

مقرر الانسجة المريضة والخلايا الفرقة الثانية:

Course title: Histopathology &Cytology	اسم المادة: علم الانسجة المريضة والخلايا
Intended term : 3,4	الرمز: 2033 نسج، 2043 نسج الفترة الدراسية: 3، 4
Course duration: 30 weeks	مدة المقرر: 30 اسبوع
- Lectures : 4 hours	عدد ساعات النظري: 4 ساعة
- Practical: 6 hours	عدد ساعات العملي: 6 ساعة
Total contact hours: 150 hours	عدد ساعات الاتصال: 150 ساعة
Course credit: 6 hours	الساعات المعتمدة: 6 ساعة

الرمز: 2033 نسج، 2043 نسج

1. وصف المادة (Description):

This course provides a sound understanding of basic histopathology as a medical science discipline and the role of the histopathology laboratory in the diagnosis of various disease states and in patient care and management.

2. أهداف العامة للمادة (General objectives):

بنهاية هذا الكورس يكون الطالب ملماً ب:

1. فهم لب علم الأنسجة المريضة والخلايا كأحد فروع المعرفة.
2. المقدرة علي ربط فحوصات الأنسجة المريضة مع الاختبارات الأخرى في مختبر علم الأمراض.
3. فهم الأطر التقنية العامة في علم الأنسجة المريضة والخلايا.
4. التعرف علي الأجهزة الأساسية في مختبر الأنسجة المريضة.
5. فهم وتطبيق واستخدام وضبط الجودة المجهرية.

Specific objectives:

After completion of the course student should be able to:-

1. Understand the fundamentals of histopathology and cytology.
2. Understand the nature of histopathology and cytology specimens.
3. Understand the basic of anatomical pathology specimens (biopsy).
4. Understand the basic of cell biology and correlated to Histo/cytopathology.
5. Use the different types of microscopes and their principles.
6. Understand the impact of fixation in histopathology and cytology laboratory.

7. Perform the different histological and cytological stains and identify the nature of tissues and cells.
8. Identify the different types of epithelial and non-epithelial cells in the female genital tract.
9. To observe the nuclear and cytoplasm contents of cells in normal and abnormal circumstances
10. Understand laboratory safety & management.

Course contents:

1. Introduction to histopathology as a medical science and objectives of learning histopathology & cytology.
2. Relation between histopathology and other laboratory disciplines.
3. Methods of preparation of tissues and cells.
4. Receiving and accessioning histopathology specimen.
5. Fixation.
6. Decalcification of bone specimens.
7. Principles of tissue processing.
8. Microtome.
9. Theory of staining.
10. Basic concepts of microscopy.
11. Haematoxylin and eosin staining.
12. Gynaecological cytology (Papanicolaou era).
13. Staining in cytology, hormonal assessment, identification of infections in the female genital tract and the story of observation of the malignant cell.

INSTRUCTIONAL METHODS:	طرق تدريس المادة
1- Lectures	1- محاضرات
2 - Lab. practical	2- دروس عملية
3- Tutorials	3- حلقات نقاش
4- Seminars	4- سمناوات
5- Assignments and Reports	5- ملخصات وتقارير

Evaluation:

- 20% annual assessment.
- 80% final examination held at the end the course, which is consisted of:
 1. 50% written exam (3hours)
 2. 50% practical exam (3 hours)

Final examination:

Theory 50%.
Practical 50%.

References:

1. Alan Steven & James Lowe. Human histology. 2nd edition. Hacourt publishers limited 1999.
2. Cotran AR. Robbins pathologic basis of disease. 4th edition K.B.S. Company 1999.
3. Carliton GN Carleton's histological technique. 3rd edition. Mosby Company 1999.

مقرر الانسجة المريضة والخلايا الفرقة الثالثة:

Course title: Histopathology &Cytology	اسم المادة: الانسجة المريضة والخلايا
Intended term : 5,6	الرمز: 3053 نسج، 3063 نسج
Course duration: 30 weeks	الفترة الدراسية: 5، 6
- Lectures : 4 hours	مدة المقرر: 30 اسبوع
- Practical: 6 hours	عدد ساعات النظري: 4 ساعة
Total contact hours: 150 hours	عدد ساعات العملي: 6 ساعة
Course credit: 6 hours	عدد ساعات الاتصال: 150 ساعة
	الساعات المعتمدة: 6 ساعة

الرمز: 3053 نسج، 3063 نسج

Description :

This course provides a sound understanding of advance techniques histopathology and the relative pathology. It will assist in the development of an advance understanding of the techniques developed to evaluate the diseases process and structural changes, ways in which diagnostic histopathology can solve pathological dilemmas, and serve as clue for patients care.

اهداف العامة للمادة General objectives :

بنهاية هذا الكورس يكون الطالب ملماً ب:

1. فهم الافكار الاساسية التشخيصية بالنسبة للنسيج المرضي وارتباطه او علاقته بعلم الامراض.
2. قادراً علي الادارات المعملية وبرامج ضبط الجودة (التقنية والتشخيصية).

Specific objectives:

After completion of the course student should be able to:-

1. Deal with, and select special procedures applied to differential diagnosis (H & E, special stains, EM, Immunocytochemistry, and molecular markers).
2. Under stand different types of methods applied to demonstrate different materials & structures in histological sections.

3. Under stand the applications, uses and quality control of different special stains procedures use to demonstrate specific materials & structures in histological sections.
4. Experience technical attitude in performing basic histopathology lab- work.
5. Under stand commentary for techniques and final result.

Course Contents: -

1. Introduction to the general aspects of histopathology and related pathologies.
2. Cell injury and death.
3. Acute, chronic inflammations, healing and repair mechanisms.
4. Cell adaptation & Neoplasia.
5. Immunopathology.
6. Introduction to genetic diseases.
7. Infectious agents and related pathology and histological changes.
8. Nucleic acids (N.A) and nucleoproteins.
9. Carbohydrates the glycogens.
10. Carbohydrates the mains.
11. Amyloidosis.
12. Pigments and minerals.
13. Connective tissues demonstration.

Instructional methods:	طرق تدريس المادة
1- Lectures	1- محاضرات
2 - Lab. practical	2- دروس عملية
3- Tutorials	3- حلقات نقاش
4- Seminars	4- سمینارات
5- Assignments and Reports	5- ملخصات وتقارير

Evaluation:

- * 20% annual assessment.
- * 80% final examination held at the end the course which is consisted of:
 - 1- written exam (3hours)
 - 2- practical exam (3 hours)
- * Final examination:
 - Theory 50%.
 - Practical 50%.

References:

1. Alan Steven & James Lowe. Human histology. 2nd edition. Hacourt publishers limited 1999.
2. Cotran AR. Robbins pathologic basis of disease. 4th edition K.B.S. Company 1999.
3. Carliton GN Carleton's histological technique. 3rd edition. Mosby Company 1999.

مقرر الانسجة المريضة والخلايا الفرقة الرابعة:

Course title: Histopathology &Cytology Advance course	اسم المادة:الأنسجة المريضة والخلايا (كورس متقدم)
Intended term : 7 , 8	الفترة الدراسية: 7،8
Course duration: 30 weeks	مدة المقرر: 30 اسبوع
- Lectures : 8 hours	عدد ساعات النظري: 8 ساعة
- Practical: 12 hours	عدد ساعات العملي: 12 ساعة
- In-service training: 8 hours	تدريب ميداني: 8 ساعات
Total contact hours: 780 hours	عدد ساعات الاتصال: 780 ساعة
Course credit: 20 hours (8+4+8)	الساعات المعتمدة: 20 ساعة (8+4+8)

Course description :

This course is part of the Cellular Pathology major discipline stream and is designed to prepare graduates for a career in laboratory histopathology or to pursue postgraduate research in the discipline. The program should provide a detailed theoretical understanding of the principles and procedures used in diagnostic histopathology and competence in the practice of histotechnology, histochemistry and immunohistochemistry and associated techniques.

الأهداف العامة للمادة:

بنهاية هذا الكورس يكون الطالب ملماً بـ:

1. الفهم العام لتقانة كيمياء الانسجة والانزيمات.
2. ضبط وقياس وتوكيد الجودة والمحافظة عليها.

General objectives:

Upon the completion of the course, the student should be able to:

1. Under stand the general aspect of Immunohistochemical and enzymehistochemical Techniques.
2. Judge the results of quality-assurance measures and institute proper procedure to maintain accuracy and precision.

Specific objectives:

After completion of the course student should be able to:-

1. Understand different types of Histochemical techniques concerning immuno/enzyme histochemical techniques.
2. understand different methods used in Immuno/enzyme histochemical techniques.
3. Perform different Histochemical stains
4. Be familiar with basic Equipment use in Histochemical Techniques.
5. Evaluate current and new Techniques, Instruments and procedure in term of their clinical and diagnosis usefulness and practicality.
6. Institute proper Technique and procedure that offer the possibility of specific identification of microorganisms and judge the results of quality-assurance measures.

Course Contents:-

1. Frozen and related section.
2. Enzyme Histochemistry(method of demonstration classification and principle of reactions)
3. Detection of nerves and ganglia.
4. Immunofluorescent techniques in diagnostic histology&Direct and in direct techniques
5. Staining and incubating procedures.
6. Renal and skin diseases.
7. Cell surface markers.
8. Immunocytochemical methods.
9. Unmasking antigens.
10. Detection of low level antigens.
11. Practical aspect of Immunocytochemical staining.
12. Tissue specific markers.
13. Basement membrane components.
14. Leukocyte antigens and leukocytes specific antibodies.
15. In situ hybridization.
16. Application of techniques for demonstration of lipids in histopathology.
17. Techniques in neuro-pathology.
18. Resin embedding techniques and electron microscopy.
19. Study of microorganisms in histopathology.
20. Quality control and laboratory management.

B: Cytology:

OBJECTIVES

Upon completion of the program, the graduate should be qualified to:

1. Determine and implement the appropriate procedures for collecting and processing biological specimens for cytological analysis.
2. Detect, differentiate between, and diagnose presence and absence of disease in gynecologic and nongynecologic samples.
3. Integrate and relate data generated by the various clinical departments, making judgments regarding possible discrepancies; confirm cytologic results; verify quality-control procedures; and develop solutions to problems concerning the generation of laboratory data.
4. Use contemporary and uniform diagnostic terminology in reporting laboratory results.
5. Judge the results of quality-assurance measures and institute proper procedures to maintain accuracy and precision.
6. Evaluate current and new techniques, instruments, and procedures in terms of their clinical and diagnostic usefulness and practicality.
7. Demonstrate professional conduct and interpersonal communication skills with patients, laboratory personnel, other health care professionals, and the public.
8. Recognize, encourage, and act upon the individual's need for continuing education as a function of growth and maintenance of professional competence.
9. Apply sound principles of management and supervision.
10. Understand and apply sound principles of scientific research

Course contents:-

1. Cytopreparation Techniques
2. Female Genital Cytology
3. Respiratory Cytology
4. Urinary Tract and Prostate Cytology
5. Gastrointestinal Tract Cytology
6. Body Cavity and Miscellaneous Secretions Cytology
7. Fine Needle Aspiration Cytology
8. Breast Cytology.
9. Reporting cytology results.
10. Management of cytology laboratory quality Assurance and Audit.
11. Legislation in cytology & Cytology Affiliation.
12. Screening programs in cytology.
13. Ethical problems in cytology.
14. Cytogenetics.
15. Supervised Cytology Research Project

C: Pathology:

Course Rationale:

The science of pathology forms the core of the course but it is offered in conjunction with other relevant topics in microbiology, virology, and clinical medicine. The overall purpose of the course is to establish a basic science foundation for the practice of medicine. A secondary purpose of the course is to create an environment that fosters active, independent learning and enables the students to acquire problem solving skills.

PATHOLOGY, in the broadest sense, is the study of disease. It is “that” branch of the biological sciences which is concerned with the nature of disease and the effects of those diseases on structure and function of the body organs and tissues.”¹

As the foundation of clinical medicine, PATHOLOGY bridges the gap between the basic sciences and the practice of medicine. “Pathology occupies a pivotal position in the medical curriculum. Anatomy, biochemistry, physiology and bacteriology are prerequisites. In pathology the student must learn to apply the facts and theories of anatomy, biochemistry, physiology, and bacteriology to an elucidation of the course, processes, and effects of disease. He/she must learn to study the causes of disease with a view to prevention and control. Finally, the students must gain a clear understanding of the alternations in form and disturbances in function that take place in disease, to be ready for the next step in his medical education and hospital work. With this aim in mind, the MECHANISMS OF HUMAN Disease course attempts to help the student understand the pathogenesis of disease and learn the structural and functional changes, which occur in cells and organs as a result of disease. A firm grasp of the concepts and facts of PATHOLOGY will allow you to proceed successfully through the next phase of your medical education in histopathology.

The **MECHANISMS OF HUMAN DISEASE** course also exposes the student to basic concepts and applied principles in microbiology, virology and the medical subspecialty of infectious diseases. As a practitioner, you will see many patients with diseases caused by infectious agents.

The **MECHANISMS OF HUMAN DISEASE** course features presentation of selected clinical topics by primary care and specialty physicians. Although basic science knowledge is the foundation of medical practice, these concepts are more meaningful when they are presented in the context of clinical problems.

General Pathology:

This course will outline the body's response to disruption of normal tissue structure and function by pathogenic agents. The various pathological processes and their importance to the concepts of disease will be studied.

Systematic Pathology:

In this component of Pathology, students will continue to develop their knowledge of disease processes begun in the General Pathology. The emphasis is on systemic Pathology with the major organ systems of the body being considered. The basic pathological processes encountered in General Pathology will be applied to the various organ systems of the body and diseases characteristic to each of these systems will be covered in detail. The lecture course is supplemented by a series of laboratory sessions in which the lecture material is enhanced and exemplified. The laboratory sessions are divided into a practical component where the student is given the opportunity to reinforce the lecture material by direct examination of tissue sections displaying the variety of pathological processes discussed in lectures. Also, the practical component includes a set of tutorials with which the lecture course is further enriched. It is during the practical sessions that the gross pathological specimens housed in the School's Pathology museum are used to their full advantage.

Objective:

The specific educational objectives will be found with each learning exercise, e.g., a lecture or laboratory session. The general course goals are as follows:

- To learn basic pathologic processes (Pathological Knowledge)
- To learn basic science concepts and principles that will serve as a foundation for understanding the basic pathologic processes (Pathological Knowledge)
- To learn the etiology/pathogenesis including the genetic basis of disease (Pathological Knowledge)
- To learn the morphology and abnormal function (pathophysiology) of diseased organs (Pathological Knowledge)
- To correlate the pathology of disease with its clinical manifestations i.e., to explain the nature of the patient's complaint (Pathological Knowledge of Patient Care)
- To demonstrate the ability to explain basic treatment strategies for common diseases (Pathological Knowledge)

- To differentiate between diseases which share common clinical manifestations
- To learn and demonstrate an ability to communicate effectively with fellow students and other health care professionals about common disease entities (Communication Skills)
- To show evidence of self-directed learning regarding controversial or evolving areas of Pathological knowledge (Practice Based and Life Long Learning)
- To demonstrate professional demeanor and interactions with fellow students and faculty (Professionalism)
- To prepare students for successful participation in the clinical clerkships (Pathological Knowledge, Communication Skills, Professionalism)

The **MECHANISMS OF HUMAN DISEASE** course is designed to expose the student to four learning situations: small group discussion, lecture, laboratory, and self-study.

The purpose of the lecture is to present concepts and facts relating to general and systemic pathology and related topics in clinical medicine, microbiology and virology. Each lecturer provides his/her own handouts that serve as an outline of the lecture and a condensation of important information that must be learned. The lecturer uses audio-visual aids to enhance and reinforce learning. Reading assignments expand upon and enhance the lecture/handouts.

Small group discussions afford students the opportunity for active learning. Students must be prepared for each session by reading each case, defining unknown terms, and reading relevant lecture handouts and chapters from the textbook. This format allows students to engage one another and the faculty facilitator in a discussion about the pathology and the clinico-pathologic correlations concerning each case.

The laboratories are used to learn the morphologic changes that occur in disease. Whole organs or parts of diseased organs and histologic sections will be used as visual aids to enhance the student's understanding of a disease and to correlate clinical manifestations with structural changes. Students will be asked to describe the characteristic pathology of each disease as seen in wet specimens, microscopic slides, photographs (kodachromes) and even x-rays. Students are expected to read the textbooks and fulfill all educational objectives cited for each lecture and laboratory session.

Contents:**Theoretical:****General Pathology:**

1. General Principles of Laboratory Medicine.
2. Pathophysiology of Cell Injury and Adaptation.
3. Inflammation and Repair.
4. Immunopathology.
5. Fluids and Hemodynamics.
6. Disorders of Nutrition.
7. Genetic, Congenital, and Developmental Disorders and Aging.
8. Environmental & Nutritional Pathology.
9. Neoplasia.
10. Infectious Diseases.

Systematic Pathology:

1. Red cells and bleeding disorders.
2. White blood cells, lymph nodes, spleen and thymus.
3. Diseases of the lung.
4. G.I.T, liver and biliary tract Pathology.
5. Diseases of the pancreas.
6. Diseases of the kidney and lower urinary tract.
7. Diseases of the male genital tract.
8. Diseases of female genital tract.
9. Diseases of the breast.
10. Pathology of the endocrine system.
11. Pathology of the skin.

Instructional methods:	طرق تدريس المادة
1- Lectures	1- محاضرات
2 - Lab. practical	2- دروس عملية
3- Tutorials	3- حلقات نقاش
4- Seminars	4- سمناوات
5- Assignments and Reports	5- ملخصات وتقارير

طرق القياس و التقويم : Evaluation

- 1- امتحانات نهائية (80%) و تشمل:
 - امتحان تحريري 40%
 - امتحان عملي 50 %
 - امتحان شفوي 10%
- 2- أعمال السنة (20%) وتشمل:
 - كتابة الملخصات والتقارير
 - اختبارات دورية

References:

1. Alan Steven& James Lowe.Human histology.2ndedition. Hacourt publishers limited 1999.
2. Cotran AR. Robbins pathologic basis of disease.4th edition K.B.S. Company 1999.
3. Carliton GN Carleton's histological technique.3rd edition.Mosby Company 1999.
- 4.Koss LG, Melamed MR. Koss' Diagnostic Cytology And Its Histopathologic Bases. 5th edition. Philadelphia, PA: Lippincott Williams & Wilkins 2006.
5. Gray W, Kocjan G, eds. Diagnostic Cytopathology. 3rd edition. New York, NY: Churchill Livingstone, Elsevier 2010.
6. Atkinson B. Atlas of Diagnostic Cytopatholog. 2nd edition. Philadelphia, PA: Elsevier Saunders 2003.
7. Cibas ES, Ducatman BS, eds. Cytology: Diagnostic Principles and Clinical Correlates. 2nd edition. Philadelphia, PA: Saunders 2003.