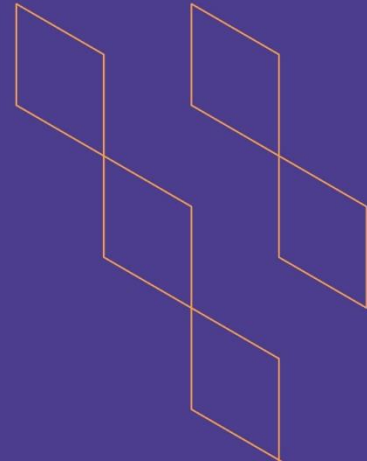




T-104
2022

Course Specification



Course Title: **Specimen Techniques**

Course Code: **BIOL311**

Program: **Biology**

Department: **Biology**

College: **Science**

Institution: **Jazan University**

Version: **4**

Last Revision Date: **18 October 2020**



Table of Contents:

Content	Page
A. General Information about the course	3
1. Teaching mode (mark all that apply)	3
2. Contact Hours (based on the academic semester)	3
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods	5
C. Course Content	6
D. Student Assessment Activities	7
E. Learning Resources and Facilities	8
1. References and Learning Resources	8
2. Required Facilities and Equipment	8
F. Assessment of Course Quality	8
G. Specification Approval Data	9

A. General information about the course:

Course Identification

1. Credit hours: 2

2. Course type

a. University ☐ College ☐ Department ☒ Track ☐ Others ☐

b. Required ☒ Elective ☐

3. Level/year at which this course is offered: 7th Level/ 3rd Year

4. Course general Description

- The course on specimen techniques covers the process and methods involved in preparing samples.
- This course provides an overview of the techniques used to collect and prepare animal and plant specimens for laboratory experiments, as well as discussions on skills, quality assurance, and safety protocols.

5. Pre-requirements for this course (if any): Histology (ZOOL 252)

6. Co- requirements for this course (if any):

7. Course Main Objective(s)

1. This course aims giving students the basic theoretical and practical techniques of histological samples and specimen preservation and related information.
2. Be able to identify supplies required for sample collection.
3. Be able to describe the pre-examination factors that affect specimen integrity.
4. Describe professional skills that would ensure student safety and comfort.
5. To study various tissue, different types of dyes, and its role in study histochemistry.
6. Define technical terminology related to laboratory techniques or sample collection.
7. Collect plant and animal specimen successfully and preserve same.
8. Prepare both temporary and permanent slides using histological techniques.
9. Be able to know the basic principles guiding the use of each instrument.

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	33	100%
2.	E-learning	--	
3.	Hybrid <ul style="list-style-type: none"> • Traditional classroom • E-learning 	--	
4.	Distance learning	--	

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	11
2.	Laboratory/Studio	22
3.	Field	0
4.	Tutorial	0
5.	Others (specify)	0
	Total	33

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Define all principals, concepts, theories and aspects concerning with course.	K1-1	Interactive lectures. Classroom discussions Tutorials. Self-learning activities.	MCQs. Short answer questions. True/False. Quizzes. Midterm. Final.
1.2	List all characteristics, importance, features, steps of biological aspects.	K1-3	Interactive lectures. Classroom discussions Tutorials. Self-learning activities.	MCQs. Short answer questions. True/False. Quizzes. Midterm. Final.
1.3	Differentiate (Compare) between different mechanisms, functions, practices and aspects related to biological sciences.	K2-1	Interactive lectures. Classroom discussions Tutorials. Self-learning activities.	MCQs. Short answer questions. True/False. Quizzes. Midterm. Final.
1.4	Interpret by using your knowledge and understanding some of biological phenomena.	K3-2	Interactive lectures. Classroom discussions Tutorials. Self-learning activities.	MCQs. Short answer questions. True/False. Quizzes. Midterm. Final.
2.0	Skills			
2.1	Examine theoretically or practically the slides, photos, diagrams or statements of the course aspects.	S1-3	Interactive lectures. Classroom discussions Tutorials. Self-learning activities.	MCQs. Short answer questions. True/False. Quizzes. Midterm. Final.
2.2	Argue different biological approaches in laboratory or field or even theoretically.	S2-2	Interactive lectures. Classroom discussions Tutorials. Self-learning activities.	MCQs. Short answer questions. True/False. Quizzes. Midterm. Final.



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.2	Design a biological experiment and procedures in laboratory or in the field or even theoretically	S3-1	Interactive lectures. Classroom discussions Tutorials. Self-learning activities.	MCQs. Short answer questions. True/False. Quizzes. Midterm. Final.
3.0	Values, autonomy, and responsibility			
3.1	Illustrate awareness of risk assessment and safety observation when dealing with various equipment at various fields.	V2-1	Individual assignments. Group discussion. Lab-work. Self-learning activities. Micro-Project Presentation (individual and teamwork)	Lab work assessment, Short Answer Question, MCQs,

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction: overview of Light and Electron Microscopy, Methods of Specimen Preparation - Plant & Animal Samples.	1
2.	Fixation: fixation benefits, Specifications of a good fixative, principles and methods of fixation process. Fixative types.	2
3.	Tissue Processing (1): Washing, Dehydration, clearing (clearing agent proprieties; types of Clearing agents)	1
4.	Tissue Processing (2): Infiltration and Embedding definition, Infiltration and Embedding agents	2
5.	Preparation of sectioning and Microtomy: Trimming, affixation, types of sections, sectioning problems and treatment, types of microtomes and uses.	2
6.	Staining: classification of dyes, Mordants, Methods of Staining, differentiation definition.	2
7.	Mounting medium for microscopy: Permanent Mount, Semipermanent Mount, Slide Mounting Media	1
Total		11



D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Theoretical quiz	4	5
2.	Mid-term exam	6	10
3.	Practical quiz	5	5
4.	Practical assignment	6	5
5.	Final practical exam	11	20
6.	Final Exam	12	50

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)



E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	<ul style="list-style-type: none"> Optical laboratory preparations, by Hamed Ahmed Al Haj, 2015 (In Arabic).
Supportive References	<ul style="list-style-type: none"> Animal specimen techniques/ Osama A. Abuzinadah, Samar O. Rabah, Mona Mahmoud and Ferial M. Stietieh. Publisher: King Saud University- Riyadh (2015) Microscopy and Techniques, by Mohamed S. Khalifa. publisher: Deanship of Library Affairs, King Saud University (In Arabic). Bancroft & Stevens, (2007). Theory & Practical of Histological Techniques. Churchill Livingstone, New York.
Electronic Materials	https://www.labster.com/simulations https://praxilabs.com/en/virtual-biology-lab
Other Learning Materials	PowerPoint presentations given by the instructors practical and theoretical

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	1 Lecture room(s) for groups of 25 students. 1 Laboratory for group of 15 students.
Technology equipment (projector, smart board, software)	Internet connection, data show or smart board
Other equipment (depending on the nature of the specialty)	Light microscopes, glassware, chemicals, consumables, dissection tools.

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Peer to peer Reviewer, students	Indirect (Surveys)
Effectiveness of students assessment	Program quality committee, Program leader, peer reviewer	Direct (Cross Check), Indirect (Surveys)
Quality of learning resources	Students	Indirect (Surveys)
The extent to which CLOs have been achieved	Course coordinator	Excel sheet of CLOs assessment (direct), Surveys (indirect)
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	BIOLOGY PROGRAM BOARD
REFERENCE NO.	BIO2214
DATE	20/9/2022AD

Course coordinator: **Dr. Mabrouk AboZaid Mabrouk**

Signature:

Head of Department

Name: **Dr. ABDULLAH YAHYA MASHRAQI**

Signature: