

Course E-Syllabus

1	Course title	Practical Molecular Biology
2	Course number	5501425
3	Credit hours	One credit hour
	Contact hours (theory, practical)	Three contact hours
4	Prerequisites/corequisites	5501424
5	Program title	Bachelor in Biological Sciences
6	Program code	550
7	Awarding institution	The University of Jordan-Aqaba
8	School	Basic and Marine Sciences
9	Department	Marine Biology
10	Level of course	Forth year
11	Year of study and semester (s)	Second Semester 2019/2020
12	Final Qualification	B.Sc.
13	Other department (s) involved in teaching the course	none
14	Language of Instruction	English
15	Teaching methodology	<input checked="" type="checkbox"/> Blended <input type="checkbox"/> Online
16	Electronic platform(s)	<input checked="" type="checkbox"/> Moodle <input type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input checked="" type="checkbox"/> Zoom <input type="checkbox"/> Others.....
17	Date of production/revision	

18 Course Coordinator:

Dr. Zeinab H. Arabeyyat

Office number: 342

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19 Other instructors:

N/A

20 Course Description:

As stated in the approved study plan.

Laboratory exercises will introduce the students to hands on experience of molecular biology techniques for marine sampling and analysis, including DNA extraction, purification. DNA quality, restriction digestion of DNA, and DNA gel electrophoresis.

21 Course aims and outcomes:

A- Aims:

Upon successful completion of this course, students will be able to carry out prescribed practical laboratory experiments applied to specific areas of basic molecular biology (including DNA extraction, purification. DNA quality, restriction digestion of DNA, and DNA gel electrophoresis). To be able to report on practical experiments in selected areas of basic molecular biology, and to become familiar with commonly used molecular techniques and their application to biological research.

B- Intended Learning Outcomes (ILOs):

Upon successful completion of this course, students will be able to:

Learning outcomes:

Knowledge and understanding.

At the end of this module, students will be able to:

- Carry out prescribed practical laboratory experiments applied to specific areas of basic molecular biology.
- Report on practical experiments in selected areas of basic molecular biology.
- Become familiar with commonly used molecular techniques and their application to biological research.
- Able to write a laboratory scientific report.

Cognitive skills (thinking and analysis).

- Students will be able to acquire, articulate, retain and apply specialized language and knowledge relevant to molecular biology.
- Students will acquire and demonstrate competency in laboratory safety and in routine and specialized molecular biology laboratory skills applicable to molecular research, including accurately reporting observations and analysis.
- Students will communicate scientific concepts, experimental results and analytical arguments clearly and concisely, both verbally and in writing.
- Students will demonstrate engagement in the Molecular Biology discipline through involvement in research or internship activities.

22. Topic Outline and Schedule:

Week	Lecture	Topic	Teaching Methods*/platform	Evaluation Methods**	References
1	1.1	General laboratory health and safety rules	Synchronous lecture	Short questions	Laboratory safe roles sheet
2	2.1	Pipetting	Synchronous lecture	Quiz	Weaver, 2011 and lab manual.
3	3.1	Preparation of buffer solution	Synchronous lecture	Quiz	Weaver, 2011 and lab manual.
5	5.1	DNA Extraction from Banana	Synchronous lecture	Quiz	Weaver, 2011 and lab manual.
6	6.1	DNA Extraction from Microalgae	Synchronous lecture	Quiz	Weaver, 2011 and lab manual.

8	8.1	How to write a scientific report	Asynchronous lecture/zoom and Moodle	-	Lab manual.
10	10.1	DNA Quality Test (280/260 ratio)	Asynchronous lecture/zoom and Moodle	Quiz	Weaver, 2011; Allison, 2007 and lab manual.
12	12.1	DNA Gel Electrophoreses	Asynchronous lecture/zoom and Moodle	Homework	Weaver, 2011; Allison, 2007 and lab manual.

- Teaching methods include: Synchronous lecturing/meeting; Asynchronous lecturing/meeting
- Evaluation methods include: Homework, Quiz, Exam, pre-lab quiz...etc

23 Evaluation Methods:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	Period (Week)	Platform
Quizzes	30	2.1 , 3.1 , 5.1 , 6.1	-	Zoom, Google Forms, and Messenger.
Lab report	15	6.1	-	E-Learning
Summary report	15	10.1 , 12.1	-	E-Learning, YouTube
Final exam	40	2.1 , 3.1 , 5.1 , 6.1, 10.1 , 12.1	-	Google Forms, Zoom, and Messenger.

24 Course Requirements (e.g: students should have a computer, internet connection, webcam, account on a specific software/platform...etc):

- **Computer and internet connection are required for preparing lab reports, reading lab sheets and watching online instructional videos and learning of practicals.**
- **Practical working inside the laboratory is necessary for this module.**

25 Course Policies:

A- Attendance policies:

- **I strongly recommend students attend every lecture. Missing any lecture will put them at a distinct disadvantage when test taken.**
- **Any student with four or more unexcused absences from lab can be legally dropped from the course.**

B- Absences from exams and handing in assignments on time:

The only valid excuses for missing an exam are death in the family, illness, or accident. In this case, student must provide evidence of some kind and must report me within 3 days.

C- Health and safety procedures:

Students who miss the exam due to illness or other excuse must notify me within the first week after the exam, so make up arrangements can be made.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

- **Students are not expected to talk loudly in class or inside the lab while the lecturer is lecturing,**
- **After two warning, the Student will be automatically removed from the class or the lab.**
- **Any act of cheating, or academic misconduct is subject to penalties.**
- **The minimum penalty for any students caught cheating will receive a zero on that test.**

E- Grading policy:

Type	Grading
Lab reports:	15%
Quizzes:	30%
Summary report:	15%
Final Exam:	40%
Total	100%

Exams: The examinations consist of any combination of multiple choice, true or false and short answer questions.

F- Available university services that support achievement in the course:

Library sources are available and internet.

26 References:

A- Required book(s), assigned reading and audio-visuals:

- **Allison L. A. (2007). Fundamental Molecular Biology, Blackwell Publishing, Malden, MA, USA. 748 pp.**
- **Weaver, RF. (2011). Molecular Biology. New York, NY. McGraw-Hill publisher. 5th edition, 892 pp.**
- **Lab manual/protocols (required, will be provided as PDF files or hard copy).**
- **Other readings (Will be provided as PDF files or hard copy).**

B- Recommended books, materials and media:

Electronic online-free books.

YouTube.

Moodle.

27 Additional information:

N/A

Name of Course Coordinator: **Dr. Zeinab H. Arabeyyat** Signature: ----- Date: -----

Head of Curriculum Committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of Curriculum Committee/Faculty: ----- Signature: -----

Dean: ----- Signature: -----