هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

Course Specifications

Course Title:	CYTOPATHOLOGY
Course Code:	CLS 474
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

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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 7 / 4th 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**	15	33.3
2	**Blended**	--	--
3	**E-learning**	--	--
4	**Distance learning**	--	--
5	**Other**	30	66.7

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

It will provides the students with the basic knowledge in the principles and procedures involved in the collection, processing, cytopreparation, screening, interpretation and reporting of cytology specimens under the light microscope. It also provides the students to explain the aims and applications of fine needle aspiration cytology and immunocytochemistry in the diagnosis of diseases

2. Course Main Objective

After completing the course the students should be capable to:

1. Define cytology and cytopathology
2. Demonstrate a general knowledge of the principles & procedures involved in the cytopathological techniques consists of collection, cytopreparation, processing, staining, screening, interpretation and reporting of various cytological specimens

3. Apply health and safety in sample collection, transportation and preparation in cytopathology lab
4. Competently able to differentiate, interpret and describe the morphological features of the normal cells observed in the cytological specimens; Gynecological & Non gynecological
5. Recognize, differentiate, interpret and describe the morphological features of the inflammatory cell types as well as cell types of commonly encountered pathological diseases like malignancy.
6. Explain the aims and applications of fine needle aspiration cytology in the diagnosis of disease.
7. Describe the aims and applications of Immunocytochemistry and Enzymecytochemistry in the diagnosis of disease.

Recognize and understand the causes of common technical faults in cytological preparation, explain how to overcome them and appreciate how they may affect accurate diagnosis

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Recognize the basic knowledge with regards to the techniques that used to examine the cytological specimens. Recognize and familiarize the basic knowledge with regards to the techniques, staining and safety that used to examine the cytological specimens as well in the cytology laboratory	K1
1.2	Memorize the fundamental concept and principles that can be applied to recognize and discriminate the Cyto-Morphological Features of Normal and abnormal cells in attention to the inflammation and tumors	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 cytological materials for the diagnosis of diseases	S1
2.2	Demonstrate to prepare the different cytological 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
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	V1
3.2	Analyze and evaluate time management, discipline and also to ethical behavioral, respect in different points of view	V3
3.3	Justify the guidelines and illustrate the appropriate laboratory equipment and ability to demonstrate to other colleague and to the juniors	V4

C. Course Content

No	List of Topics	Contact Hours
1	**Course enrollment and registration** **Introduction to the course**	3
2	**Collection and Preparation of specimens** ❖ Gynecological specimens– vaginal, cervical, endocervical, endometrial and vulval specimens. ❖ Non-gynecological specimens - sputum, bronchial, Body fluids (serous effusions),CSF, urine ❖ Concentration and special technique used in cytology such as Centrifugation, Cyto-Centrifugation, Membrane Filters, Cell blocks. Liquid based cytology - Monolayer preparation.	3
3	**Cytopathology Techniques** ❖ Fixation of Cytology specimens, various fixatives, pre fixation, coating and spray fixation, advantages and disadvantages ❖ Staining - Routine Cytology Stains such as Pap, MGG, H&E and Shorr's stain	3
4	**Normal cell appearance of gynecological specimens** ❖ Epithelial elements and non-Epithelial elements **Hormone cytology** ❖ Normal cervical cell appearance during phases of the menstrual cycle	3
5	**Abnormal cell appearance of gynecological specimens** ❖ Inflammatory lesions of the female genital tract ❖ Premalignant and Malignant lesions of the female genital tract	3
6	**First Midterm Examination**	3
7	**Respiratory tract cytology** ❖ Normal cytology and abnormal cytology like Inflammation and Bronchogenic carcinoma	3
8	**Urinary cytology** ❖ Normal, Non Malignant and Malignant Cytology	3
9	**Gastro Intestinal Tract cytology** ❖ Normal, Non Malignant and Malignant Cytology	3
10	**Cytology of Body Effusions and CSF** ❖ Non Malignant and Malignant Cytology of Pleural, Peritoneal/Ascitic and Pericardial Fluid.	3
11	**Fine Needle Aspiration Cytology** ❖ Scope, advantages and disadvantages	3
12	**Second Midterm Examination**	3
13	**Immunocytochemistry** ❖ Monoclonal &Polyclonal antibodies, Labels used Methods – Direct &Indirect including PAP & ABC method – Principle , Reagents used , Procedure , Result & Controls used.	6
14		
15	Remedials, Revisions and Consultations	3
Total		45

D. Teaching and Assessment

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

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Recognize the basic knowledge with regards to the techniques that used to examine the cytological specimens. Recognize and familiarize the basic knowledge with regards to the techniques, staining and safety that used to examine the cytological specimens as well in the cytology laboratory	Interactive Power point / Multimedia Lecture,Presentation, Group discussion, Participation, Self reading, Handouts and Laboratory training	Quizzes Assignment, Midterm exams Final Exams including practical examination
1.2	Memorize the fundamental concept and principles that can be applied to recognize and discriminate the Cyto-Morphological Features of Normal and abnormal cells in attention to the inflammation and tumors	Interactive Power point / Multimedia Lecture Presentation, Group discussion, Reading, Laboratory training	Quizzes Assignment, Midterm exams Final Exams including practical examination
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 cytological materials for the diagnosis of diseases	Interactive lecture Randomize crossover study , Group discussion, laboratory training Multimedia presentation Field experience	Laboratory demonstration Quizzes Assignment, Midterm exams Final Exams including practical examination
2.2	Demonstrate to prepare the different cytological 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	Laboratory demonstration Quizzes Assignment, Midterm exams Final Exams including practical examination
2.3	Demonstrate and illustrate the effective communication with patients, colleagues and other staff members in simple and understandable language	Multimedia presentation Randomize crossover study, Group discussion, laboratory training Case analysis	Laboratory demonstration Quizzes Assignment, Midterm exams Final Exams including practical examination
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	Group discussion Daily routine examples Field and lab training	Demonstration, Participation and Practical assignments

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	medical personnel	Assignment Small research Use of information technology	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	First& Second Midterm Examination(theory)	6th and 12th week	20%
2	Quizzes	2end - 13th weeks	5%
3	Group project / oral presentation	2end - 13th week	5%
4	First& Second Midterm Examination(practical)	6th and 12th week	20%
5	Online Assignments/homework	2end - 13th week	5%
6	Practical Activities	1rst - 14th weeks	5%
7	Final Examination		40%
8	Total		100%

***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	• Diagnostic Cytology and its Histopathologic Basis - Vol 1 & II- L.G. Koss • Test Book of Cytology - Walter.V. Bran &i. Eldrige • Cytological techniques - J.F. Baker • Exfoliative cytology in Gynecological practice - Erisa.G. Wachtel

	• Diagnostic cytopathology in the uterine cervix - Glaudes Gempal • Atlas of Diagnostic cytology - Glaudes Gempal • Functional medical laboratory technology A comprehensive series of manual histology and cytology -Stanley.L.Lamber, Robert Rothatem Avi • Compendium on diagnostic cytology, Tutorial of cytology – Weid, George etal • Manual and atlas of fine needle aspiration cytology -Svante R, Orell • Manual of Histological Techniques &Diagnostic Application, Bancroft J.D, Cook H.C
Essential References Materials	• Acta cytologica • BMJ • North American annals • Journal of Cytology & Histology • Journal of Cytology
Electronic Materials	• http://pathweb.uchc.edu/ • http://www.cytopathnet.org • http://pathology2.jhu.edu/cytopath/index.html • http:// www.ucl.ac.uk › • shaqra digital library • http://www.hoslink.com/pathology/histo/cytjourn.html
Other Learning Materials	• https://su-lms.com (moodle) • http://papsociety.org/mailman/listinfo/members_papsociety.org • www.cytology-iac.org › educational-resources › virtual-slide-library

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 • Cytology lab equipment must ensure ease of handling during the process and these equipments are made

Item	Resources
	from quality material that guarantees long service life of the products. • Automated slide stainer • Cytology chemicals

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 course	Faculty	Course report
• 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 of learning 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	