

Peer Revision

Reviewers	University	Date of Revision
- Prof. Dawlat Salem	Cairo	10/12/2011
- Prof. Ahmad K. Mansur	Mansura	28/11/2011

Program specification of Master Degree in Medical Microbiology & Immunology

Sohag University

Faculty of Medicine

A. Basic Information

1. Program title: Master Degree of Medical Microbiology & Immunology
2. Program type: single.
3. Faculty: Faculty of Medicine
4. Departments: Medical Microbiology & Immunology.
5. Coordinator: Dr/Ekram Abdelrahman Mahmoud
6. Assistant Co-ordinator: assistant lecturer: Noha Saber Shafik.
7. External evaluator: Prof. Osama Shamseldin Raslan.
8. Last date of program specifications approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018.

B. Professional Information:

1. Program aims:

The aim of this program is to provide the master student with the medical knowledge and skills essential for practice of specialty and necessary to gain further training and practice in the field of Medical Microbiology & Immunology through providing:

1. Scientific knowledge essential for practice of Medical Microbiology & Immunology according to the international standards.
2. Skills necessary for preparing for proper diagnosis and management of patient problems in the field of Medical Microbiology & Immunology, skills for conducting and supervising researches on Medical Microbiology & Immunology.
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. Attributes of the post graduate:

1. Mastering the basics of scientific research methodologies.
2. The application of the analytical method and used in the field of Medical Microbiology & Immunology.
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 Medical Microbiology & Immunology.
5. Identify problems in the field of Microbiology & Immunology and find solutions to them.
6. Mastery of professional skills in this specialty 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.



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6. Mastery of professional skills in this specialty 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 his 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 (ILOs):

a- Knowledge and Understanding:

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

- a1. List the microbes affecting human beings all over the world including bacteria, viruses and fungi.
- a2. Tell the geographical distribution and impact of each microbe in health and disease.
- a3. Describes the pathology, clinical symptoms and complications of each microbe
- a4. List the laboratory tests needed for diagnosis of each case.
- a5. List the antibiotics and instructions used for treating each case, especially as regards drug complications and interactions.
- a6. List the basics of infection control measures, and their ever increasing role in disease prevention
- a7. Mention the basics of the immune system, and the role it plays in health and disease.
- A8 describe bacterial genetics and its implications with human genetics.
- a9. Illustrate the role of molecular genetics and molecular biology applications in general.
- a10. Illustrate the scientific developments in the field of microbiology & immunology.
- a11. Mention the role of the environment in affecting the immune system and propagating infections whether singularly or in concert.
- a12. Mention the principles and fundamentals of ethics and legal aspects of professional practice in the field of microbiology & immunology.
- A13 mention the principles and fundamentals of quality in professional practice in the field of microbiology & immunology.
- a14. Describes the basics and ethics of scientific research.
- a15. Describes the recent methods in data collection and analysis.
- a16. mention the basics of other optional course related to the program
 - Haematological diseases.
 - Medical parasitology
 - Pathology
 - Public health and community medicine.
 - Medical biochemistry.

b- Intellectual Skills:

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

- b1. Describes the basic structure and function of different microbes.
- b2. Describes the pathogenesis, laboratory diagnosis and management of each group of infectants (bacteria, viruses and fungi).
- b3. Mention the role of the immune system in health and disease.
- b4. Mention the role of infection control practices in limiting nosocomial infections and propagation of sound health standards
- b5. Analyze given data and use it in problem solving.
- b6. Use self learning skills in solving problems.
- b7. Conduct a research or scientific study on a research problem.

- b8. Use analytical skills in anticipating risks and risk assessment.
- b9. Plan for the development of performance in the field of microbiology & immunology
- b10. Identify problems in the field of microbiology & immunology, and find their solutions
- b11. Criticize published papers and scientific material related to microbiology & immunology.
- b12. Mention the basics of other optional course related to the program
 - Haematological diseases.
 - Medical parasitology
 - Pathology
 - Public health and community medicine.
 - Medical biochemistry.

c- Professional and Practical Skills:

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

- c1. Mention the basic and modern professional skills in the area of microbiology & immunology
- c2. Write and evaluate medical reports.
- c3. Assess methods and tools existing in the area of microbiology & immunology.
- c4. List the basic skills
 - Haematological diseases.
 - Medical parasitology
 - Pathology
 - Public health and community medicine.
 - Medical biochemistry.

d- General and Transferable Skills:

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

- d1. Communicate Effectively by its different types.
- d2. Uses information technology to serve the development of professional practice
- d3. Assesses himself and identify personal 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.
- d7. Manage time efficiently.
- d8. Educate himself Continuously

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 decree N0.6854, in its session N0.177 Dated: 18/5/2009. Based on these NARS; Academic Reference Standards (ARS) were suggested for this program. These ARS were revised by external evaluator, and approved by Faculty Council decree N0.7528, in its session N0.191, dated: 15/3/2010. The adoption of NARS and the suggested ARS were approved by University council degree No 587, in its session No.60. dated 26-12-2011.

5. Curriculum structure and contents:

5.a- Program duration: 6 semesters (3 years).

5.b- Program structure:

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

Subject	Hours/week		
	Lectures	Practical	clinical
First Part:			
Minors:		2	----
Bio Statistics & Computer	1		
<ul style="list-style-type: none"> • <u>Optional courses: One of the following:</u> 			-----
<ul style="list-style-type: none"> • Biochemistry • Parasitology • Pathology • Public health & Community Medicine • Clinical pathology 	9 9 9 9 9	8 8 8 8 8	
Second Part:			
<ul style="list-style-type: none"> • Microbiology & Immunology 	4.67	6.67	----

4.b.ii- No. of credit hours : 48

code	Item	No	%	
b.i	Total credit hours	Compulsory	50	100
		Elective	•	•
		Optional	•	•
b.iii	credit hours of basic sciences courses	13	26	
b.iv	credit hours of courses of social sciences and humanities	•	•	
b.v	credit hours of specialized courses:	24	48	
b.vi	credit hours of other course	2	4	
b.vii	Practical/Field Training	5	1	
b.viii	Program Levels (in credit-hours system):			
	Level 1: 1 st part	15	30	
	Level 2: 2 nd Part	24	48	
	Level 3: Thesis	6	12	

6. Program Courses

- Two compulsory courses + 1/5 optional course.

6.1- Level /year of program.. .1st part

Semester...1.....**First part****a.Compulsory:**

Code No.	Course title	Total No. of credit hours	No. of hours / week		Program ILO Covered
			Lect.	Lab.	
	Bio Statistics	2	1	2	a14-a15-b5-b6-b8-b11-c3-d1:d5-d8

c.Optional :

	Biochemistry	13	9	8	a16-b12-c2-c4-d1-d2-d4:d6
	Parasitology	13	9	8	a16-b12 -c4-d2-d3-d4-d6
	Pathology	13	9	8	a4-a16-b12 -c4-d1-d2-d4-d6-d8
	Public health &community medicine	13	9	8	a16-b12 -c4-d1:d8
	Clinical pathology	13	9	8	a16- b6-b12 -c2-c4-d1:d7

Second Part:**- Level /year of program.. .2nd partsemester...2&3**

Code No.	Course title	Total No. of hours	No. of hours / week		Program ILO Covered
			Lect.	Lab.	
	Microbiology & Immunology	24	4.67	6.67	a1:a14- b1:b11 -c1-c3-d1:d8

7. Program Admission Requirements**I- General Requirements.**

1. Candidate should have either:
 - i. MBBCh degree from any Egyptian Faculty of Medicine or
 - ii. Equivalent Degree from Medical Schools abroad approved by the ministry of high Education.
2. Candidate should pass the house office training year.
3. Those who are not university hospital residents should pass a training for at least 12 months in one of the known hospitals.
4. Follow postgraduate bylaw Regulatory rules of Sohag Faculty of Medicine approved by the ministerial decree No. (44), dated 6/1/2010.

II- Specific Requirements.

1. Candidates graduated from Egyptian Universities should have at least "Good Rank" in their final year/ cumulative years examination, and grade "Good Rank" microbiology & immunology course too.
2. Candidate should know how to speak & write English well
3. Candidate should have computer skills

8. Regulations for Progression and Program Completion

Duration of program is 50 credit hours (≥ 4 semesters ≥ 3 years), starting from registration till 2nd part exam; divided to:

First Part: (15 Credit hours ≥ 6 months ≥ 1 semester):

- Program-related basic & clinical sciences & research Methodology, Ethics & medical reports, Biostatistics and computer.
- 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 October — 2nd in April.
- At least 50% of the written exam is needed to pass in each course.
- For the student to pass the first part exam, a score of at least 60% (Level D) in each course is needed.
- Those who fail in one course need to re-exam it only for the next time only, and if re-fail, should register for the course from the start.

Thesis/Essay(6 Credit hours ≥ 6 months=1 semester):

- Completion of the 1st part credit hours and passing the exams are pre requisites for documentation of the **Thesis/Essay** subject.
- Should be completed, defended and accepted after passing the 1st part examination, and at least one month before allowing to enter 2nd part final examination.
- Accepting the thesis is enough to pass this part.

Second Part: (24 Credit hours ≥ 18 months= 3 semesters):

- Program related specialized science of microbiology & immunology courses.
- Completion of the 1st part credit hours and passing the exams are pre requisites for documentation of the 2nd part courses.
- After passing at least:
 - Demonstrators: 36 months training in the department of microbiology & immunology.
 - Physicians from outside: Completed 36 months training; 12 months of them training in the department of microbiology & immunology.
- The students should pass the 1st part before asking for examination in the 2nd part.
- Fulfillment of the requirements in each course as described in the template and registered in the log book (5 Credit hours; with obtaining $\geq 75\%$ of its mark) is a prerequisite for candidates to be assessed and undertake part 1 and part 2 examinations; 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 علمي موسع	٦
Training courses	دورات تدريبية	12/ day
Conference attendance	حضور مؤتمرات علمية	١٢/day
	داخلي خارجة	18/day
Thesis discussion	حضور مناقشات رسائل	٦
Workshops	حضور ورش عمل	١٢/day

Journal club	ندوة الدوريات الحديثة	٦
Seminars	لقاء علمي موسع	٦
Morbidity and Mortality conference	ندوة تحليل المخاطر المرضية أو الوفاة	٦
Self education program	برنامج التعليم الذاتي	٦

- 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	weight	The assessed ILOs
1-Activities		- General transferable skills, intellectual skills
2-Written Exams: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	50%	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills
3-OSCE/ OSPE	50%	-Practical skills, intellectual skills, general transferable skills
4-Structured Oral Exams		- Knowledge, Intellectual skills, General transferable skills

Assessment schedule:

Part I:

Written Exam (3 hours): for one of the branches of specialization optional + Structured oral Exam + OSPE.

- Biostatistics & Computer and Research Methodology: Written Exam (2 hours) + Structured oral Exam+ OSPE

Part II:

- Microbiology: Two Written Exams (3 hours for each) + OSPE + Structured oral Exam.

10. Evaluation of program:

Evaluator	Tool	Sample
1- Senior students	Questionnaire	3
2- Alumni	Questionnaire	5
3- Stakeholders (Employers)	Questionnaire	10
4-External Evaluator(s) (External Examiner(s))	Report	1
5- Other		

Course Specifications of Medical Biochemistry in master degree in Medical Microbiology & Immunology

University /Sohag

Faculty/ Medicine

1. Program on which the course is given: master degree in Medical Microbiology & Immunology
2. Major and Minor element of program: Minor
3. Department offering the course: Medical Biochemistry Department
4. Department offering the program: Microbiology & Immunology Dep.
5. Academic year/level: 1st part
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Title: Course Specifications of medical biochemistry in master degree in Medical Microbiology & Immunology

Code: BIO 0515-200.

Total hours:

lectures	practical	Total hour	Credit hours
135	120	255	13

B. Professional Information

1. Overall Aims of Course

By the end of the course the post graduate students should be able to have the professional knowledge of the biochemistry of the Orthopedic diseases, and able to diagnose any vitamin and calcium regulating hormones deficiency.

2. Intended Learning Outcomes of Course (ILOs)

a) Knowledge and Understanding:

- a1. To know the biochemical importance of intermediary metabolism (Anabolic and catabolic)
- a2. Mention The importance of clinical biochemistry
- a3. Explain the role of vitamin, Minerals
- a4. To know and explain hormonal action

b) Intellectual Skills

- b1. Diagnosis the affected biochemical deficiency
- b2. Integrate basic biochemical and physiological facts with clinical data
- b3. How to diagnose early and treatment as early as possible

c) Professional and Practical Skills

- c1. To identify the biochemical defect
- c2. To perform some laboratory tests for early diagnosis.

d) General and Transferable Skills

- d1. Ability to listen and understanding any biochemical lecture.
- d2. Use standard computer programs effectively (window, office programs).
- d3. Utilize computers in conducting research and to Collect scientific data.
- d4. Develop rules and indicators for assessing the performance of others.
- d5. Team working for accurate diagnosing of diseases.

3. Contents

Topics	No. Of hours	Lectures	Practica 1
(1) <u>Biological oxidations include:</u> -General consideration. -Electron transport. -ATP-synthesis. -Translocations. -Superoxide dismutase.	13	6	5
(2) Glycolysis and citric acid cycle: - General consideration. -Enzyme structure and reaction mechanisms. -Regulation mechanisms and biomedical importance.	13	6	5
3) Other Pathways Carbohydrate Metabolism: a- Pentose –phosphate pathway and Gluconeogenesis. -General considerations -Enzyme reaction mechanisms. -Regulation mechanisms -Genetic diseases. B-Glycogen Metabolism: - General considerations - Glycogen Synthetase and phosphorylase: structure and catalytic activities. -Regulation -Genetic diseases C-Metabolism of other hexoses and biosynthesis of mucopolysaccharides. tails	13	6	6
(4) Fat metabolism General considerations. -Fatty acid oxidation and fatty acid biosynthesis. - Enzymes and reaction mechanisms for biosynthesis of cholesterol and related derivatives, phospholipids, glycolipids and related compounds. -Eicosanoids metabolism. -Adipose tissue metabolism. -Lipid transport in plasma: Lipoproteins: assembly and degradation, biomedical importance. -Genetic diseases.	12	6	6

(5)Protein metabolism: -General consideration -Amino acids degradation: General reaction, nitrogen disposal and ammonia disposal. -Nitrogen fixation. -One carbon metabolism. -Individual amino acids metabolism.	12	6	6
6) Integration of metabolism: - Mechanisms and regulation	12	6	6
7) Metabolism of nucleotides: -General considerations -Purin and pyrimidine biosynthesis. -Ribonucleotide reductase –thioredoxin and Glutaredoxin, Thymidylate synthase and dihydrofolate reductase -Uric acid -Genetic diseases.	12	6	6
8) Porphyrin metabolism and heme biosynthesis and catabolism	12	6	6
(9) Mineral metabolism Tissue chemistry	12	6	6
(10) Eukaryotic chromosomes Gene Expression : -Nucleosome and chromatin. -Mitochondrial DNA. -DNA structure :replication and repair: -Structure. -Nucleases and ligases. -DNA topology and topoisomerases. -DNA polymerases. -Origin and direction of replication. Biochemistry of osteoarthritis	12	6	6
(11)Hormones -Classification, mechanisms of actions. -Pituitary and hypothalamic hormones. -Thyroid and parathyroid hormones. -Hormones of the adrenal cortex and medulla. -Hormones of the Gonads. -Hormones of the pancreas and G.I.T tract. - Biochemistry of osteoporosis	12	6	6
(12)-Tumor markers.	12	6	6
13) Metabolism of xenobiotics.	12	6	6
(14)Body fluid : -Blood, urine,-semen, C.S.F, bile, gastric juice, milk.	12	6	6
(15)Minerals: Calcium, phosphate, Na, k, mg, Cu, iron, zinc,	12	6	6

iodine ,mercury, Cd, florid, lead ,and others trace elements .			
(16)Immoglobulins	12	6	6
(17)Physical chemistry	12	6	6
(18)Free radicals	12	6	6
(19)Enzymes: -kinetics -Mechanism of action -Regulation	12	7	5
(20)Vitamin: -Water soluble vitamin. -Fat soluble vitamin	12	10	2
21)Control of gene expression in prokaryotes. -Recombinant DNA technology. -Protein Targeting. -Signal sequences and recognition. -Golgi complexes. -Targeting to mitochondria –chloroplasts and nuclei. -Targeting in bacteria. -Protein degradation: Ubiquitin-mediated proteolytic pathway and regulation.	12	10	2
Total	255	135	120
Credit hours	13	9	4

4. Teaching and Learning Methods

4.1- Lectures

4.2- Searches in computers (assignments)

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 Exam: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,
5.3-Structured Oral Exam	- Knowledge, Intellectual skills, General transferable skills
5.4-OSPE	-Practical skills, intellectual skills
5.5 Computer search assignment	-General transferable skills, intellectual skills

Assessment Schedule

Assessment 1...Written exam24week

Assessment 2... Structured Oral Exam24week

Assessment 3... OSPE24week

Weighting of Assessments

Written Examination	50	%
Structured Oral Exam	30	%
OSPE	20	%

Total 100 %

formative only assessment :simple research assignment, attendance and absenteeism

6. List of References

6.1- Essential Books (Text Books)

1. Biochemistry 4th edition 2013 by mathews and vanhoidDe.
2. Harper's biochemistry, Murray, RK 2018

6.2- Recommended Books

1. Lectures notes on clinical biochemistry, Whitby et al 1993
2. Lippincott's illustrated reviews biochemistry, 7th edition by Denise ferrier Jan 2017
3. Text book of biochemistry for medical student 8th edition by DMVasudevan, sreekumaris,Kannan 2016 vaidyanathan.

6.3- periodicals, Websites,...etc

1. <http://www.ncbi.nlm.gov/>
2. <http://www.vlib.org/>
3. [www.genome.ad.jp/kegg/regulation.](http://www.genome.ad.jp/kegg/regulation)
4. Findarticle.com
5. Freemedicaljournals.com

7. Facilities Required for Teaching and Learning:

1. 1-ADEQUATE INFRASTRUCTURE: including teaching places (teaching class, teaching halls, teaching laboratory), comfortable desks, good source of aeration, bathrooms, good illumination, and safety & security tools.
2. TEACHING TOOLS: including screens, computers including cd (rw), data shows, projectors, flip charts, white boards, video player, scanner, copier,.
3. COMPUTER PROGRAM: for designing and evaluating MCQs

Course Coordinator: Dr. Amira Morad Foad Hamdy

Head of Department: Dr. Nagwa Sayed Ahmed Hassan

Date: 18/12/2011, **Revised:**1/9/2012, **Rev ised:**1/12/2013, **Revised:**1/12/2018

Course Specifications of Medical Parasitology in master degree in Medical Microbiology & Immunology

Sohag University

Faculty of Medicine

- 1- Program on which the course is given: master degree in Medical Microbiology & Immunology
- 2- Major and Minor element of program: Minor
- 3- Department offering the course: Medical Parasitology Department
- 4- Department offering the program: Medical Microbiology & Immunology Dep.
- 5- Academic year/level: 1st part
- 6- Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Title: Course Specifications of Medical Parasitology in master degree in Medical Microbiology & Immunology

Code: PAR 0515-200.

Total hours

lectures	practical	Tutorial	Total hour	Credit hours
135	120	-	255	13

B. Professional Information

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 professionally protect, diagnose and advice the parasite victim correctly.

2. Intended Learning Outcomes of Course (ILOs):

According to the intended goals of the faculty: the student is to be armed with sufficient knowledge about the human parasites present in his locality as well as Egypt, surrounding countries and idea to parasites allover the world. Each student should be able to recognize the symptoms, geographical distribution, the infective and the diagnostic stages, complications, laboratory tests needed for diagnosis, prescriptions used and control of the studied parasites. Parasitic vectors of bacteria, rickettsia and viruses are studied carefully.

a) Knowledge and Understanding:

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

- a1. List the professional knowledge of the parasites affecting human beings all over the world and particularly in Sohag and Egypt.
- a2. Mention the understanding the life cycle of each, inside and outside the body.
- a3. Define the ability to differentiate between parasites on morphological bases.

- a4. Define the knowledge to recognize the clinical symptoms and complications of each parasite.
- a5. Mention a professional knowledge of the recommended laboratory tests needed for diagnosis of each case.
- a6. List the knowledge about control methods used against parasites.

b) 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.
- b3. Differentiate between parasites inhabiting the same geographical location.

c) Professional and Practical Skills:

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

- c1. Write and evaluate medical laboratory reports.
- c2. Identify the infective and the diagnostic stages of the parasites
- c3. Identify some stages of the parasites.
- c4. Identify some of the medically important intermediate host especially those present in Egypt.
- c5. Can perform some laboratory test needed for parasitic diagnoses.

d) General and Transferable Skills:

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

- d1. Use the computer to enter parasitological web sites.
- d2. Assesses himself and identification of personal learning needs.
- d3. Use different sources to obtain information and knowledge.
- d4. Work in a team, and team's leadership in various professional contexts.
- d5. Learn himself Continuously

3. Contents

Topic	No. of hours	Lecture	Practical
1. Introduction	8	4	4
Helminthes		4	4
2. Introduction+Trematoda introduction.	8	4	4
3. Fasciola	8	4	4
4. Dicrociliium+ Fasciolopsis buski	8	4	4
5. H. heterophyes	8	4	4
6. Schistosoma + Snails	8	4	4
7. Revision	8	4	4
8. Cestoda+ D. latum	8	4	4
9. Taenia	8	4	4
10. Echinococcus+ Hymenolepis+ Dipylidium	8	4	4
11. Nematoda+ Eterobius+ T. trichura+ Capillaria+ T. spiralis+ Ascaris	8	4	4
12. Hook worms+ S.stercoralis+ Larva migrans	8	4	4
13. D. medenensis+ Filarial; worms	8	4	4
14. Revision	8	4	4
Arthropods	8	4	4
15. Introduction	8	4	4

16. Dieptera+ Mosquitoes	9	5	4
17. Culicoides+ Phlebotomas	9	5	4
18. Brachycera	9	5	4
19. Myiasis & M. producing flies	9	5	4
20. Siphonaptera+ Hemiptera+ Anoplura	9	5	4
21. Arachnida introduction+ ticks	9	5	4
22. Mites+ Pentastomida+ Cyclops	9	5	4
Protozoa	9	5	4
23. Introduction+ Amoebidae	9	5	4
24. Luminal flagellates	9	5	4
25. Haemoflagellates	9	5	4
26. Apicomplexa (Malaria + Babesia)	9	5	4
27. Apicomplexa (Toxoplasma+ others)	9	5	4
28. Ciliata+Microsporidia	9	5	4
29. Revision	9	5	4
30. Laboratory tests	9	5	4
Total	255	135	120
Credit hours	13	9	4

4. Teaching and Learning Methods

4.1- lectures.

4.2- practical lessons.

4.3- Assignments for the students to empower and assess the general and transferable skills

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 Exam: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,
5.3-Structured Oral Exam	- Knowledge, Intellectual skills, General transferable skills
5.4-OSPE	-Practical skills, intellectual skills
5.5 assignment	-General transferable skills, intellectual skills

Assessment Schedule

- 1- Assessment 1: written examination Week 24
- 2- Assessment 2: Structured Oral Exam Week 24
- 3-Assessment 3... OSPE Week24
- 4- Assessment of attendance & absenteeism throughout the course

Weighting of Assessments

Final-term written examination	50%
Structured Oral Exam	30%
OSPE	20%
Total	100%

Formative only Assessment: simple research assignment, attendance and absenteeism

6. List of References

6.1- Essential Books (Text Books)

- 1- Markell and Voge,s (Medical parasitology) 9th edition.
- 2- Diagnostic Medical Parasitology 6th edition lynne shore Garcia.
- 3- Biology of Foodborne parasites 1st edition by Lihua Xiao , UnaRyan, Yaoyu Feng, April 2013.
- 4- The Goddard Guide to Arthropods of Medical importance 7th edition. .

6.2- Recommended Bo0oks

A coloured Atlas of tropical Medicine and Parasitology

6.3- Periodicals, Web Sites,

- Journal of Egyptian Society of Parasitology.

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:

- 1-ADEQUATE INFRASTRUCTURE: including teaching places (teaching class, teaching halls, teaching laboratory), comfortable desks, good source of aeration, bathrooms, good illumination, and safety & security tools.
- 2- TEACHING TOOLS: including screens, computers including cd (rw), data shows, projectors, flip charts, white boards, video player, digital video camera, scanner, copier, laser printers.

Course Coordinator: Dr/ Aml Moustafa Ahmad

Head of Department: Prof/ Hanaa El Hady

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised:1/12/2018

Course Specifications of Pathology in Master degree in Medical Microbiology & Immunology

Sohag University

Faculty of Medicine

1. Program on which the course is given: Master degree in Medical Microbiology & Immunology
2. Major and Minor element of program: Minor
3. Department offering the course: Pathology Department
4. Department offering the program: Medical Microbiology & Immunology Dep.
5. Academic year/level: 1st part
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Title: Course Specifications of pathology in master degree in Medical Microbiology & Immunology code: PAT 0515-200.

Total hours

Lectures	Practical	Tutorial	Total hour	Credit hors
135	120	-	255	13

B. Professional Information

1. Overall Aims of Course

By the end of the course the post graduate students should be able to have the professional knowledge of the pathology of medical diseases.

2. Intended Learning Outcomes of Course (ILOs):

According to the intended goals of the faculty

a) Knowledge and Understanding:

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

- a1. Develop understanding basis of general and systemic pathology.
- a2. Become familiar with etiology, pathogenesis and pathologic manifestation of diseases.
- a3. Be able to correlate gross and histopathology with the clinical basis of diseases.
- a4. Have sufficient information about the fate and complications and prognosis of different diseases.
- a5. By the end of the course the student should be able to provide core knowledge of processes affecting organ system, with an emphasis on understanding mechanisms of disease.
- a6. Define and discuss the main disease categories that may affect the body (general pathology).

b) Intellectual Skills:

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

- b1. Interpret in a professional manner a pathology report.

- b2. Able to solve pathological problems
- b3. Data interpretation

c) Professional and Practical Skills:

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

- c1. Identify the macroscopic and microscopic criteria of the altered structure (pathology) of the body and its major organs and systems that are seen in various diseases.
- c2. Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, and degenerative) and mechanisms of diseases and the way through which they operate in the body (pathogenesis).

d) General and Transferable Skills:

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

- d1. Use data analysis and communication skills
- d2. Effectively utilize various computer based instruction tools and E-learning of Pathology and utilize a variety of computer-based self assessment tools
- d3. Use the sources of biomedical information to remain current with the advances in knowledge and practice.
- d4. Be reliable and responsible in fulfilling obligations.
- d5. Learn himself Continuously

3. Course contents:

Topic	No. of hours	Lecture	Practical
<u>1- General Pathology:</u>			
1.1. Inflammation & repair.	9	5	4
1.2. Degeneration.	9	5	4
1.3. Cell death & necrosis.	9	5	4
1.4. Vitamin & nutritional deficiencies.	9	5	4
<u>2- Immunology:</u>			
2.1. Basic immunology.	9	4	5
2.2. Immunopathology.	9	4	5
2.3. Basics of organ transplant.	8	4	4
2.4. Basics of transplant rejection.	8	4	4
2.5. Techniques & immunohistochemistry & their role in diagnosis of diseases.	8	4	4
<u>3- Pathology of microbial diseases:</u>			
3.1. General reactions to bacterial infections.	8	5	3
3.2. Bacteremia, toxemia, septicemia.	8	5	3
3.3. Pathology of tuberculosis.	8	5	3
3.4. Pathology of leprosy.	8	5	3
3.5. Pathology of syphilis.	8	5	3
3.6. Pathology of typhoid fever.	8	5	3
3.7. Bacillary dysentery.	8	5	3
3.8. Pathology of diphtheria.	8	5	3
3.9. General reactions to viral diseases & viremia.	8	5	3
3.10. Pathology & types of influenza.	8	5	3
3.11. Pathology of smallpox & chickenpox.	8	4	4

3.12. Measles & German measles.	8	4	4
3.13. Poliomyelitis.	8	4	4
3.14. Herpes simplex & herpes zoster.	8	4	4
3.15. Pathology of AIDS	8	4	4
3.16. Pathology of rabies.	8	4	4
3.17. Pathology of CMV & EPV.	8	4	4
3.18. Pathology of viral hepatitis.	8	4	4
3.19. General reaction to mycotic diseases.	8	4	4
3.20. Mycetoma pedis (Nocardiasis).	8	4	4
3.21. Candidiasis (Moniliasis)	8	4	4
3.22. Histoplasmosis.	8	4	4
Total	255	135	120
Credit hours	13	9	4

4. Teaching and Learning Methods

4.1. Lectures.

4.2. Gross and histopathology (Jars & slides).

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 Exam: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,
5.3-Structured Oral Exam	- Knowledge, Intellectual skills, General transferable skills
5.4-OSPE	-Practical skills, intellectual skills

Assessment Schedule

- 1- Assessment 1: written examination week 24
- 2- Assessment 2: Structured Oral Exam week 24
- 3-Assessment 3... OSPE Week24
- 4- Assessment of attendance & absenteeism throughout the course

Weighting of Assessments

Final-term written examination	50%
Structured Oral Exam	30%
OSPE	20%
Total	100%

Formative only Assessment: simple research assignment, attendance and absenteeism

6. List of References

6.1- Essential Books (Text Books):

6.1- Essential Books (Text Books):

- Muir's text book of pathology, 15th edition, 2014.
- Robbins Pathologic Basis of Diseases, 10th edition, 2015.

6.2- Recommended Books:

- Rosai&Ackerman text book of Pathology, 11th edition,2017
- Sternberg text book of Pathology, 6th edition, 2015.

6.3- Periodicals, American journal of pathology

Pathology

Human pathology

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

7. Facilities Required for Teaching and Learning:

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

2- TEACHING TOOLS: including screens, computers including cd (rw), data shows, projectors, flip charts, white boards, video player, digital video camera, scanner, copier, colour and laser printers.

Course Coordinator: Dr. Fatma Al Zahraa

Head of Department: Dr. Afaf Mohmad El Nashar

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised:1/12/2018

Course Specifications of Public Health and Community Medicine in master degree in Medical Microbiology & Immunology

Sohag University

Faculty of Medicine

1. Program on which the course is given: master degree in Medical Microbiology & Immunology
2. Major and Minor element of program: Minor
3. Department offering the course: Medical Parasitology Department
4. Department offering the program: Medical Microbiology & Immunology Dep.
5. Academic year/level: 1st part
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

**Title: Course Specifications of public health and community medicine in master degree in
Medical Microbiology & Immunology** **Code: COM 0515-200.**

Total hours

lectures	practical	Tutorial	Total hour	Credit hours
135	120	-	255	13

B. Professional Information

1. Overall Aims of Course:

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. Mention concepts of health and disease and their spectrum of health.
- a2. Explain the three interacting ecological factors—agent, host, and environment—affecting the occurrence of disease.
- a3. Describe the determinants of health on the individual, the family, and the community levels.
- a4. List essential public health functions.
- a5. Define patterns of care as preventive and curative, and describe the levels of preventive care.
- a6. Describe the public health surveillance system and its use in the community setting.
- a7. Explain different methods for prevention and control and Define methods of prevention and control for each of these diseases.
- a8. Describe the infectious cycle and Identify the infectious cycle for each of the selected diseases.

b) Intellectual Skills

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

- b1. Select and use appropriate health education methods and materials.
- b2. Select the appropriate diagnostic and solving methods for the prevalent community problems.

- b3. Link between knowledge for professional problems' solving.
- b4. Conduct a research study and / or write a scientific study on a research problem.
- b5. Assess risk in professional practices in the field of public health and community medicine.
- b6. Plan to improve performance in the field of public health and community medicine.
- b7. Identify different problems of the community and find solutions.

c) Professional and Practical Skills:

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

- c1. Mention the basic and professional skills in the area of public health and community medicine.
- c2. Perform community diagnosis for prevalent health problems in the community.
- c3. Assess methods and tools existing in the area of public health and community medicine.

d) General and Transferable Skills:

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

- d1. Communicate Effectively by its different types.
- d2. Use information technology to serve the development of professional practice
- d3. Assesses himself and identify of personal 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 in various professional contexts, and lead a team efficiently.
- d7. Manage time efficiently.
- d8. Learn himself continuously.

3. Contents

Topic	No. of hours	Lecture	Practical
General introduction: Rationale of public health and epidemiology	7	5	2
Terminology	7	5	2
Infectious cycle:	7	5	2
Agent	6	4	2
Reservoir and sources of infection	6	4	2
Exit	6	4	2
Modes of diseases transmission	6	3	3
Inlet	6	3	3
Susceptibility and immunity	6	3	3
Epidemiology of selected communicable diseases:	6	3	3
Acute respiratory infections	6	3	3
Streptococcal infections	6	3	3
Diphtheria	6	3	3
Meningitis	6	3	3
Measles	6	3	3
Mumps	6	3	3
Rubella	6	3	3
Poliomyelitis	6	3	3
Diarrheal diseases	6	3	3

Typhoid and paratyphoid fevers	6	3	3
Food poisoning	6	3	3
Brucellosis	6	3	3
Hepatitis	6	3	3
Aids	6	3	3
Plague	6	3	3
Rift valley fever	6	3	3
Rabies	6	3	3
Emerging and Remerging ds	6	3	3
SARS	6	3	3
Avian flue	6	3	3
Viral heamorrhagic fevers.. Ebola, Lassa, Merbu	6	3	3
Dengue fever	6	3	3
Tuberculosis	6	3	3
Locally endemic ds	6	3	3
Tetanus	6	3	3
Prevention and Control aspects of the ds	6	3	3
Levels of Prevention in the community	6	3	3
International classification of diseases	6	3	3
International death certificate	6	3	3
Global Environmental & Climate determinants of diseases	6	3	3
Community diagnosis, ds. Surveillance & Surveys	6	3	3
Investigation of an epidemic, the attack rates	6	3	3
Total	255	135	120
Credit hours	13	9	4

4. Teaching and Learning Methods

4.1- Lectures.

4.2- field training

4.3- Computer search assignments

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 Exam: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,
5.3-Structured Oral Exam	- Knowledge, Intellectual skills, General transferable skills
5.4 Computer search assignment	-General transferable skills, intellectual skills

Assessment Schedule

- Assessment 1.....Final written exam..... week: 24
Assessment 2.....Final Structured Oral Examweek: 24
Assessment 3..... Attendance and absenteeism throughout the course
Assessment 4 Computer search assignment performance throughout the course

Weighting of Assessments

Final written examination	50%
Structured Oral Exam	50%
Total	100 %

Any formative only assessments:

- Computer search assignment performance throughout the course
Attendance and absenteeism throughout the course

6. List of References

6.1- Essential Books (Text Books)

1-Maxy-Rosenau Public health and preventive medicine, 2008.,Robert Wallace, publisher McGraw-Hill Medical; 15 edition.

6.2- Recommended Books

1- Dimensions of Community Based projects in Health Care, 2018. Arxer, Steven L., Murphy, John W.; 1st edition.

2- Parks Text Book of Preventive & Social Medicine. 2017., K. Park. BanarsidasBhanot Publishers; 23 edition.

3- Clinical Epidemiology: The Essentials, 2013, Robert F., Suzanne W. Fletcher, Grant S., publisher Lippincott Williams & Wilkins; 5 edition.

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:

- 1-ADEQUATE INFRASTRUCTURE: including teaching places (teaching class, teaching halls, teaching laboratory), comfortable desks, good source of aeration, bathrooms, good illumination, and safety & security tools.
- 2- TEACHING TOOLS: including screens, computers including cd (rw), data shows, projectors, flip charts, white boards, video player, digital video camera, scanner, copier, colour and laser printers.
- 3- COMPUTER PROGRAM: for designing and evaluating MCQs

Course Coordinator: Dr/ Rasha Abd El Hameed

Head of Department: Prof/ Ahmed Fathy Hammed

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised:1/12/2018

Course Specifications of Clinical and Chemical Pathology in master degree in Medical Microbiology & Immunology

Sohag University

Faculty/ Medicine

1. Program on which the course is given: master degree in Medical Microbiology & Immunology
2. Major and Minor element of program: Minor
3. Department offering the course: Clinical and Chemical Pathology Department
4. Department offering the program: Medical Microbiology & Immunology Dep.
5. Academic year/level: 1st part
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Title: Course Specifications of Clinical and Chemical Pathology in master degree in Medical Microbiology & Immunology

Code: CL.P 0515-200.

Total hours

lectures	practical	Tutorial	Total hour	Credit hours
135	120	-	255	13

B. Professional Information

1. Overall Aims of Course

By the end of the course the postgraduate student should be efficiently able to be clinical haematologist that are clever enough to make appropriate decision, manage all available hematological and haemostatic assays and set up sharp eye to explore and chase every data what ever and gather snatches to help in reaching to hidden diagnosis.

2. Intended Learning Outcomes of Course (ILOs):

a) Knowledge and Understanding:

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

- a1. Review their informations about the physiology of blood cells (RBCs, WBCs and platelets) and homeostasis.
- a2. Review their informations about the anatomy of the lymphatic and hematopiotic organs.
- a3. Mention the important causes, presentation and management of various types of anemias.

- a4. List the important causes, presentation and management of various types of leukemias and lymphomas.
- a5. Mention causes, manifestation and management of bleeding and coagulation disorders.
- a6. Know recent advances in diagnosing various hematological disorders as bone marrow transplantation, immunological treatment.

b) Intellectual Skills:

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

- b1. Use self learning skills in solving problems.
- b2. To interpret lab investigations as blood picture, bone marrow examination, results of lymph node, spleen biopsy.
- b3. To interpret lab investigations tests for coagulation disorders.
- b4. Examine lymph nodes, liver and spleen and to know causes and management of lymphadenopathy, hepatomegaly and splenomegaly.

c) Professional and Practical Skills:

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

- c1. Write and evaluate medical laboratory reports.
- c2. Perform a complete haematological examination.
- c3. Perform manual CBC and differentiation and recognition of various disease hematological pictures.
- c4. Perform different staining methods.
- c5. Perform bone marrow aspiration and its role in diagnosis for various haematological disorders.
- c6. Perform of cytochemical staining for bone marrow films.

d) General and Transferable Skills:

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

- d1. Use communication skills
- d2. Uses information technology to serve the development of professional practice
- d3. Assesses himself and identifies personal learning needs.
- d4. Use the computer and internet to gather scientific information
- d5. Learn and teach how to perform and interpret laboratory tests
- d6. Work in a team.
- d7. Be reliable and responsible in fulfilling obligations

3. Contents

Topic	No. of hours	Lecture	Practical
(1) Haemotasis : 1.platelet disorders :			
a)thrombocytosis :	15	8	7
b)thrombocytopenia :	16	10	6
2. coagulation disease :			
a)haemophilia and vWD.	16	10	6
b)Acquired disease & Thrombophilia	16	10	6
c)bleeding disease of neonates	16	9	7
(2) blood bank :			
1)Component of blood and preparation.	16	8	8
2)Indication of transfusion.	16	8	8
3)Hazards of transfusion.	16	8	8

(3) Oncology :			
1) Granulopoiesis	16	8	8
2) Disorder of granulopoiesis. (AML, CML, ALL, and CLL)	16	8	8
(4) RBCs :			
1) Haemopoiesis	16	8	8
2) Iron deficiency anemia.	16	8	8
3) Megaloblastic anemia.	16	8	8
4) Ablastic anemia	16	8	8
5) Sideroblastic anemia.	16	8	8
6) Haemolytic anemia.	16	8	8
Total	255	135	120
Credit hours	13	9	4

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 Exam: - Short essay: 40% - structured questions: 25% - MCQs: 20% - Commentary, Problem solving: 15%	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,
5.3- Structured Oral Exam	- Knowledge, Intellectual skills, General transferable skills
5.4- OSPE	- Practical skills, intellectual skills

Assessment Schedule

- 1- Assessment 1: written examination week 24
- 2- Assessment 2: Structured Oral Exam week 24
- 3- Assessment 3... OSPE24week
- 4- Assessment of attendance & absenteeism throughout the course

Weighting of Assessments

Final-term written examination	0%
Structured Oral Exam	30%
OSPE	20%
Total	100%

Formative only Assessment: simple research assignment, attendance and absenteeism

6. List of References

6.1- Essential Books (Text Books)

Stockham and Scott - Fundamentals of Veterinary Clinical Pathology, 2nd ed. Kumar, Abbas, Fausto-Robbins and Cotran: Pathologic Basis of Disease, 8th ed

6.2- Recommended Books

Color Atlas of Haematology of Harald Thöml.

Atlas of Clinical Haematology of Douglas C. Tkachuk..

6.3- Periodicals, Web Sites, etc

Journal of Haematology

American Journal of Haematology

www.pubmed.com

7. Facilities Required for Teaching and Learning:

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

2- TEACHING TOOLS: including screens, computers including cd (rw), data shows, projectors, flip charts, white boards, video player, digital video camera, scanner, copier, and laser printers.

Course Coordinator: Dr. Lila M. Yousef

Head of Department: Dr/ Hasnaa A. Abo Elwafa

Date: 18/12/2011, **Revised:**1/9/2012, **Revised:**1/12/2013, **Revised:**1/12/2018

Course Specifications of Applied biostatistics (with computer use) and Research Methodology in Master degree of Medical Microbiology and Immunology

Sohag University

Faculty of Medicine

1. Program title : Master degree in Medical Microbiology and Immunology
2. Major/minor element of the program : Minor
3. Department offering the course: Community Medicine Dep.
4. Department offering the program: Medical Microbiology and Immunology
5. Academic year /level : 1st part
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Title: Master degree in Medical Microbiology and Immunology Statistics and Computer use for health services **and Research Methodology**

Code: COM 0515-200

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: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills, - 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, 2008.,Robert Wallace, publisher McGraw-Hill Medical; 15 edition.

6.2- Recommended Books

1- Dimensions of Community Based projects in Health Care, 2018. Arxer, Steven L., Murphy, John W.; 1st edition.

2- Parks Text Book of Preventive & Social Medicine. 2017., K. Park. BanarsidasBhanot Publishers; 23 edition.

3- Clinical Epidemiology: The Essentials, 2013, Robert F., Suzanne W. Fletcher, Grant S., publisher Lippincott Williams & Wilkins; 5 edition.

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, 2008.,Robert Wallace, publisher McGraw-Hill Medical; 15 edition.

6.2- Recommended Books

1- Dimensions of Community Based projects in Health Care, 2018. Arxer, Steven L., Murphy, John W.; 1st edition.

2- Parks Text Book of Preventive & Social Medicine. 2017., K. Park. BanarsidasBhanot Publishers; 23 edition.

3- Clinical Epidemiology: The Essentials, 2013, Robert F., Suzanne W. Fletcher, Grant S., publisher Lippincott Williams & Wilkins; 5 edition.

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:

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

- 2- 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/ Rasha Abd El Hameed.

Head of Department: Prof/ Ahmed Fathy Hamed

Date: Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised:1/12/2018

Course Specifications of Medical Microbiology and Immunology in master degree in Medical Microbiology and Immunology

Sohag University

Faculty of Medicine

1. Program on which the course is given: master degree in Medical Microbiology & Immunology
2. Major and Minor element of program: major
3. Department offering the course: Medical Microbiology and Immunology Dep.
4. Department offering the program: Medical Microbiology and Immunology Dep.
5. Academic year/level: 2nd part
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Title: Course Specifications of Medical Microbiology and Immunology in master degree in Medical Microbiology and Immunology

Code: MIC 0515-200.

Total hours:

Title	Practical	Lectures	Total	Credit hours
Medical Microbiology and Immunology	300 h\course	210h\course	510h\course	24

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 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 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 is expected to:

- a1. Mention sufficient knowledge of the microbes affecting human beings all over the world including bacteria, viruses and fungi.
- a2. Mention the geographical distribution and impact of each microbe in health and disease.
- a3. Recognize the pathology, clinical symptoms and complications of each microbe.
- a4. List the laboratory tests needed for diagnosis of each case.
- a5. List the antibiotics and instructions used for treating each case, especially as regards drug complications and interactions.

- a6. Mention the basics of infection control measures, and their ever increasing role in disease prevention
- a7. Have sound knowledge about the basics of the immune system, and the role it plays in health and disease.
- a8. Have sound knowledge about bacterial genetics and its implications with human genetics.
- a9. Recognize the role of molecular genetics and molecular biology applications in general.
- a10. Recognize scientific developments in the field of microbiology & immunology
- a11. Acquire sufficient knowledge about the environment, and its role in affecting the immune system and propagating infections whether singularly or in concert.
- a12. Mention the principles and fundamentals of ethics and legal aspects of professional practice in the field of microbiology & immunology.
- a13. Mention the principles and fundamentals of quality in professional practice in the field of microbiology & immunology

b -Intellectual Skills:

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

- b1. Mention the basic structure and function of different microbes.
- b2. Mention the pathogenesis, laboratory diagnosis and management of each group of infectants (bacteria, viruses and fungi) .
- b3. Mention the role of the immune system in health and disease.
- b4. Mention and the role of infection control practices in limiting nosocomial infections and propagation of sound health standards
- b5. Analyze given data and use it in problem solving.
- b6. Use self learning skills in solving problems.
- b7. Conduct a research or scientific study on a research problem.
- b8. Use analytical skills in anticipating risks and risk assessment.
- b9. Plan for the development of performance in the field of microbiology & immunology
- b10. Identify problems in the field of microbiology & immunology, and find their solutions
- b11. Perform criticism on published papers and scientific material related to microbiology & immunology.

c - Professional and Practical Skills:

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

- c1. Mention the basic and modern professional skills in the area of microbiology & immunology
- c2. Write and evaluate medical reports.
- c3. Assess methods and tools existing in the area of microbiology & immunology.

d -General and Transferable Skills:

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

- d1. Communicates effectively by its different types.
- d2. Uses information technology to serve the development of professional practice
- d3. Assesses himself and identification of personal 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.
- d7. Manages time efficiently.
- d8. Teach himself continuously.

3. Contents

Topics actually taught	No. of hours	lectures	practical
I. Bacteriology & Mycology:			
1. Prokaryotic cell structure Cell wall- Cell membrane-Directed movement of molecules across cytoplasmic membrane (transport & secretion)- Surface layers external to cell wall- Filamentous protein appendages- Internal structures	1	1	---
2. Dynamics of prokaryotic growth Principles of bacterial growth- Factors influencing bacterial growth (environmental & nutritional)- Bacterial growth in lab. conditions (growth curve- colony growth- continuous culture)- Bacterial growth in nature (bacterial communities interactions- biofilms)	1	1	---
3. Control of microbial Growth in vitro Principles of control- Using heat, chemicals and radiation to destroy microorganisms- Removal of microorganisms by filtration- Preservation	1	1	---
4. Bacterial Metabolism Central metabolic pathways- Respiration- Fermentation	1	1	----
5. Bacterial Genetics Mutation (spontaneous & induced)- Repair of damaged DNA- DNA mediated transformation- Transduction and bacterial viruses- Plasmids and conjugation- Transposable elements- Genetic transfer of virulence factors- Barriers to gene transfer – Recombinant DNA biotechnology	1	1	---
6. Identification and Classification of bacteria Principles of taxonomy- Phenotypic characteristics- Genotypic characteristics- Studying strain differences and relatedness	1	1	---
7. Host Microbe interactions Anatomical barrier and normal flora- Principles of infectious diseases- Establishing the cause of infection- Bacterial pathogenesis and establishment of infection-	1	1	---
8. Epidemiology of infectious diseases Principles of epidemiology- Epidemiological studies- Infectious disease surveillance- Trends in infection	1	1	---
9. Antimicrobial medications History and development- Features (selective toxicity- spectrum of activity- tissue distribution, metabolism and excretion)- Mechanisms of action- Resistance to antimicrobials- Combined antimicrobial therapy- Prophylactic use- Adverse effects and complications	1	1	---
10-Systemic bacteriology -Spore-Forming Gram-Positive Bacilli: Bacillus & Clostridium Species	1	1	---

- Non-Spore-Forming Gram-Positive Bacilli: Corynebacterium, Propionibacterium			
11-The Staphylococci - The Streptococci	1	1	---
12-Enteric Gram-Negative Rods (Enterobacteriaceae	1	1	---
13-Pseudomonads, Acinetobacters, & Uncommon Gram-Negative Bacteria - Vibrios, Campylobacters, Helicobacter, & Associated 6Bacteria	1	1	---
14-Haemophilus, Bordetella, Brucella, & Francisella - Yersinia & Pasteurella - The Neisseriae	1	1	---
15-Infections Caused by Anaerobic Bacteria - Mycobacteria	1	1	---
16-Spirochetes & Other Spiral Microorganisms - Mycoplasmas & Cell Wall-Defective Bacteria - Rickettsia & Ehrlichia - Chlamydiae	1	1	---
mycology	1	1	
II. Virology:			
1. General properties of viruses , Classification and nomenclature of viruses	1	1	---
2. Principles of virus structure	1	1	---
3. Virus Genome Replication	1	1	---
4. Pathogenesis and Control of Viral Diseases	1	1	---
5. Viral Genetics	1	1	---
6. Host Defenses against Viral Infection and Viral Counter defenses	1	1	---
7. <u>Antiviral</u> drugs	1	1	---
8. Viral vaccines	1	1	---
9. Laboratory Diagnosis of Viral Infections	1	1	---
10Parvoviruses – Adenoviruses- Herpesviruses	1	1	---
11-Poxviruses- Picornaviruses (Enterovirus & Rhinovirus Groups)	1	1	---
12-Hepatitis Viruses	1	1	---
13-Reoviruses, Rotaviruses, & Caliciviruses - Arthropod-Borne & Rodent-Borne Viral Diseases	1	1	---
14-Orthomyxoviruses (Influenza Viruses)- Paramyxoviruses & Rubella Virus	1	1	---
15-Coronaviruses - Rabies, Slow Virus Infections, & Prion Diseases - Human Cancer Viruses AIDS & Lentiviruses	1	1	---
III. Immunology :			
1. Overview of the Immune System (Historical Perspective, Innate Immunity, Adaptive Immunity, Comparative Immunity, Immune Dysfunction and Its Consequences).	1	1	---
2. Cells and Organs of the Immune System (Hematopoiesis, Cells of the Immune System, Organs of the Immune System (structure &function), lymphocyte Recirculation).	1	1	---
3. Innate Immune Response	1	1	---

(Mechanical and chemical barriers, Pattern recognition receptors, Phagocytosis, acute phase response, Leukocyte Migration and Inflammation).			
4. Cell-Adhesion Molecules, Chemokines—Key Mediators of Inflammation.	1	1	---
5. Antigens (Immunogenicity Versus Antigenicity, Factors That Influence Immunogenicity, Epitopes, Haptens, Pattern-Recognition Receptors, Heterophil antigens, Adjuvants).	1	1	---
6. Antibodies: Structure and Function (Immunoglobulin Fine Structure, Antibody-Mediated Effector Functions, Antibody Classes and Biological Activities, Antigenic Determinants on Immunoglobulins, The B-Cell Receptor, The Immunoglobulin Superfamily, Monoclonal Antibodies).	1	1	---
8. Major Histocompatibility Complex (General Organization and Inheritance of the MHC, MHC Molecules and Genes, Detailed Genomic Map of MHC Genes, Cellular	1	1	---
9-Distribution of MHC Molecules, Regulation of MHC Expression, MHC and Immune Responsiveness, MHC and Disease Susceptibility)	1	1	---
10. Antigen Processing and Presentation (Antigen-Presenting Cells, Self-MHC Restriction of T Cells, Endogenous Antigens: The Cytosolic Pathway, Exogenous Antigens: The Endocytic Pathway, Presentation of Nonpeptide Antigens).	1	1	---
11. T-Cell Receptor ($\alpha\beta$ and $\gamma\delta$ T-Cell Receptors: Structure and Roles, Organization and Rearrangement of TCR Genes, T-Cell Receptor Complex: TCR-CD3, T-Cell Accessory Membrane Molecules, Three-Dimensional Structures of TCR-Peptide- MHC Complexes).	1	1	---
12. T-Cell Maturation, Activation, and Differentiation (T-Cell Maturation and the Thymus, Thymic Selection of the T-Cell Repertoire, TH-Cell Activation,	1	1	---
T-Cell Differentiation, Cell Death and T-Cell Populations, Peripheral $\gamma\delta$ T-Cells. Antigen-Presenting Cells).	1	1	---
13. B-Cell Generation, Activation, and Differentiation (B-Cell Maturation, B-Cell Activation and Proliferation, Regulation of the Immune Effector Response).	1	1	---
14. The Complement System (The Functions of Complement, The Complement Components, Complement Activation, Regulation of the Complement System, Biological Consequences of Complement Activation, Complement Deficiencies).	1	1	---
15. Cytokines (Properties of Cytokines, Cytokine Receptors, Cytokine Antagonists, Cytokine Secretion by TH1 and TH2	1	1	---

Subsets, Cytokine-Related Diseases, Therapeutic Uses of Cytokines and Their Receptors, Cytokines in Hematopoiesis).			
16. Cell-Mediated Effector Responses (Effector Responses, General Properties of Effector T Cells, Cytotoxic T Cells, Natural Killer Cells, Antibody-Dependent Cell-Mediated Cytotoxicity).	1	1	---
17-Hypersensitivity	1	1	---
18-Autoimmune diseases	1	1	---
19immunodeficiency	1	1	---
20-tumor immunology-transplantation immunology	1	1	---
IV. Infection Control:			
1. Definitions of health care associated infections (HAIs)	1	1	---
2. Risk factors for nosocomial infection transmission	1	1	---
3. Epidemiological aspects of HAIs	1	1	---
4. Organizational structure for infection prevention and control program The roles and responsibilities of the infection control team and committee	1	1	---
5. Antimicrobial stewardship: Rational use of antimicrobials Clinical use of antibiotics for therapy and prophylaxis.	1	1	---
6-Antibiotic resistance: reservoirs and how to prevent. Antibiotic resistance	1	1	---
7- Occupational health and safety	1	1	---
v.practical			
1. Biosafety in microbiological laboratories	25	---	25
2. Approaches to diagnostic microbiology	25	----	25
• Specimen collection			
• Culture containers and media	25	----	25
• Culture of bacteria	75	----	75
• Identification tests	75	----	75
• Immunological and serological methods	75	----	75
• Nucleic acid based techniques	75	----	75
3. Quantification in microbiology: Methods to detect and measure bacterial growth	50	----	50
4. Antimicrobial susceptibility tests, lab control of antimicrobial therapy	25	---	25
Total	510	210	300
Credit hours	24	14	10

4. Teaching and Learning Methods

- 4.1- Lectures
- 4.2- Searches in computers (assignments)
- 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- Log book	- General transferable skills
5.3-Written Exam: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	- Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills,
5.4-Structured Oral Exam	- Knowledge, Intellectual skills, General transferable skills
5.5-OSPE	-Practical skills, intellectual skills
5.6 Computer search assignment	-General transferable skills, intellectual skills

Assessment Schedule

Assessment 1... Written exam.....	week ٩٦
Assessment 2... Structured Oral Exam	week ٩٦
Assessment 3... OSPE.....	week ٩٦.

Weighting of Assessments

Final-term written examination	50%
Structured Oral Exam	30%
OSPE	20%
Total	100%

Any formative only assessment: simple research assignment, logbook, attendance and absenteeism

6. List of References

6.1- Essential Books (Text Books)

Prof. Abla Elmeshad immunology, systemic bacteriology, practical books.2015

Lippincott`s immunology, systemic bacteriology

Jawetz Medical Microbiology.2016

Roitt Essential Immunology.

Abbas Clinical Immunology

Alberts Molecular Biology

6.2- Recommended Books

-A coloured Atlas of Microbiology.

-Topley and Wilson, Microbiology

6.3- Periodicals, Web Sites, ... etc

Journal of Clinical immunology.

<http://mic.sgmjournals.org/>

American journal of infection control

Microbiology and Immunology on line

www.sciencedirect.com

7. Facilities Required for Teaching and Learning:

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

2- TEACHING TOOLS: including screens, computers including cd (rw), data shows, projectors, flip charts, white boards, video player, digital video camera, scanner, copier, colour and laser printers.

3- COMPUTER PROGRAM: for designing and evaluating MCQs

Course Coordinator: Dr/ Ekram Abdelrahman Mahmoud

Head of Department: Prof. Abeer Shenief Mohamed

Date: 18/12/2011, **Revised:**1/9/2012, **Revised:**1/12/2013, **Revised:**1/12/2018