هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

Course Specifications

Course Title:	Histological Techniques
Course Code:	ClS 355
Program:	Bachelor of Science in Clinical Laboratory Science (BSCLS)
Department:	Clinical Laboratory Science (ClS)
College:	College of Applied Medical Sciences for Boys, Al-dawadmi
Institution:	Shaqra University

Table of Contents

A. Course Identification

1. Credit hours:	2 (1+1)
2. Course type	
a.	University ☐ College ☐ Department ☑ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	LEVEL 5 / 3rd year
4. Pre-requisites for this course (if any)**:**	CLS 243
5. Co-requisites for this course (if any)**:**	None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	--	--
2	**Blended**	15	33.3
3	**E-learning**	--	--
4	**Distance learning**	--	--
5	**Other(Practical)**	30	66.6

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	15
2	**Laboratory/Studio**	30
3	**Tutorial**	--
4	**Others** (specify)	--
	Total	45

B. Course Objectives and Learning Outcomes

1. Course Description

This course will provide the students with the basic knowledge in the techniques of tissue preparation, tissue processing includes fixation, dehydration, Clearing, Impregnation, Embedding and Casting of tissues. It also gives information about the Decalcification, cutting of tissue by microtome, Staining of tissue by routine as well as special stains, Mounting and examination of them under the light microscope. In addition it covers the information regarding frozen section, museum technique, immuno-histochemistry and it provides students to learn how to use the light microscope properly.

2. Course MainObjective

- It will provide the students with the basic knowledge in the techniques of tissue Preparation, Processing, Staining, Mounting and Examination under the light microscope.
- It also provides the students how to use the light microscope properly
- It extends their knowledge to understand how to preserve the museum specimens.
- It provides the knowledge to demonstrate the special substances in tissue

It also provides the knowledge to understand the basic concepts of Immunohistochemistry

3. Course Learning Outcomes

	CLOs	AlignedPLOs
1	**Knowledge and Understanding**	
1.1	Recognize and familiarize the basic knowledge with regards to the techniques, staining and safety that used to examine the histopathological specimens as well in the histopathology laboratory	K1
1.2	Memorize the basic concept and principles of methods that can be used to demonstrate the special substances in the tissue section	K1
2	**Skills :**	
2.1	Develop the skills and create an ability to differentiate in regards to the preparation, quality of staining, special methods of histological materials for the diagnosis of diseases	S1
2.2	Demonstrate to prepare the different histological materials and examine the technical errors that may occurs during the processing of specimens used for diagnosis and how to rectify them	S2
2.3	Demonstrate and illustrate the effective communication with patients, colleagues and other staff members in simple and understandable language	S4
2.4	Develop the skills and create an ability to differentiate in regards to the preparation, quality of staining, special methods of histological materials for the diagnosis of diseases	S1
3	**Values:**	
3.1	Evaluate the updated laboratory test's information from different scientific sources and also to criticize the laboratory procedures and results with medical personnel	C1
3.2	Analyze and evaluate time management , discipline and also to ethical behavioral, respect in different points of view	C3
3.3	Justify the guidelines and illustrate the appropriate laboratory equipment and ability to demonstrate to other colleague and to the juniors	C4

B. Course Content

No	List of Topics	Contact Hours(theory and practical)
1	Orientation with the students – Brief description about the syllabus , Introduction to Histological Techniques &Histopathology	3
2	Fixation and fixatives	3
3	Decalcification	3
4	Tissue Processing, Casting / Blocking	3
5	Microtome & Microtome Knives	3
6	First Midterm examination	3
7	Tissue Preparation of paraffin section including frozen	3
8	Recognition & Correction of faults occurring in blocks & section ,Storage	3

	of blocks, Adhesive, Rapid Processing.	
9	Staining – Principle & Theory	3
10	Haematoxylin & Eosin staining and Mountants	3
11	Special stains : PAS staining, Perl's staining, Vangieson staining, Reticulin staining, AFB staining, Staining for Fat	3
12	Second Midterm examination	3
13	Immunohistochemistry	3
14	Enzymehistochemistry	3
15	Museum Techniques	3
16	Final Examenations	
Total		45

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	TeachingStrategies	AssessmentMethods
1.0	**Knowledge and Understanding**		
1.1	Recognize and familiarize the basic knowledge with regards to the techniques, staining and safety that used to examine the histopathological specimens as well in the histopathology laboratory	Interactive Power point / Multimedia Lecture,Presentation, Group discussion, Participation, Self reading, Handouts and Laboratory training	Attendance, Participation, Quizzes, Assignment, 2 Midterm exams and Final Exams including practical examination
1.2	Memorize the basic concept and principles of methods that can be used to demonstrate the special substances in the tissue section	Interactive Power point / Multimedia Lecture Presentation, Group discussion, Reading, Laboratory training	Assignment, 2 Midterm exams and Final Exams including practical examination, Attendance
2.0	**Skills**		
2.1	Develop the skills and create an ability to differentiate in regards to the preparation, quality of staining, special methods of histological materials for the diagnosis of diseases	Interactive lecture Randomize crossover study , Group discussion, laboratory training Multimedia presentation Field experience	Attendance, Participation, Quizzes , Observation Assignments and Laboratory demonstration
2.2	Demonstrate to prepare the different histological materials and examine the technical errors that may occurs during the processing of specimens used for diagnosis and how to rectify them	Randomize crossover study, Group discussion, laboratory training Multimedia presentation Field experience	Attendance, Participation, Quizzes , Assignments and Laboratory demonstration Observation
2.3	Demonstrate and illustrate the	Multimedia presentation	Attendance, Participation,

Code	Course Learning Outcomes	TeachingStrategies	AssessmentMethods
	effective communication with patients, colleagues and other staff members in simple and understandable language	Randomize crossover study, Group discussion, laboratory training Case analysis	Quizzes , Assignments and Laboratory demonstration Observation
3.0	**Values**		
3.1	Evaluate the updated laboratory test's information from different scientific sources and also to criticize the laboratory procedures and results with medical personnel	Group discussion Daily routine examples Field and lab training Assignment Small research Use of information technology	Demonstration, Participation and Practical assignments Assignment Viva voice Assessment
3.2	Analyze and evaluate time management , discipline and also to ethical behavioral, respect in different points of view	Group discussion Daily routine examples Field and lab training Assignment Small research	Demonstration, Participation and Practical assignments Assignment Viva voice Assessment
3.3	Justify the guidelines and illustrate the appropriate laboratory equipment and ability to demonstrate to other colleague and to the juniors	Group discussion Daily routine examples Field and lab training Assignment Small research	Demonstration, Participation and Practical assignments Assignment Viva voice Assessment Feed back

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	1st Midterm Test (Practical & theory)	6th	25
2	2nd Midterm Test (Practical & theory)	12th	20
3	Attendance & Quizzes	1-15 weeks	5
4	Online assignment & Presentation	7th, 10th	5
5	Practical activates and hospital report	1-15 weeks	5
6	End-Term Examination (Practical & theory)	16th	40

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :
Faculty must be available for academic counseling and support as per the scheduled mentioned.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	• Theory and Practice of Histological Techniques ,Bancroft ,Fifth Edition • Cellular Pathology Techniques, Culling , Fourth Edition, Buttorworth • Color Atlas of Histopathology – Curran • Basic Histology - L.C. Junqueria • Functional medical laboratory technology A comprehensive series of manual histologyand cytology -Stanley.L.Lamber, Robert Rothatem Avi • Text book of Medical Laboratory Technology – Praful.B.Godkar • Text book of Medical Laboratory Technology – Ramnik sood
Essential References Materials	• Journals of Histology : http://www.hindawi.com/journals/jh/guidelines/ • Journal of Molecular Histology : http://www.springer.com/life+sciences /cell+biology/journal/10735 • Introductory HISTOLOGY Cells, Basic Tissue Types, BloodCells: http://www.siumed.edu/~dking2/intro/SAQint.htm • National Society for Histotechnology: How Do I Become a Histotechnologist • National Society for Histotechnology: What is Histotechnology? • National Center for Biotechnology Information: Stent Scraping for Histology – An alternative Method for Obtaining Tissue to Rule out Neoplasia
Electronic Materials	• http://pathweb.uchc.edu/ • http://www.immunoportal.com/ • http://www-medlib.med.utah.edu/WebPath/general.html • http://wwmedlib.med.utah.edu/WebPath/HISTHTML/HISTOTCH/HISTOTCH.html • Shaqra digital library
Other Learning Materials	• Human Histology: http://homepage.smc.edu/wissmann_paul/histology/ • Virtual Histology Laboratory of online slides, with annotation. These specimens at the Virtual Slide box (University of Iowa) may be examined with full range of magnification and movement. Requires Java and fast internet connection. • Annotated Histology Laboratory (specimens include introductory notes) • Histology Atlas • Human Histopathology Atlas • Zoomified Histology A virtual microscopy website at Loyola University Medical Education Network (LUMEN)

	• Shotgun Histology (on YouTube, narrated surveys of virtual slides) • https://su-lms.com (moodle)

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	• A well equipped laboratory for practical training and are equipped with materials for teaching • Large class rooms with a capacity of 35 seats are available • Smart board with LCD projector is available for lecture. • Up to date scientific books, in the library
Technology Resources (AV, data show, Smart Board, software, etc.)	• A fully equipped computer laboratory with internet facility is available • We have smart board with LCD projector containing internet facility
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	• Light microscopes • Microscope with Video cameras linked to TV circuits • Fluorescent microscope • Animation models • Human Histological Slides • Learning program (CD) • Histology lab equipment must ensure ease of handling during the process • Equipment are made from quality material that gurantees long service life of the product. • Histology lab equipment must include Tissue dissection, Slicing, Preparation, Probing, Staining and Analysis require tools that reliably produce high-quality samples

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
• Regular evaluation of the theoretical and practical parts of the course to identify the weakened areas	Faculty	Course report
• Performance appraisal form filled up by each student to show level of fulfillment of the	Faculty staff	Course report

Evaluation Areas/Issues	Evaluators	Evaluation Methods
course		
• Confidential completion of standard course evaluation questionnaires	Students	Course Evaluation Template
• At the end of each semester feedback regarding the effective of teaching and assessment of staff and the facilities in the college is taken from the students in order to develop in the year	Program leader / Head of the Department Quality Committee	Annual program report

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes,Quality oflearning resources, etc.)
Evaluators (Students,Faculty, Program Leaders,Peer Reviewer, Others (specify)
Assessment Methods(Direct, Indirect)

H. Specification Approval Data

Council / Committee	Department of Clinical Laboratory Science Council
Reference No.	
Date	