 9	Micro 4	A 10	Path L3 (A+B)	Path L3 (C+D)
Mon 28/10	A 11	Path 10	Path 11	11.30-1.30		1.30-3.30
				AL 4 A		A L 4 B
				Micro Lab 2 (C+B)		Micro Lab 2 (A+D)
Tue 29/10	Micro 5	A 12	CM1	AL 4 D		AL 4 C
Wed 30/10	Path 12	Micro 6	Path 13	AL 5 B		AL 5 A
Thu 31/10	Bio 2	Phar 3	Phar 4	AL 5 C		AL 5 D

4th Week Day/ Date	8 - 9	9 - 10	10.30- 11.30	11.30-12.30	12.30 –2.0	2.0-3.30
Sun 3/11	Micro 7	A 13	Path 14	Bio 3	Path L 4 (A+B)	Path L 4 (C+D)
Mon 4/11	Path 15	Phy 8	Path 16	AL 6 A		AL 6 B
Tue 5/11	Micro 8	Phar 5	Phar 6	AL 6 D		AL 6 C
				Skill Lab B		
Wed 6/11	Micro 9	Path 17	CM 2	Path 18	12.30-1.30	-1.30 2.30
					CS L2	Bio 4
Thu 7/11	**Holiday**					

5th Week Day/ Date	
Sun 10/11	
Mon 11/11	
Tue 12/11	
Wed 13/11	
Thu 14/11	**GIT Midterm Examination:** **(Theory: 80 MCQs, 40 Marks)** **(Practical: {Online} 30 Figures, 20 Marks)**

★ **Summary of GIT MODULE teaching:**

Anatomy: 13L+ 6P
Physiology: 8L
Biochemistry: 4L
Pathology: 18L+ 4P
Microbiology; 9L+ 2P
Pharmacology: 6L
CM: 2L
Clinical Skills: 2L+ 1 P

Total of 62 Lectures in 4 Week and 13 Practical (Two hours each) / student
Important: Sunday 6/10/2013 at 10.00am revision of Endocrine Module MCQs answers facilitated by the Endocrine system coordinator Dr Mohammad Sha'ban

كلية الطب البشري
Faculty of Medicine

الجامعة الهاشمية
The Hashemite University

Course information :

Course title	Genito-Urinay System
Course number	0111501304
Credit hours	8 credit hours
Course date	Jan to March/ Third year
Course meeting time	Variable
Course location	Lecture theater 301
Instructor	Dr. Sameer Ahmad Naji
	Office 3036 third floor
	Office hours: Sun, Mon and Tue 1-4 pm
	Phone: 053903333 ext. 5365
	E-mail: Sameer@hu.edu.jo

Course description:

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 community Medicine.

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

Text book 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:

#	Lecture Title	Lecture Objectives
1	Gross Anatomy of kidney	1. Overview of parts & functions of urinary system. 2. Understand the location, shape and surfaces of kidney. 3. Describe the coverings of kidney its significance, and the relations of both kidneys. 4. Understand the gross structure of a coronal section of the kidney. 5. describe the blood supply, nerves and lymphatic drainage of kidney
2	Histology of kidney	1. Understand the parts of nephron. 2. Describe the histology of renal corpuscle with LM & EM. 3. Understand the histological features & functions of; proximal convoluted tubule, loop of Henle, distal convoluted tubule, collecting tubule, and renal calyces. 4. Describe the structure & functions of juxtaglomerular apparatus.
3	Anatomy & Histology of Urinary Passages	1. Understand the course, relations, blood & nerve supply, lymph drainage and histology of ureters. 2. Understand the location, shape, surfaces, relations, blood & Nerve supply, function and the histology of urinary bladder. 3. Understand the location, relations, sphincters, blood & nerve supply, lymph drainage, and histology of male and female urethra.
4	Embryology of Urinary System	1. Understand the development of the kidney. 2. Understand the development of urinary passages (ureter, urinary bladder, urethra). 3. Describe the developmental anomalies of urinary system.

5	Gross Anatomy & Histology of Male Genital System	1. Outline the parts& functions of male genital system. 2. Understand the location, shape, coverings, relations, blood & nerve supply, lymph drainage, and histology. 3. Describe the process of spermatogenesis.
6	Gross Anatomy & Histology of Male Genital System	1. Understand the gross anatomy & histology of; Epididymis, Vas Deferens, Seminal vesicle & Ejaculatory duct. 2. Understand the gross anatomy and histology of: prostate, penis and scrotum.
7	Gross Anatomy of Female Genital System	1. Outline the parts & functions of female genital system. 2. Describe the location, shape, relations, blood & nerve supply, support & lymph drainage of ovary. 3. Describe the gross anatomy of uterine tubes, vagina and external genitalia.
8	Histology of Female reproductive System	1. Describe the histology of ovary. 2. Understand the ovarian & menstrual cycles. 3. Describe the histology of uterine tubes. 4. Describe the histology of uterus, cervix & vagina.
9	Embryology of Male & Female Genital Systems	1. Describe the development of the testis & ovary 2. Describe the development of male genital ducts, associated glands & external genitalia. 3. Describe the development of female genital ducts, associated glands & external genitalia. 4. Understand the developmental anomalies of male & female genital systems.
10	Anatomy, Histology & embryology of The Breast	1. Describe the gross anatomy of the breast. 2. Describe the histology and embryology of breast. 3. Outline the important clinical conditions of the breast.
11	The Posterior Abdominal and Pelvic Walls & Related Structures	1. Describe the structure of posterior abdominal wall. 2. Describe the Bones and muscles forming the wall of pelvic cavity. 3.Describe the blood vessels and nerves of pelvic cavity.
12	The Perineum	1. Understand the location, definition and parts of perineum. 2. Understand the perineal pouches and their arrangement. 3. Understand the contents of superficial perineal pouch of male and female. 4. Understand the contents of deep perineal pouch of male & female.
13	Radiological Anatomy Of Uro-Genital System	1. Outline the radiological techniques used in the study of gross anatomy of urogenital system. 2. Be oriented with radiological appearance of common

		diseases of urinary 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	1. Study the location, shape, surfaces, hilum and relations of both kidneys. 2. Study the blood vessels of kidneys. 3. Study the gross features of sectioned kidney. 4. Study the course, relations of both ureters, 5. Study the location, shape, surfaces and relations of urinary bladder. 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. 6. Understand the histology of ureter, bladder and urethra.
2	Gross Anatomy & Histology of Male Genital System	1. Study the structure of scrotum & penis 2. Study the location, shape, blood vessels & covering of testis 2. Study the epididymis, Vas deference, seminal vesicle & Prostate 3. understand the histology of testis, vas deferens, seminal vesicle & prostate
3	Gross Anatomy & Histology of Female Genital System	1. Study the location, shape and relations of ovary 2. Study the uterine tubes, uterus & vagina 3. Understand the histology of ovary, uterus, uterine cycle, and vagina
4	Posterior Abdominal Wall & Related Structures, and Pelvic Wall & Pelvic Viscera	1. Study the structures forming the posterior abdominal wall 2. Study the structures on posterior abdominal wall (lumbar plexus branches, abdominal aorta, inferior vena cava and sympathetic trunk 4. Study the muscles of pelvic wall, contents of pelvic cavity (internal iliac vessels, sigmoid colon & rectum, urinary bladder and related male genital organs, sacral plexus

Pathology Lectures:

#	Lecture Title	Lecture Objectives
1	Diseases of The Kidney: Glomerular Diseases (I)	1. Define Prerenal, Renal, & Post Renal Azotemia & Uremia. Defined the 8 Major Syndromes of renal diseases, according to their clinical manifestations 2. Describe the Normal Glomerulus (G). Classify Glomerular Diseases: [Primary, Secondary to Systemic Diseases, & Hereditary Disorders]. 3. Describe the Pathogenesis, Light, Electron,& Immunofluorescence Microscopic Changes & Fate of: (I) Glomerulonephritis (GN) Caused by Circulating Immune Complexes, (II) Anti-Glomerular Basement Membrane Antibody GN, & (III) Antibodies reacting in situ with previously "planted" nonglomerular Ags.
2	Glomerular Diseases (II) & The Nephrotic Syndrome (I)	1. Define the Mediators of Immune Injury in GN: (1) Complement-leukocyte-mediated, (2) Complement-dependent but not neutrophil- dependent injury, & (3) Cytotoxic Abs directed to Glomerular cell Antigens. Other mediators of G damage: Monocytes & macrophages, Platelets, Resident G cells (endothelial, epithelial, & mesangial cells), & Fibrin-related products. Other Mechanisms of G Injury: (A) Podocyte Injury, (B) Nephron Loss 2. Describe the Components Of, Pathogenesis, Causes, Prevalence in Children & adults, Pathologic Features, and Effects & complications of the Nephrotic Syndrome. 3. Define & Describe the Pathogenesis, Light & Electron, & Immune Fluorescence Microscopy Features, Clinical Course & Prognosis Of The Following 4 Causes of Nephrotic Syndrome : (1) Minimal-Change Disease (Lipoid Nephrosis). (2) Focal and Segmental Glomerulosclerosis (FSGS).
3	The Nephrotic Syndrome (II).	(3) Membranous Nephropathy or Membranous GN (4) Membranoproliferative GN, both types I & II. 4. Describe the Components Of, Causes, & Light Microscopic Features of the Nephritic Syndrome. 5. Define & Describe the Pathogenesis, Light, Electron, & Immune Fluorescence Microscopic Features, Clinical Course & Prognosis of: (1) Acute Poststreptococcal GN.

4	The Nephrotic Syndrome(III) & Chronic GN	(2) IgA Nephropathy (Berger Disease). (3) Hereditary Nephritis. (4) Rapidly Progressive (Crescentic) GN Groups A, B, & C. (5) Chronic GN.
5	Pyelonephritis & Interstitial Nephritis	1. Describe the Pathogenesis, Routes, Importance of Vesicoureteral Reflux in ascending infection, Predisposing Conditions, Gross & Microscopic Features, & Clinical Features Of acute pyelonephritis -Define the Predisposing Conditions, Pathognomonic Feature, & Effects of papillary necrosis. 2. Describe The Causes, Gross & Microscopic Features, & Clinical Course, Effects, & Diagnosis of Chronic Pyelonephritis & Reflux Nephropathy
6	Vascular Diseases Of The Kidney	1. Describe the Pathogenesis, Gross & Microscopic Features, & Clinical Course Of: (1) Acute Drug-Induced Interstitial Nephritis, (2) Analgesic Nephropathy, & (3) Acute Tubular Necrosis (Both Ischemic & Nephrotoxic forms). 2. Describe the Pathogenesis, Gross & Microscopic Features, & Clinical Course of Benign & malignant Nephrosclerosis -Define Thrombotic Microangiopathies & Enumerate their Causes. 3. Describe the Frequency, Pathogenesis, Microscopic Features, & Clinical Course of: Childhood hemolytic uremic syndrome.
7	Cystic Diseases Of The Kidney, Renal Stones & Hydronephrosis.	1. Describe renal Simple Cysts & Dialysis-associated acquired renal cysts. 2. Describe the Pathogenesis, Gross & Microscopic Features, & Clinical Course of: (a) Autosomal Dominant (Adult) Polycystic, (b) Autosomal Recessive (Childhood) Polycystic (c) Medullary Cystic Disease of the Kidney 3. Describe the Prevalence, Pathogenesis, Effects & Complications of renal stones. Enumerate the most common Causes of Hydronephrosis. 4. Describe the Pathogenesis, Gross & Microscopic Features, & Effects Of Unilateral & Bilateral; Partial & Complete Obstruction Of The Urinary Tract; Above & Below The Bladder.

8	Renal cell & Bladder carcinoma	1. Classify & Describe the Gross & Microscopic Features, Clinical Manifestations, routes of Spread & Prognosis of: (1) Renal Cell Carcinoma 3 forms Clear cell, Papillary, & Chromophobe RCC. (2) Nephroblastoma (Wilms Tumor). 2. Classify & Describe the Incidence, Risk Factors, Gross & Microscopic Features, Spread, Stages, Clinical Manifestations, Diagnosis & Prognosis of Bladder carcinoma.
9	The Female Genital System- Diseases of the Vulva, Vagina, & Cervix (CIN)	1. Describe the Pathologic Features of vulvitis, contact dermatitis, lichen sclerosis, lichen simplex chronicus, condylomata lata & acuminata of the vulva. -Define the Causes & Pathologic Features of vulvar carcinoma & extramammary Paget diseas -Define the Causes, Pathologic Features, & Effects of vaginitis, vaginal clear cell adenocarcinoma & sarcoma botryoides 2. Describe The Etiology, Risk Factors, Grades Of, Pathologic Features, Fate, & Prognosis of Cervical Intraepithelial Neoplasia (CIN).
10	Carcinoma of the Cervix & Diseases of the Uterus (I)	1. Describe the Gross & Microscopic Features, Stages, Clinical Manifestation, Early Diagnosis, Prognosis & Prevention of invasive carcinoma of the cervix. -Define Cervical Polyp, Acute & Chronic Endometritis. -Define the Causes & Effects Of Acute & Chronic endometritis & adenomyosis. 2. Describe Endometriosis Sites, Pathogenesis, Gross & Microscopic Features, & Clinical Effects.
11	Diseases of the Uterus (II)	1. Enumerate the Causes of Dysfunctional Uterine Bleeding. 2. Describe the Incidence, Etiology, Types, Gross & Microscopic Features, & Effects of: Endometrial Hyperplasia, polyp, carcinoma, Uterine leiomyoma & Leiomyosarcoma. -Define the Causes & Effects of Salpingitis. -Define the follicular, luteal cysts, & Stein-Leventhal syndrome of the ovary.
12	Tumors Of The Ovary	1. Describe the Origin, Frequency, Gross & Microscopic Features, Effects, & Prognosis of ovarian: Benign, borderline & malignant Serous, Mucinous, & Endometrioid tumors, Benign (Mature) Cystic & malignant Teratomas. -Define: Dysgerminoma, Granulosa-thecal, Thecoma-

		fibroma, Sertoli-Leydig cell & Brenner Tumors. 2. Describe the clinical manifestation of all ovarian tumors.
13	Diseases Of Pregnancy	1. Describe the Causes, Gross & Microscopic Features, & Complications of ectopic pregnancy. 2. Describe the Incidence, Etiology, Pathogenesis, Gross & Microscopic Features, Complications, & Prognosis of the Gestational Trophoblastic Diseases: (1) Hydatidiform moles (complete & partial), (2) Invasive mole, & (3) Choriocarcinomas. -Define Preeclampsia & eclampsia, their pathogenesis & effects (DIVC & placental changes).
14	Diseases of the breast	1. Describe the Nonproliferative (Cysts &/Or Fibrosis) & Proliferative (Epithelial Hyperplasia, Ductal Papillomatosis, Atypical Hyperplasia, & Sclerosing Adenosis) Lesions of Fibrocystic Changes of Breast -Define the relationship of fibrocystic changes to breast ca. 2. Describe the Etiology, Gross & Microscopic Features, & Effects of: Acute mastitis, Mammary duct ectasia, Traumatic fat necrosis; Breast Fibroadenoma, Phyllodes Tumor, &Intraductal Papilloma
15	Carcinoma of the Breast	1. Classify carcinoma of the breast & ★Describe its Epidemiology, Risk Factors, & Pathogenesis. 2. Describe the main Gross & Microscopic Features Of Breast: (A) Noninvasive ca: Ductal ca in situ, Lobular ca in situ, & Paget disease of the nipple. (B) Invasive ca: Invasive Ductal Ca ("Not otherwise Specified"), Invasive Lobular Ca, Medullary Ca, Colloid Ca, Tubular Ca, & Inflammatory Ca. 3. Describe the Locations, Invasion Sites, Routes Of Spread, Stages, Clinical Manifestations, Diagnosis, & Factors Affecting The Prognosis Of Breast Carcinoma. 4. Finally, What is the differential diagnosis of a FEMALE BREAST MASS? Enumerate the Causes of Gynecomastia & briefly describe male breast carcinoma.
16	The male genital system (I) Penis, Testis & epididymis	1. Define: hypospadias, epispadias, balanitis; balanoposthitis, phimosis, &para phimosis. 2. Describe the Predisposing Factors & Pathologic Features of (1) Bowen disease, (2) Erythroplasia of Queyrat, (3) Bowenoid papulosis, & (4) Squamous cell carcinoma of penis. 3. Describe the Etiology, Gross & Microscopic Features, &

		Effects of Cryptorchidism, Nonspecific epididymitis & orchitis, mumps, & Granulomatous Orchitis 4. Classify the testicular Germ Cell tumors according to the WHO Classification scheme. 5. Describe the: Risk Factors, Types, Gross & Microscopic Features, Routes Of Spread, Importance Of HCG, & AFP Tumor Markers Assay In The Diagnosis & Prognosis Of The Testicular: Seminoma, Embryonal carcinoma, Yolk sac tumor Choriocarcinoma, pure teratoma variants (mature, immature & teratoma with somatic-type malignancies), & Mixed germ cell tumors.
17	The Male Genital System (II) Prostate	1. Describe the Causes, Gross & Microscopic Features, Clinical Manifestations, & Complications of Acute bacterial prostatitis, Chronic Bacterial & Abacterial prostatitis 2. Describe the Incidence, Pathogenesis, Gross & Microscopic Features, Clinical Manifestations, & Complications of Prostatic Nodular Hyperplasia. 3. Describe the Incidence, Pathogenesis, Gross & Microscopic Features, Gleason System Of Grading, TNM Staging, Clinical Manifestations, Prognosis & Assay Of Serum Levels Of Prostate-Specific Antigen (PSA) In The Diagnosis of Prostatic Adenocarcinoma.

Pathology Practical Laboratory Sessions:

Lab #	Lab. Title	Objectives
1	Glomerular pathology.	1. Identify the main light microscopical features of the different types of glomerulonephritis plus selected examples of electron microscopic (EM) and immunofluorescence (IF). (for this class use Webpath images & glass slides from your slide box).
2	Non-neoplastic diseases of the kidney. Neoplasms of kidney and urothelial tumors.	1. Identify the congenital and cystic diseases of the kidney grossly. 2. Examine kidneys with pyelonephritis grossly and microscopically. 3. Examine kidneys with hydronephrosis, lithaiasis and tuberculosis grossly; (for this class use Webpath, glass slides and gross specimens in the museum) 4. Examine the gross and histological slides of renal cell carcinoma and nephroblastoma (Wilms tumor). 5. Examine urinary bladder cancer grossly and histologically; (for this class use the Webpath, glass slides and gross specimens).

3	Male reproductive system.	1. Identify the gross and histological features of: - Benign prostatic hyperplasia. - Carcinoma of the prostate. - Carcinoma of the penis. - Testicular tumors. 2. Identify the gross appearance of hydrocele and torsion of testis. 3. Identify the histological features of testicular atrophy associated with infertility cases.
4	Female genital tract-I.	1. Identify and recognize the pathologic changes in: - Human papilloma virus infection. - Squamous cell carcinoma of the vulva, vagina and cervix. - Dysplasia and squamous intraepithelial neoplasia of the cervix. - Endometrial adenocarcinoma. - Adenomyosis and endometriosis. - Benign and smooth muscle tumors of the uterus.
5	Female genital tract-II.	1. Identify and recognize the pathologic changes in: - Ectopic tubal pregnancy. - The following ovarian tumors: sereous, mucinous, granulosa cell, teratomas and Krukenberg tumor - Gestational disease: molar pregnancies and choriocarcinoma.

Physiology Lectures:

#	Lecture Title	Lecture Objectives
1	Glomerular filtration (GF).	1. List kidney functions 2. Describe the functions of the nephron. 3. Explain the process of renal blood flow and glomerular filtration. 4. Illustrate the glomerular membrane, and the dynamics of glomerular filtration. 5. List the factors that affect glomerular filtration rate (GFR).
2	Reabsorption and secretion.	1. Explain transport mechanisms across epithelial membranes. 2. Illustrate the reabsorption of H_2O and electrolytes. 3. Illustrate the reabsorption of glucose, urea, creatinine and protein 4. Illustrate the reabsorption of calcium, phosphate

3	Regulation of the GF and renal-blood flow (RBF).	1. Explain the autoregulation and tubuloglomerular feedback. 2. Describe the juxtodoglomerular apparatus and its role in renin-angiotensin system. 3. Define the glomerulotubular balance.
4	Parameter of renal active transport.	1. Explain the renal tubular transport maximum (Tm). 2. Define the filtered load and excretion. 3. Assess the glucose and para-aminohippuric acid (PAH) titration curve
5	Renal clearance.	1. Explain the mechanisms of renal clearance and its applications. 2. Analyse the inulin, creatinine and PAH clearance.
6	Renal concentration and dilution of urine.	1. Explain the mechanisms of dilution and concentration - Counter current multipliers. - Counter current exchangers. 2. Illustrate the role of urea on urine concentration mechanism
7	Regulation of Acid-Base Balance	1. List renal buffer systems 2. Illustrate the role of kidney in acid base balance
8	Hormonal regulation of sex determination.	1. Describe fetal differences in male and female gonads 2. Illustrate the role of various hormones and factors involved in sex differentiation 3. Compare and contrast male and female reproductive systems
9	Male reproductive physiology.	1. Describe the hypothalamic pituitary gonadal axis 2. Describe the endocrine regulation of male reproduction. 3. Illustrate the functions of the male reproductive Organ and glands. 4. Illustrate the spermatogenesis process. 5. Illustrate the male reproductive dysfunction
10	Female reproductive physiology-I.	1. List the hormones of female reproduction and describe their functions. 2. List the functions of the female sex hormones. 3. Describe the pituitary ovary axis and the changes that occur in the ovaries leading up to and following ovulation during an ovarian cycle. 4. Describe the monthly pattern of female sex hormones 5. Illustrate the structural changes that occur in the endometrium during the menstrual cycle and explain how these changes are hormonally controlled 6. Describe the compare normal sequence of events of puberty in the male and female.

11	Female reproductive physiology-II/pregnancy.	1. Describe the physiology of the menopause and possible andropause. 2. Describe the disorders of reproductive function. 3. Describe, fertilization, transport of the fertilised oocyteand implantation of the blastocyst 4. List requirements of implantation. 5. Describe the formation and functions of placenta. 7. Describe the response of the mother's body to pregnancy.
12	Physiology of pregnancy and lactation..	1. List factors currently thought to be involved in the initiation of parturition. 2. Illustrate the hormonal requirements for mammary gland development and establishment of lactation. 3. Describe the milk synthesis , regulation and composition. 4. Describe the milk let down reflex

Microbiology Lectures:

#	Lecture Title	Lecture Objectives
1	Urinary tract infection.	1. Understand the role of *E. coli* and other gram negative bacteria as well as gram positive organisms in UTI. 2. The laboratory diagnosis and susceptability of these microorganisms to antibiotics.
2	Schistosomiasis.	1. Describe *Schistosoma hematobium*, its pathogenesis, immune response, epidemiology, life cycle and clinical manifestations. 2. Describe the laboratory diagnosis,treatment, prevention and control measures.
3	Gonorrhoea.	1. Understand the role of *Neisseria gonorrhoeae* as the commonest cause of sexually transmitted diseases. 2. Describe the laboratory diagnosis, pathogenesis, susceptibility to antibiotics and epidemiology of *N. gononrrhoeae.*
4	Trichomoniasis & Ectoparasites.	1. Describe *Trichmonas vaginalis* and other ectoparasites transmitted by sexual means, their morphology, structural features and life cycle. 2. Briefly describe clinical presentations and drugs used for treatment.

5	Infections by *Chlamydia,Gardnerella,* and *Ureaplasma.*	1. Describe the differences in structure, morphology and replication of these organisms from other bacteria or viruses. 2. Describe the pathogenesis stressing the role of virulence factors and their implication on the clinical picture. 3. Describe laboratory diagnosis and rationale behind treatment.
6	Syphilis.	1. Describe the morphology of *Treponema pallidum,* pathogenesis and laboratory diagnosis of the disease. 2. Describe the various stages of the disease and appropriate treatment as well as preventive measures.
7	HIV and AIDS.	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. 2. Describe the laboratory measures for screening, confirmation and follow up of treatment. 3. Highlight the treatment regimens and preventive measures.
8	Herpes, Cytomegalo Virus, Human Papilloma Virus and Moluscum contagiosum.	1. Describe the structure, morphology , replication cycle and serotypes of each virus as well as epidemiology of the diseases they cause. 2. Describe the pathogenesis and role of these viruses in cervical cancer. 3. Describe the cell culture and serology for identification and highlight role of antiviral drugs in treatment.
9	Candidiasis.	1. Describe the morphology of *Candida albicans* ,its pathogenesis and the association between the immune system and fungal infections. 2. Briefly describe clinical presentation and the nature of the vaginal discharge. 3. Describe laboratory methods of diagnosis as well as drugs used for treatment.

Microbiology Practical Laboratory Sessions:

#	Lab. Title	Objectives
1	Urinalysis and urine culture	1. Describe methods of urine collection. 2. Examine the following characteristics of urine: - Physical. - Chemical. - Microscopic. 3. Demonstrate the lab diagnosis of urinary tract infection. 4. Demonstrate the significance of antibiotic sensitivity test in urinary tract infection. 5. Identify the morphological features of *Schistosoma Hematobium*
2	Urethral Discharge.	1. Describe specimen collection methods used in sexually transmitted disease, and storage of specimens. 2. Recognize in microscopic slides bacteria, fungi, and parasites causing urethral discharge. 3. Culture a urethral discharge simulated specimen that has Neisseria sp. Identify it by biochemical tests.

Pharmacology Lectures:

#	Lecture Title	Lecture Objectives
1	Diuretic agents-I.	1. List major types of diuretics and relate them to their sites of action. 2. List the major applications, toxicities, and the efficacy of carbonic anhydrase inhibitors (acetazolamide), osmotic diuretics thiazides, loop diuretics and potassium-sparing diuretics. 3. Describe the drugs that reduce potassium loss during diuresis (spironolactone, triamterene, amiloride) .
2	Diuretic agents-II.	1. Describe a therapy that will reduce calcium excretion in patients who have recurrent urinary stones. 2. Discuss the principle of force diuresis. 3. Describe the drugs for reducing urine volume in nephrogenic diabetes insipidus.
3	Drugs and the Kidney.	1. Understand the usefullness of altering urine pH by drugs. 2. Discuss the mechanisms by which drugs and chemicals damage the kidney. 3. Understand how to select and prescribe drugs for patients with renal impairment.
4	Androgens and their antagonists.	1. Classify and understand the nature and the mechanism of action of androgens and androgen antagonists. 2. Discuss the therapeutic uses of androgens and their abuse potential.

5	Female sex steroids and contraceptives agents.	1. Describe the nature, mechanisms of actions and the adverse effects of female sex steroids and various female contraceptive agents. 2. Indicate the therapeutic applications of antiestrogenic agents.
6	Drugs acting on the uterus.	1. Describe drugs (stimulants and relaxants) of the uterus and their therapeutic uses and adverse effects. 2. Emphasize the effects of these drugs on uterine receptors in the nonpregnant and pregnant uterus at different stages.

Biochemistry Lectures:

#	Lecture Title	Lecture Objectives
1	Special aspects of renal metabolism. Role of kidney in acid base balance.	1. Discuss amino acids absorption by the kidney and their disorders. 2. Discuss creatinine metabolism. 3. Understand the role of kidney in the regulation of hydrogen ions and bicarbonate buffer system.
2	Inherited diseases-I.	1. Understand the autosomal dominant inheritance. 2. Understand the autosomal recessive inheritance.
3	Inherited diseases-II.	1. Understand the sex-linked inheritance. 2. Understand the mitochondrial inheritance. 3. Understand the multifactorial inheritance.

Public Health Lectures:

1	Epidemiology of sexually transmitted diseases (STD) I.	1. Define STD 2. Discuss the epidemiological importance of STD 3. Describe the risk factors 4. Classify the causative pathogens 5. Methods of Transmission 6. Describe different types of STD regarding clinical presentation and treatment 7. Discuss strategies for control of STDs
2	Epidemiology of sexually transmitted diseases (STD) I.	

Summary of Lectures & Practicals:

***Anatomy**	**(Dr. Raith Al Saffar)**	**14 L**	**4 P**
***Physiology**	**(Dr. Mohd Shaaban)**	**12 L**	**---**
***Biochemistry**	**(Dr. Muayyad Abboud)**	**3 L**	**---**
***Pathology**	**(Dr. Mohd Weswasy)**	**17 L**	**4 P**
***Microbiology**	**(Dr. Sameer Naji)**	**9 L**	**2 P**
***Pharmacology**	**(Dr. Khalil Makki)**	**9 L**	**---**
***Community Medicine**	**(Dr. Iman Al kamel)**	**2 L**	**---**
		67 L	**10 P**

الجامعة الهاشمية
The Hashemite University

	Day/Date	8.0 – 9.0	9.0–10.0	10.30-11.30	11.30-12.30	12.3013.30	13.30-14.30	14.30-16.0
1st Week	Sun 26/1	**Phar 1** Diuretics	**Phar 2** Diuretics	**Phar 3** Gonadotropines	**Anat 1** General.Topographic Anatomy of Urinary System			
	Mon 27/1	**Anat 2** Gross anatomy of US, blood vessels, lymph drainage and innervation	**Path 1** Congenital and cystic diseases of the kidney	**Phys 1** Glomerular filtration	**AL 1 A**		**AL 1 B**	
	Tue 28/1	**Anat 3** Histology of the Kidney	**Phys 2** Reabsorption and secretion	**Anat 4** Gross anatomy & histology of ureter, urinary bladder&urethra	**Phys 3** Regulation of the GF and renal-blood flow			
	Wed 29/1	**Path 2** Nephritic syndrome	**Anat 5** Embryology of the urinary system	**Path 3** Nephrotic syndrome	**AL 1 C**		**AL 1 D**	
	Thu 30/1	**CM** Sexually transmitted diseases	**Anat 6** Living and radiologic anatomy	**CM** epidemiology of Sexually transmitted diseases	**Anat 7** Pelvic walls, perineum & pelvic diaphragm			

	Day/Date	8.0 – 9.0	9.0–10.0	10.30-11.30	11.30-12.30	12.30-13.30	13.30-14.30	14.30-16.0
2nd Week	Sun 2/2	**Phar 4** Gonadal Hormones & Inhibitors	**Phar 5** Gonadal Hormones & Inhibitors	**Phar 6** Male Hormones & Contraception	**Path L1 A+B**		**Path L1 C+D**	
	Mon 3/2	**Path 4** Nephrotic syndrome	**Phys4** Parameter of renal active transport	**AL 2 D**		**AL 2 C**		
	Tue 4/2	**Anat 8** Urogenital diaphragm in both males & females	**Micro 1** Urinary tract infection	**Anat 9** Anatomical components of the male reproductive system	**Phys 5** Renal clearance			
	Wed 5/2	**Anat 10** Histology of male reproductive system	**Path 5** Glomerular pathology in systemic disease	**AL 2 B**		**AL 2 A**		
	Thu 6/2	**Anat 11** Anatomical components of the female internal reproductive	**Phys 6** Renal concentration and dilution of urine	**Anat 12** Histology of the female reproductive system				

كلية الطب البشري
Faculty of Medicine

الجامعة الهاشمية
The Hashemite University

	Day/ Date	8.0 – 9.0	9.0–10.0	10.30-11.30	11.30-12.30	12.30-13.30	13.30-14.30	14.30-16.0
3rd Week	Sun 9/2	**Phar 7** Drugs acting on the Uterus	**Phar 8** used in Neoplasms of the Urogenital System	**Phar 9** Drugs used in Neoplasms of the Urogenital System	**Path L 2 C+D**		**Path L 2 A+B**	
	Mon 10/2	**Path 6** Diseases of blood vessels; Renal failure	**Micro 2** Schistosomiasis -Schistosoma hematobium	**AL 3 B**		**AL 3 A**		
	Tue 11/2	**Micro 3** Gonorrhoea	**Phys 7** Hormonal regulation of sex determination		**Micro L 1 A+B** Urinalysis and Urine Culture		**Micro L 1 C+D** Urinalysis and Urine Culture	
	Wed 12/2	**Path7** Tubulo-interstitial nephritis; urinary tract infection	**Path8** Renal tumors; Pathology of ureter and urinary bladder	**AL 3 D**		**AL 3 C**		
	Thu 13/2	**Anat 13** Developmental anatomy "Embryology" of the reproductive system	**Phys 8** Male reproductive physiology	**Anat 14** Anatomical components of the female external reproductive system	**Phys 9** Female reproductive physiologyI			

	Day/Date	8.0 – 9.0	9.0–10.0	10.30-11.30	11.30-12.30	12.30-13.30	13.30-14.30	14.30-16.0
4th Week	Sun 16/2	**Path 9** Disease of the penis, scrotum and testis	**Micro 4** Trichomoniasis and Ectoparasites	**Phys 10** Female reproductive physiologyIII/ Pregnancy	**Path L 3 A+B**		**Path L 3 C+D**	
	Mon 17/2	**Path 10** Diseases of the prostate	**Micro 5** Infections by Chlamydia, Gardnerella & Ureaplasma	**AL 4 C**		**AL 4 D**		
	Tue 18/2		**Micro 6** Syphilis	**Bio 1** Special aspects of renal metabolism. Role of kidney in acid base balance	**Micro L 2 C+D** Urethral discharge		**Micro L 2 A+B** Urethral discharge	
	Wed 19/2	**Path 11** Disease of the vulva and vagina	**Path 12** Diseases of the cervix	**AL 4 A**		**AL 4 B**		

	Thu 20/2	**Phys 11** Pyberty/ Menopause & Andropause	**Phys 12** Female reproductive physiologyII / Pregnancy	**Bio 2** Inherited diseases-I	**Bio 3** Inherited diseases-II and KFT			

	Day/Date	**8.0 – 9.0**	**9.0–10.0**	**10.30-11.30**	**11.30-12.30**	**12.30-13.30**	**13.30-14.30**	**14.30-16.0**
5th Week	**Sun 23/2**	**Path 13** Diseases of the breast-I	**Micro7** HIV and AIDS	**Path 14** Diseases of the breast-II	**Path L 4 A+B**		**Path L 4 C+D**	
	Mon 24/2	**Path 15** Disease of the uterus	**Micro 8** Herpes, CMV, HPV and Molluscum contagiosum	**AL 4 C**		**AL 4 D**		
	Tue 25/2		**Micro 9** Candidiasis - Candida albicans		**Micro L 2 C+D** Urethral discharge		**Micro L 2 A+B** Urethral discharge	
	Wed 26/2	**Path 16** Gestational disease	**Path 17** Diseases of the ovaries and fallopian tubes	**AL 4 A**		**AL 4 B**		
	Thu 27/2							

	Day/Date	**8.0-9.0**	**9.0-10.0**	**10.30-11.30**	**11.30-12.30**	**12.30-13.30**	**13.30-14.30**	**14.30-16.0**
6th Week	**Sun 2/3**							
	Mon 3/3							
	Tue 4/3							
	Wed 5/3							
	Thu 6/3	**Genito – Urinary Module Mid-Exam (Theory 40 marks and Practical 20 Marks)**						

Course information:

Course title	Musculoskeletal and Skin Module
Course number	111501303
Credit hours	6 hours
Course date	Third year – First semester (6 weeks)
Course meeting time	Variable
Course location	Allied Health Sciences Amphitheater
Instructor	Dr. Saad Al-Sabti (Coordinator)
	office location :Faculty of Medicine Room 3014

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.

Text book 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 deduced.

Missed exams
If a student misses and 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 begins 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.

Student rights and responsibilities:
These are detailed in the University Regulation.

Learning outcomes:

Anatomy

No.	Lecture Title	Lecture Objectives
1	Skeletal & Muscular System Introduction	1.List the bones of axial & appendicular skeleton 2. Describe the gross types of bones 3. Describe the gross parts of bones, and the bone surface marking 4. Describe types of joints; structure and types of synovial joints 5. Describe the gross part and nerve supply of skeletal muscle; types and nomenclature of muscles
2	Axial Skeleton The Skull	1. Describe the general features of skull 2. Describe the feature of Norma Frontalis (anterior view) of skull 3. Describe the features of Norma Verticalis (superior view) of skull 4. Describe the features of Norma Lateralis (lateral view) of skull
3	Axial Skeleton The Skull	1. Describe the features of Norma Occipitalis (posterior view) of skull 2. Describe the features of Norma Basalis (inferior view) of skull 3. Describe the features of cranial cavity (interior) of skull 4. Describe the internal features of cranial cap 5. Describe the features of the skull of new born baby
4	Axial Skeleton Mandible, Hyoid Bone, Cervical Vertebrae	1. Describe the features of mandible 2. Describe the features of hyoid bone 3. Describe the general features of vertebral column 4. Describe the features of cervical vertebrae
5	The Scalp & Face	1. Describe the extension, structure, muscles, blood and nerve supply, and lymph drainage of scalp 2. Describe the muscles of facial expression; motor and sensory nerve supply; blood supply and lymph drainage of the face
6	The Muscles of Mastication, Temporal, Infratemporal & pterygopalatine Fossae	1. Describe the muscles of mastication (attachment, nerve supply and action) 2. Describe the extension and content of temporal fossa 3. the extension, connections and content of infratemporal fossa 4. Illustrate the course, parts and branches of maxillary artery

		5. Describe the location, connections and content of pterygopalatine fossa
7	The Cervical Fascia & Muscular Triangles of the Neck	1. Describe the four types of cervical fascia (investing, carotid, pretracheal & prevertebral) 2. Describe the boundaries, contents of posterior triangle of neck 3. Describe the anterior triangle, boundaries and contents of its sub-triangles
8	The Pre-Vertebral Muscles of the Neck	1. Illustrate the anterior group of prevertebral muscles 2. Illustrate the lateral group of prevertebral muscles 3. Illustrate the muscles of the back of neck 4. Illustrate the boundaries and the content of sub-occipital Triangle
9	The muscles of Vertebral Column & Joints of the Neck	1. Describe the layers of the muscles of vertebral column 2. Describe the cervical vertebra joints (atlanto-occipital, atlantoaxial, intervertebral) 3. Describe the temporomandibular joint 4. Describe the blood supply of vertebral column and its Muscles
10	Pharyngeal Apparatus	1. Describe the development, structure and components of pharyngeal arches 2. Describe the derivatives of pharyngeal arches 3. List the congenital anomalies of pharyngeal arches
11	The Skin	1. Describe the histology of epidermis & dermis 2. List the cellular layers of epidermis 3. Describe the glands and skin appendages of the skin
12	Bones of the Upper Limb	Explain the principal distinguishing features of the: 1. Scapula 2. Clavicle 3. Humerus 4. Radius 5. Ulna 6. Carpus 7. Phalanges
13	Scapular muscles, Arm muscles & Shoulder Joint:	1. List ther muscles that are attached to the scapula. 2. Describe the attachments, action, nerve and blood supply of scapular muscles. 3. Illustrate the intermuscular spaces related to the scapula and their contents. 4. Describe the rotator cuff muscles and discus their clinical significance. 5. Describe the muscles of the arm, their actions, nerve and blood supply. 6. Describe the shoulder joint.

14 &15	Axilla, Cubital Fossa and Muscles of the forearm	1. Define the axilla 2. Describe the boundaries and contents of the axilla 3. Explain the importance of the axilla. 4. Describe the cubital fossa and list its contents. 5. Illustrate the clinical importance of the cubital fossa. 6. Describe the muscles in the anterior and posterior compartments of the forearm, 7. Describe the elbow joint.
16	Hand	1. Describe the wrist joint and its components. 2. List the muscles acting on the wrist joint and the movement they perform. 3. Describe the carpal tunnel, flexor and extensor retinacula, and the structures in relation to them. 4. Describe the anatomical snuffbox.. 5. Describe the movements of thumb and fingers. 6. List the muscles acting on the thumb and fingers.
17	Bones of the lower limb	Explain the distinguishing features of the: 1. Hip bone 2. Femur 3. Tibia 4. Fibula 5. Tarsal bones 6. Phalanges
18	Inguinal Region, Hip & Knee joints	1. Describe the inguinal ligament and inguinal canal. 2. Describe the femoral sheath and femoral triangle and their contents. 3. Describe the adductor canal and adductor hiatus. 4. List the types of Hernia.
19	Muscles of the lower limb	1. List the muscles of the thigh. 2. List the muscles of the leg. 3. Describe the attachments of the thigh and leg muscles, their actions, and their nerve and blood supply. 4. Describe the popliteal fossa and its contents.
20	Muscles of the lower limb	1. List the muscles in the gluteal region. 2. Describe the attachments, action and nerve supply of the gluteal muscles. 3. Describe the greater and lesser sciatic foramina and structures passing through them.
21	Ankle, Foot & Ankle Joint	1. Describe the components and movements of the ankle joint. 2. List the muscles acting on the ankle joint and the movements they perform. 3. List the muscles acting on the toes. 4. Describe the movements of toes. 5. Describe the retinacula which are related to the foot and the structures in relation to the retinacula.

		6. List the muscles in the four layers of the sole of the foot. 7. Describe the arches of foot.
22	Hip & Knee Joints	1. Describe the components of the hip joint. 2. List the ligaments associated with the hip joint and their attachments. 3. Describe the muscles acting on the hip joint according to the type and movement they perform. 4. Describe the stability and mobility of the shoulder joint. 5. Describe the components of the knee joint. 6. List the ligaments associated with the knee joint and their attachment. 7. List the muscles acting on the knee joint according to the type and movement they perform. 8. Describe the bursae in relation to the knee joint. 9. List the blood and nerve supply of the knee joint.

Physiology

No	Title of Lecture	Objectives
1.	Skeletal Muscle Structure and Mechanism of Contraction	Define the sarcomere and its structure. Illustrate structure of myosin molecule and its subunits Describe the function of the subunits. 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 shortening of the muscle.
2.	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.
3.	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.
4.	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

Lecture Number, Subject, & Title	Lectures Objectives
1st Pathology Lecture. Diseases of bones	★Describe the Etiology, Pathogenesis, Pathologic & Clinical features, Complications, & Diagnosis of: (1) Acute, Chronic, & Tuberculous osteomyelitis (2) Paget Disease (Osteitis Deformans). Classify bone tumors & comment on their general principles. ★ Describe the Pathological & Radiological Features & Complications of: (1) Osteomas, Osteoid Osteomas, & Osteoblastomas (2) Osteochondroma, single & multiple chondromas (Ollier disease & Maffucci syndrome)
2nd Pathology Lecture. Diseases of bones	★ Describe the Etiology, Pathogenesis, Gross & Microscopic & Radiological Features, Diagnosis & Rotes Of Spread of: (1) Osteogenic sarcoma, (2) Chondrosarcoma, (3) Ewing's sarcoma, &(4) Giant-Cell Tumor (GCT) of Bone (osteoclastoma) ★ Describe The Pathological & Radiological Features & Complications Of: (1) Fibrous Cortical Defects, (2) Nonossifying Fibromas, & (3) Fibrous Dysplasia. ★ Describe the Common Sites Of Cancer Primaries, Bones Involved, Types & Effects Of Metastatic Malignant Secondaries In Bone
3rd Pathology Lecture.	★ Describe the Types, Pathogenesis, Pathologic & Clinical Features Of

Diseases of joints	Osteoarthritis (OA) & Compare Between The Morphologic Features Of OA & Rheumatoid Arthritis. ★ Describe the Types, Pathogenesis, Pathological features & Clinical Stages of gout. Define pseudogout (chondrocalcinosis) ★Describe the Etiology, Pathogenesis, Pathologic Features of Suppurative & Lyme Arthritis ★ Describe the Pathogenesis, Pathologic & Clinical Features of: (1) Ganglion, (2) Pigmented villonodular synovitis , & (3) Giant-cell tumor (GCT) of tendon sheath
4th Pathology Lecture. Diseases of skeletal muscle	Enumerate the Causes of muscle atrophy. ★ Describe the Pathogenesis, Pathologic & Clinical Features of: (1) X-Linked muscular dystrophy (Duchenne & Becker Muscular Dystrophy) (2) Autosomal muscular dystrophies. (3) Myotonic dystrophy, (4) Myopathies, congenital & toxic (5) Myasthenia Gravis (6) Lambert-Eaton Myasthenic Syndrome (7) Rhabdomyosarcoma.
5th Pathology Lecture. Soft tissue tumors	Classify Soft tissue Tumors & comment on their general principles. ★ Describe the Types, & Pathological Features Of Lipoma & Liposarcoma ★ Describe Reactive Fibrous Proliferations: Nodular Fasciitis, Myositis Ossificans, Superficial & Deep Fibromatoses. ★ Describe the Pathogenesis, Types, & Pathological Features Of: (1) Fibrosarcoma (2) Benign & malignant fibrohistiocytic tumors, (3) Leiomyoma & Leiomyosarcoma (4) Synovial Sarcoma
6th Pathology Lecture. dermatoses	Define the dermatologic macroscopic & microscopic Terms. ★ Describe the Etiology, Pathogenesis, Gross, Microscopic & Clinical Features of the: Acute inflammatory dermatoses: Urticaria, Acute Eczematous Dermatitis, Contact dermatitis, &Erythema Multiforme. Chronic inflammatory dermatoses: Psoriasis, Lichen Planus, & Lichen Simplex Chronicus.
7th Pathology Lecture.	★ Describe the Etiology, Pathogenesis, Gross, Microscopic & Clinical Features Of The Infectious Dermatoses: Bacterial, Fungal Infection, & viral infections [Verrucae (Warts)] ★ Describe the Etiology, Pathogenesis, Gross, Microscopic (including the direct immunofluorescence findings) features of the Blistering (Bullous) skin disorders: Pemphigus (Vulgaris & Foliaceus), Bullous Pemphigoid, & Dermatitis Herpetiformis.

8th Pathology Lecture. Skin disorders Tumors of the skin	★ Describe the Pathogenesis, Gross, & Microscopic Features Of: Seborrheic Keratosis (Basal cell papilloma) Sebaceous Adenoma Actinic Keratosis Squamous Cell Carcinoma Basal Cell Carcinoma Dysplastic Nevus Melanocytic nevi Melanoma

Microbiology

No.	Lecture Title	Objectives
1	Anaerobes and clostridium perfrenges and Gas gangrene Trichenella Spiralis	• Describe the morphological, bacteroides and trichinella features, pathogenesis and virulent factors, laboratory diagnosis, treatment and prevention of clostridium perfrengens which is the main cause of gas gangrene. • 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. • Describe the morphological features, pathogenesis and virulent factors, laboratory diagnosis treatment and prevention of clostrium perfrengens • Describe the role of aerobes in the formation of deep wound infection and abscess. • Describe the role of Trichenella in muscle infection and explain their laboratory diagnosis, pathogenesis and treatment. Describe the role of bacteria in the pathogenesis of osteoarthritis, arthritis, specimen collection identification and treatment.
2	Bacterial infections of the skin.	pathogenesis of skin commensals and pathogens Describe the antibiotic sensitivity of each organism (Diphtheroids ,Staphylococci , Streptococci, Propionobacterium acnes , Mycobacteria) Explain types, pathogens of would infection methods of specimen collection for proper dignosis of types Bacteria and laboratory diagnosis.
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 Herpe's and childhood exanthens.

5	Parasitic infections of the skin.	Discuss the parasites that infest the skin (Scabes Leishmania and Onchocerca). Briefly describe the life cycle, treatment and prevention of each parasite. Describe parasites that infest the skin, their life cycle, treatment and prevention. (Scabes Leishmania, Oncocerca fleas, loaloa, and cutaneous larva migrans).
6	Fungal infections of the skin	Describe the fungi that infect the skin and subcutaneous tissue, their identification and treatment (Dermatophytes , Candida and Mycetoma agents) Describe the fungi that infect the skin, their clinical classification, their identification and treatment (cutaneous, subcutaneous and opportunistic).

Pharmacology

No.	Title of Lecture	Objectives
1	Muscle relaxants	• Review the transmission process at the neuromuscular endplate and the points at which drugs can modify this process. • Compare the pharmacodynamics and pharmacokinetics of nondepolarizing and the depolarizing neuromuscular blockers. Describe the main indications, major adverse effects and drug interaction of nondepolarizing and depolarizing neuromuscular blockers.
2	Antirheumatoid drug	• List the indications to use antirheumatoid drugs in the treatment of rheumatoid arthritis. • Describe the concept of disease-modifying agents. Describe the mechanism of action, toxic effect and contraindications of drugs used in the treatment of rheumatoid arthritis.
3	Topical antimicrobial drugs	Describe antibacterial agents, antifungal agents, antiviral agents and ectoparasitic ones
4	Drugs of noninfective skin conditions	Describe anti-inflammatory, topical corticosteroid, tar compounds and keratolytic.
5	Drugs of noninflammative skin conditions	Describe drugs employed in the treatment of acene, psoriasis affecting pigmentation. Acne preparations. Drugs for psoriasis. Antipruritic agents. Trichogenic agents. Antiseborrhea agents.

Community Medicine

No.	Lecture Title	Objectives
1 &2	Epidemiology of MSS injuries.	Define: Epidemiology of accidents, hazards and injuries. Distinguish between risk and hazard. Identify the human, situational and environmental factors of accidents. Identify risk factors, risk groups and incidence rate of MSS injuries.. Explain the factors that influence risk perception and risk acceptance of MSS injuries.

Biochemistry

No.	Lecture title	Objectives
1	Biochemistry of Muscles, Bones and connective tissue.	Understand the role of alkaline phosphatase, calcium and phosphate and vitamin D in bone formation and remodeling
2	Metabolic disorders	clinical biochemistry of muscle and bone
3	Bone markers	Discuss the markers for bone formation and resorption and their clinical use in diagnosis

Practical

1	Anatomy Lab 1 The Bones of Head & Neck	1. Name the bones of cranium and facial skeleton 2. Understand the external features of skull (Norma frontalis, Norma verticalis, Norma lateralis, Norma occipitalis, Norma basalis) 3. Study the features of the interior of skull 4. Study the foramens, fissures ofskull & the main structures passing through 5. Describe the features of mandible 6. Describe the features of cervical vertebrae
2	Anatomy Lab 2 The Scalp, Face	1. Study the structure, layers, muscles, blood supply, nerves & lymph drainage of scalp 2. Study the muscles, blood vessels, motor and sensory nerve supply, & lymph drainage of the face 3. Understand the cervical deep fascia (types & extension), and the superficial nerves & veins of the neck 4. Describe the attachment, nerve supply and action of sternomastoid muscle
3	Anatomy Lab 3 The Neck	1. Study the boundaries, parts and contents of posterior triangle and its subdivisions 2. Study the boundaries of anterior triangle 3. Describe the boundaries & contents of subdivisions of anterior triangle 4. describe the anterior & lateral pre-vertebral muscles 5. Study the muscles of the back of neck 6. Study the blood vessels and nerves of the back of neck 7. Describe the boundaries and content of sub-occipital triangle
4	Anatomy Lab 4 Bones and joints of the upper and lower limbs	1. Identify the different parts of the bones of the upper and lower limbs. 2.Identify the components of the joints of the upper and lower limbs
5	Anatomy Lab 5 Muscles of the upper limb	1. Identify the muscles of the shoulder, arm, forearm and hand in the upper limb
6	Anatomy Lab 6 Muscles of the lower limb	1. Identify the muscles of the glutea region and the anterior, medial, and posterior compartments of the thigh. 2. Identify the muscles in the anterior, lateral, and posterior compartments of the leg. 3. Identify the muscles of the foot

7 & 8	Pathology Lab 1 &2 After reviewing and discussing the colored photographs of the: (1) gross specimens and of the (2) histopatholoical 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 Wound Culture	Describe types: • Describe specimen collection methods Lists the most common aerobic and anaerobic organisms causing the infection and their laboratory identification.

Course Schedule :

1st Week							
	Anat 1	Phys 1	Bioch 1				
	Phys 2	Anat 2	Path1				
	Anat 3	Micro1	Anat 4				
	Anat 5	Phys3	Anat Lab 1 A		Anat L 1 B		
	Phys 4	Anat 6	Anat Lab 1 C		Anat L 1 D		

2nd Week						
	Anat 7	Pharm 1	Path 2			
	Phys 5	Anat 8	Anat L 2 B		Anat L 2 A	
	Micro 2	Phys 6	Anat L 2 D		Anat L 2 C	
	Anat 9	Path 3	Anat L 3 A		Anat L 3 B	
	Micro 3	Anat 10	Anat L 3 C		Anat L 3 D	

3rd Week						
	Pharm 2	Anat 11	Pharm 3	Micro L A+B	Micro L C+D	
	Path 4	Anat 12	Micro 4	Anat L 4 B	Anat L 4 A	
	Micro 5	Anat 13	C M 1	Anat L 4 D	Anat L 4 C	
	Path 5	Anat 14	Path L 1 A+B		Path L1 C+D	
		Anat 15	C.M. 2			

4thWeek						
	Pharm 4	Pharm5	Anat 16			
	Path 6	Anat 17	Anat L 5 A		Anat L 5 B	
	Micro 6	Anat 18	Anat 19			
	Path 7	Anat 20	Anat L 5 C		Anat L 5 D	

5thWeek					
	Path 8	Pharm 6	Path L 2 C+D	Path L 2 A+B	
	Path 9	Anat 21	Anat L 6 B	Anat L 6 A	
		Anat 22	Bioch 2		
			Anat L 6 D	Anat L 6 C	

6thWeek	M S & S Module Midterm Examination: Theory (40%) Practical (Online) (20%)

Summary of Musculo-skeletal & Skin Module Teaching:

Anatomy: 22 L + 6 P **Physiology: 6 L** **Biochemistry: 2 L**
Pathology: 9 L + 2 P **Microbiology: 6 L + 1 P** **Pharmacology: 6 L**
Community Medicine: 2 L

- **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	5 (Five)
Course date	Course teaching will start after the end of the Genitourinary module teaching
Course location	Lecture Theater 301, College Building
Calendar Description	5 working weeks/ 2nd Semester / 3rd Year
Teaching Approaches	Partially Integrated System Course
Instructor	Dr. Mohammad Kamel Alwiswasi Office 3029, 3rd Floor Office hours: Sun, Mon and Wednesday, 1-4 pm Phone: 053903333 ext. 5376 / E-mail: mkalwiswasy@yahoo.com

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	7 L	+ 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 Sheries, 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 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 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: 15 Lectures		
No	**Title**	**Objectives**
1 anatomy	An introduction to the nervous System. Classification of the nervous system Meninges of the brain and spinal cord Dural venous sinuses	1. Review the structure of the central, peripheral & autonomic nervous systems 2. Describe the dura, arachnoid and pia mater of the brain & spinal cord 3. Describe the dural folds 4. Describe the dural venous sinuses
2 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. 2. Describe the arrangements of nerve fiber tracts in the spinal cord.
3 anatomy	Ascending tracts of the spinal cord II	1. Describe the anterolateral ascending tracts Describe the dorsal column tracts Describe the muscle-joint pathway to the cerebellum 4. Describe the spinotectal, spinoreticular, spino- Olivary

		and visceral sensory tracts.
4 anatomy	Descending tracts of the spinal cord	1. Identify the different direct and indirect ascending tracts in the spinal cord. 2. Describe the pyramidal and extra-pyramidal tracts and their functions. 3. Describe the sensory and motor homonucleus 4. Describe the intersegmental tracts and their Significance.
5 anatomy	The Brainstem: Medulla oblongata, pons, and midbrain I	1. Describe the structure, functions and components of the brainstem 2. Describe the external and internal features of the upper, middle and lower level of the medulla oblongata.
6 anatomy	The Brainstem: Medulla oblongata, pons, and midbrain II	1. Describe the external & internal features of the pons 2. Describe the external & internal features of the midbrain
7 anatomy	The Cerebellum	1. Describe the cerebellum; its external and internal features, including the intracerebellar nuclei. 2. Describe the functional areas of the cerebellar cortex and its white matter 3. Describe the afferent & efferent connections of the cerebellum 4. Review the signs and symptoms of cerebellar diseases as related to its anatomy
9 anatomy	The Cerebrum II	1. Describe the white matter of the brain, the commissural, association and projection fibers. 2. Describe the functional localization of cerebral cortex and their clinical significance.
10 anatomy	The Basal nuclei	Describe the components of basal nuclei, their functions, afferent and efferent connections and disorders
11 anatomy	The Limbic system; Diencephalon I	1. Describe the limbic system, the structures forming it, its functions and connections. 2. Describe the thalamus, the thalamic nuclei, their functions and connections
12 anatomy	Diencephalon II	1. Describe the epithalamus, its parts, connections, and functions 2. Describe the subthalamus 3. Describe the hypothalamus, hypothalamic nuclei, and hypothalamic lines of communications, afferent and efferent connections. 4. Review the functions of the hypothalamus
13 & 14 anatomy	Cranial nerves I & II Ventricles of the brain	1. List the cranial nerves I – XII 2. List the functional components of cranial nerves 3. Describe the motor, sensory and parasympathetic nuclei of the cranial nerves I-XII and their connections 4. Describe the lateral ventricles, third ventricle, Cerebral aqueduct, fourth ventricle and central canal of the

		medulla oblongata and spinal cord
15 anatomy	Blood supply of the brain and spinal cord	1. Describe the arterial blood supply of the brain 2. Describe the circle of Willis 3. Describe the veins of the brain 4. Describe the arterial blood supply and the veins of the spinal cord

CNS I Pharmacology: 13 Lectures	
1st Pharmacology Lecture **An overview of synaptic transmission of the CNS**	1. Review the physiology of synaptic transmission and the electrical properties of synaptic potentials 2. List the criteria for accepting a chemical as neurotransmitter 3. Describe the mechanism of pre- and postsynaptic modulation of synaptic transmission caused by drugs 4. List the major excitatory neurotransmitters 5. list the major inhibitory central neurotransmitters 6. Identify the major receptor subtypes of CNS neurotransmitters & functional roles 7. Indicate the involvement of neurotransmitters in the pathophysiology of diseases
2nd Pharmacology **Drugs used in schizophrenia and psychotic disorders**	1. Describe the monoamine theory of depression 2. Describe the dopamine hypothesis of schizophrenia and the major symptoms and signs of schizophrenia 3. Describe the classification of antipsychotic drugs and list the major receptors blocked by them 4. Describe the pharmacodynamics of antipsychotic drugs and correlate to their clinical uses 5. Describe the side effect of antipsychotic drugs 6. Describe the pharmacokinetic and pharmacodynamics of lithium
3rd Pharmacology L **Antidepressants**	1. Describe the classification of antidepressant 2. Describe the mechanisms of action, pharmacodynamics properties, and toxic effect of chronic therapy and overdosage of tricyclic antidepressant of tricyclic antidepressant 3. Describe the describe the therapeutic uses and toxic effects of MAO inhibitors 4. Identify the 2nd & 3rd generation antidepressant and their properties 5. Identify the prototype selective serotonin reuptake inhibitors and list their major characteristics 6. identify the drug interaction associated with antidepressant therapy

4th &5th Pharmacology L **Drug used in epilepsy**	1. define epilepsy and classification of seizures 2. Understand the biochemical markers and cellular mechanism of underlying epilepsy 3. Describe the major drugs used in treatment of different types of seizures 4. describe the mechanism of action, adverse effects and drug-drug interaction of each drug 5. understand the importance of drug therapy monitoring in the follow up of patient with antiepileptic drugs therapy 6. Describe the pharmacokinetic factors considered in designing dose regimen for antiepileptic drugs 7. list new antiepileptic drugs, their advantages, indication and side effects
6th &7th Pharmacology L **Pharmacology of sedative-hypnotics**	1. Identify major chemical classes of sedative-hypnotics, and the sequence of CNS of drug effect over entire dose range 2. Describe the pharmacodynamics of benzodiazepines and barbiturates and the differences between them 3. Describe clinical uses, adverse effects and drug interactions of sedative-hypnotic drugs 4. Describe the tolerance and dependence induced by sedative-hypnotis 5. Understand the indications and adverse effects of benzodiazepine antagonists

8th & 9th Pharmacology L **General anesthetics**	1. Understand the physiochemical theories of anesthesia, and describe stages of anesthesia 2. Describe drugs used as pre-anesthetics, and identify main inhaler anesthetics pharmacodynamics and pharmacokinetics 3. understand the mechanisms of toxicity of inhaler anesthetics 4. describe the relationship between blood gas partition coefficient of an inhaler anesthetic and the induction and recovery of anesthesia 5. Describe how changes in pulmonary ventilation and blood flow can influence induction and recovery of inhalation anesthesia 6. Describe the mechanism of action of commonly used intravenous anesthetics and their toxicity
10th &11th Pharmacology L **Opioids and opioid antagonists**	1. Describe the neural mechanisms of pain sensation and its control 2. list receptors affected by opioids analgesics and endogenous opioid peptides 3. list major opioid agonists and rank them in analgesic efficacy 4. Describe pharmacodynamics and kinetics properties of agonist opioid analgesics and list their clinical uses 5. list the adverse effects of acute and chronic use of opioid analgesics 6. identify opioid receptors antagonists and mixed agonist-antagonist

12th & 13th 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

CNS I Pathology: 5 Lectures	
1st Pathology Lecture **Cerebral edema, hydrocephalus, herniations, & Global Cerebral Ischemia**	★ Describe the Patterns Of Injury & Responses (Markers) To Injury In The nervous System. ★ Describe the Underlying Mechanisms, Causes, Gross Features Of Cerebral edema ★ Define Hydrocephalus & Hydrocephalus Ex Vacuo ★ Describe the Causes, Pathogenesis, Types, Effects & Complications Of hydrocephalus In Infants & Adults ★ Define the Subfalcine (Cingulate), Transtentorial (Uncinate), & The tonsillar hernias & Describe The Effects Of Each One. ★ Define the Term Cerebrovascular Disease (Thrombotic & Embolic Occlusion of vessels, & Vascular Rupture). ★ Describe the Causes, Gross & Microscopic (Early, Subacute, & Repair) changes, & Outcomes Of Global Cerebral Ischemia
2nd Pathology Lecture **Cerebral infarction, Primary Brain Parenchymal, & Subarachnoid Hemorrhages**	★ Enumerate The Sources Of Emboli & Sites Of In Situ Thrombosis In The cerebral Circulation. ★ Describe the Sites, Types, Gross & Microscopic Changes Of Early & Late cerebral Infarction Classify The Intracranial Hemorrhages ★ Describe the Cause (S), Sites, Effects, Gross & Microscopic Features of: Recent & old Primary Brain Parenchymal Hemorrhage &. Subarachnoid Hemorrhage ★ Describe the Pathologic Features of Berry saccular aneurysms & Vascular malformations.
3rd Pathology Lecture **Hypertensive cerebrovascular disease & CNS trauma**	★Describe the Effects Of Hypertensive Cerebrovascular Disease, Including: (1) Massive Hypertensive Parenchymal Hemorrhage (2) Lacunar Infarcts, (3) Slit Hemorrhage, & (4) Hypertensive Encephalopathy. ★Describe The Sites, Gross & Microscopic Features Of Recent & Old; Closed & opened Traumatic Head Injury. ★Describe the Cause, Pathologic Features, & Effects Of Diffuse Axonal Injury. ★Describe the Causes, Sites & Effects Of Traumatic: (1) Epidural Hemorrhages (2) Subdural Hemorrhages (Acute & Chronic)
	★ List the Routes Of Entry Of Infectious Agent To the CNS. ★ List the Causes, Effects & Clinical Features of Epidural, Subdural, & Brain abscesses. ★ Describe the Causes, Routes of Infection, Pathologic Features, CSF Findings,

4th Pathology Lecture **Infections of the CNS**	effects, & Fates of (1) Acute pyogenic, (2) Aseptic, & (3) Tuberculous meningitis ★ Describe the Pathologic Features & Effects of Neurosyphilis ★ 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&2, Varicella-Zoster Virus, Cytomegalovirus, Poliovirus, Rabies, & Progressive Multifocal Leukoencephalopathy (PML), caused by JC virus, & fungi ★ Describe the Causes, Routes Of Infection, Pathologic Features, & Effects of Prion Diseases, including Sporadic, Familial, Iatrogenic & Variant Forms (vCJD) of Creutzfeldt-Jakob disease.
5th Pathology Lecture **TUMORS OF THE CNS**	★ Classify & Describe the Unique Characteristics Of the CNS tumors. ★ Describe the Gross & Microscopic Features of: Astrocytomas (Fibrillary & pilocytic, & Glioblastoma multiforme), Oligodendrogliomas, & Ependymomas ★ Define Central Neurocytoma, Gangliogliomas, & Dysembryoplastic Neuroepithelial Tumor. ★Describe the Gross & Microscopic Features, Routes of Spread of Medulloblastoma ★ Define Primary CNS: Lymphoma, Germ-Cell Tumors. ★ Describe the Gross & Microscopic Features of Meningiomas ★ Describe the Metastatic Secondaries in the CNS & Define The Para- Neoplastic Syndromes.

Physiology: 8 Lectures	
Physiology Lecture: 1 **General introduction & CSF**	1. General functions of the Nervous system, Functional connections. Role of the nervous system in regulation. Comparison to the endocrine system 2. Cerebrospinal Fluid, Ventricular system, the meninges and subarachnoid Space. 3. 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.
Physiology Lecture: 2 **Electrophysiology**	1. 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 Na^+, K^+, Cl^-, or Ca^{2+} concentration on the equilibrium potential for that ion. Normal distribution of Na^+, K^+, Ca^{2+}, and Cl^- 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. 2. 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_{alpha}, A_{beta}, A_{delta}, b, and c fibers. Ionic basis for inhibitory and excitatory post-synaptic potentials and how these changes can alter synaptic transmission. 3. Effects of hyperkalemia, hypercalcemia, and hypoxia on the resting membrane

	and action potential. 4. Effects of demyelination on action potential propagation and nerve conduction. 5. Electrical Vs chemical synapses transmission based on velocity of conduction, fidelity, and the possibility for neuromodulation (facilitation or inhibition). 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. 7. Characteristics of a neurotransmitter.
Physiology Lecture: 3 **Spinal Cord Physiology and injuries**	1. Sensory Vs. motor Vs. integrative parts of the spinal cord. Distinguish between postsynaptic inhibition and presynaptic inhibition and provide examples of each. 2. Anatomy and functions of the major ascending and descending spinal cord tracts, including any crossing of midline. 3. Relation of such pathways to the type of receptors. The concept of labeled line theory in transmission of sensations. 4. Describe the use of dermatomes, sensory deficits, and motor deficits to identify local spinal cord lesions, and spinal cord hemisection. 5. Describe the immediate and long-term consequences of spinal cord transection. 6.Anatomical location, function, and afferent neurotransmission of muscle spindle and Golgi tendon organs.
Physiology Lecture 4 & 5: **Somatosensory System:**	1. point localization and two-point discrimination in neurophysiological terms. changes in the threshold for two-point discrimination indifferent areas of the body surface, e.g., lips, fingertips and back. 2. List the submodalities of discriminative touch. 3. Function of the following cutaneous and proprioceptive mechanoreceptors: Pacinian corpuscles, Meissner's corpuscles, Ruffini endings, Merkle cell, A-delta and C free nerve endings, Golgi tendon organ, muscle spindle. 4. Functional organization at all levels and submodalities served by the dorsal column-medial lemniscus and the equivalent components of the trigeminal system. 5. The proprioceptive pathways to the cerebellum with that to the cerebral cortex. 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. 7. Functional organization at all levels and submodalities served by the anterolateral system and the equivalent components of the spinal trigeminal system. 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. 9. Levels of pain perception and the central pain syndrome, for example, the thalamic pain syndrome. The mechanism of referred pain of visceral origin.
	1. Trace the neuronal activity initiated by striking the patellar tendon with a

Physiology Lecture 6 : **Motor Reflexes**	percussion hammer (the patellar tendon reflex) that leads to contraction of a muscle. 2. Contrast this reflex with the inverse myotactic reflex. 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. 4. Identify when pain is sensed, when flexor contraction occurs, and the neuronal connections and role of the crossed extensor reflex.
Physiology Lecture 7 & 8: **Cerebellum and Basal Ganglia**	1. Roles of the cerebellum in the regulation of skilled movement. Functional divisions of the cerebellum, detailing the input and output connections of each. 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). 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. 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. 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.
Physiology Lecture 9 & 10: **Cerebral Cortex & Sleep mechanism**	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. 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. 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. 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. 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. 6. Medial and Lateral System Control of Movement. Motor control systems, including cerebral cortex, basal ganglia, cerebellum, thalamus, brain stem motor

	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	
Microbiology Lectures: **1** **Bacterial meningitis**	1. Define bacterial meningitis. 2. Describe the morphology, cultural characteristics, pathogenesis, Laboratory diagnosis, pathophysiology, epidemiology, prevention and treatment of meningitis caused by: - Neisseria meningitidis, - Streptococcus agalactiae (group b Streptococci), - Streptococcus pneumoniae, - Haemophilus influenzae and - Listeria monocytogenes.
Microbiology 2 **Viral and Fungal meningitis**	1. Define viral meningitis. 2. Describe causes of the following viral meningitis: - Enteroviruses - Arboviruses - Mumps - Herpes family viruses - Lymphocytic choriomeningitis virus - Adenovirus - Measles - HIV - TB and Mycoplasma - Syphilis - Fungal 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. 4. Describe cryptococcus neoformans, its morphology, cultural characteristics, pathogenesis, laboratory diagnosis, treatment its importance.
CNS I Biochemistry: 2 Lectures	
Biochemistry 2 Lectures: 1 Metabolism of the CNS	- Describe ketone bodies metabolism in the brain - Discuss the glutamine metabolism in the brain - Describe glucose transport and metabolism in nervous tissue - Discuss the effect of hypoglycemia and hyperglycemia on the brain
Biochemistry 2 The biochemistry of CNS neurotransmitters	Discuss the synthesis, storage, release and degradation of neurotransmitters

CNS I Community Medicine: 2 Lectures	
Community Medicine: 2 Lectures: 1 Epidemiology **of** Meningitis and encephalitis	- Explain the important aspect of neurology practice worldwide. - Understand the epidemiologic trends on central nervous system infection. - List Meningitis and encephalitis pathogens. - Have an idea about emerging and re emerging infections. - Describe the epidemiology of meningitis regarding: incidence among different age groups, risk factors, mode of transmission & Seasonality of Outbreaks
2 Prevention & control of Meningitis and encephalitis	- Explain the importance of vaccines and Vaccine Policy - Explain the importance of prophylactic treatment - Discuss methods of prevention - Discuss methods of treatment

Practical Sessions (Total 8 Labs)

Pathology Practical Sessions I & II	★ After reviewing and discussing the colored photographs of the: (1) Gross specimens and its (2) Histopathological sections given in the above lectures as 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 the various CNS disorders given in the CNS I Module.
Anatomy Practical I Meninges of the brain & spinal cord Dural folds Dural venous sinuses The spinal cord	1. Identify the dura, arachnoid and pia mater of the brain & spinal cord. 2. Identify the falx cerebri, tentorium cerebelli, Falx cerebelli, and diaphragma sellae 3. Identify the superior sagittal, inferior sagittal, Transverse, sigmoid, the cavernous, the superior and inferior petrosal sinuses. 4. Identify the external and internal features of the spinal cord
Anatomy Practical II The Brain stem: Medulla oblongata, pons and midbrain	Identify the external and internal features of the medulla oblongata, pons & Midbrain
Anatomy Practical III The Cerebrum	Identify the external & internal features of the cerebral hemisphere
Anatomy Practical IV The	1. Identify the external & internal features of the cerebellum 2. Identify the internal carotid, vertebral & basilar arteries supplying the brain and spinal cord and their branches.

cerebellum Blood supply of the brain and spinal cord	3. Identify the circle of Willis
Microbiology Practical Session	1. Describe the method of specimen collection including the: a- indications and contraindications b- equipment c- process of lumbar puncture d- transportation of specimen e- storage f- interpretations g- complications 2. Describe the laboratory method used for the specimen processing, including media used, incubation environment, colonial morphology and bacterial identification. 3. Do a sample culturing resembling CSF specimen and Identify the organisms involved: a- Neisseria meningitidis b- Group b Streptococci c- Streptococcus pneumoniae d- Haemophilus influenzae e- Listeria monocytogenes 4. Write the laboratory findings in the hospital laboratory format.
Biochemistry Practical Session	CSF composition, properties and type of samples & related tests required in clinical diagnosis.

The Hashemite University – Faculty of Medicine
2014 CNS I MODULE (0111501305) Time table - 4 C. Hours / 4Weeks: From 9-3 to 3-4-2014;
2nd Semester: 3rd Year: 2013/2014
Coordinator: Dr. Mohammad Alwiswasi (1st draft, @ 6-11-2013)

1st Week Day/ Date 2014	8 - 9	9 - 10	10.30- 11.30	11.30-12.30	
Sun 9/3	A 1	Phy 1	A 2	Phy 2	
Mon 10/3	Path 1	A 3	Phy 3	A 4	
Tue 11/3	Phy 4	A 5	Phy 5	Micro 2	
Wed 12/3	Path 2	A 6	Phy 6	11.30–1.30	1.30–3.30
				AL 1 A	AL 1 B
Thu 13/3	Phar 1	Phar 2	Phar 3	AL 1 C	AL 1 D

2nd Week Day/ Date	8 - 9	9 - 10	10.30–11.30	11.30-1.30	1.30 - 3.30
Sun 16/3	Path 3	A 7	Phy 7	Path L 1 (A+B)	Path L1(C+D)
Mon 17/3	Path 4	A 8	Phy 8	AL 2 B	AL 2 A
				Micro Lab C+D	
Tue 18/3	Phy 9	A 9	A 10	AL 2 D	AL 2 C
				Skill Lab A	
Wed 19/3	Path 5	Phy 10	A 11	AL 3 C	AL 3 D
				Micro Lab A+B	
Thu 20/3	Phar 4	Phar 5	Phar 6	AL 3 A	AL 3 B
				Skill Lab C	

3rd Week Day/ Date	8 - 9	9 - 10	10.30- 11.30	11.30-1.30	1.30- 3.30
Sun 23/3	Path 6	A 12	A 13	Path L 2 (A+B)	Path L 2 (C+D)
Mon 24/3	Path 7	A 14	CM 1	AL 4 B	A L 4 A
				Phy Lab C	Phy Lab D
Tue 25/3	CM 2	Bio 1	A 15	AL 4 D	AL 4 C
				Phy Lab A	Phy Lab B
Wed 26/3	Micro 2	A 16	Bio 2	Skill Lab B	
Thu 27/3	Phar 7	Phar 8	Phar 9	Skill Lab D	

4th Week Day/ Date	
Sun 30/3	
Mon 31/3	
Tue 1/4	
Wed 2/4	
Thu 3/4/2014	CNS I Midterm Examination: (Theory: 80 MCQs, 90 Minutes, 40 Marks) & (Practical: {Online} 30 Figures, 30 Minutes, 20 Marks)

Summary of Neuroscience I Module teaching:
Anatomy: 16L+ 4P/ Physiology: 10 L+ 1P/ Biochemistry: 2L
Pathology: 7L + 2P/ Microbiology: 2L + 1P/ Pharmacology: 9L/ CM: 2L
Total of 48 Lectures and 8 Practicals (Two hours each) / student

كلية الطب البشري
Faculty of Medicine

الجامعة الهاشمية
The Hashemite University

Course information

Course title	NEUROSCIENCES II (PNS)
Course number	111501306
Credit hours	4 Credit hours
Course date	April to May
Course meeting time	Variable
Course location	Faculty of Medicine – Hashemite University
Pre-requested course	2 years basic medical sciences
Instructor	Ashraf Khasawneh
	Office location: 2nd floor, Faculty of Medicine – Hashemite University
	Office hours: Monday and Tuesday 11-1
	Phone: 0799157366
	E-mail: ashrafkh@hu.edu.jo

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 affectors.
- 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	-
Total	41 Lectures	7 Practicals

Text book and material:

No specific textbook is recomended. 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 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.

*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 **(Anatomy 1)**	Recognize individual structures. Observe how they fit on each other. Compare & contrast between your understanding, your atlas and the real thing you see in the lab.
2	. Neck **(Anatomy 2)**	Recognize individual structures. Observe how they fit on each other. 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. **(Anatomy 3)**	Recognize individual structures. Observe how they fit on each other. 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: 1. Tumors II 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: 1-Visual acuity test, Snellen, Charts. 2-Color vision test using Ischihara charts..
7	**Physiology 2.**	Students are expected to perform auditory tests, including Rennn's and Webber's tests. 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.

1	Introductory case presentation. (All Disciplines)	A case will be presented Then open discussion of the case and relevant knowledge needed to explain and solve the case.

2&3	Tumor of the Nervous system I & II (pathology) (pathology)	1. Classify tumors & describe the general features of primary brain tumors in comparison to other tumors in the body 2. Know the pathology & prognosis of the various types of brain tumors 3. Describe tumors of peripheral nerves Know the common types of metastatic tumors & their pathologic characteristics

4	Face, scalp & trigeminal nerve. (anatomy)	1-Describe general features of the major openings of facial skeleton. 2- Discuss briefly how the face is developed. -Review the trigeminal nerve and describe nerve supply of the face. 3- Explain the importance of blood supply and lymph drainage of the face. 4- Follow up the course of facial nerve from its point of central connections, exit and down to its target areas. Make a list of types of nerve fibers it contains. 5- Describe the basic structure of the scalp. Make a list of its layers. 6- Describe briefly the muscles, nerve supply and spaces between layers. 7- Make special note of the venous drainage of face and scalp.

5	The orbit. The eye & optic nerve.(anatomy)	1- Describe the location of the orbit. 2- Make a list of structures making the orbit starting from orbital margin. 3- Define each component. 4- Describe openings into orbital cavity. 5- Define the orbital fascia. 6- Describe muscles of the orbit, their cone arrangement, origin, insertion, nerve supply and their function. 7- Describe the nerves of the orbit. 8- Name the foramen point of entry. Their course and their targets. 9- Describe blood supply and lymph drainage of the orbit. 10- Make a list of structures making the eyeball starting from the optic disc. 11- Define each part. 12- Make sure to use essential keywords in your definitions. 13- Discuss the structure of coats of the eye. 14- Describe the anterior modifications of the eye coats. 15- Describe the contents of the eye ball. 16- Describe the sensory, sympathetic and parasympathetic nerve

		supply. 17- Define the optic nerve. 18- Follow the optic nerve from the eyeball to its point of entry to the brain. 19- Review the list of structures making the eye and related structures. 20- Define the following: Optic groove, Optic vesicle. Lens placode Lens pit and vesicle. Optic cup. 21- Discuss briefly the changing processes that will take place to the above structures.
6	Visual pathway. (Anatomy)	1- Explain the relationship between visual fields and retinal fields. 2- Describe visual pathway for objects placed in either visual fields from retina to visual cortex. 3- Describe the effect of lesions (in terms of visual field defects) of the optic nerve, optic chiasma, optic tract, optic radiation and visual cortex. 4-Outline the pathways for light and accommodation reflexes and explain the effects of lesions at different sites of the light reflex.
7	Neurophysiology of vision, the eye and retina. (Physiology)	1- Describe the light refraction by the eye and know the refractive indices of the cornea, lens aqueous humor and vitreous humor. 2- Define accommodation and know its mechanism of action as well as its importance for near vision 3- Define visual acuity and know that the fovea has the highest visual acuity 4- List the types of photoreceptors in the retina. 5- Describe the mechanism of phototransduction and the ionic basis of receptor potential in rods and cones 6- Describe different types of neuronal cells in the retina and their synaptic connections (neural circuit in retina) 7- Define the functions of bipolar cells ,horizontal cells , amacrine cells and their role in processing of visual signal. 8- Describe the functions of the visual cortex in perception of visual signals.
8	Neurophysiology of vision, central visual pathway. (Physiology)	1-Describe the major relay stations of the visual pathway. 2-List the major functions of the geniculate nucleus and superior colliculus. 3-Explain the role of the visual cortex in perception of vision. 4 Outline briefly the major pathways of color and black and white vision. 5-Describe the major types of visual cortex cells and their role in visual perception.
9	The external, middle ear & cranial nerve VII. (Anatomy)	1-Make a list of structures making the external and middle ear. 2- Define each part – use keywords. 3- Highlight the structural features of the external auditory meatus. 4- Describe the shape, position and various boundaries of the middle ear. 5- Discuss the features of the tympanic membrane. 6- Describe the ossicles and their muscles.

		7- Describe the auditory tube, its openings and structure. 8- Have an idea about mastoid air cells and their connection to the middle ear. 9- Follow up the facial nerve from the brain down to the stylomastoid foramen.(turn page)) 10- Follow up the central connections of the facial nerve. 11- Note the proximity of the internal carotid artery to the middle ear.
10	Inner ear & cranial nerve VIII. (Anatomy)	1-Make a list of parts making the internal ear. 2- Define each part .Make sure to use keywords. 3- Note how structures fit each other. 4- Describe the bony labyrinth. 5- Explain how the membranous labyrinth fits the bony one. 6- Describe the hearing receptors. 7- Describe the balancing receptors. 8- Follow the course of the VIII nerve down to its point of entry to the brain. 9-Follow up the central connections of the VIII nerve. – Review the list of structures making the different parts of the ear. 10- Define, Otic vesicle. Dorsal utricular part. Ventral saccular part. Auricular hillocks. 11- Discuss briefly the changes that will occur leading to formation of different parts of the ear.
11	Hearing. (Physiology)	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. 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. 3- Describe the functions of the organs of Corti and describe how deformation of the basilar membrane is converted to impulses in auditory fibers. 4- Describe the ionic basis of auditory receptors. 5- Explain how pitch (frequency) and loudness of sound are coded in the auditory pathways. 6- Explain the mechanisms that permits sound localization 7- Describe the function of auditory cortex in hearing perception and sound localization.
12	Equilibrium. (Physiology)	1-Explain how hair cells in the semicircular canals detect rotational acceleration. 2- Explain how hair cells in the utricle and saccule detect linear acceleration 3- Describe the role of the vestibular system in stabilizing eye movements during acceleration. 4-List the major connections of the vestibular system with the brainstem and cerebellum.

		5- List the major sensory input that provide the information which is synthesized in the brain into the sense of position in space.

13	The neck. Triangles of the neck & cranial nerves XII. (Anatomy)	1-Define the boundaries of the neck. 2- Describe the fasciae of the neck. 3- Study table 11-1 pg. 656 summarizing muscles of the neck. 4- Summarize the main arteries, veins nerves and lymph nodes of the neck. 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. 6- Review the boundaries of the neck. 7- Describe the key muscles creating the triangles, mainly, sternomastoid, omohyoid and digastric. 8- Study each triangle in the following way : a/Boundaries/Contents of muscles, arteries, veins, nerves, organs and glands. 9- Follow up the course of the accessory nerve from the point of its central connections, exit and down to its target organs. 10- Make a list of types of nerve fibers making the nerve.

14	Development of head & neck. (Anatomy)	1- Define the following: Pharyngeal arches. Neural crest cells. Pharyngeal grooves. Pharyngeal pouches. Pharyngeal membranes. 2- Discuss the changes that will take place on the above structures leading to formation of various organs in the head and neck. 3- Make a list of these processes involved in the formation of each organ. 4- Define each process.

15	Cranial nerves IX, X &XI. (Anatomy)	1-Review table 11-4 pg. 708. IX -Follow up its course from its central connections, exit from the brain and down to its target organs. 2- Make a list of types of nerve modalities conveyed by this nerve. 3- Review structure of the pharynx. X Follow up its course from its central connections, exit from the brain and down to its target organs. 4- Make a list of types of nerve modalities it conveys. 5- Review the structure of the larynx. 6- Make note of plexuses it creates in the mediastinum.

16	Tongue,submandibular region & cranial nerve XI. (Anatomy)	1- Make a list of structures making the tongue. 2- Define each part using keywords. 3- Describe the mucous membrane of the tongue and its papillae. 4- Discuss the intrinsic muscles and its innervations. 5- Describe the extrinsic muscles of the tongue. 6- Follow up the hypoglossal nerve from its central connections, exit point, and its target organs. 7- Describe the tongue's blood supply lymph drainage and sensory innervation. 8- Outline the boundaries and contents of the submandibular region.

17	Histology of peripheral nervous system. (Anatomy)	1- Review the basic histology of neurons, glial cells and synaptic communications. 2- Classify nerves. 3- Describe the structure of peripheral nerves. 4- Discuss myelination. 5- Describe the structure of ganglia (sensory and autonomic)..

18	Demyelinating and Degenerative diseases. (Pathology)	1-Know the various causes and types of peripheral neuropathies 2-Know about various axonal degeneration and injures 3-Know the general features of demyelinating diseases, with special emphasis on Multiple Sclerosis, its clinical & morphological characteristics. 4-Know the general features of degenerative diseases & dementias, with special emphasis on Alzheimer's disease , its clinical & morphological findings. 5-Know briefly about Parkinson's Disease, Huntington's disease and amyotropic lateral sclerosis

19	Chemical senses, taste & smell. (Physiology)	1-Describe the olfactory receptors and the mechanism of their excitation. 2-Describe the anatomy of olfactory pathway. 3- Describe the primary taste of modalities 4- Discuss the characteristics of taste buds and distribution in relation to the primary taste modalities 5- List major substances that produce sweet, sour , bitter and salty taste and comment on their interaction. 6-Describe taste pathway. 7- Describe the mechanism of excitation of taste receptors and impulse generation in the primary afferents carrying taste sensation.

20	Physiology of peripheral nerves. (Physiology)	1-List various types of nerve fibers in peripheral nerves and know their function. 2- Describe and explain the compound action potential and understand its clinical significance 3- Define latent period and know how to calculate the conduction velocity of peripheral nerves.
21	Local anesthetics. (Pharmacology)	1-Describe the classification of the local anesthetic 2- Indicate the pharmacological characteristics of their chemical structures 3-Describe the mechanism of blockade of the impulse by local anesthetics. 4- Discuss the relation between pH, pKa, and the speed of onset of local anesthesia. 5-List the factors that determine the susceptibility of never fibers to blockade by local anesthetics. 6- List the major toxic effects of the local anesthetics. 7- Explain use-of dependent blockade by local anesthetics.
22	Cervical plexus & nerves of the neck. (Anatomy)	1-Make a list of contributing roots. 2- Discuss the general arrangement. 3- Describe the location of this plexus. 4- Make a list of the out coming nerves. 5- Follow the branches to their target organs. 6- Point out the point where the major cutaneous nerves emerge. 7- Make a list of the cutaneous nerve. 8- Follow the cutaneous branches to their destinations.
23	Brachial plexus & nerves of the upper limb. (Anatomy)	1- Make a list of contributing spinal nerves. 2- Discuss the general arrangement of this plexus. 3- Locate the plexus in the axilla and note important relations to blood vessels.. 4- Make a list of local branches with short notes on its target organs. 5- Make a list of its terminal main branches. 6- Follow up each branch down to its target organs (myotomes and Dermatomes).
24	Lumbosacral plexus & nerves of the lower limb. (Anatomy)	1-Make a list of contributing spinal nerves to the lumbar plexus. 2- Discuss the arrangement of the plexus. 3- Describe the location of this plexus and its relation to the psoas muscle. 4- List the terminal branches and follow up each branch to its final destination. 5- Make a list of contributing spinal nerves to the sacral plexus. 6- Discuss the arrangement of this plexus.

		7- Describe the location of this plexus. 8-List its terminal branches and follow up each branch to its target organs. 9-Make a list of nerves of the lower limb including the Gluteal region. 10-Follow up each nerve down to its target joints(cont) myotomes and dermatomes.
25	Sympathetic nervous system. (Anatomy)	1-Review the subdivisions of the nervous system. 2- Review the general arrangement and compare the sympathetic and parasympathetic parts. 3- Describe the following plans Para vertebral ganglia. Prevertebral ganglia. Parasympathetic ganglia. Splanchnic nerves. Autonomic plexuses. 4- Map out the various plexuses in head and neck, thorax, abdomen and pelvis. 5- Make a list of the components of the system. 6- Review the basic structure of sympathetic trunk. 7- Describe the source of sympathetic system in the neck and make a list of target organs. 8-Describe the Para vertebral sympathetic ganglia in the abdomen, their locations and target organs. 9-Discuss the relation of this system to the adrenal medulla. 10-Discuss the sympathetic innervation of blood vessels.
26	Parasympathetic nervous system. (Anatomy)	1- Make a list of the components of the system. 2- Make a list of cranial nerves having parasympathetic activity. 3- Describe the parasympathetic ganglia in the head and neck, their locations and target organs. 4- Describe the sacral parasympathetic out flow. 5-Make a list of its target organs.
27	Functions of the Autonomic nervous system and central regulation of viscera. (Physiology)	1- Describe the functions of the ANS and the response of effector organs on the neurotransmitters releases by the two divisions. 2- Explain the concept that ANS is a reflex based control system and emphasize the general feature of autonomic neuronal reflexes. 3- Describe autonomic reflexes integrated at the level of spinal cord and brain stem 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. 5-List the major functions of the hypothalamus including body rhythm, temperature regulation, appetite control and water intake.
28	Directly acting cholinergic agonists (Pharmacology)	1-Review the steps involved in the synthesis, storage, release and the termination of action of acetylcholine 2-Mention examples on inhibitors of acetylcholine synthesis, storage, and

		release. 3-List the locations and types of acetylcholine receptors in various organ systems. 4-Describe the effects of acetylcholine on major organ systems. 5-Correlate the pharmacokinetic properties of various choline esters and cholinomimetic alkaloids with their chemical properties. 6-List the major clinical indications and adverse effects of cholinomimetic agonists.
29	Cholinergic antagonists (Pharmacology)	1-Describe the effects of cholinergic antagonists on various organ systems. 2-List the major clinical indications of muscarinic antagonists 3-List the major adverse effects of antimuscarinic agents. 4-Describe the signs, symptoms and treatment of atropine poising.
30	Indirectly acting cholinergic agonists (Pharmacology)	1-Describe the distribution and function of cholinesterase 2-Provide a classification and examples on drugs that inhibit cholinesterase 3-Describe the pharmacodynamic differences between direct and indirect-acting cholinomimetic agents. 4-List the major signs and symptoms of organophosphate insecticide poisoning. 5-Describe the treatment modalities of organophosphate poisoning.
31	Adrenergic agonists. (Pharmacology)	(A)1-Review the steps involved in the synthesis, storage, release and the termination of action of epinephrine and norepinephrine 2-List examples on the inhibitors of norepinephrine synthesis, storage, release and re-uptake. 3-List tissues that contain significant numbers α1 or α2 adrenergic receptors. 4-Describe the major systemic effects of a pure alpha agonist. 5-Indicate the major clinical applications and major adverse effect of α-receptor agonists. (B)1-List tissues that contain significant numbers of β1 or β2 receptors. 2-Describe the major organ system effects of a pure beta agonist, and a mixed alpha and beta agonist. 3-List the major clinical applications and adverse effect of β-receptor agonists (turn page). 4-Indicate the pharmacodynamic differences between direct and indirect acting sympathomimetic amines.
32	Adrenergic antagonists. (Pharmacology)	1-Indicate the differences between selective and nonselective α-receptor antagonists. 2-List the main indications and the major adverse effects of α-receptors antagonists 3-Provide a classification for α- receptor antagonists. 4-Compare the pharmacokinetics of various β- receptor antagonists

		5-Describe the main indications and major adverse effects of β receptors antagonists 6-Describe the main drug-drug interactions of α and β receptors antagonists.
33	Group B streptococci, Listeria & mycobacterium Leprae. Clostidium tetani & Clostridium Botulism. (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.
34	Prions (Microbiology)	Historical back ground, basic structure, classification of diseases involved, epidemiology, pathogenesis and pathology, laboratory diagnosis, treatment and prevention.
35	Enteroviruses. (Microbiology)	- Enteroviruses: Polio viruses, coxsaki viruses, echo viruses, basic structural, morphological and physical properties, epidemiology, pathogenesis, clinical presentation, laboratory diagnosis, treatment, and prevention.
36	Rabies and, arboviruses (Microbiology)	- Rabies, Arboviruses: Classification, basic structural, morphological and physical properties, epidemiology, pathogenesis, clinical presentation, laboratory diagnosis, treatment, and prevention.
37	Ticks (Microbiology)	- Definition of Ticks - Morphology. - Life cycle. - Pathogenesis and clinical disease. - Clinical manifestations. - Laboratory diagnosis. - Treatment. Prevention.