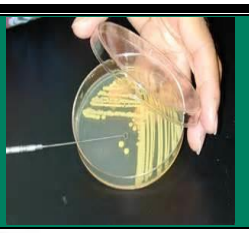
Kingdom of Saudi Arabia
Ministry of Higher Education
Umm Al Qura University
Collegeof Applied Medical Sciences
Vice Dean of Academic Affairs
Laboratory Medicine Department

Academic Guidelines For Laboratory Medicine Student Program

2014

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Laboratory Medicine Department

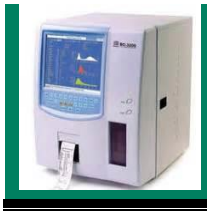
جامعة أم القرى
كلية العلوم الطبية التطبيقية
وكالة الشئون الأكاديمية
قسم طب المختبرات

Academic Guidelines

For Laboratory Medicine Student Program

(1439-1440)




Vision

To be one of the leading Laboratory Medicine programs at the national and regional levels with recognition of our graduates for their professional competence and recognition of our faculty as a competitive research facility and an expert provider of society services in the region.

Mission

The mission of Laboratory Medicine Program at Umm Al-Qura University is to provide innovative curricula responsive to the needs of the profession of Laboratory Medicine. Our graduates are expected to immediately join the health care field with the theoretical knowledge and the technical skills necessary to provide quality laboratory services. Moreover, our graduates will be prepared to be able to adapt to the future changes in the health care system and clinical laboratory science as well as the changing needs of the growing diverse society in Holly Makkah.

Laboratory Medicine Program

Program Mission

The mission of Laboratory Medicine Program at Umm Al-Qura University is to provide innovative curricula responsive to the needs of the profession that result in clinical laboratory professionals able to immediately join the health care field with the theoretical knowledge and the technical skills necessary to provide quality laboratory services. Moreover, our graduates will be prepared to be able to adapt to the future changes in the health care system and clinical laboratory science as well as the changing needs of the growing diverse society in Holly Makkah.

Program Objectives

Upon completion of the laboratory medicine program our graduate is expected to have:

- In-depth knowledge of the relationships between laboratory data and pathologic processes, and how laboratory data relate to health and disease.
- Experience with the performance and quality control of routine and specialized medical laboratory testing procedures and an understanding of the theoretical basis of these procedures.
- Familiarity with laboratory quality assurance, safety measurements, laboratory regulations, information systems, and research design.
- The ability to work independently and perform critical thinking and problem solving in different diagnostic laboratory domains.
- The capability to demonstrate an attitude of professionalism when working with other colleagues.

Program Description

- **Program:** Laboratory Medicine
- **Degree:** Bachelor degree of Laboratory Medicine
- **Course Duration:** Four academic years plus one year internship (Hospital Laboratory–Based Training)
- **Teaching language:** English

The program gives students a strong foundation in practical, teaching, research, and management domains. The program takes a total of four years of full time study plus one year of clinical training (internship). A student undertaking this program must complete a total of 132 credit units which are distributed as 20 credit units University requirements, 29 credit units of college requirements and 83 credit units of the program requirements. In addition, students will have the training skills to support their career and development, such as essay and report writing, presentation skills and statistical know-how enhance performance and professionalism of the students. These essential skills will allow the student to complete two important parts of the program:

The research Project

This will be a project, which will be given to the fourth year student in the second semester of the academic year (10 credit units). The students will be provided with a list of project titles to choose from after agreement with supervisors in the departments. It is expected that the students will apply the skills and knowledge that gathered such as sampling collection, statistical analysis and data presentation. The students will also be required to present a seminar from the project after submitting their thesis.

Program Structure

The program gives students a strong foundation in theoretical, practical and research domains. A student undertaking this program must complete a total of 132 credit units which are distributed as:

- 20 cu - University requirements
- 29 cu - College requirements
- 83 cu - Program requirements
-

The Internship

- It is a full year professional training in one of the government hospital labs.
- Students will have a wide, deep training in all labs sections.
- Students are periodically evaluated in accordance with the evaluation forms of the internship booklet.
- Two supervisors will be assigned to the students in each hospital: One from the program and the other from the hosting laboratory.
- Students are expected to show satisfactory progress in the laboratory profession skills, which will be assessed by the two supervisors according to the evaluation forms.
- The assessment will also include a written comprehensive exam that will be arranged by the LM Program and the hosting hospital lab

The Organizational Structure of the Laboratory Medicine Department

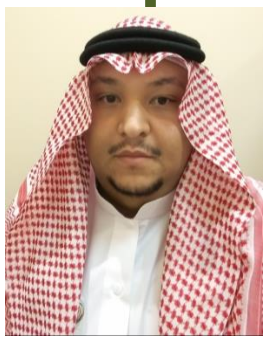
D.r. Aiman Alsaegh
College Dean

D.r. Radi Alsafi
Vice Dean
Academic Affairs

Dr. Mohamad Alkurbi
Vice Dean
Academic development and society service

Dr. Hussain Almasmoum
Vice Dean

Dr. Maher Aladiyjany
Vice Dean
Hospital Affairs



Dr. Ahmed Qassem
Head Department

Dr: Amani Mahbub, Vice Dean for the Postgraduate
Dr: Ramia Sindi , Vice Dean for the Female Section

Study Plan for Laboratory Medicine Program

FIRST YEAR

First Term					*Second Term*				
P	**T**	**CU**	**Course**	**Course No.**	**P**	**T**	**CU**	**Course**	**Course No.**
-	2	2	Quran	605101	-	2	2	Islamic Culture	605101
-	2	2	Arabic Language	50101	1	2	3	Medical Physics	403101
1	1	2	Computer Science	10001113	-	2	2	Learning Skills	1000112
					-	2	2	Medical Profession Ethics	1000111
6	6	12	English Language						705200
2	6	8	Approach to Medical Sciences						100011101
9	17	26	TOTAL		1	8	9	TOTAL	
TOTAL: **35**									

SECOND YEAR

First Term					*Second Term*				
P	**T**	**CU**	**Course**	**Course No.**	**P**	**T**	**CU**	**Course**	**Course No.**
-	2	2	Quran	605201	-	2	2	Islamic Culture	605201
-	2	2	Prophets Biography	102101	1	2	3	Diagnostic Immunology	1701251-3
2	2	4	Structural and Morphological Anatomy	1701211 - 4	1	2	3	Basic Nutrition	1701242-2
-	1	1	Basic Laboratory Skills	1701221-1	1	2	3	Basic of Microbiology	1701261-3
2	3	5	Basic Biochemistry						1701231-5
2	4	6	Basic Physiology						1701241-6
6	14	20	TOTAL		3	7	10	TOTAL	
TOTAL: **30**									

THIRD YEAR

First Term					*Second Term*				
P	**T**	**CU**	**Course**	**Course No.**	**P**	**T**	**CU**	**Course**	**Course No.**
-	2	2	Quran	605301	-	2	2	Islamic Culture	605301
4	4	8	Diagnostic Histopathology and Cytology						1701312-8
2	2	4	Applied Diagnostic Biochemistry						1701332-4
2	4	6	Diagnostic Microbiology						1701362-6
2	3	5	Diagnostic Haematology						1701352-5
2	4	6	Diagnostic Parasitology						1701363-6
TOTAL: **34**									

FOURTH YEAR

First Term					*Second Term*				
P	**T**	**CU**	**Course**	**Course No.**	**P**	**T**	**CU**	**Course**	**Course No.**
-	2	2	Quran	605401	-	2	2	Islamic Culture	605401
1	2	3	Blood Bank and Transfusion Medicine	1701453-3	-	1	1	Public Health	1701464-1
1	2	3	Molecular Genetics	1701733-3	-	1	1	Laboratory Management and Quality Assurance	1701423-1
-	3	3	Basic Medical Biostatistics	1701471-3					
1	1	2	Applied Medical science in Quran and Sonna	1701422-2					
2	4	6	Diagnostic Pharmacology and Toxicology						1701434-6
10			Research Project of Laboratory Medicine						1701481-10
TOTAL: 33									

FIFTH YEAR

Internship (Hospital and Community–Based Training -12 months)

Attendance and apologize for the study

- Students regularly attend lectures and practical lessons denied entry to the final test where if he say the proportion attending a ratio determined by the University Council, but not less than (75%) of lectures and practical lessons specific for each course during the semester, and is a student who was denied entry test because of the absence fails in the decision, and made his estimate deprived (h) or (DN).

- A student may apologize for continuing to study a semester without longer fails in, if you submit an acceptable excuse to the side determined by the University Council, and during a period of time determined by the implementing rules approved by the University Council, and monitors student assessment (p) or (w) calculated this chapter of the time needed to finish the requirements for graduation.

- May be an excuse to withdraw from a course or more in the classroom, according to the rules approved by the Executive Council of the University.

Delay and drop out of the study

- A student may apply for postponement of the study excuse accepted by the determined by the University Council not to exceed a period of postponement two consecutive semesters or three chapters non-consecutive maximum throughout his stay at the university and then folded recorded after that, and the University Council may, if necessary exception to that, nor accounted for the delay within the period required for termination of the graduation requirements.

- If interrupted regular student from school for a semester without requesting postponement folded his registration from the university, but the university board Collapse registered if cut off from the study for less, and for the student enrollee is folded his registration if absent for all final exams for that semester without an acceptable excuse.

- No student is cut off from the study of the classes taught by a visiting another university.

Re-entry

A student can apply for his registration folded re-registered, before dropping out and scored according to the following regulations:

(A) May apply for re-enrollment during the four semesters from the date of enrollment Collapse.
(B) Be approved by the college concerned and the relevant authorities to re-enroll the student.
(C) If ever a student Collapse under four semesters or more he can apply for a new student, University without reference to the previous school record that apply to it all the admission requirements stated at the time, but the exception of the University Council in accordance with the regulations issued by the Board.
(D) May not re-enroll the student more than once, and the University Council At-case of necessity exception to that.
(E) May not be re-registered under the student folded if disconnected academically.

* May not re-enroll the student, who separated from the university for educational or disciplinary reasons, or who separated from another university for disciplinary reasons, and if it turns out after re-registered that he had previously dismissed for such reasons shall be deemed canceled his registration from the date of re-enrollment.

Graduation

* Graduate student after completing graduation requirements, successfully according to the study plan, but at least for a cumulative GPA acceptable, but the College Board on the recommendation of the concerned department to determine appropriate decisions studied by the student to raise the cumulative GPA, and that in the event of success in courses and fail on average.

Attendance Requirements

In order to be eligible to sit in the final exam, you need a minimum of 75% attendance both in lectures and practical classes. This means that you can only miss three (3) lectures and laboratories during the semester. If you miss more than that you will not be allowed to sit in final examinations. It is important that you should discuss any expected or unexpected

absence with your lecturer and laboratory instructor and also refer to the academic office. It is very difficult to arrange a makeup lab so please make sure you attend all laboratory sessions.

Theoretical Examination: If you miss any theory exam (periodic and or final), or you want to make an appeal for your results, it is your responsibility to follow the following procedure:

1. You must contact the head of the department within 24 hours from the time the examination was held to explain your absence. If he/she is not in the office, you need to leave the message with the secretary with your mobile number.

2. Make-up examination will be allowed under extreme circumstances, and only for those reasons outlined in the University students' handbook.

3. You need to provide documentary evidence of your absence. Examples of documentary evidence include: medical doctor's note of a government hospital, official death notice, police report, written note from the Chairman of student activity of the University, etc…

4. You need to submit your request to academic office following laid down procedure for accepting your excuse. Once your request is accepted by the academic office, concerned department can arrange a make-up exam.

5. Make-up exams will be given at department's discretion and convenience after approval from the academic office.

6. Appeals regarding exam results must be addressed to the Vice Dean for Academic Affairs in writing, explaining your complaint within two academic semesters.

7. No exception to these policies and procedures will be made.

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Second Year
Group: 1-2

Course schedule for the male student section "Laboratory Medicine"
Academic year 1439/1440 AH (1st Semester)

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture** **GP. Group**

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
			K6 (3-4)		T	4	Structural and Morphological Anatomy	1701211-4
	Gp.1 (1-2), Gp.2 (3-4)				P			
K6 (3-4)					T	5	Basic Biochemistry	1701231-5
		Gp.1 (3-4), Gp.2 (5-6)			P			
			K6 (6-5)		P	6	Basic Physiology	1701241-6
		Gp.1 (5-6), Gp.2 (1-2)			T			
	K6 (7)				T	1	Basic Laboratory Skills	1701221-1
	K6 5-6				T	2	Prophets Biography	102101-2
Gp.1 (5-6), Gp.2 (1-2), Gp. 3 (5-6)					T	2	Holly Quran	605101-2
				K6 (5-6),	T	2	Arabic language	501101-2

1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45PM**

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Second Year
Group: 1

Course schedule for the female student section "Laboratory Medicine"
Academic year 1439/1440 AH (1st Semester)

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
				3-4	T	4	Structural and Morphological Anatomy	1701211-4
				5-6-7-8	P			
	B2 3-4			B3 1-2	T	5	Basic Biochemistry	1701231-5
3-4					P			
			B1 3-4		P	6	Basic Physiology	1701241-6
5-6					T			
			B1 5-6		p	1	Basic Laboratory Skills	1701221-1
	A2 5-6				T	2	Prophets Biography	102101-2
		A3 3-4			T	2	Holly Quran	605101-2
		A2 6-5			T		Arabic language	501101-2

1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45PM**

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Second Year
Group: 2

Course schedule for the female student section "Laboratory Medicine"
Academic year 1439/1440AH (1st Semester)

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
				3-4	T	4	Structural and Morphological Anatomy	1701211-4
				5-6-7-8	P			
	B2 3-4			B3 1-2	T	5	Basic Biochemistry	1701231-5
5-6					P			
			B1 3-4		P	6	Basic Physiology	1701241-6
3-4					T			
			B1 5-6		p	1	Basic Laboratory Skills	1701221-1
	A2 2-1				T	2	Prophets Biography	102101-2
		A3 5-6			T	2	Holly Quran	605101-2
		A2 3-4			T		Arabic language	501101-2

1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45PM**

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Third Year
Group: 1

Course schedule for the male student section "Laboratory Medicine"
Academic year 1439/1440 AH (1st Semester)

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
		G4 (1)			T	4	Applied Diagnostic Biochemistry	1701332-4
				3-4	P			
					T	6	Diagnostic Microbiology	1701362-6
G4 (3-4)	5-6				P			
	G4 (1-2)				P	8	Diagnostic Histopathology and Cytology	1701312-8
			3-4	5-6	T			
				G4 (1-2)	P	5	Diagnostic Hematology	1701352-5
			5-6		T			
	G4 (3-4)				P	6	Diagnostic Parasitology	1701363-6
			1-2		T			
		G4 (1-2)			T	2	Holy Quran	605301-2

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**
1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45PM**

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Third Year
Group: 1

Course schedule for the female student section "Laboratory Medicine"
Academic year 1439/1440 AH (1st Semester)

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
				B3 3-4	T	4	Applied Diagnostic Biochemistry	1701332-4
			5-6		P			
				B3 1-2	T	6	Diagnostic Microbiology	1701362-6
	1-2				P			
		1-2			P	8	Diagnostic Histopathology and Cytology	1701312-8
			3-4		T			
				5-6	P	5	Diagnostic Hematology	1701352-5
		3-4			T			
B2 3-4					P	6	Diagnostic Parasitology	1701363-6
	3-4				T			
B2 (5-6-7)					T	2	Holy Quran	605301-2

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**
1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45PM**

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Third Year
Group: 2

Course schedule for the female student section "Laboratory Medicine"
Academic year 1439/1440AH (1st Semester)

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
				B3 3-4	T	4	Applied Diagnostic Biochemistry	1701332-4
	3-4				P			
				B3 1-2	T	6	Diagnostic Microbiology	1701362-6
			5-6		P			
		1-2			P	8	Diagnostic Histopathology and Cytology	1701312-8
			3-4		T			
				5-6	P	5	Diagnostic Hematology	1701352-5
		5-6			T			
B2 3-4					P	6	Diagnostic Parasitology	1701363-6
	1-2				T			
B2 5-6-7					T	2	Holy Quran	605301-2

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**
1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45P**

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Male Section
Fourth Year
Group: 1

Course schedule for the male student section "Laboratory Medicine"

For the academic year 1439/1440AH (1st Semester)

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
	A7 3-4	K6 (1-2)			T	3	Blood Bank and Transfusion Medicine	1701453-3
		GP. 1 (7-8)	GP. 2 (3-4)		P			
	K6 (1-2)		Gp1 (3-4) Gp2 (7-8)		T	3	Medical Genetics	1701333-3
					P			
		K6 (5-6)			T	3	Basic Medical Biostatistics	1701471-3
				K6 (3-4)	P	6	Diagnostic Pharmacology and Toxicology	1701434-6
			Gp1 (1-2) Gp2 (5-6)		T			
					P	2	Applied Medical Science in Quran and Sanaa	1701422-2
			K6 (3-4)		T			
			Gp1 (5-6) GP2 (1-2)		P	2	Holly Quran	605401-2
8-9-10-11 (K6)	3-4 (PH4)	9-10-11-12			T	10	Research Project of Laboratory Medicine	1701434-10

1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45PM**

Umm Al Qura University
College of Applied Medical Sciences
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Department of Laboratory Medicine

Fourth Year
Group: 1

Course schedule for the female student section "Laboratory Medicine"
Academic year 1439/1440 AH (1st Semester)

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
	A7 3-4				T	3	Blood Bank and Transfusion Medicine	1701453-3
		5-6			P			
				A2 3-4	T	3	Medical Genetics	1701733-3
		1-2			P			
A2 4			A1 3-4		T	3	Basic Medical Biostatistics	1701471-3
				A3 6-5	P	6	Diagnostic Pharmacology and Toxicology	1701434-6
5-6					T			
A2 3					P	2	Applied Medical Science in Quran and Sanaa	1701422-2
			1-2		T			
		A4 (3-4)			P	2	Holly Quran	605401-2
	1-2-5-6-7-8-9-10		A3 5-6		T	10	Research Project of Laboratory Medicine	1701434-10

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**

1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45PM**

Umm Al Qura University
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Fourth year
Group: 2

Course schedule for the female student section "Laboratory Medicine"
Academic year 1439/1440AH (1st Semester)

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
	A7 3-4				T	3	Blood Bank and Transfusion Medicine	1701453-3
		1-2			P			
				A2 3-4	T	3	Medical Genetics	1701453-3
		5-6			P			
A2 4			A1 3-4		T	3	Basic Medical Biostatistics	1701471-3
				A3 6-5	P	6	Diagnostic Pharmacology and Toxicology	1701434-6
5-6					T			
A2 3					P	2	Applied Medical Science in Quran and Sanaa	1701422-2
			1-2		T			
		A4 3-4			P	2	Holly Quran	605401-2
	1-2-5-6-7-8-9-10		A3 5-6		T	10	Research Project of Laboratory Medicine	1701481-10

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**

1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45PM**

Umm Al Qura University
College of Applied Medical Sciences
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Second Year
Group: 1-2

Course schedule for the male student section "Laboratory Medicine"
Academic year 1439/1440 AH (2nd Semester)

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
3-4					T	3	Diagnostic Immunology	1701251-3
	Gp.1 (1-2), Gp.2 (3-4)				P			
				K6 (1-2)	T	5	Basic Biochemistry	1701231-5
			Gp.1 (3-4), Gp.2 (5-6)		P			
				K6 (3-4)	T	6	Basic Physiology	1701241-6
			Gp.1 (3-4), Gp.2 (1-2)		P			
	Gp. 1 2-1	Gp.2 4-3		K6 (5-6)	T	3	Basic Microbiology	1701261-3
					P			
	K6 (5-6				T	2	Basic Nutrition	1701242-2
	Gp-2 3-4	Gp. 1 4-3			T	2	Holly Quran	605101-2
		G5 (5-6)			T	2	Islamic culture	601201-2

CU: Credit Unit T: Theoretical Lecture P: Practical Lecture GP. Group
1: 8-8.45AM 2: 9-9.45AM 3: 10-10.45AM 4: 11.11.45AM 5: 1-1.45PM 6:2-2.45PM

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Second Year
Group: 1

Course schedule for the female student section "Laboratory Medicine"

Academic year 1439/1440 AH (2nd Semester)

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
	Class12 1-2				T	3	Basic Microbiology	1701261-3
			3-4 Micro Lab		P			
	Class12 3-4				T	5	Basic Biochemistry	1701231-5
			1-2 Bio-Lab		P			
			D2-6-5		T	6	Basic Physiology	1701241-6
				3-4	P			
				A1 1-2	T	2	Basic Nutrition	1701242-2
Class12 3-4					T	3	Diagnostic Immunology	1701251-3
Class 1 5-7					P			
		Class11 3-4			T	2	Islamic culture	605101-2
		Class13 5-6			T	2	Holly Quran	601201-2

1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45PM**

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Female Section
Second Year
Group: 2

Course schedule for the female student section "Laboratory Medicine"

Academic year 1439/1440 AH (2nd Semester)

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**

Day					CU		Syllabus	Syllabus No
Thursday	Wednesday	Tuesday	Monday	Sunday				
	Class12 1-2				T	3	Basic Microbiology	1701261 – 3
5-6 Micro Lab					P			
	Class12 3-4				T	5	Basic Biochemistry	1701231-5
			3-4 Bio-Lab		P			
			D2-6-5		T	6	Basic Physiology	1701241-6
			3-4		P			
		A1 6-5			T	2	Basic Nutrition	1701242-2
Class12 3-4					T	3	Diagnostic Immunology	1701251-3
			Class 1 5-7		P			
		Class11 3-4			T	2	Islamic culture	601201-2
				Class12 5-6	T	2	Holly Quran	505201-2

1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45PM**

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Second Year
Group: 3

Course schedule for the female student section "Laboratory Medicine"
Academic year 1439/1440 AH (2nd Semester)

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**

Day					CU		Syllabus	Syllabus No
Thursday	Wednesday	Tuesday	Monday	Sunday				
	Class11 3-4				T	3	Basic Microbiology	1701261- 3
				5-6 Micro Lab	P			
	Class11 1-2				T	5	Basic Biochemistry	1701231-5
	5-6 Bio-Lab				P			
			D2-6-5		T	6	Basic Physiology	1701241-6
5-6					P			
		Class1 6-5			T	2	Basic Nutrition	1701242-2
		Class10 3-4			T	3	Diagnostic Immunology	1701251-3
				Class1 5-7	P			
Class1 3-4					T	2	Islamic culture	601201-2
			Class4 3-4		T	2	Holly Quran	605201-2

1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45PM**

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Female Section
Second Year
Group: 4

Course schedule for student section "Laboratory Medicine" Academic year 1439/1440 AH (2nd Semester)

CU: Credit Unit T: Theoretical Lecture P: Practical Lecture

1: 8-8.45AM 2: 9-9.45AM 3: 10-10.45AM 4: 11.11.45AM 5: 1-1.45PM 6:2-2.45PM

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
	Class11 3-4				T	3	Basic Microbiology	1701261- 4
				5-6 Micro Lab	P			
	Class111-2				T	5	Basic Biochemistry	1701231-5
5-6 Bio Lab					P			
			D2-6-5		T	6	Basic Physiology	1701241-6
		5-6			P			
				A1 1-2	T	2	Basic Nutrition	1701242-2
		Class10 3-4			T	3	Diagnostic Immunology	1701251-3
			Class 1 5-7		P			
Class11 3-4					T		Islamic culture	601201-2
			Class4 1-2		T		Holly Quran	605201-2

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Third Year
Group: 1

Course schedule for the male student section "Laboratory Medicine"
Academic year 1439/1440 AH (2nd Semester)

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
G4 (1-2)					T	4	Applied Diagnostic Biochemistry	1701332-4
				3-4	P			
					T	6	Diagnostic Microbiology	1701362-6
G4 (5-6)	5-6				P			
	G4 (3-4)				T	8	Diagnostic Histopathology and Cytology	1701312-8
			6-5	5-6	P			
G4 (3-4)					T	5	Diagnostic Hematology	1701352-5
			3-4		P			
	G4 (3-4)				T	6	Diagnostic Parasitology	1701363-6
			1-2		P			
		G4 (3-4)			T	2	Holly Quran	605301-2

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**
1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45PM**

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Third Year
Group: 1

Course schedule for the female student section "Laboratory Medicine"
Academic year 1439/1440 AH (2nd Semester)

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
			B5 3		T	4	Applied Diagnostic Biochemistry	1701332-4
		5-6 Bio Lab			P			
				Class 3 3-4	T	6	Diagnostic Microbiology	1701362-6
	5-6 Micro Lab				P			
		1-2	B4 1-2		P	8	Diagnostic Histopathology and Cytology	1701312-8
5-6 Pathology Lab			B5 Pre Lab 5-6		T			
	Class 3 2			5-6	P	5	Diagnostic Hematology	1701352-5
	3-4 Blood Lab				T			
		Class 9 3-4			P	6	Diagnostic Parasitology	1701363-6
1-2 Para Lab					T			
A3 (3-4)					T	2	Holly Quran	605301-2

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Third Year
Group: 2

Course schedule for the female student section "Laboratory Medicine" for the Second semester 1439-1440H

Day					CU		Syllabus	Syllabus, No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
			B5 3		T	4	Applied Diagnostic Biochemistry	1701332-4
	3-4Bio Lab				P			
				Class3 3-4	T	6	Diagnostic Microbiology	1701362-6
		5-6 Micro Lab			P			
		1-2	B4 1-2		P	8	Diagnostic Histopathology and Cytology	1701312-8
1-2 Pathology Lab			B5 Pre Lab 5-6		T			
	Class3 2			5-6	P	5	Diagnostic Hematology	1701352-5
	5-6 Blood Lab				T			
		Class9 3-4			P	6	Diagnostic Parasitology	1701363-6
3-4 Para Lab					T			
A3 (5-6)					T	2	Holly Quran	605301-2

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**
1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45PM**

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Third Year
Group: 3

Course schedule for the female student section "Laboratory Medicine"
For the academic year 1439/1440AH (2nd Semester)

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
			B5 3		T	4	Applied Diagnostic Biochemistry	1701332-4
				5-6 Bio Lab	P			
				Class3 3-4	T	6	Diagnostic Microbiology	1701362-6
	3-4Micro Lab				P			
		1-2	B4 1-2		P	8	Diagnostic Histopathology and Cytology	1701312-8
3-4Pathology Lab			B5 Pre Lab 5-6		T			
	Class3 2				P	5	Diagnostic Hematology	1701352-5
		5-6 Blood Lab			T			
		Class9 3-4			P	6	Diagnostic Parasitology	1701363-6
5-6 Para Lab					T			
A3 (1-2)					T	2	Holly Quran	605401-2

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**
1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45P**

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Male Section
Fourth Year
Group: 1

Course schedule for the male student section "Laboratory Medicine"

Academic year 1439/1440 AH (2nd Semester)

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
			4		T	4	Laboratory management and quality assurance	1701423-1
			1-2		T	6	Diagnostic Pharmacology and Toxicology	1701453-3
		Gp1 (1-2) Gp2 (5-6)			P			
			3		T	1	Public health	1701464-1
			5-6		T	2	Islamic Culture	601401-2
-7-10-9-8-	10-9-8--7	3-4			T	10	Research Project of Laboratory Medicine	1701481-10

1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45PM**

Umm Al Qura University
College of Applied Medical Sciences
Deanship of Academic Affairs
Department of Laboratory Medicine

Fourth Year
Group: 1

Course schedule for the female student section "Laboratory Medicine"
Academic year 1439/1440 AH (2nd Semester)

Day					CU		Syllabus	Syllabus No.
Thursday	Wednesday	Tuesday	Monday	Sunday				
	Class1 3				T	1	Public health	1701464-1
					P			
	Class 7 5-6		Class 7 3-4		T	6	Diagnostic Pharmacology and Toxicology	1701434-6
		Class3 5-6			P			
	Class1 4				T	1	Laboratory management and quality assurance	1701423-1
		Class11 1-2			T	2	Islamic Culture	601401-2
		Class12 3-4			T	10	Research Project of Laboratory Medicine	1701481-10

CU: Credit Unit **T: Theoretical Lecture** **P: Practical Lecture**

1: 8-8.45AM **2: 9-9.45AM** **3: 10-10.45AM** **4: 11.11.45AM** **5: 1-1.45PM** **6:2-2.45PM**

Second Year Subjects

Structural and Morphological Anatomy Course

Course code :	1701211-4
Course title:	**Structural and Morphological Anatomy**
Level/semester:	2nd Year (1st semester)
Credit hours:	**Lecture hours:** 2 hours
	Practical hours: 2 hour
Name of course coordinator	**Dr. Abdelghany Hassan Abdelghany** abdelghanyha@yahoo.com 
Language:	English

Overview

This course is designed to give the students the basic anatomical structure of the various parts and systems of the body, their location and their relation to each other according to what is needed in laboratory medicine. Also, the course gives the student the function of these organs and a brief account of the related pathological problems.

Also, the course should give the students the basic histological structure of the body organs and their relation to laboratory medicine. Moreover, the course gives the students the basic knowledge to help them understand other courses.

Course Objectives

By the end of this course, students should be able to:

1- Acquire the basic anatomical structure of the parts of the human body.

2- The location of these different parts and their relation to each other as to help the students in their practical life such as in phlebotomy.

3- The function of these organs and a brief account of related pathological problems regarding the cause and change in structure.

4- The basic histological structure of the body organs and their application in laboratory medicine as in blood cells picture and gross histopathological preparation.

Course Descriptions

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W. #	Lectures Topics	Quiz	Date
1	Introduction to anatomy and histology of cell and medical terminology.		
2	Muscles, vessels and nerves, cell structure.		
3	Bones and joints of the body, epithelium, connective tissue.		
4	Cardiovascular system, blood cells.		
5	Blood vessels of the body, blood cells.	**Q1**	
6	Respiratory system, histology of muscle cells.		
7	Gastrointestinal tract, histology.		
8	Nervous system and endocrinology.		
9	Urinary system , histology.		
10	Male genital system	**Q2**	
11	Female genital system		
12	Organs of special senses.		
13	Revision		
14	Beginning of practical exam		
15	Beginning of Final Exam for First Semester		
	End of Semester		

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessments	**Assessment task**	**Week due**	**Proportion of final assessment**
1	**Quizzes**	**5, 10**	**40%**
2	**Student assignment and laboratory reports**	**At the end of each semester**	**10 %**
3	**Final practical examination**	**16th Week**	**15%**
4	**Final written examination**	**17/18th Week**	**35 %**

Basic Laboratory Skills Course

Course code :	1701221-1
Course title:	**Basic Laboratory Skills**
Level/semester:	2nd Year (First Semester)
Credit hours:	**Theoretical:** 1
	Practical: Not applicable
Language:	English
Name of course coordinator	**Dr. Anmar Khan** **Assistant Professor of Biochemistry** anmar_k@hotmail.com

Course Objectives

By the end of this course, students will be able to:

1) *Define* the role of laboratory and medical laboratory professional in a hospital laboratory services and research centers
2) *Describe* the organizational structure of a standard hospital laboratory and its functions
3) *Recall* basic laboratory skills about commonly used laboratory tests and use of instruments in major testing disciplines of laboratory medicine
4) *Memorize* common terminology related to medical laboratory
5) *Recognize* importance of laboratory safety and safe laboratory practices in handling toxic chemicals and hazardous substances including pathogens
6) *Appraise* the importance of quality control and quality assurance in a clinical laboratory
7) *state* application of laboratory information system for documenting patient information and laboratory results.

Course Descriptions

W. #	Lectures Topics	Quiz	Date
1	Course objectives, description and contents		
2	Role of laboratory and medical laboratory professional and Use and maintenance of basic laboratory equipments.		
3	Laboratory safety – general safety, chemical hazards, fire safety and laboratory accidents		
4	Quality management, quality assurance and quality control in a clinical laboratory		
5	Basic procedures for preparation of solutions, reagents, dilutions and concentrations		
6	Basic laboratory techniques and handling of clinical specimens in clinical chemistry	**Q1**	
7	Basic laboratory techniques and handling of clinical specimens in hematology and blood bank		
8	Basic laboratory techniques and handling of clinical specimens in microbiology		
9	Basic laboratory techniques and handling of clinical specimens in parasitology		
10	Basic laboratory techniques and handling of clinical specimens in immunology		
11	Basic laboratory techniques and handling of clinical specimens in histopathology	**Q2**	
12	Basic laboratory techniques and handling of clinical specimens in molecular diagnostics		
13	Role of the Laboratory Information System (LIS) in documenting patient information and test ordering/resulting		
14	**Beginning of Practical Exam and Exam for Al-Quran and Thaqafa Islami**		
15	**Beginning of Final Exam for First Semester**		
	End of Semester		

Evaluation

Schedule of Assessment Tasks for Students During the Semester			
Assessments	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	**Periodical exams**	**Designated weeks**	**40%**
2	**Assignment (Hospital visit report**	**At the end of each semester**	**10%**
3	**Final written examination**	**17/18th Week**	**50 %**

Basic Biochemistry Course

Course code	(1701231-5)
Course title	**Basic Biochemistry**
Level / semester	2nd year (First and Second Semester)
Credit hours	Theoretical: 3 Practical: 2
Language	English
Name of course coordinator	**Dr: Mohamed El –Boshy** meboshy@uqu.edu.sa **Dr. Mazen Ghaith** dr.mazen.ghaith@gmail.com   **Dr: Ghada Aboulla** ghadaabou22@yahoo.com

Overview

Learning outcome for students must emphasize the metabolic basis of carbohydrates, lipids and protein in both health and diseases, and correlate the impact of any abnormality to the medical status and metabolic diseases disorders including analytical and critical thinking.

Course Objectives

By the end of this course, the students will be able to:

1) Understand the normal metabolic pathways of large molecules and metabolism of small molecules,
2) Know generation and storage of energy.
3) Recognize with the basis of metabolic diseases.
4) Understand metabolic pathways of protein and metabolic diseases disorders.
5) Understand the hormonal and non-hormonal controls of the metabolic diseases.
6) Be aware of the membrane biochemistry and its role in biochemical regulation
7) Be familiar with biochemical methodology and clinical biochemistry techniques as diagnostic tools

Course Descriptive, 1st Semester

W. #	Lectures Topics	Laboratory Topics	Quiz	Date
1	Introduction and course overview	Introduction to Basic Biochemistry		
2	Structural representation of sugars	Specimen collection		
3	Carbohydrates Metabolism-Digestion and Absorption	Biochemical techniques-result units		
4	Glucose Oxidation (Glycolysis)	Effect of Fasting on Liver Glycogen		
5	Oxidative decarboxylation of Pyruvate	Effect of Fasting on Liver Glycogen		
6	Tricarboxylic acid cycle (Krebs´ cycle)	Distribution of Glucose-6-Phosphatase		
7	Pentose phosphate pathway and Fructose Metabolism	Distribution of Glucose-6-Phosphatase	**Q1**	
8	Gluconeogenesis, Cori and Alanine cycle	Estimation of glucose-6-P Dehydrogenase		
9	Glycogen metabolism	Estimation of glucose-6-P Dehydrogenase		
10	Electron transport chain(respiratory chain)	Gluconeogenesis		
11	Introduction to Lipid metabolism	Protein purification: Extraction of cytochrome C- P450	**Q2**	
12	Lipids Metabolism-Digestion and absorption	Protein purification: Extraction of cytochrome C- P450		
13	Cholesterol metabolism	Estimation of blood glucose		
14	Lipolysis Oxidation of fatty acids	Estimation of blood creatinine		
15	Ketone body metabolism and ketoacidosis	Revision		
16	**Practical Exam.**			
17/18	**Final Exam**			

Course Descriptive, 2nd Semester

W. #	Lectures Topics	Laboratory Topics	Quiz	Date
1	Fatty Acids Biosynthesis	Automatic pipette (Types and pipette calibration		
2	Fatty Acids Biosynthesis	Dilution •Serial dilutions • Parallel dilution		
3	Lipids Transport - Lipoprotein metabolism	•Lab training		
4	Lipoprotein metabolism	Determination of unknown sample concentration Determining the wavelength of maximum absorbance for substance		
5	Introduction of Protein metabolism	•Standard curve •How to draw a standard curve?		
6	Protein metabolism Digestion and Absorption	The Phospholipid Composition of biological membrane		
7	Amino Acids Metabolism	Membrane permeability and Membrane Transport	Q1	
8	Urea cycle and hyperammonaemia	Urea synthesis		
9	Inborn Error of Glycine Amino Acid	Estimate urea in liver hemogenate.		
10	Inborn Error of Some Individual Amino Acids Methionine,Phenylalanine c. Tyrosine	The Effect of Adrenaline on Adipose Tissue		
11	Inborn Error of Some Individual Amino Acids, Tryptophane, Cystein, Cystine Alanine , Serine, Valine, Leucine and Isoleucin	Transamination	Q2	
12	Metabolism of organ integration	Estimate of ALT & AST		
13	Fasting cycle	Tutorial		
14	Feeding cycle	Revision		
15	Plasma membrane structure and transport	Revision		
16	**Practical Exam.**			
17/18	**Final Exam**			

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessments	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	**Class discussion**	**Every Week**	**5 %**
2	**Quizzes**	**7, 11**	**20%**
3	**Assignment**	**At the end of each semester**	**5 %**
4	**Final practical exam**	**16th Week**	**30%**
5	**Final written examination**	**17/18th Week**	**40 %**

Learning Resources: Required Text(s)

1. **Harpers Illustrated Biochemistry** 29th Edition (LANGE Basic Science. Amazon.com, 2012
2. **Marks' Basic Medical Biochemistry:** A Clinical Approach (Point (Lippincott Williams & Wilkins) by Alisa Peet MD, Michael A. Lieberman PhD and Allan Marks MD (2012)
3. **Biochemistry (Lippincott's Illustrated Reviews Series)** by Richard A. Harvey PhD and Denise R. Ferrier (2010)
4. **Textbook of Biochemistry with Clinical Correlations**, Thomas M. Devlin, Amazon.com. (2010)

Basic Physiology Course

Course code	**(1701241-6)**
Course title	**Basic Physiology**
Level / semester	2nd year (Full Year)
Credit hours	6
Language	English
Name of course coordinator	**Dr. Bassem Refaat** **Email:** Barefaat@uqu.edu.sa 
	Dr. Ahmed Irshad irshadahameddr@gmail.com 

Overview:

This course is designed to give, the second year Laboratory Medicine students, a basic knowledge about all aspects of human physiology and homeostasis. The course also affords general information about the pathophysiology of major diseases affecting the different body systems. The student will gain enough knowledge and skills to understand the scientific basis of regulatory mechanisms of the different systems and their associated major diseases.

Course Objectives:

By the end of this course, students should be able to:

1) Recognize the role and basic underlying principles of the different body systems in regulating the internal environment.
2) Explain how different body systems achieve their functions and how these functions are regulated and interrelated.
3) List the normal values of important physiological parameters as applied to Laboratory Medicine and interpret such values when given.
4) Explain the different tests to measure/evaluate the function(s) of the different body organs/systems and List the normal values of important physiological parameters.

5) List the major diseases of the different body systems and explain their pathophysiology and their effect on the normal physiological parameters.

Course Descriptions, 1st Semester

W. #	Lectures Topics	Laboratory Topics	Quiz	Date
1	Introduction to Human Physiology	Safety precaution & blood collection		
2	Body fluid and Acid-Base balance	Identify the heamatocrit percentage of the human blood sample and use it for the calculation of intra –vascular volume		
3.	Body fluid and Acid-base balance	Estimate hemoglobin concentration by using sahli"s hemoglobinometer by using human blood sample		
4	Physiology of Blood and Immunology	How to do blood film		
5	Physiology of Blood and Immunology	Determine blood group from your own blood	**Q1**	
6	Cardiovascular Physiology	Examination of peripheral pulse		
7	Cardiovascular Physiology	Measurement of arterial blood pressure		
8	Physiology of Respiration	Arterial blood gas analysis		
9	Physiology of Respiration	Toxic and diseases affect the Neuro-muscular junction		
10	Physiology of Respiration	Observe the effect of salivary amylase on carbohydrate digestion	**Q2**	
11	Physiology of Respiration	Observe the effect of lipase on lipid digestion		
12	Neurophysiology	Detection of occult blood in stool sample		
13	Neurophysiology	Bilirubin and Jaundice: Causes and types		
14	Neuro-muscular Physiology	Revision		
15	Neuro-muscular Physiology	Revision		
16	**Practical Exam.**			
17/18	**Final Exam**			

Course Descriptions, 2nd Semester

W. #	Lectures Topics	Laboratory Topics	Quiz	Date
1	Introduction to Endocrine physiology	Hormone measurement: Basics and concepts		
2	Anterior pituitary glands	Basics of growth hormone measurement		
3	Posterior pituitary gland	Determine fasting (FBS) and random (RBS) blood sugar levels		
4	Thyroid gland & Ca^{+2} homeostasis	The hormonal regulation of calcium, phosphate and bone: the role of parathyroid, calcitonin and Vitamin D		
5	Glucose homeostasis	Importance of Vitamin D in bones and other systems (measure serum vitamin D/and or Ca+2)	**Q1**	
6	Adrenal gland	The normal characteristics of semen analysis according to WHO		
7	Male reproduction	Perform pregnancy test on a urine sample from a pregnant woman		
8	Female reproduction	Physical characteristics of urine samples from healthy person (e.g. Specific gravity, color, odour)		
9	Introduction to Renal physiology	Characteristics of normal chemical composition of urine in human (pH, glucose, albumin, Na, K)		
10	Urine formation	Normal and abnormal microscopic appearance of a given sample of a normal and abnormal human urine (e.g. renal failure)	**Q2**	
11	Factors affecting renal blood flow	Performance of renal function tests: A-serum Urea by spectrophotometer		
12	Renal function tests	Neural synapses		
13	Renal handling of acid-base balance	Neuro-receptors: Vibration, heat and pain		
14	Introduction to CNS	Examine superficial and Pupillary reflexes in a human subject		
15	Autonomic nervous system	Revision		
16	**Practical Exam.**			
17/18	**Final Exam**			

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessments	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	**Quizzes**	**5, 10**	**30%**
2	**Final practical exam**	**16th Week**	**30%**
3	**Final written examination**	**17/18th Week**	**40 %**

Learning Resources: Required Text(s)

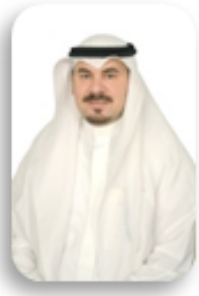
1. Essential References

Medical Physiology by Guyton, A. C. Textbook of physiology by Tortora GR & Grabowski SR

2- Recommended Books and Reference Material (Journals, Reports, etc)

- Concise Human physiology By M.Y.Sukkar et al.
- American Physiology Society http://physiologyonline.physiology.org/
- The Journal of Physiology http://jp.physoc.org/
- BMC Physiology http://www.biomedcentral.com/bmcphysiol

Diagnostic Immunology Course

Course code	**1701251-3**		
Course title:	**Diagnostic Immunology**		
Level/semester	2nd year / 2nd semesters		
Credit hours:	3 CU (3 hours)		
	Theoretical lectures / Tuesday & Thursday:10 am:12 pm (for female students) and Thursday:10 am:12 pm (for male students) **Laboratory lectures**/ each group (4 groups for female and 2 groups of male students) has a separate lab lecture time		
Course Coordinator	Dr. Naeem Questy qusty_n@hotmail.com 		
Instructors	**Name**	**Contact #**	**E. mail**
	Dr. Naeem Questy	Ext. 4230	qusty_n@hotmail.com
	Dr. Manar M. Ismail	Ext. 4688	mmismail@uqu.edu.sa
	Dr. Akhmed Aslam	Ext. 4291	Akhmed_aslam@hotmail.co.uk 

Overview:

This course is designed to give, the second year Laboratory Medicine students, a basic knowledge about the function of the immune system both innate and adaptive and the diseases that affects humans due to any abnormalities of the immune system. The course also affords detailed information about the diagnosis of different immunological diseases using different diagnostic techniques and methods of functional evaluation of the immune system. The student will gain enough knowledge

and skills to do a proper and professional serological diagnosis of infections and to perform different techniques in the immunology lab.

Course Objectives:

By the end of this course, students will able to:

1. Identify the basic immunological concepts and differentiate between innate and adaptive immune response
2. Determine the best method to use in differentiating between defect of humoral and cellular components of the immune system.
3. Apply different laboratory diagnostic techniques in the diagnosis of immunological disorders e.g. autoimmune diseases, immunodeficiency disorders and allergy
4. Recognize the role of immunology (serology) lab in the diagnosis of infectious diseases
5. Know the role of immunology in different areas in the medical field e.g. donor selection in organ transplantation, diagnosis of immunodeficiency disorders, diagnosis and follow up of autoimmune diseases…

Course Descriptions

W. #	Lectures Topics	Laboratory Topics	Quiz	Date
1	Introduction to basic immunology	Laboratory safety measures		All the dates are different according to male and female students and different groups
2	Innate immunity	Lab quality measures		
3	Inflammatory response	Ag/Ab reaction		
4	Antigen and antibody	Monoclonal antibody technology		
5	Complement system	Introduction to immunodiagnostic techniques		
6	Adaptive immune system & lymphocyte development	Immuno-agglutination tests	**Q1**	
7	Humoral immune response	Immune-precipitation		
8	Laboratory evaluation of B cell function	Labeled immunoassay		
9	Human Leukocyte Antigen	ELISA		

	& Ag presentation			
10	HLA typing	Serological diagnosis of viral hepatitis		
11	Cell mediated immune response	Flowcytometry		
12	Laboratory evaluation of T cell function	Serological markers of autoimmune diseases	**Q2**	
13	Autoimmune diseases	The most common immunological tests		
14	Autoimmune diseases	Revision		
15	**Practical Exam.**			
16				
17/18	**Final Exam**			

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessment	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	Continuous lab evaluation	Every Week	10 %
2	Quiz	Designated week	20%
3	Assignment		10%
4	practical exams	15th Week	20%
5	Final written examination	17/18th Week	40 %

Learning Resources:

1. Required Text(s)

- Abo-Elabbas et al (2010): Cellular and molecular Immunology. Published by Saunders; 6th edition. ISBN:9 78-l-4160-3123-9 / International Edition ISBN: 978-0-8089-2411-l

2. Essential References

- Hana Zein: Immunology: Theoretical & practical concepts in laboratory medicine Published by Saunders. ISBN 0-7216-5002-3
- Mary Louise Turgeon: Immunology & Serology in Laboratory Medicine Published by F.A. Davis Company, Philadelphia, 3rd edition. ISBN 978-0-8036-1814-5

Basic of Microbiology Course

Course code :	1701261-3
Course title:	**Basic of Microbiology**
Level/semester:	2nd Year (Second Semester)
Credit hours:	**Theoretical:** 2
	Practical: 1
Language:	English
Name of course coordinator	Dr. Mubashir Khan  mubashirpmrc@yahoo.com Dr. Mahar Aldiyjany  mnandiyjany@uqu.edu.sa

Overview:

This course is offered to the students of 2nd year Laboratory Medicine in second semester. The course is about 3 credit hours: 2 hours lecture and 2 hours practical per week. The course is completed in one semester, which is of 15 weeks duration.

The course introduces basic knowledge about bacteria, viruses and fungi. Students are also introduced to principles of standard microscopic and identification techniques used in the diagnosis of these organisms. Further, they learn about the principles of various methods used for sterilization and disinfection of laboratory materials.

Course Objectives:

By the end of this course, students will be able to:

1. *define* classification, cell structures and general properties of bacteria, fungi and viruses
2. *describe* basic principles of sterilization and disinfection and laboratory safety rules
3. *state* growth requirement and reproduction of bacteria, viruses and fungi
4. *explain* the concept of host-microbe relationship
5. *recognize* the mechanisms of action of antibiotic, antifungal and antiviral agents

6. *demonstrate* practical knowledge of basic microbiological techniques for isolation and identification of bacteria, viruses and fungi and antimicrobial susceptibility
7. *list* major clinically important bacterial, viral and fungal pathogens

***Course Description*:**

No	Topics to be Covered	Practical	Quiz	Date
1	Introduction to microbiology, bacterial taxonomy and bacterial cell structure	Laboratory safety measures, quality control and light microscopy		
2	Sterilization and disinfection	Introduction to bacteriology laboratory and study of bacterial morphology		
3	Bacterial nutrition, growth and metabolism	Sterilization and disinfection		
4	Identification of bacteria – I: (microscopic methods)	Culture media preparation and viable bacterial cell count		
5	Identification of bacteria – II: (culture characteristics and biochemical reactions)	Isolation technique: isolation of pure culture and study of colony morphology		
6	Identification of bacteria – III: (tests for enzymes production)	Microscopic examination of microbes: Gram staining and motility test	**Quiz 1**	
7	Bacterial genetics and causative agents of main bacterial diseases	Biochemical tests used in bacterial identification		
8	Antimicrobial chemotherapy	Review of bacterial identification I, II and III		
9	**Mid term break**			
10	Introduction to mycology	Antibiotic susceptibility tests		
11	General properties and classification of viruses	Study of morphology of fungi	**Quiz 2**	
12	Viral replication	Safety in virology laboratory		
13	Interaction between viruses and host cells	Demonstration of electron microscope, inverted microscope and safety cabinets		
14	Host response to viral infections and immunity	Demonstration of tissue culture		
15	Main viral diseases and their Laboratory diagnosis	Laboratory diagnosis of viral diseases		
16	**Practical Exam**			
17	**Final Exam**			

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessments	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	Periodical exams	Designated weeks	20%
2	Student assignment	At the end of each semester	10 %
3	Final practical exam	16th Week	30%
4	Final Term examination	17/18th Week	40 %

Learning Resources:

A. Required text Books:

1. Prescott's Principles of Microbiology (2008). Joanne Willey, Chris Woolverton, Linda Sherwood. McGraw-Hill Higher Education, ISBN-10: 125900953X, ISBN-13: 978-1259009532.

2. Basic Microbiology (1997). Wesley A. Volk and Jay C. Brown. 8th edition. Benjamin Cummings, USA.

B. Reference Books:

1. Field's virology: Volume I and II (with CD-ROM) (2009). Bernard N. Fields. 4th revised edition. Lippincott Williams and Wilkins, USA.

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Third Year Subjects

– Applied Diagnostic Biochemistry

Course code	1701332-4
Course title	**Applied Diagnostic Biochemistry**
Level / semester	The third year - Full Year
Credit hours	Theoretical: 2
	Practical:2
Language	English
Name of course coordinator	**Dr. Mohamed El-Boshy** meboshy@uqu.edu.sa **Dr. Ahmed qssanin** aaqasem@uqu.edu.sa    **Dr. Anmar Khan** anmar_k@hotmail.com **Dr. Heba Kamal** kamalheba@hotmail.com

Overview

This course introduces the student to the importance of diagnostic biochemistry which used to measure chemical change in the body for diagnosis, therapy, and prognosis of disease.

Course Objectives

1. Perform dependable analyses, that done by, a review of laboratory protocols, safety, and quality control and quality assurance, specimen collection and principle of instrumental analyses
2. Methods for determination of individual analytical techniques and their clinical application.
3. Understand the basic biochemical processes occurring in the body.
4. Recognize the biochemical basis of diseases, correlate symptoms, signs, and complications to biochemical events.
5. Select the biochemical tests appropriate to the diagnosis and management of the disease.
6. Interpret the laboratory data properly, and the possible contribution of any analysis or biological variation.

Course Descriptions, 1^{st} ***semester***

W. #	Lectures Topics	Laboratory Topics	Quiz	Date
1	Introduction to diagnostic biochemistry and	Introduction to diagnostic biochemistry laboratory		
2	General principle of biochemical investigation	Collection of blood samples		
3	Lab testing cycle:	Handling of blood sample		
4	Analytical and post analytical variables	Urine analysis (Physical)		
5	(Quality Assessment): ::	Urine Analysis (chemical & microscopic)		
6	Analytical Technique, Spectrophotometer	Spectrophotometer Principles & Components:	**Q1**	
7	Photometric technique	Kinetic Spectrophotometry: (AST+ALT)		
8	Chromatography	Calorimetric spectrophotometry (Albumin)		
9	Electrochemical techniques,	Endpoint spectrophotometry		
10	ISEs and Automation:	Flame photometer::		
11	Electrophoresis	Automation	**Q2**	
12	Immunochemical techniques:	Automation		
13	Electrolyte disorders	Tutorial		
14	Acid Base Balance	Revision		
15	Acid Base Balance Disorders	Revision		
16	**Practical Exam.**			
17/18	**Final Exam**			

Course Descriptions, 2nd semester

W. #	Lectures Topics	Laboratory Topics	Quiz	Date
1	Kidney Functions Tests:	Kidney functions: Estimation of urea		
2	Kidney Functions Tests:	Estimation of creatinine & creatinine clearance		
3	Lipid and lipoprotein disorders	Lipid profile and lipoprotein disorders Estimation of cholesterol & TG		
4	Plasma protein and disorders:	Estimation of Total protein and albumin		
5	Liver functions Tests	Estimation of GGT & ALP		
6	Jaundice & Neonatal Hyperbilirubinemia	Estimation of total bilirubin	Q1	
7	Blood glucose regulation and Diabetes Mellitus::	Estimation of Glucose		
8	Diagnosis of Diabetes	Determination of HA1C &Fructose amine		
9	Assessment of Endocrine Disorders	Glucose tolerance test & Gestational diabetes		
10	Bone Metabolism Disorders	Estimation of Ca & phosphate		
11	Assessment of cardiovascular disorders:	Estimation of LDH	Q2	
12	Assessment of pituitary disorders	Estimation Creatine kinase & Creatine kinase MB		
13	Thyroid dysfunctions:	Tutorial		
14	Adrenal dysfunctions (cortisol and adrenaline)	Revision		
15	Malignancy disorders & diagnosis, Tumor markers:	Revision		
16	**Practical Exam.**			

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessments	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	**Class discussion**	**Every Week**	**5 %**
2	**Quizzes**	**6, 11**	**20%**
3	**Assignment**	**At the end of each semester**	**5 %**
4	**Final practical exam**	**16th Week**	**30%**
5	**Final written examination**	**17/18th Week**	**40 %**

Learning Resources: Required Text(s)

1. **Essentials of Medical Biochemistry**: With Clinical Cases by N. V. Bhagavan and Chung-Eun Ha (2011)
2. **Clinical Chemistry: Techniques, Principles,** Correlations (Bishop, Clinical Chemistry) by Michael L. Bishop, Edward P. Fody and Larry E. Schoeff (2009)
3. **Lecture Notes: Clinical Biochemistry** by Geoffrey Beckett, Simon W. Walker, Peter Rae and Peter Ashby (2010**)**

Diagnostic Microbiology Course

Course code :	1701362-6
Course title:	**Diagnostic Microbiology**
Level/semester:	3nd Year (Full Year)
Credit hours:	**Theoretical:** 4
	Practical: 2
Language:	English
Name of course coordinators	Dr Ahmed Ashshi aashshi@yahoo.com    Dr. Mubashir Khan mubashirpmrc@yahoo.com Dr. Radi Alsafi Radi.assafi@gmail.com

Overview

This course is offered to the third year Laboratory Medicine students, with an aim to provide essential basic knowledge about all aspects of microbial infections (bacterial, viral and fungal), which include its epidemiology, modes of infection, pathogenesis, clinical sign and symptoms, characteristics of causative agents and infection control. The course also provides detailed information about the diagnosis of microbial diseases stressing the importance of specimen's collection from appropriate sites and application of suitable diagnostic techniques. The student will obtain enough knowledge and skills to perform laboratory diagnosis of microbial infections. Further, students also learn to perform antibiotic susceptibility test and its interpretation to indicate suitable drug for the treatment of bacterial infection.

Course Objectives

By the end of this course, students will be able to:

1) Recognize clinically important bacteria, fungi and viruses and human infections caused by them.
2) Describe modes of infection, pathogenesis and pathology of bacterial, fungal and viral infections.
3) Determine appropriate clinical specimens and apply suitable diagnostic protocols for the identification of pathogens.
4) Differentiate between normal bacterial flora and pathogens from clinical specimens.
5) Process clinical samples for identification of pathogen and properly interpret the results obtained and correlate with the infection.
6) Recognize general control measures for bacterial, viral and fungal infections.

Course Descriptions, First semester

No	Topics to be Covered	Practical	Quiz	Date
1	Introduction to Diagnostic Microbiology	Collection of clinical samples for microbiological analysis		
2	Normal flora of the human body and *Staphylococcus*	Collection of samples for the study of normal flora of the body (Nose, throat and skin swabs).		
3	*Streptococcus* and *Enterococcus*	Identification of *Staphylococcus* species.		
4	*Neisseria*	Identification of *Streptococcus* and *enterococcus* species		
5	*Corynebacterium and Bacillus*	Identification of *Neisseria* species	**Quiz 1**	
6	*Clostridium*	Study of *Corynebacterium* and *Bacillus*.		
7	*Parvobacteria*	Study of Clostridium species.		
8	*Enterobacteriaceae*- 1	Identification of *Haemophilus* and *Brucella*.		
9	*Enterobacteriaceae* -2	Identification of *Enterobacteriaceae* (Lactose fermenters).		
10	*Pseudomonas and Vibrios*	Identification of *Enterobacteriaceae* (Non-lactose fermenters).	**Quiz 2**	
11	*Campylobacter* and *Helicobacter*	Identification of *Pseudomonas* and *Vibrios*.		
12	*Mycobacterium*	Identification of *Campylobacter*, *Helicobacter* and unknown		

		culture.		
13	*Spirochaetes*	Study of *Mycobacteria* (properties for identification, growth and Z.N. staining).		
14	*Chlamydia* and *Mycoplasma*	Study of *Spirochaetes* and *chlamydia*.		
15	**Practical Exam**			
17	**Final Exam**			

Course Descriptions, Second Semester

WK	Date	Lecture Title	WK	Practical Title
1		Introduction to diagnostic mycology	1	Laboratory examination of dermatophytes - I
2		Superficial and cutaneous mycoses	2	Laboratory examination of dermatophytes - II
3		Subcutaneous mycoses	3	Laboratory identification of fungi - I
4		Systemic mycoses	4	Laboratory identification of fungi – II
5		Opportunistic mycoses	5	Microscopic examination of fungal growth (molds-tease mount)
		First Periodic Examination		
6		Introduction to diagnostic virology	6	Latex agglutination test
7		Hepatitis viruses	7	Haemagglutination test
8		Herpes viruses	8	Indirect haemagglutination test
		Mid-term Break (2-6/4/36H- 22-26/3/15G)		
9		Respiratory viruses - I: Ortho and paramyxo viruses	9	Direct immunofluorescence test
		SECOND PERIODIC EXAMINATION		
10		Respiratory viruses -II: Rhino viruses	10	Indirect immunofluorescence test
11		Reoviridae and adenoviruses	11	Enzyme linked immunosorbent assay (ELISA-I)
12		Picornaviridae and papovaviruses	12	ELISA-II
13		Retroviruses and human immunodeficiency virus	13	Polymerase chain reaction (PCR-I)
14		Haemorrhagic fever viruses	14	Polymerase chain reaction (PCR-II)
		Beginning of Practical Exam		
		Beginning of Final Exam for First Semester		

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessments	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	**Periodical exams**	**Designated weeks**	**20%**
2	**Student assignment**	**At the end of each semester**	**10 %**
3	**Final practical exam**	**16th Week**	**30%**
4	**Final Term examination**	**17/18th Week**	**40 %**

Learning Resources:

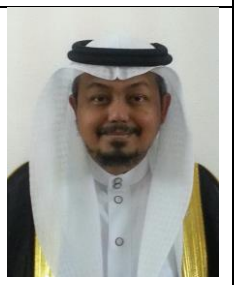
C. Required text Books:

1. **Medical Microbiology by Murray (2012).** Patrick R. Murray., Ken S. Rosenthal., Michael A. Pfaller. 7th edition. Elsevier. U.S.A.
2. **Medical Microbiology** with student consult: A Guide to Microbial Infections: pathogenesis, immunity, Laboratory diagnosis and control (2012). David Greenwood., Richard Slack., Michael Barer and Will Irving. 18th edition. Churchill Livingstone. USA

D. Reference Books:

1. **District Laboratory Practice in Tropical Countries – Part 2. (2006).** Monica Cheesbrough. 2nd edition. Cambridge University Press. United Kingdom
2. **Koneman's Color Atlas and Textbook of Diagnostic Microbiology (2005).** Washington C. Winn., Stephen D. Allen., William M. Janda., Elmer W. Koneman., Paul C. Schreckenberger. 6th edition. Lippincott William & Wilkins. USA.

Diagnostic Histopathology and Cytology

Course code and number:	1701312-8
Course title:	**Pathology and Histo-Cyto techniques**
Level/semester:	3rd year (Full year)
Credit hours:	8 hours /week
Course coordinator:	**Dr. Mohammed Basalama** basalamah1@gmail.com 
Instructor:	**Dr. Mohammed Basalama,** basalamah1@gmail.com
	Dr. Hussain Almasmoum haamasmoum@uqu.edu.sa   **Dr.Mohamad Shahid** drshahidkbn@yahoo.com
	Dr . Amany Mahbub, a.mahbub@hotmail.com
	Dr. Eisha Tbssm aishatbssm@yahoo.co.in
Office Hours:	6 hours (Tuesday and Wednesday)
Mobil number:	0562915367

Overview

General pathology:

This course is intended to cover the capabilities of knowledge (understanding the general principles, terminology, diagnostic procedures, and basic concepts of pathology, (identifying pathological processes at the cellular and the gross anatomical level and correlating these with the clinical symptoms and signs). The course will introduce the concepts of injury and the changes from normal structure and function in the human body, as occurs in the disease. The various pathological processes

(cellular adaptations, tissue injury and renewal, neoplasia, environmental and nutritional pathology) and their importance on the basis of human disease will be studied.

Objectives

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

1. Define pathology and cellular pathology.
2. Understand the concept of disease and healing and repair.
3. Define morbidity and mortality and distinguish between them and have a general understanding of which diseases/disorders cause the greatest mortality and morbidity.
4. Understand and be able to define some of the commonly used terms and vocabulary used to describe various aspects of the disease (e.g. signs, symptoms, etiology, pathogenesis, manifestations, and prognosis).
5. Discuss broadly the causes of disease and the categories under which they can be considered.
6. Describe pathological mechanisms underlying disease processes (cell injury, inflammation, immunity, neoplasia, vascular disturbances (congestion, hyperemia, edema, thrombosis, ischemia, shock and hemorrhage), metabolic and nutritional diseases, congenital and genetic diseases.
7. Understand some of the clinical manifestations of pathological processes.

Course Description, First semester

W. #	Lectures Topics	Laboratory Topics	Quiz	Date
1	Introduction to pathology Course	Lab safety practices		
2	Introduction to pathology	A view of basic histo-techniques		
3	Cell Injury	Preparing of most common fixatives		
4	Cell Injury	Preparing of most common fixatives		
5	Cell Injury	Endpoint test of decalcification		
6	Cell Injury	Tissue Processor and specimen processing		
7	Inflammation	Embedding center & specimen embedding		
8	Inflammation	Practical Tissue-block cutting	**Q1**	
9	Inflammation	Practical Tissue-block cutting		
10	Inflammation	Practical Tissue-block cutting		
11	Healing and Repair	Practical Tissue-block cutting	**Q2**	
12	Healing and Repair	Practical H&E staining slides		
13	Healing and Repair	Practical H&E staining slides		
14	Healing and Repair	Revision		
15	**Final part 1- Practical Exam**			
16	**Final part 1- Pre-lab Exam**			
17/18	**Final Exam**			

Course Description, First semester

W	Date	Pathology	Pre-lab	Practical	Notes
1.		Hemodynamic	Special Stain (Carbohydrates)	PAS Stain	
2.			Special Stain (Carbohydrates)	Alcian Blue Stain	
3.			Connective Tissue (Collagen Fibers)	Masson Trichrome Stain	
4.		Neoplasia	Connective Tissue (Elastic Fibers)	Verhoeff's Stain	Q3
5.			Connective Tissue (Reticulum Fibers)	G&S Stain	
6.			Special Stain (Pigment)	Perl' Prussian Stain	
7.			Special Stain (Lipids)	Van Gieson Stain Sudan Black Stain	
8.		*Revision*	*Revision*	*Revision*	Q4
9.	Spring Vacation				
10.		Genetic Diseases	Principle of Immunohistochemistry	IHC Techniques	
11.			IHC Techniques	IHC Techniques	
12.			Cytotechnology	Pap stain	
13.			Principles of electron microscope	*Revision*	QP2
14.			Molecular Techniques	*Revision*	
15.		*Revision*	Final Part II - Practical Exam		
16.		*Revision*	Final Part II - Pre-lab Exam		
17.		Final Theory Examinations			
18.					
Summer Vacation					

Q = Theory Quiz Exam **OP = Pre-lab Quiz Exam**

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessments	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	**Quizzes**	**8& 11**	**20%**
2	**Assignment**		**10%**
3	**Pre-lab Quiz**		**10%**
4	**Student Continuous Evaluation**	**Every week**	**10 %**
5	**Final practical exam**	**15th Week**	**10%**
6	**Final Pre-lab Exam**	**16 Week**	**20%**
7	**Final written examination**	**17/18th Week**	**20 %**

Learning Resources: Required Text(s)

1. **Robbins Basic Pathology** (9 Edition), by Kumar, Abbas, Aster.
2. **Histotechnology: A Self-Instructional Text** (3rd Edition), by Freida L. Carson, Christa Hladik.
3. **Theory and Practice of Histological Techniques** (6 Edition), by John D. Bancroft, Marilyn Gamble

Diagnostic Haematology Course

Course code and number:	1701352-5
Course title:	**Diagnostic Hematology**
Level/semester:	3rd year / 1st and 2nd semester
Credit hours:	5CU (5 hours)
	Theoretical lectures / Sunday :8 am:10 pm
Course Coordinator	 **Dr. Ahmad Arbaeen** Assistant professor of hematology ahmadarbaeen@gmail.com
Instructor:	 **Dr. Sameh Mohammed Baz**: Assistant professor of hematology. smszhnaalms9@hotmail.com Mobile:0553541644
	Dr Heba Almasmoum ; Assistant professor of hematology hamasmoum@uqu.edu.sa **Dr. Aml Ezzat:** Associate professor of hematology. damalezzat@yahoo.com
Office Hours:	Monday: **From 08:00 am to 10:00 am.**

Overview:

Recognize the structure and function of the components of normal blood and bone marrow as well as identifying the major morphologic abnormalities

Interpret specific haematological tests and stains and apply these to the diagnosis of pathological states

Objectives:

By the end of this course, students will able to:

1. Describe the structure and function of the components of normal and abnormal blood and bone marrow
2. Understand the process of hematopoiesis, including pleuripotential stem cells and differentiation under influence of colony stimulating factors.
3. be able to explain Iron, Vitamin B12 and Folate metabolism including transport and storage.
4. Understand the pathophysiology and the possible therapies of aplastic, microcytic or macrocytic anemias.
5. Compare and contrast the clinical manifestations and lab investigations of alpha and beta thalassemia, sickle cell anemia and other haemolytic anemias.
6. Understand the concept and current classification of Leukemia and myeloproliferative disorders.
7. The student should understand the term hemostasis and be able to discuss the role of the vessel, the platelet and the plasma proteins as well as their pathologic abnormalities.

Course Description:

No	Topics to be Covered	Quiz	Date
1	Hematopoiesis and Erythropoiesis		
2	Record Organization and General Principles.		
3	Introduction to anemias		
4	Approach to diagnosis of anemias		
5	Hypochromic anemia(Iron deficiency)		
6	Hypochromic anemia(other than iron deficiency) and Iron overload		
7	Hypochromic anemia(other than iron deficiency) and Iron overload	**Quiz 1**	
8	Megaloblastic anemia		
9	Megaloblastic anemia(continuation) and other macrocytic anemia		

10	Aplastic anemia and other BM failure		
11		**Quiz 2**	
12	Congenital haemolytic anemia		
13	Hemoglobinopathies		
14	Acquired haemolytic anemia		
15	Practical Exam		
16, 17	**Final Exam**		

2nd Semester

Week	Date	Lecture Title	Practical(Dr. Sameh, Miss/ shefaa Hegazy)
1		WBCs and their benign disorders	WBCs count & Differential count
2		WBCs and their benign disorders	Differential count
3		leukemia Classification& Acute Lymphoblastic Leukemia	ALL morphology
4		Acute myeloid leukemia	AML morphology
5		Myelodysplastic syndrome	Flow cytometry in leukemias
			MDS morphology
6		Chronic leukemias&CLL	Flow cytometry in leukemias
			Lymphocytosis, CLL
7		Chronic myeloid leukemia	CML morphology&NAP score
8		Myeloproliferative disorders	Other MPN morphology
9		Lymphoma& Multiple myeloma	Plasma cell morphology
10		Bone marrow transplantation	
11		Thrombopoiesis& Coagulation cascade	Cytogenetics in hematologic malignancies
12		Approach to ableeding patient	Platelet count and morphology
		Inherited coagulation disorders	B.T
14		Thrombocytopenia	PT&PTT
15		DIC	Q.C in hematology
16		Thrombophilia	Revision
17		**Final Comprehensive Exam**	

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessment	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	**Class activity**	**Every Week**	**10 %**
2	**Quizzes**	**Week 7 Week 11**	**20 %**
3	**Practical Examination**	**15th Week**	**30 %**
4	**Final Examination**	**17th Week**	**40%**

Learning Resources: Required Text (s)

1. **Essential hematology** A.V. Hoffbrand, J.E. Pettit
2. **Practical hematology** John V. Dace, S.M. Lewis

Diagnostic Parasitology Course

Course code	1701363-6		
Course title:	**Diagnostic Parasitology**		
Level/semester	3rd year / 1st and 2nd semesters		
Credit hours:	6CU (6 hours)		
	Theoretical lectures / Wednesday :10 am:12 pm **Laboratory lectures**/ Monday (8:10) AM		
Course Coordinator	**Dr. Amr M. Mohamed** amamohamed@uqu.edu.sa 		
Instructors	**Name**	**Contact #**	**E. mail**
	Dr. Amr M. Mohamed	Ext. 4230	amamohamed@uqu.edu.sa
	Dr.Mohamed Al-Kurbi	Ext. 4232	 dr.kurbi@hotmail.com
	Dr. Raafat A.M. Hassanein	Ext. 4252	 rayoussef@uqu.edu.sa
	Dr. M. A. Al-Bali	Ext. 4206	maelbali@uqu.edu.sa
	Dr. Nawras M. Mowafy		nmmowafy@uqu.edu.sa
	Dr. Anhar Elsayed		aasayed@uqu.edu.sa

Overview:

This course is designed to give, the third year Laboratory Medicine students, a basic knowledge about all aspects of parasitic infections; distribution, functional morphology, life cycle, modes of infection, pathogenesis, clinical picture and control. The course also affords detailed information about the diagnosis of parasitic diseases stressing on diagnostic stages of the common parasites and different diagnostic techniques. The student will gain enough knowledge and skills to do a proper, professional and real-time diagnosis of parasitic infections.

Course Objectives:

By the end of this course, students will able to:

1. Identify and list the major parasitic infections in man.
2. Determine the best method to use in diagnosing a parasitic infection.
3. Apply different laboratory diagnostic techniques in parasitology.
4. Correlate parasitic infection with pathogenesis, pathology, signs and symptoms.
5. Know the mode of infection for each parasite.
6. List the different measures that can be applied to control a parasitic disease.

Course Descriptions, First semester:

W. #	Lectures Topics	Laboratory Topics	Quiz	Date
1	Introduction to Parasitology	Introduction		
2	Introduction to Platyhelminths & Liver and Lung Flukes	Introduction to Parasitology Laboratory		
3	Intestinal Flukes	Study of Intestinal, Liver and Lung Flukes		
4	Blood Flukes	Study of Schistosomes		
5	Intestinal Cestodes	Indirect Haemaggltination Assay for Schistosomiasis		
6	Intestinal Cestodes (Cont.)	Study of Cestodes		
7	Tissue Cestodes	Stool analysis (Direct smear – wet mount)	**Q1**	
8	Introduction to Nematodes & Enterobiasis	Stool Analysis (Sedimentation Technique)		
9	Enterobiasis (cont.) & Ascariasis	Stool Analysis (Floatation Technique)		
10	Hookworms & Trichuriasis	*Enterobius sp.* and Scotch Tape Technique		
11	Capillariasis Strongyloidiasis & Dracunculiasis	Study of Intestinal Nematodes		
12	Blood & Tissue Nematodes	Kato-Katz Thick Fecal Smear	**Q2**	
13	Blood & Tissue Nematodes (cont.)	Study of Blood & Tissue Nematodes		
14	Visceral & Cutaneous Larva Migrans	Slides Revision		
15	**Practical Exam.**			
16				
17/18	**Final Exam**			

Course Descriptions, Second Semester:

W	Lectures Topics	Laboratory Topics	Quiz	Date
1	Introduction to Protozoa & Amoebiasis	Introduction to Protozoology		
2	Amoebiasis (Cont.) &	Study of Intestinal Amoebae		
3	Pathogenic Free Living Amoebae & Balantidiasis	Study of Intestinal & Urogenital Flagellates		
4	Giardiasis & Trichomoniasis	Stool Ova and Parasites (O&P) Exam		
5	Intestinal Sporozoa: Cryptosporidiosis, Cyclosporiasis	Modified Ziehel-Neelsen Technique		
6	Tissue protozoa (Toxoplasmosis)	Study of Intestinal Sporozoa		
7	Blood and Tissue Flagellates (Cutaneous & Mucocutaneous Leishmaniasis)	Serological Techniques in Parasitology & Immuno-diagnosis of Toxoplasmosis	Quiz 1	
8	Blood and Tissue Flagellates (Visceral Leishmaniasis)	Molecular Techniques in Parasitology (PCR)		
9	Blood and Tissue Flagellates (Trypanosomiasis)	Study of Blood & Tissue Flagellates		
10	Malaria	Thick & Thin Blood Films Techniques		
11	Malaria (Cont.)	Study of *Plasmodium* spp. & Estimation of Parasitaemia level		
12	Babesiosis	Quantitative Buffy Coat Technique (QBC)	Quiz2	
13	Scabies & Myiasis	Slides Revision		
14	Assignments evaluation	Assignments evaluation		
15	Practical Exam			
16				
17	Final Exam			

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessment	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	Laboratory reports	Every Week	5 %
2	Quiz	Designated week	25%
3	Assignment		5 %
4	Final practical exam	15th Week	25%
5	Final written examination	17/18th Week	40 %

Learning Resources:

1. Required Text(s)

Diagnostic Medical Parasitology, Lynne Garcia. Pub by ASM Press; 5th edition (November 30, 2006). ISBN-10: 1555813801, ISBN-13: 978-1555813802.

2. Essential References

- Medical Parasitology. A Practical Approch, Elizabeth A. Zeibig. Pub by Saunders; 1st edition (January 15, 1997). ISBN-10: 0721651879, ISBN-13: 978-0721651873.
- Atlas of Human Parasitology, Lawrence Ash, Thomas Orihel. Pub by American Society for Clinical Pathology; 5th Edition (January 31, 2007). ISBN-10: 0891891676, ISBN-13: 978-

Fourth Year Subjects

Blood Bank and Transfusion Medicine

Course code	1701453-3
Course title	**Blood Bank and Transfusion Medicine**
Level/semester	4th year / 1st semester
Credit hours	3 (2 hours lecture + 1 hours practical)
Course Instructor	**Dr. Saeed Kabrah :** Assistant Professor of Blood Bank s.m.kabrah@hotmail.com 
	Dr. Akhmed Aslam: Assistant Professor of Blood Bank. Akhmed_aslam@hotmail.co.uk 
	Dr.Manar Ismail: Associate Professor of immunology. Manarismail4@yahoo.com
Instructor (Data for female students)	**Dr. Aml Ezzat:** Associate professor of hematology. damalezzat@yahoo.com
Office Hours	4 hours for each staff member/ week

Overview:

This course has been designed to encompass the theoretical and practical aspects of the blood banking and transfusion technology. The study focus on red cell antigens and the corresponding antibodies and their clinical importance, donor selection & blood donation, blood storage and component preparation, blood typing, unit testing and antibody identification.

Objectives:

By the end of this course, students will able to:

1. Describe the genetic and chemical consideration of different blood groups (ABO, Rh, Lewis, and others)
2. Tell the clinical importance of different blood group antigen ad antibodies
3. List correctly different disorders require treatment with blood or blood components
4. Evaluate volunteers for blood donation for their eligibility.
5. Explain the principle and application of plasmapheresis and cell apheresis.
6. List the essential tests should be done for both donors and recipients.
7. Discuss component preparation, appropriate use, shelf life, and storage requirements.
8. Explain the pathophysiology of compilations of blood transfusion and how to avoid and treat in practical life.
9. Perform basic tests in blood bank e.g. blood grouping, antibody identification, cross matching, Coomb's test……

Course Descriptions:

W. #	Lectures Topics	Laboratory Topics	Quiz	Date
1	ABO blood grouping	Preparation of red cell suspension		
2	ABO blood grouping	ABO forward and reverse typing & Du antigen detection		
3	RH system	ABO discrepancies		
4	RH system	Direct Anti-globulin test	**Q1**	
5	Other blood group antigens	Indirect anti globulin test		
6	Other blood group antigens	Antibody screening		
7	Blood donation	Antibody identification		
8	autologus transfusion	Antibody identification		
9	Apharesis	Rh antibody titration	**Q2**	
10	Storage of blood	Antigen phenol-typing		
11	Blood products	Cross matching		
12	Blood products	Adsorption Technique		
13	Complications of blood transfusion	Illution Technique		
14	Complications of blood transfusion	Quality control in blood banking		
15	Hemolytic disease of the newborn			
16	**Practical Exam.**			
17/18	**Final Exam**			

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessments	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	**Practical continuous evaluation**	**Every Week**	**10 %**
2	**Quiz**	**4 &9 weeks**	**20%**
3	**Delivery of the assignment 1**	**7th week**	**5 %**
4	**Delivery of the assignment 2**	**10th week**	**5 %**
5	**Case studies and writing lab reports**	**All through the practice sessions**	**10%**
6	**Final practical exam**	**16th Week**	**10%**
7	**Final written examination**	**17/18th Week**	**40 %**

Learning Resources: Required Text(s)

1. **Technical Manual by American Association of Blood Bankers.**

   Modern Blood Banking &Transfusion Practices by Denise M. Harming

2. Essential References

- Text Book of Blood Banking & Transfusion Medicine by Sally V. Rudman.
- Text Book of Transfusion Medicine by Mollison.

Basic Medical Biostatistics

Course code	**1701471-3**
Course title	**Basic Medical Biostatistics**
Level / semester	**4th year – 1st semester**
Credit hours	Theoretical: Three hours/week
Language	English
Name of course coordinator	**Dr. Ibrahim Saad Nada** ibsnada@gmail.com  **Dr; Hamza Assaggaf:** hmsaggaf@uqu.edu.sa

Overview:

This course provides principles of biostatistics as related to medical sciences. Sampling techniques, sampling distributions, estimation of parameters, probability, and probability distribution with emphasis on the normal are covered. Tests of hypotheses, measures of association are also covered. The course provides students with an introduction to the population(s) that the health system aims to serve. By way of background, a brief review of the world population in historical perspective is provided. An introduction to the major processes that determine population growth and composition is given. Issues that are central in rapid rates of population growth and very low rates of population growth are discussed. An introduction to the world context of population growth is aimed at helping the students understand the demographic processes and issues that deserve appreciation in the context of the Kingdom of Saudi Arabia (KSA) and her future growth.

Course Objectives:

By the end of this course, the students will be able to:

1. Understand the concepts and principles of biostatistics and define terms used.
2. Differentiate between quantitative and qualitative data, construct, and interpret frequency distribution tables and graphic displays.
3. Calculate the measures of central tendency for a set of data.

4. State the meaning and estimate the measures of variability for a given set of biologic measurements.
5. Understand and define the basic principles of probability and their relevance in a physical therapy environment.
6. Know the types of samples and sampling techniques.
7. Understand t-test and chi-square with relation to physical therapy.
8. Understand and describe different study designs..
9. Describe the past trends in world population growth in general and for KSA and the Gulf Cooperation Council (GCC) countries, in particular.
10. Known how to use SPSS program.
11. Explain the processes that determine population growth, namely fertility, mortality and migration.

Course Description:

No	Topics to be Covered	Quiz	Date
1	Definition of medical statistics.		
2	Measures of central tendency (arithmetic mean, mode, median).		
3	Measures of dispersion (range, mean deviation, variance, stander deviation).		
4	Normal distribution curve, empirical rule, confidence limit.		
5	Probability, variable.		
6	Sampling.		
7	Screening.	**Quiz 1**	
8	Epidemiological studies (descriptive, analytic, experimental/cross sectional, longitudinal …. etc.).		
9	Relative risk, Attributable risk, Odd's ratio.		
10	Presentation of data.		
11	Statistical significance.	**Quiz 2**	
12	How can you deal with SPSS program?		
13	Fertility rates.		
14	Mortality rates.		
15	Morbidity rates		
16, 17	**Final Exam**		

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessment	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	**Class activity**	**Every Week**	**10 %**
2	**Quizzes**	**Week 7 Week 11**	**20 %**
3	**Final examination**	**17th Week**	**70%**

Diagnostic Pharmacology and Toxicology

Course code and number:	**1701434-6**
Course title:	**Diagnostic Pharmacology and Toxicology**
Level/semester:	4th year, First Semester
Credit hours:	6 CU (4 Theoretical and 2 Practical)
Instructors:	**1. Dr. Adel El-Shemi** (Associate Professor of Pharmacology and Toxicology, Faculty of Applied Medical Sciences, UQU). E-mail: agshemi@uqu.edu.sa, Mobile: 0509655135.  **2. Dr. Mona Al-Hammadi** (Assistant Professor of Pharmacology and Toxicology, Faculty of Applied Medical Sciences, UQU). .
Instructors Office Hours:	Sunday: **From 01:00 pm to 03:00 pm.** Monday: **From 012:00 pm to 02:00 pm.** Monday: **From 01:00 pm to 03:00 pm.**

Overview:

This course is designed to introduce the 4th year Laboratory medicine students to the general, clinical and diagnostic concepts of the Diagnostic Pharmacology and Toxicology with the help of the lectures and practical classes.

Objectives:

By the end of this course, students will able to:

1. Be updated with the different branches of Pharmacology and Toxicology science.
2. Understand the fundamental scientific principles of Diagnostic Pharmacology and Toxicology.
3. Know the classifications of therapeutic drugs, their rational clinical applications in treatment of infectious and non-infectious diseases, and the integrated role of Laboratory Medicine to achieve the proper therapeutic regimens, particularly for drugs with low therapeutic indices.
4. Understand the general principles of poisons classification, and the integrated role of Laboratory Medicine in diagnosing of poisoning conditions.
5. Understand the crucial clinical value of Therapeutic Drug Monitoring (TDM) in modern therapeutic era and diagnostic filed..
6. Understand the general pharmacokinetic properties of therapeutic drugs and toxins, and how the body can handle them.
7. Understand the pharmacodynamics properties of therapeutic drugs and toxins, the scientific principles of drugs/toxins actions, and the various mechanisms by which drugs/toxins can mediate their pharmacological/toxic effects.
8. Understand the various qualitative and quantitative methods of analysis of drugs and poisons in serum and other biological samples; and how these compounds can affect laboratory diagnosis of disease.
9. Be updated with the different branches of Toxicology science.
10. Understand the fundamental scientific principles of Diagnostic Toxicology.
11. Understand the general principles of poisons classification, and the integrated role of Laboratory Medicine in diagnosing of poisoning conditions.
12. Understand the crucial clinical value of Therapeutic Drug Monitoring (TDM) in modern therapeutic era and diagnostic filed.
13. Understand the various qualitative and quantitative methods of analysis of drugs and poisons in serum and other biological samples; and how these compounds can affect laboratory diagnosis of disease.

Course Description, 1st Semester:

W. #	Lectures Topics	Laboratory Topics	Quiz	Date
1	Course Overview & Introduction to Pharmacology	Introduction and Terminology.		
2	Pharmacodynamics	Scientific Bases of Drug Development& FDA Approval.		
3	Pharmacokinetics	Drug Dosage Forms.		
4	Antibacterial Drugs and role of Lab Medicine in detection of drug resistance.	Routes of Drug Administration.	**Q1**	
5	Anti-TB drugs and role of Lab Medicine in detection of drug resistance.	Animal Experimentation: Reason & Application		
6	Antiviral Drugs	Handling of Experimental Animals.		
7	Anti-Fungal Drugs	Dose Response Curve: Drugs Acting On Skeletal Muscle		
8	Anti- protozoa / anti-parasitic drugs	Drug Dose Response Curve: Drugs Acting on Smooth Muscle	**Q2**	
9	Pharmacology of Blood & Hematological disorders and role of Lab Medicine in dosage adjustment	Drug Dose Response Curve: Drugs Acting on Smooth Muscle		
10	Pharmacology of Anti-hyperlipidemic drugs and role of Lab Medicine in dosage adjustment	Rational use and misuse of antibacterial drugs, scientific bases of antibiotic sensitivity test, and the role of laboratory medicine in discovering of antibacterial drug resistance		
11	Therapeutic Drug Monitoring and Role of Lab Medicine to achieve the proper drug dosage regimen during treatment of diseases and avoiding their overdose adverse effects	Rational use and misuse of antibacterial drugs, scientific bases of antibiotic sensitivity test, and the role of laboratory medicine in discovering of antibacterial drug resistance		
12	Therapeutic Drug Monitoring and Role of Lab Medicine to achieve the proper drug dosage regimen during treatment of diseases and avoiding their overdose adverse effects	Revision and Lab Reports Correction		
13	Revision	Revision and Lab Reports Correction		
14	Revision	Revision		
15	**Lab Exam**			
16	**-**			
17/18	**Final Exam**			

Course Description, 2nd Semester:

Topics of The Lectures Session:		
Topics to be Covered	**No of Weeks**	**Contact Hours**
1. Course Overview & Introduction to Diagnostic Toxicology	1	2
2. General Classification of Poisons & Toxins	1	2
3. General aspects of diagnosis & management of Drug Poisoning and Intoxicant Substances	2	4
4. Sampling and Analytical Toxicology	1	2
5. Role Therapeutic Drug Monitoring (TDM) in Diagnostic Toxicology	2	4
6. Drug Abuse & Addiction	2	4
7. Environmental Toxicology	2	4
8. Heavy Metals Intoxication	2	4
9. Revisions	1	2
Total	**14**	**28**
FINAL EXAM		

Topics of The Practical Session:

Topics to be Covered	**No of Weeks**	**Contact Hours**
1- Introduction and Toxicological Terminology	1	2
2- TDM in the field of Toxicology & Forensic Medicine	1	2
3- Effects of drugs on rabbit's eye	1	2
4- Effects of CNS stimulants on mice	1	2
5- Effects of CNS tranquilizers and hypnotics on mice	1	2
6- Organophosphorus poisoning: a clinical case	1	2
7- Opioid Poisoning: a clinical case	1	2
8- Cyanide poisoning: a clinical case	2	4

9- Paracetamol & Salicylate poisoning: a clinical case	2	4
10- Revision and Lab reports correction	1	2
Total	**12**	**24**
FINAL EXAM		

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessments	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	**Quizzes**	**4& 8**	**30 %**
5	**Final practical exam**	**15th Week**	**20%**
7	**Final written examination**	**17/18th Week**	**50 %**

Learning Resources: Required Text(s):

1. **BASIC AND CLINICAL PHARMACOLOGY,** *Bertram G. Katzung,* 12TH Edition (2012): Pub by McGraw-Hill Medical Publishing Division, New York.
2. A **Textbook of Clinical** Pharmacology and Therapeutics, 5th Edition, ©2008 James M Ritter, Lionel D Lewis, Timothy GK Mant and Albert Ferro, http://www.hoddereducation.com**.**
3. **Clinical Toxicology:** Principles and Mechanisms by Frank A. Barile (2003): Pub by CRC Press

Genetics and Molecular Biology

Course code number:	**1701333-3**
Course title:	**Genetics**
Level/semester:	4th year, First Semester
Credit hours:	3 CU (2 Theoretical and 2 Practical)
Instructors:	**1. Dr. Aiman Alsaegh** (Assistant Professor of Genetics and Molecular Biology, Faculty of Applied Medical Sciences, UQU). E-mail: a.alsayegh@yahoo.com Mobile: 0536603699. .  Dr, Afnan Salaka, : Assistant Professor of Genetics and Molecular Biology: afnan.salaka@hotmail.com
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Overview

Medical genetics is one of the most rapidly advancing fields of medicine. Every medical scientist who Practices in the 21st century must have an in-depth knowledge of the principles of Human genetics and their application to a wide variety of clinical problems. So, the overall goals of medical genetics courses are:

Course Objectives:

- To provide students with the knowledge and understanding of the basic scientific principles in Human Genetics and new genetic technologies that is the basis of current approaches to the diagnosis and management of genetic diseases.
- To apply these scientific principles and knowledge in the practice, including the effective diagnosis, treatment and prevention of genetics disease.

- To acquire an attitude of lifelong self-learning and problem-solving skills, particularly necessary in such a rapidly expanding field.
- To provide knowledge of the common genetic problems in the local population and strategies for management and prevention.
- To provide knowledge of the genetics services available in the community

1 Topics to be Covered			
Topic		No of Weeks	Contact hours
Introduction	Nucleic Acid: Structure and Function Chromosome structure The structure of Eukaryotic gene	1	2
	Central Dogma Transcription and translation DNA repair	1	2
Genetic Variation	Types of genetic variation Mutations: types of mutations Structural effects of mutations on protein Functional effect of mutations on protein	1	2
Patterns of Inheritance	Mendel or single gene inheritance Polygenic and multifactorial inheritance	1	2
Complex Genetic disorders	Diabetes	1	1
	Heart Disorders		1
	Cancer genetics	1	2
Molecular Techniques	Polymerase Chain Reaction	1	1
	Cloning and restriction mapping		1
	DNA sequencing		1
	Mutation screening techniques	1	1
	Diagnosis mutational analysis of single gene disorders	1	1
	Diagnosis of complex disorders	1	1
Cytogenetic	Chromosome abnormalities Numerical abnormalities	1	1
	Structural abnormalities Mosaicism and chimerism (Mixoploidy).		1
	Chromosome disorders: incidence of chromosome abnormalities		1
	Disorders of the autosomes disorders of the sex chromosomes	1	1
	Methods of chromosome analysis: Karyotype analysis, FISH, CGH		2
Clinical genetic	Carrier detection and presymptomatic diagnosis	1	1
	Prenatal and preimplantation diagnosis of genetic disease		2
	Genetic counseling	1	1
	Treatment of genetic diseases	1	2

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessments	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	**Class discussion**	**Every Week**	**5 %**
2	**Quizzes**	**5, 10**	**30%**
3	**Assignment**	**At the end of each semester**	**5 %**
4	**Final practical exam**	**16th Week**	**20%**
5	**Final written examination**	**17/18th Week**	**40 %**

Research Project of Laboratory Medicine

Course code :	1701481-10
Course title:	**Research Project of Laboratory Medicine**
Level/semester:	4th Year (Full Year)
Credit hours:	**Theoretical:** 2
	Practical: 8
Language:	English
Name of course coordinators	**Dr; Ramia Sindi** ramiasindi@yahoo.com **Assistant Professor of Reproductive and Molecular Biology**

Overview:

This course is offered to the students of 4th year Laboratory Medicine. The course is of 10 credit hours and completed in two semesters; each semester is of 15 weeks duration.

In the first semester, students select their research projects and start working on it under the guidance of their supervisor(s). During the first semester students spend substantial time to obtain relevant information through literature search. They also start collecting the required samples and performing practical research work.

Students take series of lectures on research methodology. Each lecture is of two hours duration per week that also includes an introduction on research ethics on humans and animals and the process of obtaining ethical approval. The practical research work is continued in the second semester. They obtain desired data and perform its analysis. Simultaneously, students write the different chapters of their thesis under the guidance of supervisor(s). At the end of second semester, students need to submit their thesis for final oral examination.

Students are also trained for preparation of their presentation for final examination and do rehearsal before examination. Finally, each group of students are asked to prepare their research work to be presented at the annual University Student Conference for the preparation for the annual National Student Conference set by the Ministry of Higher Education and other national scientific conferences.

***Course Objectives*:**

By the end of this course, students will be able to:

1. *Recognize* the importance of research in biomedical field.
2. *Familiar* with research ethics and the general process of obtaining ethical approval for their study if applicable.
3. *Recognize* the importance of literature search and various resources and methods to acquire desired information for their research.
4. *Differentiate* various types of study designs, sampling methods and choose appropriate techniques required to achieve the objectives of their research.
5. *Define* several data collection and data analysis methods including biostatical methods.
6. *Perform* experimental research work, collect data and analyze data.
7. *Interpret* the results of their research in logical manner.
8. *Choose* different formats of presentation of research results for thesis and oral presentation.
9. *Develop* scientific writing skills and use department research guidelines for preparing, formatting and submission of a thesis.
10. *Demonstrate* skills in preparation of research presentation for final examination and discussion.

***Course Description*:**

No	Topics to be Covered	Practical Research work	Date
1	Literature search – (I)	On allocated research topic	
2	Literature search – (II)	On allocated research topic	
3	Critical reading of research articles	On allocated research topic	
4	Writing introduction of thesis	On allocated research topic	
5	Materials and methods (I)	On allocated research topic	
6	Materials and methods (II)	On allocated research topic	
7	Data analysis methods and softwares	On allocated research topic	
8	Results: data presentation	On allocated research topic	
9	**Mid-term break**		
10	Discussion	Writing up of thesis	
11	Conclusion and appendices	Writing up of thesis	
12	Thesis layout and general formatting	Writing up of thesis	
13	Formatting of different sections of thesis (I)	Writing up of thesis	
14	Formatting of different sections of thesis (II)	Writing up of thesis	
15	Referencing	Submission of thesis	
16	**Final Exam**		
17	**Final Exam**		
18	**Final Exam**		

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessments	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	Assessment by research monitoring committee	At the end of each semester	10 %
2	Final assessment by research supervisor	15th Week of 2nd semester	60%
3	Final examination	16 to18th Week of second semester	30 %

Learning Resources:

A. Recommended Books and Reference Material:

1. Recent relevant books of particular subject
2. Relevant chapters in recently published books
3. Original research articles in scientific journals and magazines
4. Review articles in scientific journals
5. Journal supplements
6. Abstract books of meetings/seminars/symposia/conferences
7. Conference proceedings
8. Theses/dissertations

B. Electronic Materials, Web Sites:

1. Online journals
2. Online books
3. Various websites such as:
   - PubMed: www.pubmed.com
   - Google scholar: www.google.scholar.com
   - www.google.com
   - Publishers website (e.g., BioMed Central): www.biomedcentral.com
   - Directories of open access journals (e.g., DOAJ, free medical journals) www.doaj.org.
   - Free medical journals: www.freemedicaljournals.com
   - www.pubmedcentral.nih.gov.
   - Websites of scientific/health organizations (e.g. WHO, CDC, NIH)
   - www.who.int
   - www.cdc.gov
   - www.nih.gov

4. Access to digital libraries (e.g., Umm Al Qura Univers

Lab Management and Quality Assurance

Course code	1701423-1		
Course title:	**Lab. Management and Quality Assurance**		
Level/semester	4rd year / 2nd semesters		
Credit hours:	1CU (1 hours)		
	Theoretical lectures / Thursday :1 pm: 2 pm		
Course Coordinator	**Dr. Saad Alghamdi –** ssalghamdi@uqu.edu.sa 		
Instructors	**Name**	**Contact #**	**E. mail**
	Dr. Saad Alghamdi	Ext. 4054	ssalghamdi@uqu.edu.sa
	Dr:.Mohamed Khereldeen 	Ext. 4252	mohamedkhereldeen@yahoo.com

Overview:

This course is designed to give, the fourth year Laboratory Medicine students, advanced information about management systems in clinical laboratories. It prepares them to be effective directors with proper management skills. This course explains different management schemes and different laboratory settings. It also provides extensive knowledge about the different accreditation process in clinical labs and the current accreditation programmes for clinical Laboratories in Saudi Arabia including SBAHI, JCI, CAP and AABB.

Course Objectives:

By the end of this course, students will able to:

1. To identify different management schemes in Clinical Laboratories.
2. To know the best management system based on the clinical lab settings.
3. To identify the national and international accreditation systems.
4. To know the proper choice of the accreditation agencies in clinical laboratories

Course Descriptions

W. #	Lectures Topics	Laboratory Topics	Quiz	Date
1	Definitions of management, elements of management	None		
2	Management process, Health planning (Pefinitions, types of planning, situation analysis)	None		
3	Health planning (Problem analysis, sitting objectives, formulating strategies, putting plan of action).	None		
4	Implementation Organizing: Aim, components, steps (setting organization objectives, depart mentation, operating responsibility, techno-structure, structure arrangement, organization chart).	None		
5	Implementation Staffing: Definition of the jobs, choice fit or suitable persons, appointment of new staffing, pre- service and in- service training.	None		
6	Implementation Directing: Supervising, motivating, leadership. Coordinating	None		
7	Evaluation: Definition, purposes, tools, responsibility, criteria of good evaluation.	None	**Q1**	

8	Economic evaluation: Efficacy, cost- benefit, cost- effectiveness, cost-minimization	None		
9	Health care system (inputs, process, outputs effects, impact, system environment).	None		
10	What is Quality in Clinical Labs	None		
11	Quality Control and Quality Assurance	None		
12	Laboratory Accreditation systems	None	**Q2**	
13	CAP accreditation system	None		
14	Visceral & Cutaneous Larva Migrans	None		
17/18	**Final Exam**			

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessment	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	Laboratory reports	Every Week	10 %
2	Quiz	Designated week	30%
3	Assignment		10 %
4	Final written examination	17/18th Week	50 %

Learning Resources:

1. Required Text(s)

Handbook of Quality Assurance in Laboratory Medicine

Author	Shubhangi Tambweker
Publisher	BI Publications Pvt Ltd, 2009
ISBN	817225315X, 9788172253158

2.

Title	Laboratory Quality Assurance Manual
Editors	Eric L. Botnick, Ram S. Suga, Kenneth T. White
Contributor	American Industrial Hygiene Association, Sampling and Laboratory Analysis Committee Staff
Edition	illustrated
Publisher	AIHA, 2005
ISBN	1931504636, 9781931504638
Length	77 pages

P u b l i c H e a l t h

Course code	1701464-1
Course title	**Public Health**
Level / semester	4th Year (Second term)
Credit hours	**Theoretical: One hour** **Practical: NA**
Language	English
Name of course coordinator	Dr. Ibrahim Saad Nada. Associate professor of public health ibsnada@gmail.com  DR, Hamza Assaggaf: hmsaggaf@uqu.edu.sa
Course objectives	By the end of this course, the students will be able to: • Identify the nature, health effects and sources of environmental risks. • Acquire knowledge about major air pollutants, allergens, carcinogens, chemical poisons, and various physical factors which may cause health hazards. • Possess epidemiological knowledge about a main parasitic infestation of medical importance predisposed by various environmental factors and study of various vectors responsible for transmission of their causative agents. • Learn about the global importance of certain zoonotic diseases, their impact on human health, economy, socioeconomic status, and control of zoonotic diseases. • Define health related activities relevant to prevention and control of these risks. • Explain method of water purification system. • Acquire knowledge about health hazards among hospital workers.

Course contents	-We should know the environment, Air and ventilation, Air and ventilation, Air pollution. - Water, sanitation. - Food sanitation, Milk sanitation, Meat sanitation. - Refuse disposal, Sewage disposal. - Hospital waste. - Health hazards among hospital workers. - Environmental physical hazards. - Some chemical hazards. - Hospital acquired infection (Nosocomial infection).
Students' assessment methods	•Two periodical Exams (Quizzes) …… 20% •Activities…… …….. 10% •Final written exam ……70%

Course Descriptions

W. #	Lectures Topics	Laboratory Topics	Quiz	Date
1	What is the environment-Air and ventilation-Major climate changes (Changes of atmospheric temperature, Humidity of air, Cooling power of air)-	None		
2	Air pollution (Sources, Impact, Control)-Enhanced Greenhouse Effect.	None		
3	- Water Sanitation(Sources of water, Water pollution, Diseases transmitted by water)-Steps of large scales water purification-Water Quality	None		
4	- Food Sanitation (Items of food-control program)-	None		
5	Milk Sanitation (Diseases transmitted by milk-How to get save milk)-Meat Sanitation (Diseases transmitted by meat-How to get save meat-Preservation of meat).	None		
6	Refuse Disposal-	None		

7	Sewage Disposal (definition, types, hazards, method of disposal).	None	**Q1**	
8	-Hospital Waste (classification, waste management).	None		
9	- Environmental Physical Hazards (Noise, Heat)	None		
10	Radiation. -	None		
11	- Some Chemical Hazards (concentrated acids & alkalis,solvents) .	None		
12	Health hazards among hospital workers. - Physical hazards: Noise, vibration, thermal, radiation. - Chemical hazards: Cleaning compounds and disinfectant, cytotoxic, ethylene oxide, formaldehyde, solvents. - Biological hazards: Aids, hepatitis B & C, cytomegalovirus, rubella, tuberculosis. - Ergonomic. - Psychosocial hazards.	None	**Q2**	
13	Nosocomial infection (Hospital Acquired Infection)	None		
17/18	**Final Exam**			

Evaluation:

Schedule of Assessment Tasks for Students During the Semester			
Assessment	**Assessment task**	**Week due**	**Proportion of Final Assessment**
1	Laboratory reports	Every Week	10 %
2	Quiz	Designated week	30%
3	Assignment		10 %
4	Final written examination	17/18th Week	50 %


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