وحدة ضمان الجودة

Quality Assurance Unit (QAU)

Program Specifications of MD degree in Histology,
Qena Faculty of Medicine,
South Valley University

كود البرنامج : HIS300

N.	Courses	Code	Coordinator		Head of the department	
			Name	Signature	Name	Signature
1	Biostatistics + Computer	HIS309	Dr\rehab gamal		dr/ Ahmed Hany	
2	Research Methodology	HIS309	Dr\rehab gamal		dr\ ahmed Hany	
3	Immunology &rgan transplant	HIS305	Dr\Eman Ahmed		Dr/ Amal Taha	
4	Clinical pathology	HIS331	Dr\abdelrah man elsayed		Dr\hanan fayed	
5	Tissue culture	HIS325	Dr \ Hala saghr		Dr\Ahmed el Abd	
6	Electron microscopy		Dr\ Eman Ahmed		Dr\ Amal Taha	
7	Molecular biology		Dr\hala saghr		Dr\Ahmed El Abd	
8	Genetics		Dr\hala saghr		Dr\Ahmed El Abd	
9	Histology	HIS 302	Dr\Eman Ahmed		Dr\ Amal Taha	

Program Coordinator
Dr/ Eman Ahmed Abd-Elrahim

Head of Histology department
Dr/Amal Taha Abou-Elghit

رؤية كلية طب قنا :الريادة في التعليم والبحث العلمي الطبي لخدمة إقليم الجامعة والشراكة الفاعلة في الإرتقاء بالمنظومة الطبية محلياً و دولياً.

رسالة كلية طب قنا :تلتزم كلية طب قنا – جامعة جنوب الوادي بتخريج أطباء قادرين على تلبية الإحتياجات الطبية الاقليمية وإعداد باحثين قادرين على تطوير المنظومة الصحية بمستوى تحظى على تنافسي وتقديم خدمات متميزة في إطار الحفاظ على ضوابط وأخلاقيات المهنة والقيم المجتمعية من خلال تطوير البحث العلمي والبرامج التعليمية وآليات التعليم الطبي المستمر.

Qena Faculty of medicine **South Valley University**

Course Specification for MD Degree in Histology

PROGRAM SPECIFICATION

South Valley University **Qena Faculty of Medicine**

A- Basic Information

1. Program title: MD. Degree of Histology
2. Program type: single
3. Departments: Histology Department
4. Coordinator : Dr. Eman Ahmed Abd El Rahim
5. External evaluator:- Prof. Dr Amal Taha Abou El ghait Taha

B- Professional Information :

1-Program aims:

The aim of this program is to provide the postgraduate student with the advanced medical knowledge and skills essential for the mastery of practice of Histology and necessary for further training and practice in the field of Histology through providing:

1- Recent scientific knowledge essential for the mastery of practice of Histology according to the international standards.

2- Skills necessary for proper practice in the field of Histology including diagnostic, problem solving and decision making skills.

3- Ethical principles related to the practice in this highly sensitive specialty.

4- Active participation in community needs assessment and problems identification. 5- Maintenance of learning abilities necessary for continuous medical education. 6- Upgrading research interest and abilities.

2-Intended learning outcomes (ILOs):

a) Knowledge and Understanding:

By the end of the program the student should be able to:

a.1- Mention the recent knowledge of the histological structure of the different body tissues and organs

a.2- Illustrate the function of the different cells and organs in relation to their microscopic and molecular structure .

a.3- Describe the methods of cell division and its abnormalities.

a.4- List the different methods for tissue examination.

a.5- Define the different types of histological stains.

a.6- Have sufficient knowledge to detect the presence of protein, carbohydrate , lipids and enzymes in the tissue by different specific methods.

a.7- Define the molecular structure of the nucleus and the cytoplasmic organelles.

a.8- Explain the advanced knowledge of biostatistics.

a.9- Explain the advanced knowledge of research methods.

a.10- List the ethics in researches regarding the human and experimental animals.

a.11- Illustrate the moral and legal aspects of managing the departmental activities.

a.12- List the quality standards of laboratory biosafty.

a.13- List the quality standards of practical and theoretical teaching.

a.14- List the quality standards of student assessment.

a.15- Define the hazardous effects of common chemicals used and the precautions to minimize these hazards.

b) Intellectual Skills:

By the end of the program the student should have the ability to:

b.1- Analyze and interpret research data in the field of Histology.

b.2- analyze the contents and identify any histological slide.

b.3- Interpret the medical importance of the histological structure at molecular level.

b.4- Evaluate the general and specific histological stains for microdetection of the cytoplasmic content.

b.5- evaluate and interpret any morphological abnormalities in the examined slides by light and electron microscopes.

b.6- conduct experimental studies in the field of Histology.

b.7- formulate and publish at least two papers from his research studies.

b.8- risk assessment and management in dealing with lab animals and conducting tissue preparation for LM and EM examinations.

b.9- formulate a plan for improving the departmental performance in the field of teaching and research.

b.10- administrate evidence based scientific discussions in at least ten seminars.

b.11- analyze and criticize scientific research papers in at least ten journal clubs

c) Professional and Practical Skills:

By the end of the program the student should have the ability to:

c.1-prepare solutions used for micro techniques and different stains perfectly and independently.

c.2- perform all the methods of administration to the lab animals.

c.3- perform the steps of micro technique for paraffin section preparation perfectly and independently.

c.4- prepare frozen sections perfectly and independently.

c.5- perform special histological stains perfectly and independently.

c.6- perform histochemical reactions perfectly and independently.

c.7- perform tissue preparations for E.M. perfectly and independently.

c.8- perform the steps of immunohistochemistery perfectly and independently.

c. 9- examine and photograph experimental slides by light microscope perfectly and independently.

c.10- examine and photograph experimental slides by electron microscope perfectly and independently.

c.11- write professional reports on any histological slide or histological photograph.

c.12- use computer soft wares to analyze slides (image analysis) or analyze research data.

d) General and Transferable Skills:

By the end of the program the student should have the ability to:

d.1- communicate effectively with students, colleagues and professors.

d.2- use the information technology in self learning, teaching and research.

d.3- share in student teaching and student assessment under supervision.

d.4- assess his performance and improve it continuously.

d.5- use the web sites, medical journals, personal communications ,digital libraries to gain knowledge.

d.6- work coherently and successfully as a part of a team or as a leader.

d.7- administer scientific activities as seminars, journal clubs ,scientific meetings or conferences.

4- Curriculum structure and contents:

4.a- Programme duration: 7 semesters (3.5 years).

4.b- Programme structure:

4.b.i- Number of hours per week:

	hours /week		
Subject	**Lectures**	**Practical**	**Clinical**
First Part:			
Minors :			
Research Methodology	1	1	---
Bio Statistics & Computer	1	1	
Optional courses: Two of the followings:			---
1-Immune system &organ Transplant	1	1	
2-Clinical Pathology	1	1	---
3-Tissue culture	1	1	---
4-a)Electron microscopy			
4-b)Medical genetics	1	1	
4-d)Molecular biology	1	1	
Second Part:			
Histology	2.5	3	

5- Program Courses 3 courses are compulsory+ 2 optional courses

5.1- Level of program:

First part a. Compulsory

Course title	No of units	No of hours/week			Programme ILOs. covered
		Lect.	Lab.	Excer.	
Biostatistics &computer	2	1		1	a7,b1,b3,b10,b11, c12,d1,d2,d5,d6,d7
Research Methodology	2	1		1	a8,a9,a10,b1,b3,b10,b11, c12,d1,d2,d5,d6,d7

c. Optional

Course title	No of units	No of hours/week			Programme ILOs. covered
		Lect.	Lab.	Excer.	
Immunology&Organ Transplant	2	1	1		a4,a15,b2,b3,b5,b10,b11,c1,c4,c8,c9,d1,d2,d4,d5,d6,d7
Clinical Pathology	2	1	1		a1,a4,b1,b5,b6,b10,b11,c8,c9, c11,c12,d1,d2,d4,d5,d6,d7
Tissue Culture	2	1	1		a1,a3,a4,a6,a15,b1,b3,b4,b6,b8,b10,b11,c1,c2,c3,c6,d1,d2,d4,d5,d6,d7
Electron Microscopy	2	1	1		a1,a2,a15,b1,b5,b6,b8,b10,b11,c2,c7,c10,d1,d2,d4,d5,d6,d7
Molecular Biology	2	1	1		a1,a6,a15,b3,b4,b7, b10,b11,c2,c7,d1,d4,d5,d6,d7
Medical Genetics	2	1	1		a2,a3,a15,b1,b5,b6, b8,b1,b11,c1,c2,c6,d1,d4,d5,d6,d7

Second part

a-Compulsory

Course title	No of units	No of hours/week			Programme ILOs. covered
		Lect.	Lab.	Excer.	
Histology	5.5	2.5	3		a1,a2,a3,a4,a5,a6,a11,a12,a13,a14,a15,b2,b3,b4, b5,b6,b7,b8,b9,b10,b11,c1,c2,c3,c4,c5,c6,c7,c8,c9,c10,c11,c12,d1,d3,d4,d5,d6,d7

6- Program admission requirements

1. General Requirement

A-Candidates should have either:

1.MBBCh Degree from any Egyptian Faculties of Medicine or

2.Equivalent Degree from Medical Schools abroad approved by the Ministry of Higher Education.

B- Master Degree in Histology.

C-Regulatory rules of postgraduate studies of Qena Faculty of Medicine.

II- Specific Requirements:

A-Candidates graduated from Egyptian Universities should have at least "Good Rank" in their final year examination, and grade "Good Rank" in Histology Course too.
B-Master Degree in Histology with at least "Good Rank". C-
Candidate should know how to speak & write English well.
D-Candidate should have computer skills.

7- Regulations for progression and program completion

Duration of program is 7 semesters (3.5 years), starting from registration till acceptance of the thesis; divided to:
First Part: (≥6 months=1 semester):

- Immunology& Organ Transplant, Clinical Pathology, Tissue Culture, Electron Microscopy, Molecular Biology and Human Genetics Courses and ILOs & Research Methodology, Biostatistics and computer & SPSS.
- At least six months after registration should pass before the student can ask for examination in the 1st part.
- Two sets of exams: 1st in April — 2nd in October after fulfillment of the credit hours.
- For the student to pass the first part exam, a score of at least 60% in each curriculum is needed.
- Those who fail in one curriculum need to re-exam it only.

Second Part: (≥24 months=4 semesters):

- Program related specialized science of Histology Courses. At least 24 months after passing the 1st part should pass before the student can ask for examination in the 2nd part.
- Fulfillment of the requirements in each course as described in the template and registered in the log book is a prerequisite for candidates to be assessed and undertake part 1 and part 2 examinations; as following:

Grand rounds
Training courses
Conference attendance
Thesis discussion
Workshops
Journal club
Seminars
Morbidity and Mortality conference
Self education program

- Two sets of exams: 1st in April— 2nd in October.
- At least 60% of the written exam is needed to be admitted to the oral and practical exams.
- 4 times of oral and practical exams are allowed before the student has to re-attend the written exam.

Thesis (24-48 months=4-8 semesters):

- Could start after registration and should be completed, defended and accepted after passing the 2nd part final examination, and after passing of at least 24 months after documentation of the subject of the thesis.
- Accepting the thesis is enough to pass this part.

8-Methods of student assessment:

Method of assessment	The assessed ILOs
1-Research assignment	-general transferable skills, intellectual skills
2-Written Exams:	
-Short essay	-knowledge
-MCQs	-knowledge, intellectual skills
-Commentary	- intellectual skills
-Problem solving	-general transferable skills, intellectual skills
3-Practical Exams	- Practical skills, intellectual skills
4-OSPE	- Practical skills, intellectual skills
5-Clinical Exams.	- Practical skills, intellectual skills
6-OSCE	- Practical skills, intellectual skills
7-Oral Exams.	- knowledge
8-Structured Oral Exams	-knowledge

9-Program evaluation:

Evaluator	Tool	Sample
1- Senior students	Questionnaire	2
2- Alumni	Questionnaire	3
3- Stakeholders (Employers)	Questionnaire	3
4- External Evaluator(s) (External Examiner(s)	Reports	1
5- Other		

PARAMETER	Agreement %
Program aims & ILOs	
Did the program helped you to acquire skills for good practice in Histology	50 acceptable 50 good
Does the current program give you the skills needed to reach a provisional doctor in Histology	75
Are Program alumni motivated to increase their professional knowledge and Skills	50
Does the teaching program give the acceptable ethical behavior	75
Does the current program motivate the alumni for continuous medical Education	75
Do program alumni perform good communication with their colleagues	75
Do program alumni have computer skills needed for their work.	75
Do program alumni perform team work	50
Can program alumni react well to emergency	50
Can program alumni reach a satisfactory preliminary diagnosis	100
Can program alumni choose the proper practical methods	100
Can program alumni distinguish complicated cases above his own and establishment abilities	62.5
Do program alumni perform community health education	50
Do program alumni show scientific interest to widen their knowledge and study for post graduate degrees	87.5

Course Specifications of Biostatistics &Computer

for MD Degree in Histology

South Valley University **Qena Faculty ofMedicine**

1- Program on which the course is given: MD Degree in Histology

2- Minor element of program

3- Department offering the program: Histology Department

4- Department offering the course: Community Medicine Department

5- Academic year: Post graduate, MD Degree in Histology,1st part

A- Basic Information

Title: **Biostatistics &Computer**

Hours per week**: 2 for 15 weeks**

Lecture: **1/week** Practical: **1/week** **code:HIS 309**

B- Professional Information

1- Overall Aims of Course

The aim of this program is to provide the postgraduate student with the medical knowledge and skills essential for the practice of specialty and necessary to gain:

1- Scientific knowledge essential for practice of Biostatistics and Computer according to the international standards.

2- Skills necessary for proper practice in the field of Biostatistics and Computer including diagnostic, problem solving and decision making skills.

3- Ethical principles related to the practice in this specialty.

4- Active participation in community needs assessment and problems solving.

5- Maintenance of learning abilities necessary for continuous medical education.

6- Maintenance of research interest and abilities.

2- Intended Learning Outcomes of Courses (ILOs)

a) Knowledge and understanding:

By the end of the course, the graduate should be able to:

a.1- Describe bias and confounding

a.2-Explain evidence based Medicine

a.3-Calculate different samples sizes

a.4-Define the screening tests pertinent to selected diseases and the at-risk approach in the application of screening tests

a.5-Define the sources of data and methods of collection

a.6-Describe five sampling techniques and list at least three advantages of sampling

a.7-Summarize data, construct tables and graphs

a.8-Calculate measures of central tendency and measures of dispersion

a.9-Describe the normal curves and its use

b) Intellectual Skills

By the end of the course, the graduate should be able to:

b.1- Interpret selected tests of significance and the inferences obtained from such tests

b.2--Build a model explaining the research methods and analysis of determinants of human diseases and health problems

b.3- conduct experimental studies in the field of Histology.

b.4- administrate evidence based scientific discussions in at least ten seminars.

b.5- analyze and criticize scientific research papers in at least ten journal clubs

c) Professional and Practical Skills:

By the end of the course, the student is able to:

c.1- Perform a research proposal for community diagnosis

c.2- Design questionnaires

c.3- Conduct researches

c.4- Diagnose bias and confounding factors

c.5-Detect association and causation

c.6- use computer soft wares to analyze slides (image analysis) or analyze research data.

d) General and Transferable Skills:

By the end of the course, the student is expected to be able to: d.1- Communicate effectively by all types of effective communication.

d.2- Use information technology to serve the development of professional practice.

d.3- use the web sites, medical journals, personal communications ,digital libraries to gain knowledge.

d.4- work coherently and successfully as a part of a team or as a leader.

d.5- administer scientific activities as seminars, journal clubs ,scientific meetings or conferences.

3- Contents

Topic	No. of hours	Lecture	Tutorial/Practical
Methodology & statistics Introduction to research Terminology and rationale Data collection methods Types of Data Tabulation of data Graphical presentation of data Measures of central tendency Measures of dispersion Normal distribution curves Study design: Cross sectional study and the prevalence rate Cohort study, incidence rate, relative & attributable Risk Case-control study, Odd's ratio Sampling Tests of significance: Proportion test Chi-square test Student T test Paired T test Correlation (simple and multiple) Regression ANOVA test Descrimination analysis Factor analysis	30	15	15
Total	30	15	15

4– Teaching and Learning Methods

4.1- Lectures in the form of discussions.

4.2- Practical sessions including practical assignments.

4.3- Assignments

4.4- attending and participating in scientific conferences, work shops and thesis discussion to acquire the general and transferable skills needed

5- Student Assessment Methods

5.1- Final written exam:

MCQs to assess understanding& knowledge and intellectual skills.

Short essay to assess understanding& knowledge.

Commentary to assess intellectual skills.

5.2- Structured Oral exam to assess knowledge.

5.3- Practical exams to assess the practical and professional skills.

5.4-Other Assignments/class work : formative assessment

Assessment Schedule

By the end of the course:

Assessment 1	Final written exam	Week 24
Assessment 2	Final oral exam	Week 25
Assessment 3	Final Practical exam	Week 25

Weighting of Assessments

Written Examination	50%
Oral Examination.	30%
Practical Examination	20 %
Total	100 %

Formative only assessment: simple research assignment, log book

6- List of References

6.1- Course Notes

Lecture notes prepared by the staff members in the department.

6.2- Essential Books (Text Books)

1-Maxy-Rosenau Public health and preventive medicine, Prentice – Hall International Inc.

6.3- Recommended Books

1- Dimensions of Community Health, Boston Burr Ridge Dubuque.

2- Short Textbook of preventive and social Medicine. Prentice-Hall International Inc.

3- Epidemiology in medical practice, 5th edition. Churchill Livingstone. New York, London and Tokyo.

6.4- Periodicals, Web Sites … etc

1-American Journal of Epidemiology

2-British Journal of Epidemiology and Community Health

3- WWW. CDC and WHO sites

7- Facilities Required for Teaching and Learning

7.1-Adequate infrastructure: including teaching places; hall and laboratory, comfortable desks, good source of areation, bathroom, good illumination and security and safety.

7.2- Teaching tools: including screen, computers, data show, slide projector, flip chart, white board, video player, digital camera, scanner and colored and lazer printers.

7.3- Computer programs: for designing and evaluating MCQs.

Course Specifications of Research Methodology

for MD Degree in Histology

South Valley University **Qena Faculty of Medicine**

1- Program on which the course is given: MD Degree in Histology

2- Minor element of program

3- Department offering the program: Histology Department

4- Department offering the course: Community Medicine Department

5- Academic year: Post graduate, MD Degree in Histology, 1st part

B- Basic Information

Title: **Research Methodology**

Hours per week**: 2 for 15 weeks**

Lecture: **1/week** Practical: **1/week** **code:HIS 309**

B- Professional Information

1- Overall Aims of Course

The aim of this program is to provide the postgraduate student with the medical knowledge and skills essential for the practice of specialty and necessary to gain:

1- Scientific knowledge essential for practice of Research Methods according to the international standards.
2- Skills necessary for proper practice in the field of Research Methods including diagnostic, problem solving and decision making skills.
3- Ethical principles related to the practice in this specialty.
4- Active participation in community needs assessment and problems solving.
5- Maintenance of learning abilities necessary for continuous medical education.
6- Maintenance of research interest and abilities.

2- Intended Learning Outcomes of Courses (ILOs)

a) Knowledge and understanding:

By the end of the course, the graduate should be able to:

a.1-Define terms of research methodology a.2-Describe the spectrum of research methodology a.3-Explain the strategies and design of researches a.4-Describe the sampling methods

a.5-List at least four types of study designs a.6-Describe the study design, uses, and limitations

a.7-Describe five sampling techniques and list at least three advantages of sampling

a.8- Define terms of research methodology

a.9- Describe the spectrum of research methodology

a.10- Explain the strategies and design of researches.

a.11- List the ethics in researches regarding the human and experimental animals.

b) Intellectual Skills

By the end of the course, the graduate should be able to: b.1-

Apply research methods to different community health problems

b.2-Identify and collect data variables impacting health and disease

b.3-Apply appropriate research strategies for use

B.4-Select and use appropriate research methods

b.5-Advocate appropriately in the research design

b.6-Activate and mobilize the community toward evidence based medicine

c) Professional and Practical Skills:

By the end of the course, the graduate should be able to:

c.1- Perform a research proposal for community diagnosis

c.2- Design questionnaires

c.3- Conduct researches

c.4- Diagnose bias and confounding factors

c.5-Detect association and causation

d) General and Transferable Skills:

By the end of the course, the graduate should be able to:

d.1- Communicate effectively by all types of effective communication.

d.2- Use information technology to serve the development of professional practice.

d.3-Use the web sites, medical journals, personal communications ,digital libraries to gain knowledge.

d.4- Work coherently and successfully as a part of a team or as a leader.

d.5- Administer scientific activities as seminars, journal clubs ,scientific meetings or conferences.

3- Contents

Topic	No. of hours	Lecture	Tutorial/Practical
Methodology & statistics Introduction to research Terminology and rationale Data collection methods Types of Data Tabulation of data Graphical presentation of data Measures of central tendency Measures of dispersion Normal distribution curves Study design: Cross sectional study and the prevalence rate Cohort study, incidence rate, relative & attributable Risk Case-control study, Odd's ratio Sampling Tests of significance: Proportion test Chi-square test Student T test Paired T test Correlation (simple and multiple) Regression ANOVA test Descrimination analysis Factor analysis	15	15	30
Total	15	15	30

4– Teaching and Learning Methods

4.1- Lectures in the form of discussions.

4.2- Practical sessions including practical assignments.

4.3- Assignments

4.4- attending and participating in scientific conferences, work shops and thesis discussion to acquire the general and transferable skills needed

5- Student Assessment Methods

5.1- Final written exam:

MCQs to assess understanding& knowledge and intellectual skills.

Short essay to assess understanding& knowledge.

Commentary to assess intellectual skills.

5.2- Structured Oral exam to assess knowledge.

5.3- Practical exams to assess the practical and professional skills.

5.4-Other Assignments/class work: formative assessment

Assessment Schedule

By the end of the course:

Assessment 1	Final written exam	Week 24
Assessment 2	Final oral exam	Week 25
Assessment 3	Final Practical exam	Week 25

Weighting of Assessments

Written Examination	50%
Oral Examination.	30%
Practical Examination	20 %
Total	100 %

Formative only assessment: simple research assignment, log book

6-List of References

6.1- Course Notes

Lecture notes prepared by the staff members in the department.

6.2- Essential Books (Text Books)

1-Maxy-Rosenau Public health and preventive medicine, Prentice – Hall International Inc.

6.3- Recommended Books

1- Dimensions of Community Health, Boston Burr Ridge Dubuque.

2- Short Textbook of preventive and social Medicine. Prentice-Hall International Inc.

3- Epidemiology in medical practice, 5th edition. Churchill Livingstone. New York, London and Tokyo.

6.4- Periodicals, Web Sites, … etc

1-American Journal of Epidemiology

2-British Journal of Epidemiology and Community Health

3- WWW. CDC and WHO sites

7- Facilities Required for Teaching and Learning

7.1-Adequate infrastructure: including teaching places; hall and laboratory, comfortable desks, good source of areation, bathroom, good illumination and security and safety.

7.2- Teaching tools: including screen, computers, data show, slide projector, flip chart, white board, video player, digital camera, scanner and colored and lazer printers.

7.3- Computer programs: for designing and evaluating MCQs.

Course Specifications of Immunology &Organ Transplant

for MD Degree in Histology

South Valley University **Qena Faculty of Medicine**

1- Program on which the course is given: MD Degree in Histology

2- Minor element of program

3- Department offering the program: Histology Department

4- Department offering the course: Histology

5- Academic year: Post graduate, MD Degree in Histology,1st part

A- Basic Information

Title: **Immunology &Organ Transplant**

Hours per week**: 2 for 15 weeks**

Lecture: **1/week** Practical: **1/week** **code:HIS 305**

B- Professional Information

1- Overall Aims of Course

The aim of this program is to provide the postgraduate student with the medical knowledge and skills essential for the practice of specialty and necessary to gain:

1. Scientific knowledge essential for practice of Immunology &Organ Transplant according to the international standards.
2. Skills necessary for proper practice in the field of Immunology &Organ Transplant including diagnostic, problem solving and decision making skills.
3. Ethical principles related to the practice in this specialty.
4. Active participation in community needs assessment and problems solving.
5. Maintenance of learning abilities necessary for continuous medical education.
6. Maintenance of research interest and abilities.

2- Intended Learning Outcomes of Course (ILOs):

a) Knowledge and Understanding:

By the end of the course the student should be able to:

a.1- List the different methods for immunohistochemical tissue examination.

a.2- Define the hazardous effects of common chemicals used and the precautions to minimize these hazards.

b) Intellectual Skills:

By the end of the course the student should have the ability to:

b.1- Analyze the contents and identify any pathological slide.

b.2- Interpret in a professional manner a pathology report.

b.3- Evaluate and interpret any morphological abnormalities in the examined slides by light microscopes.

b.4- Administrate evidence based scientific discussions in at least ten seminars.

c) Professional and Practical Skills:

By the end of the course the student should have the ability to:

c.1-Prepare solutions used for immunohistochemistry perfectly and independently.

c.2- Prepare frozen sections perfectly and independently.

c.3- Perform the steps of immunohistochemistery perfectly and independently.

c. 4- Examine and photograph experimental slides by light microscope perfectly and independently.

d) General and Transferable Skills:

By the end of the course the student should have the ability to:

d.1- Communicate effectively with students, colleagues and professors.

d.2- Assess his performance and improve it continuously.

d.3- Use the web sites, medical journals, personal communications ,digital libraries to gain knowledge.

d.4- Administer scientific activities as seminars, journal clubs ,scientific meetings or conferences.

3- contents:

Topic	No. of hours	Lecture	Practical
1. Inflammation & repair.	2	1	1
2. Degeneration.	2	1	1
3. Cell death & necrosis.	2	1	1
4. Basic immunology.	2	1	1
5. Immunopathology.	2	1	1
6. Organ transplant.	4	2	2
7. Transplant rejection.	2	1	1
8. Techniques & immunohistochemistry.	6	3	3
9. Cell culture.	2	1	1
10. Intracellular accumulation.	2	1	1
11. Extracellular deposits.	2	1	1
12. Cellular growth disorders.	2	1	1
TOTAL	30	15	15

4– Teaching and Learning Methods

4.1-lectures.

4.2-practical lessons in the form of jars, radiological films and computer based lectures .

4.3- Assignments

4.4- attending and participating in scientific conferences, work shops and thesis discussion to acquire the general and transferable skills needed

5- Student Assessment Methods

5.1- Final written exam:

Short essay to assess understanding& knowledge.

Commentary to assess intellectual skills.

Problem solving to asses general transferable skills, intellectual skills

5.2-Structured Oral exam to assess practical skills, intellectual skills.

5.3-Practical exams to assess the practical and professional skills

Assessment Schedule

By the end of the course.

Assessment 1	Final written exam	Week 24
Assessment 2	Final oral exam	Week 25
Assessment 3	Final Practical exam	Week 25

Weighting of Assessments

Written Examination	50%
Oral Examination.	30%
Practical Examination	20 %
Total	100 %

Formative only assessment: simple research assignment, log book4.

6- List of References

6.1- Course Notes

Lecture notes prepared by the staff members in the department.

6.2- Essential Books (Text Books):

Muir’s text book of pathology.

Robbins pathologic basis of diseases.

6.4Web Sites: http://www.ncbi.nlm.nih.gov/pubmed/

7- Facilities Required for Teaching and Learning

7.1-Adequate infrastructure: including teaching places; hall and laboratory, comfortable desks, good source of areation, bathroom, good illumination and security and safety.

7.2- Teaching tools: including screen, computers, data show, slide projector, flip chart, white board, video player, digital camera, scanner and colored and lazer printers.

7.3- Computer programs: for designing and evaluating MCQs.

Course Specifications of Clinical Pathology

for MD Degree in Histology

Qena Faculty of Medicine South Valley University

1. Program on which the course is given: MD Degree in Histology
2. Minor element of program
3. Department offering the program: Histology Department
4. Department offering the course: Clinical Pathology Department
5. Academic year: Post graduate, MD Degree in Histology, 1st part

C- Basic Information

Title: **Clinical Pathology**

Hours per week**: 2 for 15 weeks**

Lecture: **1/week** Practical: **1/week** **code:HIS 331**

B- Professional Information

1. Overall Aims of Course

The aim of this program is to provide the postgraduate student with the medical knowledge and skills essential for the practice of specialty and necessary to gain:

1. Scientific knowledge essential for practice of Clinical Pathology according to the international standards.
2. Skills necessary for proper practice in the field of Clinical Pathology including diagnostic, problem solving and decision making skills.
3. Ethical principles related to the practice in this specialty.
4. Active participation in community needs assessment and problems solving.
5. Maintenance of learning abilities necessary for continuous medical education.
6. Maintenance of research interest and abilities.

2. Intended Learning Outcomes of Courses (ILOs)

a) Knowledge and understanding:

By the end of this course the student should be able to

a.1- Mention the recent - advances in diagnosing various hematological disorders as bone marrow transplantation, bleeding and coagulation disorders.

a.2-Identify different techniques for semen analysis

a.3- Identify recent methods of histocopatability tests.

a.4-List different methods for collection of various tissue samples.

b) Intellectual skills:

By the end of this course the student should be able to:

b.1-To interpret lab investigations as blood picture, bone marrow examination, results of lymph node, spleen biopsy, and tests for coagulation disorders.

b.2- Evaluate and interpret any morphological abnormalities in the examined slides by light microscope.

b.3- Examine semen for different abnormalities.

b.4- Differentiate between samples of tissue obtained through exfoliative cytology.

b.5- Administrate evidence based scientific discussions in at least ten seminars.

b.6- Analyze and criticize scientific research papers.

c) Professional and Practical Skills:

By the end of the course the student should able to:

c.1- Perform the steps of immunohistochemistery perfectly and independently.

c.2- Examine and photograph experimental slides by light microscope perfectly and independently.

c.3- Write professional reports on any haematological slide

c.4- Use computer soft wares to analyze slides (image analysis) or analyze research data.

d) General and Transferable Skills

By the end of the course the student should able to:

d.1- Communicate effectively by all types of effective communication.

d.2- Use information technology to serve the development of professional practice.

d.3- Use the web sites, medical journals, personal communications ,digital libraries to gain knowledge.

d.4- Assess his performance and improve it continuously.

d.5- Work coherently and successfully as a part of a team or as a leader.

d.6- Administer scientific activities as seminars, journal clubs ,scientific meetings or conferences.

3- Contents

Topic	No. of hours	Lecture	Practical
Clinical haematology: - Indications for blood transfusion. - Hazards of blood transfusion. -Anemias: -Iron deficiency anemia -Megaloplastic anemia -Hemolytic anemias -Aplastic anemia. - Total and differential blood picture. - Manual blood cells count Normal haemostasis. Anticoagulants	12	6	6
Clinical Chemistry: - Carbohydrates. - Proteins - lipid - Liver function. -Kidney function -Urine and stool analysis Semen analysis	6	3	3
Clinical microbiology: - Methods of collecting samples and criteria of rejection. - Staining and culture media. - Exfoliative cytology.	6	3	3
Clinical immunology: - Types of antigen and antibody reactions. - Histocombatability tests - Immunological aspects of different diseases	6	3	3
TOTAL	30	15	15

4– Teaching and Learning Methods

4.1- Lectures in the form of discussions.

4.2- Practical sessions including practical assignments.

4.3- Assignments

4.4- attending and participating in scientific conferences, work shops and thesis discussion to acquire the general and transferable skills needed

5- Student Assessment Methods

5.1- Final written exam:

MCQs to assess understanding& knowledge and intellectual skills.

Short essay to assess understanding& knowledge.

Commentary to assess intellectual skills.

5.2- Structured Oral exam to assess knowledge.

5.3- Practical exams to assess the practical and professional skills.

5.4-Other Assignments/class work: formative assessment

Assessment Schedule

Assessment 1	Final written exam	Week 24
Assessment 2	Final oral exam	Week 25
Assessment 3	Final Practical exam	Week 25

Weighting of Assessments

Written Examination	50%
Oral Examination.	30%
Practical Examination	20 %
Total	100 %

Formative only assessment: simple research assignment, log book

6- List of References

6.1- Course Notes

Lecture notes prepared by the staff members in the department.

6.2- Essential Books

Essential Haematology

6.3- Recommended Books:

6.4- Periodicals, Web Sites.

http://www.ncbi.nlm.gov….

http://www.google.com…….

http://Freemedicaljournals.com….

7- Facilities Required for Teaching and Learning

7.1-Adequate infrastructure: including teaching places; hall and laboratory, comfortable desks, good source of areation, bathroom, good illumination and security and safety.

7.2- Teaching tools: including screen, computers, data show, slide projector, flip chart, white board, video player, digital camera, scanner and colored and lazer printers.

7.3- Computer programs: for designing and evaluating MCQs.

Course Specifications of Tissue Culture

for MD Degree in Histology

Qena Faculty of Medicine **South Valley University**

1. Program on which the course is given: MD Degree in Histology
2. Minor element of program
3. Department offering the program: Histology Department
4. Department offering the course: Department Of Pediatrics
5. Academic year: Post graduate, MD Degree in Histology, 1st part

A- Basic Information

Title: **Tissue Culture**
Hours per week**: 2 for 15 weeks**

Lecture: **1/week** Practical: **1/week** **code:HIS 325**

B- Professional Information

1- Overall Aims of Course

The aim of this program is to provide the postgraduate student with the medical knowledge and skills essential for the practice of specialty and necessary to gain:

1. Scientific knowledge essential for practice of Tissue Culture according to the international standards.
2. Skills necessary for proper practice in the field of Tissue Culture including diagnostic, problem solving and decision making skills.
3. Ethical principles related to the practice in this specialty.
4. Active participation in community needs assessment and problems solving.
5. Maintenance of learning abilities necessary for continuous medical education.
6. Maintenance of research interest and abilities.

2- Intended Learning Outcomes of Course (ILOs)

a) Knowledge and Understanding:

By the end of this program, the student is expected to

a.1: know the histological structure of the cell.

a.2: Describe the methods of cell division and its abnormalities.

a.3: List the different methods for tissue culture examination.

a.4: Define the molecular structure of the nucleus and the cytoplasmic organelles.

a.5: Define the hazardous effects of common chemicals used and the precautions to minimize these hazards.

b) Intellectual Skills

By the end of this course the student should be able to

b.1- Analyze and interpret research data in the field of tissue culture.

b.2- Evaluate new solutions to many kinds of cell culture problems.

b.3- Evaluate the general and specific histological stains for microdetection of the cytoplasmic content.

b.4- Conduct experimental studies in tissue culture.

b.5- Risk assessment and management in dealing with lab animals.

b.6- Administrate evidence based scientific discussions in at least ten seminars. b.7- Analyze and criticize scientific research papers.

c) Professional and Practical Skills

By the end of this course the student should be able to

c1- Prepare solutions used for tissue culture and different stains perfectly and independently.

c.2- Perform all the methods of administration to the lab animals.

c.3- Perform the steps of tissue culture perfectly and independently.

c.4- Perform preparations for tissue culture perfectly and independently.

d) General and Transferable Skills

By the end of this course the student should be able to

d.1- Communicate effectively with students, colleagues and professors.

d.2- Assess his performance and improve it continuously.

d.3- Use the web sites, medical journals, personal communications ,digital libraries to gain knowledge.

d.4- Administer scientific activities as seminars, journal clubs ,scientific meetings or conferences.

3- Contents

Topic	No. of hours	Lecture	Practical
1.Cellular structure	2	1	1
2.Introduction: Background and advantages of cell and tissue culture, and biology of cultured cells,	2	1	1
3. Experimental animal handling	2	1	1

4. Design and layout for a dedicated cell culture lab	4	2	2
5. Aseptic technique, culture vessels and laboratory safety	2	1	1
6. Cell culture media and requirements	2	1	1
7. Serum free media	2	1	1
8. Primary Cell culture	2	1	1
9. sub culture and Cell lines	2	1	1
10. Cell separation and characterization	2	1	1
11. Cloning and Selection	2	1	1
12. Cell Differentiation	2	1	1
13.Transformation, immortalization, contamination and cryopreservation	2	1	1
l 4. Cell Quantitation	2	1	1
TOTAL	30	15	15

4– Teaching and Learning Methods

4.1-lectures.

4.2-Practical lessons and computer based lectures.

4.3- Assignments

4.4- attending and participating in scientific conferences, work shops and the is discussion to acquire the general and transferable skills needed

5- Student Assessment Methods

5.1- Final written exam:

Short essay to assess understanding& knowledge.

Commentary to assess intellectual skills.

Problem solving to asses general transferable skills, intellectual skills

5.2-Structured Oral exam to assess practical skills, intellectual skills.

5.3-Practical exams to assess the practical and professional skills

Assessment Schedule

By the end of the course.

Assessment 1 Final written exam Week 24

Assessment 2 Final oral exam Week 25

Assessment 3 Final Practical exam Week 25

Weighting of Assessments

Written Examination	50%
Oral Examination.	30%
Practical Examination	20 %
Total	100 %

Formative only assessment: simple research assignment, log book

6- List of References

6.1- Course Notes

Lecture notes prepared by the staff members in the department.

6.2- Essential Books (Text Books)

1. Culture of Animal Cells: A Manual of Basic Technique, 5th Edition. R. Ian Freshney. July 2005. Pp 672. ISBN: 978-0-471-45329-1

6.3- Recommended Books

Molecular Biology of the Cell: Reference Edition by Bruce Alberts, Alexander Johnson, Julian Lewis, and Martin Raff (Nov. 14, 2007).

6.4- Periodicals, Web Sites http://www.sigmaaldrich.com/life science/cell culture/learning center/cell culture manual.html

7- Facilities Required for Teaching and Learning

7.1-Adequate infrastructure: including teaching places; hall and laboratory, comfortable desks, good source of areation, bathroom, good illumination and security and safety.

7.2- Teaching tools: including screen, computers, data show, slide projector, flip chart, white board, video player, digital camera, scanner and colored and lazer printers.

7.3- Computer programs: for designing and evaluating MCQs.

Course Specifications of Electron Microscopy

for MD Degree in Histology

Qena Faculty of Medicine South Valley University

1. Program on which the course is given: MD Degree in Histology
2. Minor element of program
3. Department offering the program: Histology Department
4. Department offering the course: Histology Department
5. Academic year: Post graduate, MD Degree in Histology, 1st part

A- Basic Information

Title: Electron Microscopy

Hours per week**: 2 hours for 15 weeks**

Lecture: **1/week** Practical: **1/week**

B- Professional Information

1- Overall Aims of Course

The aim of this program is to provide the postgraduate student with the medical knowledge and skills essential for the practice of specialty and necessary to gain:

1- Scientific knowledge essential for practice of Electron Microscopy according to the international standards.

2- Skills necessary for proper practice in the field of Electron Microscopy including diagnostic, problem solving and decision making skills.

3- Ethical principles related to the practice in this specialty.

4- Active participation in community needs assessment and problems solving. 5- Maintenance of learning abilities necessary for continuous medical education.

6- Maintenance of research interest and abilities.

2- Intended Learning Outcomes of Courses (ILOs)

a) Knowledge and understanding:

By the end of this course the student should be able to

a.1- Mention the recent knowledge of the ultrastrucure of the different body tissues and organs.

a.2- Illustrate the function of the different cells and organs in relation to their microscopic structure.

a.3- Define the hazardous effects of common chemicals used and the precautions to minimize these hazards.

b) Intellectual Skills

By the end of this course the student should be able to

b.1- Analyze and interpret research data in the field of Histology.

b.2- evaluate and interpret any morphological abnormalities in the examined slides by electron microscopes.

b.3- risk assessment and management in dealing with lab animals and conducting tissue preparation for LM and EM examinations.

b4- administrate evidence based scientific discussions in at least ten seminars.

b.5- analyze and criticize scientific research papers.

c) Professional and Practical Skills:

By the end of this course the student should be able to

c.1- Perform all the methods of administration to the lab animals.

c.2- Perform tissue preparations for E.M. perfectly and independently.

c.3- Examine and photograph experimental slides by electron microscope perfectly and independently.

d) General and Transferable Skills:

By the end of this course the student should be able to

d.1- Communicate effectively with students, colleagues and professors.

d.2- Use the information technology in self learning, teaching and

research. d.3- Assess his performance and improve it continuously.

d.4-Use the web sites, medical journals, personal communications ,digital libraries to gain knowledge.

d.4- Administer scientific activities as seminars, journal clubs ,scientific meetings or conferences.

3- Contents

Topic	No. of hours	Lecture	Practical
History of microscopy Introduction to Electron Microscopy Electrons in electric and magnetic fields, electron lenses. lab safety in using E M Types of Electron Microscope Components of a transmission electron microscope Specimen Fixation Fixation/Dehydration/Embedding Specimen Coating for SEM TEM Digital Image Processing Glass Knife & Block Trimming Sectioning Interpretation of the electron microscopic image Application of electron microscope to research study Advances in Electron Microscope	30	15	15
Total	30	15	15

4– Teaching and Learning Methods

4.1-lectures.

4.2-practical. sessions to gain practical skills

4.3- Assignments

4.4- attending and participating in scientific conferences, work shops and thesis discussion to acquire the general and transferable skills needed

5- Student Assessment Methods

5.1- Final written exam:

Short essay to assess understanding& knowledge.

Commentary to assess intellectual skills.

Problem solving to asses general transferable skills, intellectual skills

5.2-Structured Oral exam to assess practical skills, intellectual skills.

5.3-Practical exams to assess the practical and professional skills

5.4-Other Assignments/class work : formative assessment

Assessment Schedule

By the end of the course.

Assessment 1	Final written exam	Week 24
Assessment 2	Final oral exam	Week 25
Assessment 3	Final Practical exam	Week 25

Weighting of Assessments

Written Examination	50%
Oral Examination.	30%
Practical Examination	20 %
Total	100 %

Formative only assessment: simple research assignment, log book

6- List of References

6.1- Course Notes

Lecture notes prepared by the staff members in the department.

6.2- Essential Books (Text Books)

1. Bloom & Fawcett: Concise Histology A Hodder Arnold Publication; 1st edition.

2. Electron Microscopy and Analysis by P.J. Goodhew and F.J. Humphreys, Taylor and Francis, London,

6.3- Recommended Books

Electron Microscopy: Principles And Fundamentals, S. Amelinckx, D. van Dyck, J. van Landuyt and G. van Tendeloo (Editors), VCH, Weinheim, .

Physical Principles of Electron Microscopy: An Introduction to TEM, SEM, and AEM (2007)

6.4- Periodicals, Web Sites …

etc http://www.med-ed-

http:// www.google .com

7- Facilities Required for Teaching and Learning

1. Adequate infrastructure: including teaching places; hall and laboratory, comfortable desks, good source of areation, bathroom, good illumination and security and safety.
2. Teaching tools: including screen, computers, data show, slide projector, flip chart, white board, video player, digital camera, scanner and colored and lazer printers.
3. Computer programs: for designing and evaluating MCQs.

Course Specifications of Molecular Biology

for MD Degree in Histology

Qena Faculty of Medicine **South Valley University**

1. Program on which the course is given: MD Degree in Histology
2. Minor element of program
3. Department offering the program: Histology Department
4. Department offering the course: Department of Pediatrics
5. Academic year: Post graduate, MD Degree in Histology, 1st part

A- Basic Information

Title: **Molecular Biology** Hours per week**: 2 for 15 weeks**

Lecture: **1/week** Practical: **1/week**

B- Professional Information

1. Overall Aims of Course

The aim of this program is to provide the postgraduate student with the medical knowledge and skills essential for the practice of specialty and necessary to gain:

1- Scientific knowledge essential for practice of Molecular Biology according to the international standards.

2- Skills necessary for proper practice in the field of Molecular Biology including diagnostic, problem solving and decision making skills.

3- Ethical principles related to the practice in this specialty.

4- Active participation in community needs assessment and problems solving.

5- Maintenance of learning abilities necessary for continuous medical education. 6- Maintenance of research interest and abilities.

2. Intended Learning Outcomes of Courses (ILOs)

a) Knowledge and understanding:

By the end of this course the student should be able to

a.1- Illustrate the function of the different cells and organs in relation to their microscopic and molecular structure .

a.2- Define the molecular structure of the nucleus and the cytoplasmic organelles.

a.3- Define the hazardous effects of common chemicals used and the precautions to minimize these hazards.

b) Intellectual Skills

By the end of this course the student should be able to b.1- Interpret the medical importance of the histological structure at molecular level.

b.2- Evaluate the general and specific histological stains for microdetection of the cytoplasmic content.

b.3- Risk assessment and management in dealing with lab animals and conducting tissue preparation.

b.4-Administrate evidence based scientific discussions in at least ten seminars.

b.5- Analyze and criticize scientific research papers in at least ten journal clubs

c) Professional and Practical Skills:

By the end of this course the student should be able to

c.1- Perform all the methods of administration to the lab animals.

c.2- Apply molecular biology study in his research work.

d) General and Transferable Skills:

By the end of this course the student should be able to d.1- communicate effectively with students, colleagues and professors.

d.2- Assess his performance and improve it continuously.

d.3- Use the web sites, medical journals, personal communications ,digital libraries to gain knowledge.

d.4- Administer scientific activities as seminars, journal clubs ,scientific meetings or conferences.

3- Contents

Topic	No. of hours	Lecture	Tutorial/Practical
1. Molecular Cell Biology 2. Chemical Foundations Covalent Bonds Noncovalent Bonds Chemical Equilibrium 3.Protein Structure and Function. structure of proteins. Folding, Modification, and degradation of proteins. Functional design of proteins Membrane proteins. 4. Nucleic Acids, the Genetic Code, and the Synthesis of Macromolecules Structure of Nucleic Acids. Synthesis of Biopolymers.	30	15	15

Nucleic Acid Synthesis . The Three Roles of RNA in Protein Synthesis Stepwise Formation of Proteins on Ribosomes 5.Biomembranes and the Subcellular Organization of Eukaryotic Cells Microscopy and Cell Architecture Purification of Cells and Their Parts Biomembranes: Structural Organization. Organelles of the Eukaryotic Cell Microscopy and Cell Architecture Purification of Cells and Their Parts Biomembranes: Structural Organization and Basic Functions. Organelles of the Eukaryotic Cell 6. Genetic Analysis in Cell Biology Genetic Analysis in Cell Biology Mutations: Types and Causes 7. Molecular Structure of Genes and Chromosomes Molecular Definition of a Gene Chromosomal Organization of Genes and Noncoding DNA Mobile DNA Functional Rearrangements in Chromosomal DNA Organizing Cellular DNA into Chromosomes Morphology and Functional Elements of Eukaryotic Chromosomes Organelle DNAs 8. DNA Replication, Repair, and Recombination General Features of Chromosomal Replication The DNA Replication Machinery The Role of Topoisomerases in DNA Replication DNA Damage and Repair and Their Role in Carcinogenesis Recombination between Homologous DNA Sites 9. Regulation of the Eukaryotic Cell Cycle Overview of the Cell Cycle and Its Control Cell-Cycle Control in Mammalian Cells Checkpoints in Cell-Cycle Regulation 10. Transport across Cell Membranes 11. Cell-to-Cell Signaling: Hormones and Receptors 12. Integrating Cells into Tissues 13 Recombinant DNA and Genomics a. Polymerases, polymerase chain reaction-PCR b. DNA sequencing c. d. Gene microarrays, DNA microarrays 14. laboratory biosafty			
Total	30	15	15

4– Teaching and Learning Methods

4.1-lectures.

4.-Practical lessons and computer based lectures.

4.3- Assignments

4.4- Attending and participating in scientific conferences, work shops and thesis discussion to acquire the general and transferable skills needed

5- Student Assessment Methods

5.1- Final written exam:

Short essay to assess understanding& knowledge.

Commentary to assess intellectual skills.

Problem solving to asses general transferable skills, intellectual skills

5.2-Structured Oral exam to assess practical skills, intellectual skills.

5.3-Practical exams to assess the practical and professional skills

Assessment Schedule

By the end of the course.

Assessment 1	Final written exam	Week 24
Assessment 2	Final oral exam	Week 25
Assessment 3	Final Practical exam	Week 25

Weighting of Assessments

Written Examination	50%
Oral Examination.	30%
Practical Examination	20 %
Total	100 %

Formative only assessment: simple research assignment, log book6-

6-List of References

6.1- Course Notes

Lecture notes prepared by the staff members in the department.

6.2- Essential Books (Text Books)

Molecular Cell Biology (Lodish, Molecular Cell Biology)

Harvey Lodish, Arnold Berk, Chris A. Kaiser, and Monty Krieger (June 15, 2007).

6.3- Recommended Books

Molecular Biology of the Cell: Reference Edition by Bruce Alberts, Alexander Johnson, Julian Lewis, and Martin Raff (Nov. 14, 2007).

6.4- Web Sites:

http://www.ncbi.nlm.nih.gov/pubmed/

7- Facilities Required for Teaching and Learning

1. Adequate infrastructure: including teaching places; hall and laboratory, comfortable desks, good source of areation, bathroom, good illumination and security and safety.
2. Teaching tools: including screen, computers, data show, slide projector, flip chart, white board, video player, digital camera, scanner and colored and lazer printers.
3. Computer programs: for designing and evaluating MCQs.

Course Specifications of Genetics for MD Degree in Histology

Qena Faculty of Medicine **South Valley University**

1. Program on which the course is given: MD Degree in Histology
2. Minor element of program
3. Department offering the program: Histology Department
4. Department offering the course: Department of Pediatrics
5. Academic year: Post graduate, MD Degree in Histology, 1st part

A- Basic Information

Title: **Genetics**

Hours per week**: 2 for 15 weeks**

Lecture: **1/week** Practical: **1/week**

B- Professional Information

1- Overall Aims of Course

The aim of this program is to provide the postgraduate student with the medical knowledge and skills essential for the practice of specialty and necessary to gain:
1- Scientific knowledge essential for practice of Genetics **according** to the international standards.
2- Skills necessary for proper practice in the field of Genetics **including** diagnostic, problem solving and decision making skills.
3- Ethical principles related to the practice in this specialty.
4- Active participation in community needs assessment and problems solving.
5- Maintenance of learning abilities necessary for continuous medical education. 6- Maintenance of research interest and abilities.

2- Intended Learning Outcomes of Courses (ILOs)

a) **Knowledge and understanding:**

By the end of the course the student should able to:

a.1- Illustrate the function of the different cells and organs in relation to their chromosomal, genetic and molecular structure .

a.2- Describe the methods of cell division and its abnormalities.

a.3- Define the hazardous effects of common chemicals used research of medical genetics and the precautions to minimize these hazards.

b) Intellectual Skills

By the end of the course the student should able to:

b.1- Apply appropriate research strategies for use in genetics.

b.2- Advocate appropriately in the research design in genetics.

b.3- Conduct experimental studies in the field of Histology.

b.4- Risk assessment and management in dealing with lab animals and conducting tissue preparation for research in genetics.

b.5- Administrate evidence based scientific discussions in at least ten seminars.

b.6- Analyze and criticize scientific research papers.

c) Professional and Practical Skills:

By the end of the course the student should able to: c.1- Prepare solutions used for genetic research perfectly.

c.2- Perform all the methods of administration to the lab animals and genetic lab. c.3- Apply genetics study in his research work.

d) General and Transferable Skills:

By the end of the course the student should able to:

d.1- Communicate effectively with students, colleagues and professors.

d.2- Assess his performance and improve it continuously.

d.3- Use the web sites, medical journals, personal communications ,digital libraries to gain knowledge.

d.4- Work coherently and successfully as a part of a team or as a leader.

d.5- Administer scientific activities as seminars, journal clubs ,scientific meetings or conferences.

3- Contents

Topic	No. of hours	Lecture	Tutorial/Practical
Chromosomal basis of Heredity The normal chromosome. Cell division Mitosis Meiosis Cell cycle Chromosomal aberrations Numerical aberrations Structural aberrations Genetic basis of heredity Structure and function of genes 1. DNA Genetic code DNA replication 2. RNA 3. Gene Expression (protein biossynthesis). Transcription Translation Post transcriptional process. Regulation of gene expression. Mutations Genetic basis of some human diseases Recombinant DNA technology	30	15	30

PCR DNA sequencing DNA microarray Gene mapping. Laboratory biosafty and experimental animal handling			
Total	30	15	30

4– Teaching and Learning Methods

4.1- lectures.

4.2-Practical lessons and computer based lectures.

4.3- Assignments

4.4- Attending and participating in scientific conferences, work shops and thesis discussion to acquire the general and transferable skills needed

5- Student Assessment Methods

5.1- Final written exam:

Short essay to assess understanding& knowledge.

Commentary to assess intellectual skills.

Problem solving to asses general transferable skills, intellectual skills

5.2-Structured Oral exam to assess practical skills, intellectual skills.

5.3-Practical exams to assess the practical and professional skills

Assessment Schedule

Assessment 1	Final written exam	Week 24
Assessment 2	Final oral exam	Week 25
Assessment 3	Final Practical exam	Week 25

Weighting of Assessments

Written Examination	50%
Oral Examination.	30%
Practical Examination	20 %
Total	100 %

Formative only assessment: simple research assignment, log book6-

6-List of References

6.1- Course Notes

Lecture notes prepared by the staff members in the department.

6.2- Essential Books (Text Books)

Genetics: From Genes to Genomes by Leland Hartwell, Leroy Hood, Michael Goldberg, and Ann Reynolds (Oct. 9, 2006)

6.3- Recommended Books

Medical Genetics: With STUDENT CONSULT Online Access (MEDICAL GENETICS (JORDE)) by Lynn B. Jorde PhD, John C. Carey MD MPH, and Michael J. Bamshad MD (Sept. 28, 2009).

6.4- Web Sites: http://www.ncbi.nlm.nih.gov/pubmed/

7- Facilities Required for Teaching and Learning

1- Adequate infrastructure: including teaching places; hall and laboratory, comfortable desks, good source of areation, bathroom, good illumination and security and safety.

2- Teaching tools: including screen, computers, data show, slide projector, flip chart, white board, video player, digital camera, scanner and colored and lazer printers.

3- Computer programs: for designing and evaluating MCQs.

Course Specifications of Histology (2nd part) For MD Degree in Histology

Qena Faculty of Medicine **South Valley University**

1- Program on which the course is given: MD Degree in Histology

2- Major element of program

3- Department offering the program: Histology Department

4- Department offering the course: Histology Department

5- Academic year: Post graduate, MD Degree in Histology, 2nd part

A- Basic Information

Title: **Histology**

Hours per week**: 5.5 for 24 weeks**

Lecture: **2.5/week** Practical: **3/week code:HIS302**

B- Professional Information

1. Overall Aims of Course

The aim of this program is to provide the postgraduate student with the medical knowledge and skills essential for the practice of specialty and necessary to gain:

1. Scientific knowledge essential for practice of Histology according to the international standards.
2. Skills necessary for proper practice in the field of Histology including diagnostic, problem solving and decision making skills.
3. Ethical principles related to the practice in this specialty.
4. Active participation in community needs assessment and problems solving.
5. Maintenance of learning abilities necessary for continuous medical education.
6. Maintenance of research interest and abilities.

2. Intended learning outcomes (ILOs):

a) Knowledge and Understanding:

By the end of the program the student should be able to:

a.1- Gain sufficient knowledge of the histological structure of the different body tissues and organs.

a.2- Understand the function of the different cells and organs in relation to their microscopic and molecular structure .

a.3- Understand the molecular structure of the nucleus and the cytoplasmic organelles.

a.4- Understand the methods of cell division.

a.5- List the different methods for tissue examination.

a.6- Know the different types of histological stains.

a.7- Have sufficient knowledge to detect the presence of protien, carbohydrate , lipids and enzymes in the tissue by different specific methods.

b) Intellectual Skills:

By the end of the course the student should have the ability to:

b.1- Differentiate between general and specific histological stains for detection of the cytoplasmic content.

b.2- Identify the different histological slides.

b.3- Analyze the contents of any histological slide.

b.4- Identify the histological structure of the body organs.

b.5- Interpret the medical importance of the histological structure at molecular level.

b.6- Recognize any morphological abnormalities in the examined slides by light and electron microscopes.

c) Professional and Practical Skills:

By the end of the course the student should have the ability to:

c.1- Prepare solutions used for micro techniques and different stains perfectly and independently.

c.2- Deal with a wide variety of lab animals.

c.3- Perform all the methods of administration to the lab animals

c.4- Perform the steps of micro technique for paraffin section preparation perfectly and independently.

c.5- Prepare frozen sections perfectly and independently.

c.6- Perform special histological stains perfectly and independently.

c.7- Perform all histochemical reactions perfectly and independently.

c.8- Perform tissue preparations for E.M. perfectly and independently.

c.9- Perform the steps of immunohistochemistery perfectly and independently.

d) General and Transferable Skills:

By the end of the course the student should have the ability to: d.1- Work in groups, as a leader or as a colleague.

d.2- Use the advanced biomedical information to remain current with advances in knowledge and practice (self learning).

d.3- Maintain a professional image in manner, dress, speech as well as interpersonal relationships.

d.4- Participate in the medical progress by having advanced medical research studies.

d.5- Gain the presentation skills through the attendance and participation in scientific activities.

3- Contents

Topic	No. of hours	lectures	practical
Microscopy -Types of microscope -Light microscope and the resolving power -Electron microscope;types,resolving power and terms used - Fluorescent microscope - Phase contrast microscope - Polarizing microscope	15	5	10
Micro technique -Preparation of paraffin blocks -Filming -Smearing -Grinding -Spreading -E.M. preparations -Frozen section preparation	34	4	30
Histological stains -HX&E -Stains for collagen fibers -Stains for elastic fibers -Stains for reticular fibers -Stains for specific proteins -Stains for specific carbohydrates -Stains for specific lipids -Stains for specific enzymes	35	5	30
Immunohistochemistery	30	5	25
Cell and tissue culture	15	5	10
Exfoliative cytology - Cell block. - Smears. Millipore filter technique.	9	4	5
Nucleus and Cytogenitics -L.M. &E.M. of the nucleus -DNA &RNA -Cell cycle &cell division -Abnormalities of cell division -Chromosome structure -Karyotyping -Chromosomal abnormalities	10	5	5

Cytoplasm -Cell membrane ;L.M.,E.M. and molecular structure -Cytoplasmic organelles ;structure and function -Cytoplasmic inclusions	5	5	0
Cell signals and receptors	5	5	0
Cloning	10	5	5
Apoptosis - Theories of cell death. -Types of cell death. -LM features of apoptosis. - EM features of apoptosis. -Immunohistochemistery of apoptotsis	9	4	5

Epithelial tissue - General characters of epithelium - Covering and lining epithelium -Glandular epithelium -Germinal epithelium -Neuroepithelium	9	4	5
Connective tissue - General characteristics of c.t. proper. - Components of c.t.;matrix,fibers and cells. - Intercellular substances; chemical composition and staining properties. -Types and sites of c.t. proper.	10	5	5
Cartilage -Histological features of cartilage. -Cartilage cells. -Histological features, stains and sites of hyaline cartilage. -Histological features, stains and sites of elastic cartilage. -Histological features, stains and sites of fibro cartilage. - Growth and nutrition of cartilage.	9	4	5
Bone -Histological features of bone. -Bone cells. -Bone matrix. - Bone ossification. - Growth and nutrition of bone. -Healing of fractures.	10	5	5
Intercellular matrix	10	5	5
Blood and Hemopoietic Tissue - Blood components. -Erythrocytes:structure,normal count,life span,function, diameter and colour ,abnormalities with reference to some blood diseases. - Leucocytes: classieication and structure,normal count,life span,function and diameter for each type. -Plateletes: structure,function,normal and abnormal count. -Bone marrow:types and structure. -Haemopoiesis: development of different blood elements.	10	5	5

Muscular tissue -General structure and types. -Skeletal muscle(L.M&E.M.): General features and types of sk. Muscle fibers. Organization of skeletal muscle as an organ. Functional ultrastructure of myofibrils and sarcomere. Molecular structure of actin and myosin. Sliding filament theory of muscle contraction. The role of tubular system in muscle contraction. Sensory and motor innervation of skeletal muscles. -Cardiac Muscle (L.M&E.M.): General structure and functional relations Intercalated discs. Conducting system of the heart. -Smooth muscle (L.M. &E.M.): General structure. Interrelation of fibers and bundles. -Comparative study of the three types of muscles. Growth and regeneration of muscles.	14	9	5
Nervous tissue Neuron structure;L.M.&E.M. Types of nerve cells. Types and structure of nerve fibers. The organization of nerve fibers. Myelination. Structure of ganglia and types. Degeneration and regeneration of neurons. Neuroglia and their functions Types and structure of nerve endings. Blood brain barriers. Neuroglia Nerve terminal Tissue receptors	14	9	5
Cardiovascular system General structure of the heart wall. General structure of the wall of blood vessels. Arteries (large+medium sized) Viens (large+medium sized) Structure of special types of ateries and veins. Arteriovenus connection;capillaries,sinusoids and arteriovenous anastomosis.	10	5	5

Lymphatic and immune system Structure of lymph vessels. Distribution and structure of lymphoid tissue. structure and function of lymphatic nodule lymphocytes and immune cells reaction of B&T lymphocytes to antigens. Common mucosal immune system. Structur and function of lymphatic orgasns: Lymph nodes. Spleen Thymus Tonsils Mononuclear phagocytic system. Antigen presenting cells. Stains to identify member of immune cells.	10	5	5
Integumentary system Structure and function of the skin. Different types of cells in the epidermis. Skin types and their sites. Keratinization of skin. Pigmentation of nskin. Immune responses of the skin. Sweat glands;eccrine,apocrine. Hairs and hair follicles. Sebaceous glands and erector pili muscles. Nails. Sensory receptors of he skin.	10	5	5

Digestive system Oral cavity: Lip Tongue. Cheek. Teeth and gingiva. Salivary glands: Classification; major and minor. Parotid gland Submandibular gland. Sublingual gland. Differences between different glands. Palate and pharynx: Hard and soft palate. Pharynx; structure and function. Pharangeal and palatine tonsil. Digestive tract: General structure of GIT. Oesophagus. Stomach; fundus, cardiac and pylorus. Small intestine; duodenum, jejunum and ileum. Large intestine and appendix. Cell renewal in GIT. Junctions; gastro-oesophageal, pylorodudenal and rectoanal. Pancreas: Exocrine portion and pancreatic secretion. Endocrine portion. Liver: Internal organization and hepatic lobulation. Hepatocytes;LM&EM. Bile canaliculi. Blood supply. Space of Disse. Structure and function of gall bladder.	24	14	10

10 Respiratory system -Structure and function of conducting portion of the respiratory system: Nasal cavity. Nasal concha. Olfactory area. Paranasal sinuses. Nasopharynx and pharangeal tonsil. Larynx and epiglottis. Trachea and tracheobronchial epithelium. Bronchial tree. Bronchioles. -structure and function of the respiratory portion: Respiratory bronchioles. Alveolar ducts and alveolar sacs. Alveoli and alveolar epithelium; types and function of cells. Surfactant and its function. Respiratory barriers. Lung lobules. Structure of the pleura. Structure of the fetal lungs. Blood supply, lymphatics and smooth muscle. Innervation of the lung. Non respiratory function of the lung. Bbronchus-associated lymphatic tissue. -Neuroepithelial structures in the respiratory epithelium.		5	5

Endocrine system Main components of endocrine system. Pituitary gland: Development and general organization. Anterior lobe and its relation to the hypothalamus. Posterior lobe and its relation to the hypothalamus. Thyroid gland: Development. Microscopic structure; LM.&EM. Characteristic properties. Function and mechanism of secretion. Hypo and hyperfunction and its relation to the structure. Parathyroid gland: Development,site and its relation to the thyroid. Chief and oxyphil cells; structure and function. Suprarenal gland Development (cortex and medulla). Adrenal cortex;zona glomerulosa, zona fasiculata, zona reticularis. Adrenal medulla; chromaffin cells and ganglion cells. Adrenal hormones. Blood supply of the adrenal gland and its significance. Paraganglia: Structure and function. Relation to supra renal medulla. Pineal gland: Development. Structure and function. Pinealocytes structure and function.	20	10	10
Neuroendocrine system	10	5	5
Stem cells - Characters of stem cells. -Types of stem cells. Role of stem cells and progenitor cells in development. -Examination of living cells. -Human embryonic stem cells. -Adult human stem cells. -Stem cell storage. -Clinical application of stem cells. -Religious,ethical and political concerns of stem cells. -Future of stem cell therapy.	15	5	10

Urinary system Kidney General structure; cortex and medulla. Nephron structure; renal corpuscle, proximal tubules, loop of Henle and distal tubules. Filteration barrier. Juxtaglomerular apparatus. Collecting tubules. Renal blood supply; glomerular and non glomerular blood. Renal interstitium. Urinary passages Ureter. Urinary bladder Male and female urethra.	15	5	10
Male reproductive system Testis: Capsule and outlines of internal structure. Seminiferous tubules. Spermatogenic cells. Spermatogenesis;spermatocytogenesis and spermiogenesis. Spermatozoa. Sertoli cells and blood testicular barrier. Interstial cells of Leydig. Hormonal basis of testicular function. Male genital ducts; structure and function: Tubuli recti. Rete testes. Ductuli efferentia. Ductus epididymis. Ejaculatory duct. Accessory male genital tracts; structure and function: Seminal vesicles. Prostate. Bulbo urethral gland. Penis: Structure and mechanism of erection. Male urethra. Semen.	19	9	10

Female reproductive system Ovary; structure and function: Ovarian follicles. Ovulation. Ovarian hormones and ovarian cycle. Uterine (fallopian tubes) structure and function. Uterus; structure and function:. Menstrual cycle. Cervix. Fertilization and preimplantation development. Placenta: Development,structure and function. Placental circulation and placental barrier. Vagina; structure and function. External genetalia; structure and function. Mammary gland: Structural organization in different physiological states.	19	9	10
The eye Wall of the eye; structure and function of each component. Lens; structure and function. Chambers of the eye. Vitreous body. Accessory structures of the eye: Conjunctiva Eye lids Lacrimal glands	10	5	5
The ear External ear. Middle ear. Inner ear. Neuroepithelial structure in the ear and thjeir function.	10	5	5
Chemotaxis	5	5	0
Tissue barriers -epithelial and blood tissue barriers. -CT barriers. -immune barriers.	5	5	0
Cellular basis of aging	15	5	10

CNS Anatomical consideration of the CNS. Meninges, CSF and blood brain barrier. Spinal cord: Grey matter. White matter; ascending and descending tracts. Different segments of the spinal cord. Brain stem: Medulla oblongata; closed and open and spinomedullary transition. Pons; superior, middle and inferior levels and medullary pontine junction. Midbrain; superior and inferior levels. Cerebellum; cortex, medulla, nuclei, connection. Diencephalon; thalamus, medial and lateral geniculate bodies, internal capsule and corpus striatum. Cerebral cortex. Reticular formation& ARAS system.	50	20	30
Molecular biology and its significance in Histology	5	5	0
Total	525	225	300

4– Teaching and Learning Methods

4.1- Lectures in the form of discussions.

4.2- Practical sessions including practical assignments.

4.3- Assignments

4.4- attending and participating in scientific conferences, work shops and thesis discussion to acquire the general and transferable skills needed

5- Student Assessment Methods

5.1- Final written exam:

MCQs to assess understanding& knowledge and intellectual skills.

Short essay to assess understanding& knowledge.

Commentary to assess intellectual skills.

5.2- Structured Oral exam to assess knowledge.

5.3- Practical exams to assess the practical and professional skills.

5.4-Other Assignments/class work : formative assessment

Assessment Schedule

By the end of the course:

Assessment 1	Final written exam	Week 96
Assessment 2	Final oral exam	Week 97
Assessment 3	Final Practical exam	Week 97

Weighting of Assessments

Written Examination	50%
Oral Examination.	30%
Practical Examination	20 %
Total	100 %

Formative only assessment: simple research assignment, log book, slide box.

6- List of References

6.1- Course Notes

Lecture notes prepared by the staff members in the department.

6.2- Essential Books (Text Books)

-Junqueira, Carneino and Kelly (1995): Basic Histology, 7th ed.Librairrie du liban and lang buruit,London,New York.
-Fawcett(1994):A Text Book of Histology,12th ed.Chapman and Hall,New York,London.
- Drury,R.A.B. and Walington,E.A.(1980): Histological techniques,5th ed.Oxford university press,New York.
-Pears,A.G.E.(1985): Histochemistery theoretical and applied,4th ed.Churchill Livingstone,Melbourne and New York.

6.3- Recommended Books

- Cormack,H.D.(1987): A text book of Histology,9th edition,Lippincott,J.B. Company,Philadelphia.
- Williams,P.L.(1995):Gray's Anatomy,the anatomical bases of Medicine and Surgery,38th ed.,Cgurchill,Livingstone,Britain.

6.4- Web Sites:

http://www.histology-world.com

http://histo.life.illinois.edu/histo/atlas/slides.php

6.5-Periodicals:

-Egyptian J of Histology

-Egyptian J of Anatomy

- Acta Anatomica

- International J of Experimental Research

- Science

- Cell and Tissue Research

7- Facilities Required for Teaching and Learning

7.1-Adequate infrastructure: including teaching places; hall and laboratory, comfortable desks, good source of areation,bathroom,good illumination and security and safety.

7.2- Teaching tools: including screen, computers, data show, slide projector, flip chart, white board, video player, digital camera, scanner and colored and lazer printers.

7.3- Computer programs: for designing and evaluating MCQs.

Matrices of Histology MD program

I- Program graduate attributes Vs NAQAEE graduate attributes

Program ILOs	Post graduate NARS
مواصفات الخريج	
1- Efficient in carrying out the basics and methodologies of scientific research in Histology .	**1.1-** إتقان أساسيات ومنهجيات البحث العلمي
2- The continuous working to add new knowledge in his field	2.1- العمل المستمر علي الإضافة للمعارف في مجال التخصص
3- Applying the analytical course and critical appraisal of the knowledge in his specialty and related fields	3.1- تطبيق المنهج التحليلي والناقد للمعارف في مجال التخصص والمجالات ذات العلاقة
4- Merging the specialized knowledge with the other related knowledge with conclusion and developing the relationships in between them.	4.1- دمج المعارف المتخصصة مع المعارف ذات العلاقة مستنبطا ومطورا للعلاقات البينية بينها
5- Showing a deep awareness with the ongoing problems, theories, and advanced sciences in his specialty.	**5.1-** إظهار وعيا عميقا بالمشاكل الجارية والنظريات الحديثة في مجال التخصص
6- Determination of the professional problems and creating solutions for them.	**6.1-** .تحديد المشكلات المهنية و إيجاد حلولا مبتكرة لحله
7- Efficient in carrying out the professional skills in his specialty.	**7.1-** إتقان نطاقا واسعا من المهارات المهنية في مجال التخصص
8- Using advanced suitable technologies which serves his practice	**8.1-** التوجه نحو تطوير طرق و أدوات و أساليب جديدة للمزاولة المهنية
	9.1- استخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
9- Efficient communication and leadership of team work in his specialty.	10.1- التواصل بفاعلية و قيادة فريق عمل في سياقات مهنية مختلفة.
10- Decision making through the available information.	11.1- تخاذ القرار في ظل المعلومات المتاحة.
11- Using the available resources efficiently and working to find new resources.	12.1- توظيف الموارد المتاحة بكفاءة وتنميتها والعمل على إيجاد موارد جديدة.
12- Awareness with his role in the development of the society and preserve environment.	13.1- الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة
13- Behaving in a way which reflects his credibility, accountability, and responsibility.	14.1- التصرف بما يعكس الالتزام بالنزاهة والمصداقية وقواعد المهنة.
14- Keeping continuous self-development and transfer his experiences and knowledge to others.	15.1- الالتزام بالتنمية الذاتية المستمرة ونقل علمه و خبراته للآخرين

II- Program ILOs Vs NAQAEE general standard references

2-Program ILOs	NAQAEE general standard references
A- Knowledge and understanding المعرفة والفهم خريج برنامج الدكتوراه في أي تخصص يجب أن يكون قادرا على:	
a.1- Mention the recent knowledge of the histological structure of the different body tissues and organs **a.2-** Illustrate the function of the different cells and organs in relation to their microscopic and molecular structure . **a.3-** Describe the methods of cell division and its abnormalities. a.4- List the different methods for tissue examination. **a.5-** Define the different types of histological stains. **a.6-** Have sufficient knowledge to detect the presence of protein, carbohydrate , lipids and enzymes in the tissue by different specific methods. **a.7-** Define the molecular structure of the nucleus and the cytoplasmic organelles. **a.8**- Explain the advanced knowledge of biostatistics.	1.1.2- النظريات والأساسيات والحديث من المعارف في مجال التخصص والمجالات ذات العلاقة
a.9- Explain the advanced knowledge of research methods.	2.1.2- أساسيات ومنهجيات وأخلاقيات البحث العلمي وأدواته المختلفة
a.10- List the ethics in researches regarding the human and experimental animals. **a.11-** Illustrate the moral and legal aspects of managing the departmental activities.	3.1.2- المبادئ الأخلاقية والقانونية للممارسة المهنية في مجال التخصص.
a.12- List the quality standards of laboratory biosafty. **a.13-** List the quality standards of practical and theoretical teaching. **a.14-** List the quality standards of student assessment.	4.1.2- مبادئ وأساسيات الجودة في الممارسة المهنية في مجال التخصص.

a.15- Define the hazardous effects of common chemicals used and the precautions to minimize these hazards.	5.1.2- المعارف المتعلقة بآثار ممارسته المهنية على البيئة وطرق تنمية البيئة وصيانتها.
B- **Intellectual skills**	٢. ٢ المهارات الذهنية
b.1- Analyze and interpret research data in the field of Histology. **b.2-** analyze the contents and identify any histological slide. **b.3-** Interpret the medical importance of the histological structure at molecular level. **b.4-** Evaluate the general and specific histological stains for microdetection of the cytoplasmic content. **b.5-** evaluate and interpret any morphological abnormalities in the examined slides by light and electron microscopes.	**1.2.2-** تحليل وتقييم المعلومات في مجال التخصص والقياس عليها والاستنباط منها.
	2.2.2- حل المشاكل المتخصصة استنادا على المعطيات المتاحة
b.6- conduct experimental studies in the field of Histology.	**3.2.2-** إجراء دراسات بحثية تضيف إلى المعارف.
b.7- formulate and publish at least two papers from his research studies.	**4.2.2-** صياغة أوراق علمية.
b.8- risk assessment and management in dealing with lab animals and conducting tissue preparation for LM and EM examinations.	**5.2.2-** تقييم المخاطر في الممارسات المهنية.
b.9- formulate a plan for improving the departmental performance in the field of teaching and research.	**6.2.2-** التخطيط لتطوير الأداء في مجال التخصص.
b.11- analyze and criticize scientific research papers in at least ten journal clubs.	**7.2.2** اتخاذ القرارات المهنية في سياقات مهنية مختلفة .

	8.2.2- .الإبداع/ الابتكار.
b.10- administrate evidence based scientific discussions in at least ten seminars.	**9.2.2-** الحوار والنقاش المبني على البراهين والأدلة.
C- Professional and practical skills	٢. ٣ المهارات المهنية
c.1-prepare solutions used for micro techniques and different stains perfectly and independently. **c.2-** perform all the methods of administration to the lab animals. **c.3-** perform the steps of micro technique for paraffin section preparation perfectly and independently. **c.4-** prepare frozen sections perfectly and independently. **c.5-** perform special histological stains perfectly and independently. **c.6-** perform histochemical reactions perfectly and independently. **c.7-** perform tissue preparations for E.M. perfectly and independently. **c.8-** perform the steps of immunohistochemistery perfectly and independently. **c. 9-** examine and photograph experimental slides by light microscope perfectly and independently. **c.10-** examine and photograph experimental slides by electron microscope perfectly and independently.	**1.3.2-** إتقان المهارات المهنية الأساسية والحديثة في مجال التخصص.
c.11- write professional reports on any	**2.3.2-** كتابة وتقييم التقارير المهنية.

histological slide or histological photograph.	
	3.3.2- تقييم وتطوير الطرق والأدوات القائمة في مجال التخصص.
c.12- use computer soft wares to analyze slides (image analysis) or analyze research data.	**4.3.2-** استخدام الوسائل التكنولوجية بما يخدم الممارسة المهنية.
	5.3.2- التخطيط لتطوير الممارسة المهنية وتنمية أداء الآخرين.
D- **General and transferable skills**	٤.٢ المهارات العامة والمنتقلة
d.1- communicate effectively with students, colleagues and professors.	**1.4.2-** التواصل الفعال بأنواعه المختلفة.
d.2- use the information technology in self-learning, teaching and research.	**2.4.2-** استخدام تكنولوجيا المعلومات بما يخدم تطوير الممارسة المهنية.
d.3- share in student teaching and student assessment under supervision..	**3.4.2-** تعليم الآخرين وتقييم أداءهم.
d.4- assess his performance and improve it continuously	**4.4.2-** التقييم الذاتي والتعلم المستمر
d.5- use the web sites, medical journals, personal communications ,digital libraries to gain knowledge.	**5.4.2-** استخدام المصادر المختلفة للحصول على المعلومات والمعارف.
d.6- work coherently and successfully as a part of a team or as a leader.	**6.4.2-** العمل في فريق وقيادة فرق العمل.
d.7- administer scientific activities as seminars, journal clubs ,scientific meetings or conferences	**7.4.2-** ادارة اللقاءات العلمية والقدرة علي إدارة الوقت..

III- Program ILOs Versus Courses ILOs

	Courses	Program ILOs			
		A-Knowledge and understanding	**B-** Intellectual skills	**C-** Professional and Practical skills	**D-** General and Transferable skills
1	Biostatics	a.8-Explain the advanced knowledge of biostatistics.	b.1- Analyze and interpret research data in the field of Histology b.7- formulate and publish at least two papers from his research studies. b.9- formulate a plan for improving the departmental performance in the field of teaching and research. b.10 administrate evidence based scientific discussions in at least ten seminars. b.11- analyze and criticize scientific research papers in at least ten journal clubs	c.12- use computer soft wares to analyze slides (image analysis) or analyze research data	D4. Use different sources to obtain information and knowledge

2	Research methodology	a.10- List the ethics in researches regarding the human and experimental animals. a.11- Illustrate the moral and legal aspects of managing the departmental activities	b.10- administrate evidence based scientific discussions in at least ten seminars. b.11- analyze and criticize scientific research papers in at least ten journal clubs	c.12- use computer soft wares to analyze slides (image analysis) or analyze research data	D4. Use different sources to obtain information and knowledge
3	Immunology & organ transplant	a.6- Have sufficient knowledge to detect the presence of protein, carbohydrate , lipids and enzymes in the tissue by different specific methods a.7- Defin the molecular structur of the nucleus and the cytoplasmic	b.1- Analyze and interpret research data in the field of Histology b.6- conduct experimental studies in the field of histology	c.6- perform histochemical reactions perfectly and independently c.8- perform the steps of immunohistochemistery perfectly and independently	D8.learnhim self continuously
4	Clinical pathology	a.12- List the quality standards of laboratory biosafty	b.1- Analyze and interpret research data in the field of Histology	c.4- prepare frozen sections perfectly and independently.	D1. Communicate effectively by all types of effective communication. D2. Use information technology to serve the

					development of professional practice
5	Tissue culture	a.3- Describe the methods of cell division and its abnormalities. a.4- List the different methods for tissue examination. a.12- List the quality standards of laboratory biosafty	b.1- Analyze and interpret research data in the field of Histology b.6- conduct experimental studies in the field of Histology	c.3- perform the steps of micro technique for paraffin section preparation perfectly and independentl y.	D4. Use different sources to obtain information and knowledge
6	Electron Microscopy	a.7- Define the molecular structure of the nucleus and the cytoplasmic organelles	b.4- Evaluate the general and specific histological stains for microdetection of the cytoplasmic content . b.5- evaluate and interpret any morphological abnormalities in the examined slides by light and electron microscopes.	c.7- perform tissue preparations for E.M. perfectly and independently c.10- examine and photograph experimental slides by electron microscope perfectly and independently	D4. Use different sources to obtain information and knowledge
	Molecular Biology	a.6- Have sufficient knowledge to detect the presence of protein, carbohydrate , lipids and enzymes in the tissue by different specific	b.3- Interpret the medical importance of the histological structure at molecular level.	c.1-prepare solutions used for micro techniques and different stains perfectly and	D4. Use different sources to obtain information and knowledge

		methods. a.15- Define the hazardous effects of common chemicals used and the precautions to minimize these hazards		independently c.6- perform histochemical reactions perfectly and independently	
7	Genetics	a.6- Have sufficient knowledge to detect the presence of protein, carbohydrate , lipids and enzymes in the tissue by different specific methods a.7- Define the molecular structure of the nucleus and the cytoplasmic organelles	b.1- Analyze and interpret research data in the field of Histology.	c.2- perform all the methods of administration to the lab animals .	D4. Use different sources to obtain information and knowledge

8	Histology	a.3- Describe the methods of cell division and its abnormalities. a.4- List the different methods for tissue examination. a.5- Define the different types of histological stains	b.1- Analyze and interpret research data in the field of Histology. b.2- analyze the contents and identify any histological slide. b.4- Evaluate the general and specific histological stains for microdetection of the cytoplasmic content b.5- evaluate and interpret any morphological abnormalities in the examined slides by light and electron microscopes b.8- risk assessment and management in dealing with lab animals and conducting tissue preparation for LM and EM examinations.	c.3- perform the steps of micro technique for paraffin section preparation perfectly and independently. c.4- prepare frozen sections perfectly and independently. c.5- perform special histological stains perfectly and independently c. 9- examine and photograph experimental slides by light microscope perfectly and independently c.11- write professional reports on any histological slide or histological photograph	D1. Communicate effectively by all types of effective communicatio n. D2. Use information technology to serve the development ofprofessional practice. D3. Assess himself and identify learning needs. D4. Use different sources to obtain information and knowledge D5. Develop rules and indicators for assessing the performance of others. D6. Work in a team, and team's leadership in various professional contexts.

Head of department **Course Coordinator**

Prof/ Amal Taha Abou-Elghit **assis/prof: Eman Ahmed Abdel-rahim**

8	Histology	a.3- Describe the methods of cell division and its abnormalities. a.4- List the different methods for tissue examination. a.5- Define the different types of histological stains	b.1- Analyze and interpret research data in the field of Histology. b.2- analyze the contents and identify any histological slide. b.4- Evaluate the general and specific histological stains for microdetection of the cytoplasmic content b.5- evaluate and interpret any morphological abnormalities in the examined slides by light and electron microscopes b.8- risk assessment and management in dealing with lab animals and conducting tissue preparation for LM and EM examinations.	c.3- perform the steps of micro technique for paraffin section preparation perfectly and independently. c.4- prepare frozen sections perfectly and independently. c.5- perform special histological stains perfectly and independently c. 9- examine and photograph experimental slides by light microscope perfectly and independently c.11- write professional reports on any histological slide or histological photograph	D1. Communicate effectively by all types of effective communication. D2. Use information technology to serve the development ofprofessional practice. D3. Assess himself and identify learning needs. D4. Use different sources to obtain information and knowledge D5. Develop rules and indicators for assessing the performance of others. D6. Work in a team, and team's leadership in various professional contexts.

Head of department

Prof/ Amal Taha Abou-Elghit

أ.د/ أمل طه

Course Coordinator

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د/ ايمان احمد عبد الرحيم