إعتماد توصيف مقررات برنامج الماجستير في الباثولوجيا الإكلينيكية والكيميائية

نقر نحن الموقعون على هذا أدناه أن توصيف وثيقة البرنامج التعليمى لدرجة الماجستير فى الباثولوجيا الإكلينيكية والكيميائية والمقررات الدراسية المكونة له قد تم وضعها بمعرفة الأقسام المعنية

م	اسم المقرر	اسم منسق المقرر	التوقيع	اسم رئيس القسم	التوقيع
١-	الميكروبيولوجيا الطبية	د./ منى فتوح محمد شلبى		أ.د./ أحمد حسن عبد العزيز	
٢-	الطفيليات الطبية	د./ ندي عبد الفتاح النادي		أ.د./ ماجده محمد عطية الناظر	
٣-	احصاء طبى وكمبيوتر وأساليب بحث علمي	د./ أحمد فتحي حامد		د./ ايمان عبد الباسط محمد	
٤-	مقرر علمى فى أمراض الدم والكيمياء الأكلينيكية و البكتريولوجيا الأكلينيكية و المناعة الأكلينيكية	د./ ليلي محمد يوسف		أ.د./ زينب محمد محمود	

وكيل الكلية للدراسات العليا

عميد الكلية

Program Specification OF Master Degree IN Clinical and Chemical Pathology

Sohag University **Faculty of Medicine**

A- Basic Information

1. **Program title**: Master degree Clinical and Chemical Pathology
2. **Program type**: Single
3. **Faculty:** Faculty of Medicine
4. **Department**: Clinical and Chemical Pathology
5. **Coordinator**: Dr. Ashraf Khodery.

   Lecturer of Clinical pathology, Assiut faculty of medicine, Assiut University
6. **Assistant coordinator**: Dr. Hisham Moslem.

   Lecturer of Clinical pathology, Assiut faculty of medicine, Assiut University
7. **External evaluator**: Dr. Osama Baker Saddek

   Prof of Clinical pathology, Assiut faculty of medicine, Assiut University.
8. Last date of program specifications approval: Faculty council No. "250", decree No. "1378" dated 28/12/2013.

B- Professional Information

1. <u>Overall Aims of program.</u>

The aim of this program is to provide the postgraduate student with the medical knowledge and skills essential for the safe practice of specialty and essential for further training and practice in the field of clinical pathology.

By the end of the program the postgraduate student should be efficiently able:

1. **To** be clinical hematologist that is clever enough to make appropriate decision, manage all available hematological and haemostatic assays and set up sharp eye to explore and chase every data whatever and gather snatches to help in reaching hidden diagnosis.
2. To educate and train students for gaining excellence in laboratory skills and performance as well as to become leaders in research and academic teaching
3. To develop clinical chemists who are dedicated to the betterment of society. This will be achieved by focusing on continuous improvement of knowledge, a commitment to excellence in learning and gathering of information and enhancement of laboratory skills implemented in a safe environment.
4. To develop ability to diagnose the immunological disorders whatever we face.
5. To develop ability to discover the offending organisms and its types and detect the best drug can help its execution, more over to search for any hospital acquired infection that affect operations results.

2. <u>Attributes of the post graduate:</u>

1. Mastering the basics of scientific research methodologies.
2. The application of the analytical method and used in the field of Clinical and Chemical Pathology.
3. The application of specialized knowledge and integrate it with the relevant knowledge in practice.
4. Be aware of the problems and has modern visions in the field of Clinical and Chemical Pathology.
5. Identify problems in the field of Clinical and Chemical Pathology and find solutions to them.
6. Mastery of professional skills in Clinical and Chemical Pathology specialties and use of the appropriate recent technologies supporting these skills.
7. Communicate effectively and the ability to lead work teams.
8. Decision-making in his professional contexts.
9. To employ and preserve the available resources to achieve the highest benefit.
10. Awareness of Clinical and Chemical Pathology role in the community development and preservation of the environment at the lights of both international and regional variables.
11. Reflects the commitment to act with integrity and credibility, responsibility and commitment to rules of the profession.
12. Academic and professional self-development and be capable of continuous learning.

3. Intended Learning Outcomes of the program (ILOs):

a) Knowledge and Understanding:

By the end of the program the student is expected to:

a1. Discuss different diseases and various organ dysfunctions; their etiology, pathophysiology, and associated laboratory findings (normal and abnormal).

a2. Identify the different laboratory tests used for screening, diagnosis and follow up of various disorders including: renal, hepatic, cardiac, metabolic and hormonal disturbances and some malignant disorders.

a3. Recognize the different techniques used in chemical pathology with regards to principle, components, types, advantages and disadvantages. These techniques include spectrophotometry, fluorometry, chemiluminescence, nephelometry, turbidimetry, electrophoresis and electrochemistry.

a4. Recognize the basic concepts of automation of laboratory techniques.

a5. List the different basic medical statistical methods used in data analysis, both qualitative and normally distributed quantitative results, together with establishment of reference values and evaluation of the diagnostic performance of each laboratory test.

a6. Study the basic knowledge about red cell metabolism, aging & breakdown, mechanism of anemias; nutritional or hemolytic, define what is meant by hemolytic process (compensated & non-compensated) , list the laboratory tests which reflect increased red cell destruction & shortened life span and define intracorpuscular vs. extracorpuscular causes of hemolytic process.

a7. Study bases of classification of hematological malignancies (Leukemias, lymphomas and…etc.), explaining the clinical and hematological presentations of the disease and describing the hematological investigations required for diagnosis including:

1. CBC.
2. Bone marrow aspiration
3. Immunophenotyping
4. Bone marrow trephine biopsy
5. Cytogenetic and other tests.

a8. Explain the principle of automated cell counting with understanding the pitfalls & limitations of every cell counter principle.

a9. Defining bone marrow failure, classification and its management

a10. Define method of bacterial culture, its type, growth mechanisms and antibiotic sensitivity detection.

b) Intellectual Skills:

By the end of the program the student is expected to:

b1. Select the appropriate tests used for screening, diagnosis, and follow up of various diseases taking into consideration of cost effectiveness.

b2. Integrate clinical and laboratory findings for proper interpretation of different laboratory results for correct medical decision- making.

b3. Upgrade laboratory performance in healthcare units and small Labs.

b4. Plan medical research targeting high quality community service.

b5. plan and design a simple scientific research and analyze and interpret the results of research using common statistical tests.

c) Professional and Practical Skills:

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

c1. Perform a complete haematological, chemical, immunological and bacterial investigations.
c2. Perform manual CBC and differentiation and recognition of various disease haematological pictures.
c3. Perfect different staining methods.
c4. Perform bone marrow aspiration and its role in diagnosis for various haematological disoders.
c5. Perform of cytochemical staining for bone marrow films.
c6. Describe the techniques of specimen collection, handling and processing.
c7. Efficiently perform routine laboratory tests including CBC, Liver, renal, function tests and urine and stool examination.
c8. Efficiently perform all body fluids examinations.
c9. Efficiently perform blood transfusion and other blood bank investigations.
c10. Efficiently perform all hormonal and serological investigations.
c11. Apply infection control and safety measures in the Lab.
c12. Implement internal quality control measures.

d) General and Transferable Skills:

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

d1. Implement safe laboratory procedures.
d2. Think creatively and innovatively, with individual initiative and ability to work in a team.
d3. Undergo fruitful laboratory- physician interaction to ensure correct decision making.
d4. Undergo proper problem-based learning and IT application for maximum knowledge collection and case presentation
d5. prepare and present different topics using power point and data show
d6. navigate in the internet to obtain relevant medical data
d7. Use computer efficiently and Use the computer and internet to gather scientific information.
d8. Work efficiently as a part of team.
d9. Use data analysis and communication skills
d10. Interpret a report containing microbiological or immunological data.
d11. Be reliable and responsible in fulfilling obligations.
d12. Learn and teach how to perform and interpret laboratory tests.

4. Academic standards:

Sohag faculty of medicine adopted the general national academic reference standards (NARS) provided by the national authority for quality assurance and accreditation of education (NAQAAE) for postgraduate programs. This was approved by the faculty council degree No 6854, in its cession No.177. Date 18-5-2009. Based on these NARS; Academic References standard (ARS) were suggested for this program. These ARS were revised by the external evaluator and approved by faculty council degree No 7528, in its cession No.191. Date 15-3-2010. The adoption of NARS and the suggested ARS were approved by University council degree No 587, in its cession No.60. dated 26-12-2011.

5. Curriculum Structure and Contents:

5.a- Program duration: 5 semesters (75 weeks)
5.b- Program structure
5.bi- Number of hours per week:

	Hours/week		
Subject	**Lectures**	**Practical**	**Clinical**
1ST PART			
Parasitology	3	4	
Parasitology	3	4	
Biostatistics, Computer & Research methodology	1	2	
2ND PART			
(Clinical pathology)	**5**	**10**	

5.c -Programme Levels (in credit-hours system):

code	Item		No	%
b.i	Total credit hours	Compulsory	48	100
		Elective	0	0
		Optional	0	0
b.iii	credit hours of basic sciences courses		10	20.8
b.iv	credit hours of courses of social sciences and humanities		0	0
b.v	credit hours of specialized courses:		25	52.1
b.vi	credit hours of other course		2	4.2
b.vii	Practical/Field Training		5	10.4
b.viii	Program Levels (in credit-hours system): Level 1: 1st part Level 2: 2nd Part Level 3: Thesis		 12 25 6	 25 52.1 12.5

6. Programme courses

6.1- Level/Year of Programme…1……. Semester…1

A. Compulsory:

	No. of total Credit hrs.	Total hours / Week			Program ILOs Covered (By No.)
		Lect.	Lab./ Exercise	clinical	
1st part (12 credit hrs.)					
Microbiology	5	45	60		a1, a2, a3, a10, b1, b2, b3, c1, c10, c11, d1, d2, d9, d12.
Parasitology	5	45	60		a1, a2, a3, a10, b1, b2, b3, c1, c10, c11, d1, d2, d9, d12.
Biostatistics, Computer & Research methodology	2	15	30		a5,b4,b5,d6,d7
2nd part (25 credit hrs.)					
Clinical pathology	25	225	300		a4,a6,a7,a8,a9,c3,c4,c5,c6,c7,c8,c9,c12,d1, d2, d3, d4, d5, d6, d7, d8, d9, d10, d11, d12.

B- Elective :

No elective course in the Clinical and Chemical Pathology MSc course programme

C- Optional :

No optional course in the Clinical and Chemical Pathology MSc course programme

6.2- Level 2 /Year of Programme: 2 (1 semester)

A. Compulsory:

			Total hours		Credit hrs
			Lect.	Lab./ Exercise	
	Haematology		75	135	8
	Chemistry		75	135	8
	Immunology		30	90	4
	Bacteriology		15	90	5
Total			225	450	25

6.3- Level 3 /Year of Programme:3 (3 semesters)

A. Compulsory:

		Number of hours			
		Lect.	Lab.	Exercise	
MSc thesis in clinical pathology					**6 hours**

7. Programme admission requirements:

M.B., B. Ch certificate
Senior House Officer Certificate
Agreement of registration from the hospital he/she work on.

8. Regulations for progression and program completion:

First Part:

- **Duration**: 6 months (5 c. Hours) after registration.
- **Two sets of exams**: 1st in April — 2nd in October.

Second part:

Conditions of permission to acceptance to the exams:

1 Succeeding the first part exams.

2 Study the major curriculum for 18 months (25 c. Hours).

3 Two sets of exams: 1st in April — 2nd in October.

4 Actual work for 36 months as a demonstrator in the department of medical Parasitology.

5 Passing the log book of at least 75%

6 the credit hours of the logbook are calculated as following:

- Each Cr. Hr.= 60 working Hrs.

- Logbook= 5 Cr. Hr. X 60 working Hrs = 300 Working Hrs.
- Collection of working Hrs. is as following:

Activity		Hrs
Grand rounds	**اجتماع علمى موسع**	**6**
Training courses	**دورات تدريبية**	**12/ day**
Conference attendance	**حضور مؤتمرات علمية** **داخلى** **خارجة**	 **12/day** **18/day**
Thesis discussion	**حضور مناقشات رسائل**	**6**
Workshops	**حضور ورش عمل**	**12/day**
Journal club	**ندوة الدوريات الحديثة**	**6**
Seminars	**لقاء علمى موسع**	**6**
Morbidity and Mortality conference	**ندوة تحليل المخاطر المرضية أوالوفاة**	**6**
Self education program	**برنامج التعليم الذاتى**	**6**

- Two sets of exams: 1st in October - 2nd in April.
- At least 50% of the written exam is needed to pass in each course.
- For the student to pass the 2nd part exam, a score of at least 60% (Level D) in each course is needed.

9. Methods of student assessments:

Method of assessment	The assessed ILOs
1-Research assignment	- General transferable skills, intellectual skills
2-Written Exams:	
-Short essay: 40%	- Knowledge
-structured questions: 25%	- Knowledge
-MCQs: 20%	- Knowledge, intellectual skills
-Commentary, Problem solving: 15%	- Intellectual skills, General transferable skills,
3-OSCE	- Practical skills, intellectual skills
4- OSPE	- Practical skills, intellectual skills
4-Structured Oral Exams	- Knowledge

Assessment schedule:

Part I:

- **Medical Microbiology and Immunology**: Written Exam (3 hours) + OSPE + Structured oral Exam.
- **Medical Parasitology**: Written Exam (3 hours) + OSPE + Structured oral Exam.
- **Biostatistics, Computer & Research methodology**:
  Written Exam (2 hours) + Structured oral Exam.

Part II:

1. **Four Written Exams** :
   - The 1st for Clinical Haematology (3 hours).
   - The 2nd for Clinical Chemistry (3 hours).
   - The 3rd for Clinical Immunology (2 hours).
   - The 4th for Clinical Bacteriology (2 hours).
2. **OSCE**

3. **Structured oral Exams**
   (40% for Clinical Biochemistry and 10% Clinical immunology for the 1st & 40% for Haematology and 10% Bacteriology for the 2nd)

10. **Evaluation of program**

Evaluator	Tool	Sample
1- Senior students	Questionnaire	4
2- Alumni	Questionnaire	2
3- Stakeholders (Employers)	Questionnaire	17
4-External Evaluator(s) - (External Examiner(s)	Reports	1
5- Other		-

Course Specifications of Medical Microbiology and Immunology for Master degree in Clinical and Chemical Pathology

Sohag University **Faculty of Medicine**

1. Program Title: Master degree in clinical pathology
2. Minor/major element of the program: Minor
3. Department offering the program: Clinical and Chemical Pathology Department
4. Department offering the course: Microbiology and Immunology Department
5. Academic year/level: First part
6. Date of specification approval: Faculty council No. "250", decree No. "1378" dated 28/12/2013

A- Basic Information

Title: Microbiology and Immunology for Master degree in clinical pathology
Code: MIC: 0504-200
Total hours:

Title	Lectures	Practical/ surgical	Total	credit
Microbiology and Immunology	45	60	105	5

B- Professional Information

1. Overall Aims of Course

By the end of the course the postgraduate student should be efficiently able to have basic knowledge of the microorganisms affecting children all over the world and particularly in Egypt , and learn to use the knowledge gained from applied microbiology to better understand the pathology, clinical symptoms, complications and the laboratory tests needed for diagnosis of each disease, in particular how to use microbiological testing in determining antibiotic prescription. The student is also expected to acquire advanced knowledge about the structure and function of the immune system and the role of the immune system in health and disease.

2. Intended Learning Outcomes of Course (ILOs):

a) Knowledge and Understanding:

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

1. List the microorganisms affecting human beings all over the world and particularly in Egypt.
2. Describe the metabolism and genetics of organisms.
3. Describe the pathology, clinical symptoms and complications of each disease.
4. Summarize the laboratory tests needed for diagnosis of each case.
5. Name the drugs and instructions used for treatment of each case.
6. Describe some infection control methods
7. Describe the structure and function of immune system
8. Perform basic and advanced microbiology tests in the lab
9. Interpret the results of tests to aid clinicians in diagnosis.

b) Intellectual Skills:

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

b1. Interpret data acquired through microbiological tests to reach a provisional diagnosis for bacteriological problems.

b2. Select from different diagnostic microbiological tests the ones that help reaching a final diagnosis for problems.

b3. link between knowledge for professional problem solving .

b4. Identify different bacteriological problems and find solutions for them based on proper understanding of microbiological and immunological basis .

c) Professional and Practical Skills:

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

c1. Master the basic and modern professional skills in the area of microbiology & immunology

c2. Understand and evaluate medical microbiological reports.

c3. Assess methods and tools existing in the area of pediatrics based on proper understanding of microbiological and immunological basis .

d) General and Transferable Skills:

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

d1. Communicate effectively by different types of effective communication.

d2. Use appropriate computer program packages and the internet to serve the development of professional practice.

d3. Assess himself and identify his personal learning needs.

d4. Use of different sources for information and knowledge.

d5. Work coherently and successfully as a part of a team and team's leadership.

d6. Manage time effectively .

d7. Maintain Continuous self-learning.

3. Contents

	No. of hours	Lectures	Practical
General Bacteriology	1	1	
Bacterial anatomy & Physiology	1	1	
Bacterial genetics	1	1	
Recombinant DNA technology	2	2	
Antibiotics	2	2	
Sterilization & Disinfection	2	2	
Systematic Bacteriology	2	2	
Gram +ve cocci	2	2	
Gram –ve cocci	2	2	
Gram +ve bacilli	2	2	
Gram –ve bacilli(1)	2	2	
General virology	2	2	
Systematic Virology	2	2	
RNA viruses	2	2	
DNA viruses	2	2	

Mycology	2	2	
Fungal classifications	2	2	
Opportunistic mycosis& Antifungal drugs	2	2	
Immunology2			
Congenital & Acquired Immunity	2	2	
Immunological Cells	2	2	
Hypersensitivity	2	2	
Transplantation	2	2	
Tumor Immunology	2	2	
Immunodeficiency	2	2	
Bacterial Cultures	3		3
Bacterial Isolation & Identification	3		3
Diagnostic Molecular Biology Methods	3		3
Antibiotic Sensitivity Tests	4		4
Sterilization & Disinfection	4		4
Immunology(Antigen Antibody Reactions) 1	4		4
Immunology(Antigen Antibody Reactions) 2	4		4
Staphylococci	4		4
Streptococci & Pneumococci	3		3
Neisseria	3		3
Corynebacterium	3		3
Mycobacterium	3		3
Enterobacteria	3		3
Pseudomonas & Yersinia	3		3
Bacillus	3		3
Clostridium	4		4
Vibrios & Brucella	3		3
Spirochaetes & Mycology	3		3
Total	**105**	**45**	**60**
Credit	**5**	**3**	**2**

4. Teaching and Learning Methods

- Lectures.
- attending and participating to scintific conferences,workshops and thesis discussion to aquire general and transferable skilles needed**.**
- Practical lessons.

5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exams:	- Knowledge
-Short essay: 40%	- Knowledge
-structured questions: 25%	- Knowledge, intellectual skills
-MCQs: 20%	- Intellectual skills, General transferable skills,
-Commentary, Problem solving: 15%	- Practical skills, intellectual skills
5.3- OSCE	- Practical skills, intellectual skills
5.4-Structured Oral Exams	- Knowledge

Assessment Schedule

Assessment final Written exam 24 week
Assessment final Oral exam 24 week
Assessment final practical exam 24 week

Weighting of Assessments

Final-term written examination	50%
Oral Examination	30%
OSCE	20%
Total	100%

6. List of References

6.1- Course Notes
Notes of the department and practical notebook
Prof. Abla Elmeshad
6.2- Essential Books (Text Books)
Jawetz Medical Microbiology.
Roitt Essential Immunology.
Abbas Clinical Immunology
Alberts Molecular Biology
6.3- Recommended Books
A coloured Atlas of Microbiology.
Topley and Wilson, Microbiology
6.4- Periodicals, Web Sites, … etc
Microbiology
Immunology
http://mic.sgmjournals.org/

Course Coordinator: Dr. Mona Fatoh Mohamed

Head of Department: Prof. Abeer M. Shenief

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013

Course Specifications of Medical Parasitology for Master degree in clinical pathology

Sohag University **Faculty of Medicine**

1. Program Title: Master degree in clinical pathology
2. Minor/major element of the program: Minor
3. Department offering the program: Clinical and Chemical Pathology Department
4. Department offering the course: Medical Parasitology Department
5. Academic year/level: First part
6. Date of specification approval: Faculty council No. "250", decree No. "1378" dated 28/12/2013

A- Basic Information

Title: Medical Parasitology for Master degree in clinical pathology
Code: PAR 0504-200
Total hours:

Title	Lectures	Practical/ surgical	Total	credit
Medical Parasitology	45	60	105	5

B- Professional Information

2. Intended Learning Outcomes of Course (ILOs):

1. **Overall Aims of Course:**

   By the end of the course the student should be able to have the professional knowledge of the parasites affecting human beings all over the world and particularly in Egypt, so to be able to efficiently protect, diagnose and advice the parasite victims correctly.

2. **Intended Learning Outcomes of Course (ILOs):**

   According to the intended goals of the faculty: the student is to be armed with professional knowledge about the human parasites present in his locality as well as Egypt, surrounding countries and some idea to parasites allover the world. Each student should be able to recognize the symptoms, the infective and the diagnostic stages and laboratory tests needed for diagnosis of the studied parasites.

a) Knowledge and Understanding:

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

a1. have the basic knowledge of the parasites affecting human beings all over the world and particularly in Sohag and Egypt.
a2. have the understanding the life cycle of each, inside and outside the body.
a3. have the ability to differentiate between parasites on morphological bases**.**
a4. have the knowledge to recognize the clinical symptoms of them.
a5. have the knowledge of the recommended laboratory tests needed for diagnosis of each case.

a6. have the knowledge of some of the drugs and instructions used for treating each case.

a- Intellectual Skills:

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

b1. Differentiate between parasites affecting the same organ.
b2. Differentiate between parasites present in the same sample.

b- Professional and Practical Skills:

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

c1. Identify the infective and the diagnostic stages of the parasites
c2. Identify some stages of the parasites**.**
c3. Differentiate between true and false parasites in different samples.

c- General and Transferable Skills

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

d1. Communicate effectively by different types of effective communication .
d2. Use appropriate computer program packages and the internet to serve the development of professional practice.
d3. Assess himself and identify his personal learning needs.
d4. Use of different sources for information and knowledge.
d5. Work coherently and successfully as a part of a team and team's leadership.
d6. Manage time effectively .
d7. Maintain Continuous self-learning.

3. Contents

Topic	No. of hours	Lecture	Tutorial/ Practical
Fasciola+ H. heterophyes + Schistosoma	10	4	6
Cestoda+ D. latum+ Taenia Echinococcus Hymenolepis+ Dipylidium	9	4	5
Nematoda+ Eterobius+ T. trichura+ Capillaria+ T. spiralis+ Ascaris	9	4	5
Hook worms+ S.stercoralis+ Larva migrans+D. medenensis+ Filarial; worms	9	4	5
Helminthes total			
Myiasis & M. producing flies	10	5	5
Sarcoptis scabei	9	4	5
Arthropods total			
Introduction+ Amoebidae	10	4	6
Luminal flagellates + Haemoflagellates	10	4	6
Apicomplexa (Malaria + Babesia)	10	4	6
Apicomplexa (Toxoplasma+ others)+ Ciliata+Microsporidia	10	4	6
Protozoa			
Laboratory tests+ Immunology	9	4	5
Total	105	45	60
Credit	5	3	2

4. Teaching and Learning Methods

- Lectures.
- attending and participating to scintific conferences,workshops and thesis discussion to aquire general and transferable skilles needed.
- Practical lessons

5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exams:	- Knowledge
-Short essay: 40%	- Knowledge
-structured questions: 25%	- Knowledge, intellectual skills
-MCQs: 20%	- Intellectual skills, General transferable skills,
-Commentary, Problem solving: 15%	- Practical skills, intellectual skills
5.3- OSPE	- Practical skills, intellectual skills
5.4-Structured Oral Exams	- Knowledge

Assessment Schedule

Assessment final Written exam 24 week
Assessment final Oral exam 24 week
Assessment final practical exam 24 week

Weighting of Assessments

Final-term written examination	50%
Oral Examination	30%
OSCE	20%
Total	100%

6- List of References

6.1- Course Notes
Notes of the department and practical notebook

6.2- Essential Books (Text Books)
Medical Parasitology.
Essential Parasitology.
6.3- Recommended Books
A coloured Atlas of tropical Medicine and Parasitology.

6.4- Periodicals:

Journal of Egyptian Society of Parasitology.

Journal of Tropical Medicine and Hygiene.

Web Sites:
Parasitic Diseases: http://www.mic.ki.se/Diseases/c3.html

Parasite Images: http://www.med.cmu.ac.th/dept/parasite/image.htm

Atlas of Medical Parasitology: http://www.cdfound.to.it/HTML/atlas.htm

7- Facilities Required for Teaching and Learning

Data show device for lectures.
Photos of parasites.
Laboratory microscopes.

Course Coordinator: Dr Eman Khalaf..

Head of Department: Dr. Nada El Nadi

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013

Course Specifications of Applied biostatistics (with computer use)and Research Methodology in Master degree of Clinical pathology

Sohag University **Faculty of Medicine**

1. Program title : Master degree in Clinical and Chemical Pathology
2. Major/minor element of the program : Minor
3. Department offering the course: Community Medicine and public Health Dep.
4. Department offering the program: Clinical and Chemical Pathology
5. Academic year /level : 1st part
6. Date of specification approval: Faculty council No. "250", decree No. "1378" dated 28/12/2013

A. Basic Information

Title: Master degree in Clinical and Chemical Pathology Statistics and Computer use for health services **and Research Methodology**
Code: COM: 0504-200
Total Hours:

Title	Lectures	Practical/ surgical	Total	credit
Applied biostatistics and computers & Research methodology	15	30	45	2

B. Professional Information

Applied Biostatistics Module:

1. Overall Aims of Course

a. To influence the students to adopt an analytical thinking for evidence based medicine.
b. To use precisely the research methodology in researches and computer programs SPSS, Epi Info and Excel in data analysis.

Research Methodology Module:

1. Overall Aims of Course

The aim of this course is to provide the postgraduate student with the advanced medical knowledge and skills essential for the mastery of practice of specialty and necessary to provide further training and practice in the field of Public health and Community Medicine through providing:

1. Recent scientific knowledge essential for the mastery of practice of Public Health and Community Medicine according to the international standards.

2. Skills necessary for preparing for proper diagnosis and management of community problems, skills for conducting and supervising researches on basic scientific methodology.
3. Ethical principles related to the practice in this 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 of Courses (ILOs)

Applied Biostatistics Module:

a) Knowledge and understanding:

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

a1. Mention different programs of analysis of data and statistical packages
a2. Define the recent advances of sources of data and methods of collection.
a3. Summarize data, construct tables and graphs
a4. Calculate measures of central tendency and measures of dispersion
a5. Describe the normal curves and its uses
a6. Illustrate selected tests of significance and the inferences obtained from such tests
a7. Illustrate selected tests of significance for parametric and non parametric inferences
a8. Identify factor analysis and discrimination analysis.

b) Intellectual Skills

By the end of the course, the student is expected to be allowed to:

b1. Mention how to collect and verify data from different sources
b2. Interpret data to diagnose prevalent problems clinical pathology

c) Professional and Practical Skills:

By the end of the course, the student is expected to practice the following:

c1.Perform recent advanced technological methods in collection, analysis and interpretation of data and in management of prevalent problems in clinical pathology

d) General and Transferable Skills:

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

d1. Use appropriate computer program packages.
d2. Use of different sources for information and knowledge about biostatistics.

Research Methodology Module:

2. Intended Learning Outcomes of Courses (ILOs)

a) Knowledge and understanding:

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

a1. Define the recent advances of screening tests pertinent to selected diseases and the at-risk approach in the application of screening tests.
a2. Explain the usefulness of screening tests, and calculate sensitivity, specificity, and predictive values.
a3. Describe the study design, uses, and limitations.
a4. Mention the recent advances of principles, methodologies, tools and ethics of scientific research.
a5. Explain the strategies and design of researches.
a6. Describe bias and confounding.
a7. Describe sampling techniques and list advantages of sampling
a8. Identify principles of evidence based medicine.

b) Intellectual Skills

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

b1. Conduct research studies that adds to knowledge.
b2. Formulate scientific papers in the area of public health and community medicine
b3. Innovate and create researches to find solutions to prevalent community health problems
b4. Criticize researches related to public health and community medicine

c) Professional and Practical Skills:

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

c1. Enumerate the basic and modern professional skills in conducting researches in the area of public health and community medicine.
c2. Design new methods, tools and ways of conducting researches. .

d) General and Transferable Skills:

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

d1. Use of different sources for information and knowledge to serve research.
d2. Work coherently and successfully as a part of a team and team's leadership in conducting researches and field studies.

3. Contents

Topic	No. of hours	Lecture	Tutorial/ Practical
Applied Biostatistics Module:			
Recent advances in collection, analysis and interpretation of data	3	1	2
-Details of Tests of significance: Proportion test	3	1	2
-Chi-square test	1.5	.5	1
-Student T test	1.5	.5	1
-Paired T test	1.5	.5	1
-Correlation	1.5	.5	1
-Regression	2	1	1
-ANOVA test	3	1	2
-Discrimination analysis	3	1	2
-Factor analysis	3	1	2
-Parametric and non parametric tests	4.5	.5	4
Research Methodology Module:			

Details of epidemiological studies (case control, cohort and cross sectional)	3	1	2
Clinical trials, Quasi experimental study	3	1	2
Bias and errors	2	1	1
Setting a hypothesis	1.5	.5	1
Recent advances in screening	1.5	.5	1
- Evidence – based Medicine: Concept and examples Applicability Scientific writing: A protocol A curriculum	3	1	2
Setting an objective - Critical thinking	2	1	1
Formulation of papers	1.5	.5	1
Total hours	**45**	**15**	**30**
Total Credit hours	**2**	**1**	**1**

4. Teaching and Learning Methods

4.1- Lectures
4.2- Practical sessions
4.3- Computer search assignments
4.4- Computer application

5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exams:	- Knowledge
-Short essay: 40%	- Knowledge
-structured questions: 25%	- Knowledge, intellectual skills
-MCQs: 20%	- Intellectual skills, General transferable skills,
-Commentary, Problem solving: 15%	- Practical skills, intellectual skills
5.3-Structured Oral Exams	- Knowledge
5.4Computer search assignment	- general transferable skills, intellectual skills

Assessment Schedule

Assessment 1….Final written exam Week: 24
Assessment 2…..Final oral exam Week: 24
Assessment 3 Attendance and absenteeism throughout the course
Assessment 4 Computer search assignment performance throughout the course

Weighting of Assessments

Final-term written examination	50%
Final oral Examination	50%
Total	100%

Formative only assessments: attendance and absenteeism and Computer search assignments performance.

6. List of References

Applied Biostatistics Module:

6.1- Essential Books (Text Books)

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

6.2- Recommended Books

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

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

3-Epidemiology in medical practice, 5thed Churchill Livingstone New York, London and Tokyo

6.3- Periodicals, Web Sites, etc

1-American Journal of Epidemiology

2-British Journal of Epidemiology and Community Health

3- WWW. CDC and WHO sites

Research Methodology Module:

6.1- Essential Books (Text Books)

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

6.2- Recommended Books

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

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

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

6.3- 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:

Applied Biostatistics Module:

- Adequate conditioned space for staff and assistants.
- Adequate conditioned teaching facilities.
- Audiovisual Aids: Data show, overhead and slide projectors and their requirements.

Research Methodology Module:

- ADEQUATE INFRASTRUCTURE: including teaching places (teaching class, teaching halls, teaching laboratory), comfortable desks, good source of aeration, bathrooms, good illumination, and safety & security tools.

- TEACHING TOOLS: including screens, computers including cd (rw), data shows, projectors, flip charts, white boards, video

player, digital video camera, scanner, copier, color and laser printers.

Course Coordinator: Dr/ Ahmed Fathy Hamed

Head of Department: Prof/ Eman Abd El-Baset Mohammed

Date: Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013

Course Specifications of Second part for MSc Clinical & Chemical Pathology

Sohag University **Faculty ...Medicine**

1. **Program on which the course is given**: Postgraduate - MSc Clinical & Chemical Pathology
2. **Major or minor element of program**: Minor
3. **Department offering the program**: Clinical & Chemical Pathology
4. **Department offering the course**: Clinical & Chemical Pathology
5. **Academic year / Level:** MSc 2nd part Clinical & Chemical Pathology
6. Date of specification approval: Faculty council No. "250", decree No. "1378" dated 28/12/2013

A. Basic Information

Title: Master degree in Clinical & Chemical Pathology in Clinical & Chemical Pathology department
Code: CLI :0504-200
Total Hours:

Curriculum	Lectures	Practical	Tutorial/clinical	Total hours	Credit hours
Haematology	75	90	-	165	8
Chemistry	75	90	-	165	8
Immunology	45	60	-	105	5
Bacteriology	30	60	-	90	4
Total	225	300	-	525	25

B. Professional Information

1. Overall Aims of Course

Hematology Module

By the end of the course the postgraduate student should be efficiently able to have advanced knowledge of the blood disesese affecting human beings all over the world and particularly in Egypt , and learn to use the knowledge gained from applied hematology to better understand the pathology, clinical symptoms, complications and the laboratory tests needed for diagnosis of each disease, in particular how to order specific tests in order to assist clinical practitioners on how to order and interpret lab tests .

chemistry Module

By the end of the course the postgraduate student should be efficiently able to have advanced knowledge of the changes in chemistry affecting human beings all over the world and particularly in Egypt , and learn to use the knowledge gained from applied chemistry to better understand the pathology, clinical symptoms, complications and the laboratory tests needed for diagnosis of each disease, in particular how to order specific tests in order to assist clinical practitioners on how to order and interpret lab tests . The student is also expected to acquire advanced knowledge about the structure and function of the immune system and the role of the immune system in health and disease, and how to initiate and / or implement lab results for patients

Immunology Module

By the end of the course the postgraduate student should be efficiently able to have advanced knowledge of the Immunological diseases affecting human beings all over the world and particularly in Egypt , and learn to use the knowledge gained from applied immunology to better understand the pathology, clinical symptoms, complications and the laboratory tests needed for diagnosis of each disease, in particular how to order specific tests in order to assist clinical practitioners on how to order and interpret lab tests . The student is also expected to acquire advanced knowledge about the structure and function of the immune system and the role of the immune system in health and disease, and how to initiate and / or implement lab results for patients

Bacterilogy Module

By the end of the course the postgraduate student should be efficiently able to have advanced knowledge of the microorganisms affecting human beings all over the world and particularly in Egypt , and learn to use the knowledge gained from applied microbiology to better understand the pathology, clinical symptoms, complications and the laboratory tests needed for diagnosis of each disease, in particular how to order specific tests in order to assist clinical practitioners on how to order and interpret lab tests . The student is also expected to acquire advanced knowledge about the structure and function of the immune system and the role of the immune system in health and disease, and how to initiate and / or implement lab results for patients

2. Intended Learning Outcomes of Course (ILOs):

a) Knowledge and Understanding:

By the end of the course the student is expected to:

Haematological module:

a1. List the haematological diseases affecting human beings all over the world and particularly in Egypt.
a2. Describe the etiology and genetics bases of all haematological diseases.
a3. Describe of normal haemopoiesis including normal erythropoiesis, leucopoiesis and thrombopoiesis.
a4. Describe the types, pathology, clinical symptoms and complications of each disease.
a5. Study FAB and WHO classifications of different haematological malignancies.

a6. Summarize the laboratory tests needed for diagnosis of each case.
a7. Describe drugs and instructions of importance from haematological side view.
a8. Describe bases of haematological cell counters of different types, flow cytometer and DNA microarray.
a9. Interpret the results of tests to aid clinicians in diagnosis.
a10. Describe bases of haematological cell counters of different types, flow cytometer and DNA microarray.

Chemistry module:

a1. List the chemistry changes affecting human beings during different diseases all over the world and particularly in Egypt.
a2. Describe normal metabolism and pathological changes affecting all body system.
a3. Describe markers of different malignant tumors.
a4. Summarize lab. tests needed for diagnosis different endocrinal disorders.
a5. Summarize theoretical basic and applications of different chemical analysers.
a6. Interpret the results of tests to aid clinicians in diagnosis.

Immunology module:

a1. List the immunological diseases affecting human beings all over the world and particularly in Egypt.
a2. Describe component and types of immune system.
a3. Descripe the immunopathological background, clinical symptoms, complications and diagnostic criteria of each of autoimmune diseases.
a4. Summarize the immunological laboratory tests needed for diagnosis of each case.
a5. Perform basic and advanced immunology tests in the lab like DNA radioimmunoassay and immunefluorescent .
a6. Interpret the results of tests to aid clinicians in diagnosis

Bacteriology module:

a1. List the microorganisms affecting human beings all over the world and particularly in Egypt.
a2. Describe the metabolism and genetics of organisms.
a3. Describe the pathology, clinical symptoms and complications of each disease.
a4. Summarize the laboratory tests needed for diagnosis of each case.
a5. Name the drugs and instructions used for treatment of each case.
a6. Describe infection control methods.
a7. Perform basic and advanced microbiology tests in the lab
a8. Interpret the results of tests to aid clinicians in diagnosis.
a9. Recognize the basic concepts of automation of laboratory techniques.Study the basic knowledge about red cell metabolism, aging & breakdown, mechanism of anemias; nutritional or hemolytic, define what is meant by hemolytic process (compensated & non-compensated) , list the laboratory tests which reflect increased red cell destruction & shortened life span and define intracorpuscular vs. extracorpuscular causes of hemolytic process.
a10. Study bases of classification of hematological malignancies (Leukemias, lymphomas and…etc.), explaining the clinical and hematological presentations of the disease and describing the hematological investigations required for diagnosis including:
    1. CBC.
    2. Bone marrow aspiration
    3. Immunophenotyping
    4. Bone marrow trephine biopsy
    5. Cytogenetic and other tests.

a11. Explain the principle of automated cell counting with understanding the pitfalls & limitations of every cell counter principle.
a12. Defining bone marrow failure, classification and its management

b) Intellectual Skills:

By the end of the course the student is expected to:

Haematological module:

b1. Use different laboratory methods to differentiate between the different haematological diseases.
b2. Differentiate between true and false laboratory results.
b3. Have ability to assess laboratory quality assurance.
b4. Have ability to interpret and correct deviant mechanical laboratory measurements.
b5. Interpret a wide variety of tests and cross correlate with other clinical data.

Chemistry module:

b1. Differentiate between the different chemical changes in different diseases.
b2. Differentiate between the different types of disease causing different chemical changes.
b3. Determine the involvement of the chemical processes in the current disease process.
b4. Order a variety of specific tests.
b5. Interpret a wide variety of tests and cross correlate with other clinical data.

Immunology module:

b1. Differentiate between the different immunological diseases
b2. Differentiate between the different types of disease causing immunolgical diseases
b3. Determine the involvement of the immune system in the current disease process.
b4. Order a variety of specific tests
b5. Interpret a wide variety of tests and cross correlate with other clinical data

Bacteriology module:

b1. Differentiate between the different microorganisms (Bacteria, viruses and fungi)
b2. Differentiate between the different types of disease causing microbes
b3. Determine the antibiotic regimen based on previous microbiological experience and laboratory tests.
b4. Determine the involvement of the immune system in the current disease process.
b5. Order a variety of specific tests
b6. Interpret a wide variety of tests and cross correlate with other clinical data

c) Professional and Practical Skills:

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

Haematological module:

c1. Handling of samples.
c2. Processing of samples.
c3. Initiate or implement laboratory tests

c4. Assess haematological diseases on morphological bases of blood films.
c5. Identify the methods of complete blood counting manually and differentiating and cell assessment.
c6. Identify the methods of bleeding time and ESR and reticulocytic measurements.
c7. Use all automated haemocytometers perfectly.
c8. Identify haemoglobin types using HB. Electrophoresis.
c9. Identify different haemostatic disorders using manual, semi automated and full automated chemical analysers to detect factor deficiency or mutated disorders.

Chemistry module:

c1. Handling of samples.
c2. Processing of samples.
c3. Interpret results of blood gases and electrolytes analysers.
c4. Identify the methods of biochemical reactions (colorimetric, kinetics and ..etc.).
c5. Recognize chemical bases of different urine strips.
c6. Initiate or implement laboratory tests

Immunology module:

c1. Handling of samples.
c2. Processing of samples.
c3. Mange all methods of different Ag-Ab. Reactions (like CRP, ASOT,ANA, LE cells, Rose waller, ANA-IF, anti- ds DNA Ab. (IF),…etc.)
c4. Recognize serological tests used in diagnosis.
c5. Initiate or implement laboratory tests
c6. Perfect different staining methods.
c7. Perform bone marrow aspiration and its role in diagnosis for various haematological disoders.
c8. Efficiently perform routine laboratory tests including CBC, Liver, renal, function tests and urine and stool examination.
c9. Efficiently perform all body fluids examinations.
c10. Efficiently perform blood transfusion and other blood bank investigations.
c11. Implement internal quality control measures.

Bacteriology module:

c1. Handling of samples.
c2. Processing of samples.
c3. Recognize micro-organisms on morphological bases.
c4. Identify the methods of staining, culturing and biochemical reactions
c5. Identify the methods of antibiotic sensitivity tests.
c6. Identify the methods of urinary bacterial count.
c7. Identify the methods of sterilization.
c8. Recognize some serological tests used in diagnosis.
c9. Initiate or implement laboratory tests

d) General and Transferable Skills:

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

Haematological module:

d1. Use the computer and internet to gather scientific information.
d2. Use data analysis and communication skills
d3. Interpret a report containing haematological.
d4. Be reliable and responsible in fulfilling obligations
d5. Learn and teach how to perform and interpret laboratory tests.

Chemistry module:

d1. Use the computer and internet to gather scientific information.
d2. Use data analysis and communication skills
d3. Interpret a report containing chemical data.
d4. Be reliable and responsible in fulfilling obligations
d5. Learn and teach how to perform and interpret laboratory tests.

Immunological module:

d1. Use the computer and internet to gather scientific information.
d2. Use data analysis and communication skills
d3. Interpret a report containing immunological data.
d4. Be reliable and responsible in fulfilling obligations
d5. Learn and teach how to perform and interpret laboratory tests.

Bacteriological module:

d1. Use the computer and internet to gather scientific information.
d2. Use data analysis and communication skills
d3. Interpret a report containing microbiological data.
d4. Be reliable and responsible in fulfilling obligations
d5. Learn and teach how to perform and interpret laboratory tests.

3- Contents

Haematology Module

	Lectures	No. of hours
Topics : (5 CREDIT = 75 hrs)		
- Haemopoiesis	1	1
(1) Haemotasis :	14	22
Normal haemostasis.		
- The vascular function of platelets.	1	1
- Normal thrombopoiesis.	2	3
- Normal coagulation Pathway.	1	2
- New theory of Coagulation	1	1
- Fibrinolysis system	1	2
Platelet disorders :		
- Quantitative platelet disorders.	2	3
- Qualitative platelet disorders.	1	2
Coagulation disease :		

- Haemophilia.	1	2
- vWD	1	2
- DIC	1	**1**
- Thrombophilia : acquired & inherited	2	3
(2) blood bank :	6	9
- Antigens in human blood	1	2
- Component of blood and preparation.	1	2
- Indication of transfusion.	1	1
- Hazards of transfusion.	1	2
- Coomb's tests.	1	1
- haemolytic disease of newborn.	1	1
(3) Oncology :	11	19
- Granulopoiesis		
1. Myelopoiesis.	1	1
2. Lymphopoiesis.	1	1
- Acute leukaemia: AML & ALL	2	4
- Chronic leukaemia: CML & CLL	2	4
- MDS	1	2
- Myeloma	1	2
- Myeloproliferative disorders	2	4
- Spleen	1	1
(4) RBCs :	14	24
- Erythropoiesis & haemopoietic GF.	1	1
- RBCs membrane structure.	1	1
- RBCs inclusion bodies.	1	1
- Anemia Classification & RBC indices.	1	1
- Iron metabolism, iron deficiency and disorders of haem synthesis.	1	2
- Sideroblastic anemia.	1	2
- Megaloblastic anemia & Pernicious anemia.	1	2
- Types of haemolytic anemia : .	3	6
o Intrinsic HA		
o Extrinsic HA		
- HEMOGLOBINOPATHIES : The inherited disorders of globin synthesis.		
1. Thalassemia	2	4
2. Sickle cell disease	1	2
- Aplastic anaemia/bone marrow failure syndromes (Inherited& acquired)	1	2
Practical (3 CREDIT= 90 hrs)		
Lab rules, regulations, & Safety precautions, & Blood smears	1	3

(1) Haemotasis :	5	15
Screening test		
1. Hess test (technique) 2. B.T. (methods) 3. Thrombin Time. 4. Fibrinogen. 5. PT, PTT (manual, semi-automated, full automated) 6. platelet count)	2	6
Diagnosis of a case of DIC	1	3
Coagulation factor assay	2	6
(2) blood bank :	10	19
Blood transfusion requirement and techniques and Donor requirement.	2	4
Types of blood collecting bags.	1	2
Rh. phenotyping.	1	1
Method of blood group confirmation.	1	2
Rules of Blood &Plasma transfusion	1	2
Compatibility tests.	1	2
Bl. separation.: manual &automated	2	4
Comb's test	1	2
(3) Oncology :	10	20
WBCs differential count (Age adjusted)	1	2
BM aspiration sites & techniques.	1	2
Normal BM morphology.	1	2
Leukaemoid reaction & other benign pathological disorders	2	4
Leukaemias	2	4
Cytochemical staining.	1	2
Myelproliferative disorders	1	2
Multiple myeloma	1	2
(4) RBCs :	14	33
Blood smearing & Staining	1	2
Manual CBC counting.	1	2
ESR and Hematocrit estimation	1	2
Normal morphological assessment of CBC.	2	4
Automated blood counters type, principles and type of device fallacies and method of correction	1	2
Peripheral haemogram and BM picture of:		
1. Iron deficiency anemia	1	2
2. Megaloblastic anemia	1	2
3. Thalassemia	2	4
4. Sickle cell	1	2

5. Aplastic anemia	1	2
6. ITP	1	1
Hb electrophoresis	2	4
Sickling test.	1	2
O.F. test	1	2

Chemistry Module

	Lectures	No. of hours
Topics : (75 hrs)		
1. Carbohydrates	3	6
2. proteins	4	8
3. body fluids	1	2
4. hormones	3	8
5. Tumor markers	2	4
6. lipids	2	4
7. instruments	4	12
8. kidney diseases	4	10
9. electrolytes and blood gases	1	3
10. liver diseases	**4**	10
11. gastric, pancreatic and intestinal function	1	2
12. minerals and bone metabolism	2	4
Practical (90 hrs)		
1. titration and preparation of normal solutions	5	10
2. glucose	2	5
3. kidney function tests : a. urea. b. creatinine. c. uric acid. d. urine examination	 4 4 4 3	30 8 8 8 6
4. liver function test : e. total protein f. Albumin g. bilirubin (total & direct) h. AST, ALT i. alkaline phosphatase (ALP)	 3 3 3 3 3	30 6 6 6 6 6
5. calcium	2	5
6. CSF, and other body fluids	2	5
7. protein electrophoresis	2	5

Immunology Module

I- Introduction to Immunology	
1- General Properties of Immune Responses	2
2- Innate immunity	2
3- Cells and Tissues of the Adaptive Immune System	2
II- Recognition of Antigens	
4- Antibodies and Antigens	2
5- The Major Histocompatibility Complex	2
6- Antigen Processing and Presentation to T Lymphocytes	2
7- Antigen Receptors and Accessory Molecules of T Lymphocytes	2
Section III Maturation, Activation, and Regulation of Lymphocytes	
8- Lymphocyte Development And The Rearrangement and Expression of Antigen Receptor Genes	2
9- Activation of T Lymphocytes	3
10- B Cell Activation and Antibody Production	2
11- Immunologic Tolerance	
Section IV Effector Mechanisms of Immune Responses	
12- Cytokines	2
13- Effector Mechanisms of Cell-Mediated Immunity	2
14- Effector Mechanisms of Humoral Immunity	2
Section V Immunity in defense and Disease	
15- Immunity to Microbes	3
16- Transplantation Immunology	2
17- Immunity to Tumors	2
18- Diseases Caused by Immune Responses: Hypersensitivity and Autoimmunity	6
19- Congenital and Acquired Immunodeficiencies	3
Total hours	45

Practical (60 hrs)		
Clinical laboratory methods for detection of cellular immunity	2	4
Flow cytometer	1	2
Delayed hypersensitivity skin testing	1	2
Clinical laboratory methods for detection of Ag. & Ab.	4	8
Blood banking & immunohaematology	3	6
Molecular genetic techniques for analysis of immune system:		
1) Nucleic acid probe	2	4
2) Southern blot western blot	3	6
3) PCR, RTPCR	5	10
4) FISH technique	4	8
Histocompatibility testing: 1) Tissue typing 2) Cross matching 3) Cellular assays	3	6
Lab. evaluation of immune competence	2	4

Microbiology Module

TOPICS(= 30 hour نظري)		Lectures	Hours
1	Laboratory Diagnosis of bacterial diseases	1	2
2	Antimicrobial Drugs	1	2
3	Vaccines	1	2
4	Sterilization & Disinfection	1	2
5	Classification of bacteria of medical importance	1	2
6	Mycobacteria	1	2
7	Laboratory Diagnosis of viral infections	1	2
8	Hepatitis Viruses	1	2
9	Mycology	1	2
10	Hospital acquired infections	1	2
11	Anaerobic infections	1	1
12	Urinary tract infections	1	2
13	Gastroenteritis	1	1
14	Meningitis	1	1
15	Pyrexia of unknown origin	1	1
16	Respiratory tract infections	1	2
17	Sexually transmitted diseases.	1	2
Total		**17**	**30**
Practical Microbiology =60 hour			
1	Safety guidelines	1	2
2	Microbiology equipment and materials	1	2
3	Collection, storage and transport of clinical samples	1	2
4	Microscopes , microscopic examination and smear preparation.	1	2

5	**Stains and staining techniques**	**1**	**2**
6	**Technique of gram stain**	**1**	**2**
7	**Technique of ZN stain**	**1**	**2**
8	**Sterilization techniques**	**2**	**4**
9	**Types of culture media**	**2**	**4**
10	**Culture methods**	**3**	**6**
11	**Preparation and examination of urine sample**	**1**	**2**
12	**Preparation and examination of stool sample**	**1**	**2**
13	**Preparation and examination of sputum sample**	**2**	**6**
14	**Antibacterial susceptibility test**	**3**	**6**
15	**Determination of viable bacteria count**	**2**	**4**
16	**Isolation and identification of different types of bacteria**	**3**	**6**
17	**Serological tests**	**1**	**2**
18	**PCR**	**3**	**6**
Total		**30**	**90**

4– Teaching and Learning Methods

4.1- Lectures.
4.2- Department practical class and notes.
4.3- Practical lessons.

5- Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exams:	- Knowledge
-Short essay: 40%	- Knowledge
-structured questions: 25%	- Knowledge, intellectual skills
-MCQs: 20%	- Intellectual skills, General transferable skills,
-Commentary, Problem solving: 15%	- Practical skills, intellectual skills
5.3- OSCE	- Practical skills, intellectual skills
5.4-Structured Oral Exams	- Knowledge

Assessment Schedule

Assessment 1…Written exam
Assessment 2…Oral exam
Assessment 3…Practical exam

Weighting of Assessments

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

6- List of References

6.1- **Course Notes**
Notes of the department and practical notebook

6.2- **Essential Books (Text Books)**

Haematology module: Essential haematology & Atlas haematology
Chemistry module: Titze (Textbook).
Immunology module:

1) Roitt Essential Immunology.
2) Abbas Clinical Immunology
3) Alberts Molecular Biology

Bacteriology module: Jawetz Medical Microbiology.

6.3- **Recommended Books**

Haematology module: Post graduate Hamatology
Chemistry module Clinical chemistry Prof. Dr. Marshal et al (Textbook).
Immunology module:

1. A coloured Atlas of Microbiology.
2. Topley and Wilson, Microbiology

Bacteriology module :

1. A coloured Atlas of Microbiology.
2. Topley and Wilson, Microbiology

6.4- Periodicals, Web Sites, etc

Haematology module

1) Haematology (periodicals).
2) **British journal of hematology**: http://eu.wiley.com/WileyCDA/Section/id-351426.html
3) **American journal of hematology**: http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1096-8652

Chemistry module

1) Clinical chemistry

2) Immunology (periodicals).
3) http://mic.sgmjournals.org/

Immunology module

1) Microbiology (periodicals).
2) Immunology (periodicals).
3) http://mic.sgmjournals.org/

Bacteriology module

1) Microbiology (periodicals).

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