

DEPARTMENT OF ZOOLOGY

ZOO553

Syllabus, Fall 2021

INSTRUCTOR: Dr. Lama AlAbdi

office: bldg.5, 3rd fl, office #111

e-mail: lalabdi@ksu.edu.sa

Office hours: Immediately following class or by appointment. I am also available in my office on Sundays 11:00am-12:00pm. On Tuesday 10:00am-1:00pm and on Wednesday from 10:00am-12:00pm

LECTURE TIME AND PLACE

Mondays 8:00-9:50am; in-person lectures will be given at G022. If you are more than 10min late without prior notice, then please do not come into class. If you are scheduled to give a presentation, please be there and ready before lecture time as tardiness will not be excused.

COURSE OBJECTIVES

By the time you finish this course, you will have sufficient knowledge in: restriction enzymes, cloning vectors and cloning, construction of genomic, chromosome and cDNA libraries, identifying specific cloned sequences in cDNA and genomic libraries, DNA sequence analysis , applications of genetic engineering, hazards and problems of recombinant DNA technology, and the possible techniques to minimize biohazards.

LEARNING OUTCOMES

Knowledge about basic concepts of restriction enzymes, their biological roles, and the different areas they are used in biological setting.

Understand the use of restriction enzymes in molecular cloning.

Have basic understating of how to construct libraries and the reason behind their use.

Comprehend the different techniques in sequencing highlighting their strengths and weaknesses

Familiarization with the concept of genetic engineering and the issues arising from the field.

Ability to present talks and hold a scientific discussion with peers.

TEXTBOOK

The majority of the material from this course will be from Campbell's Biology textbook as well as published scientific literature. Papers are accessible free of charge and electronically through the KSU Library. Links to these sources and the PDF files can also be downloaded from Blackboard.

<https://access.library.ksu.edu.sa/>

BLACKBOARD

The syllabus for the course, lecture notes, assignment instructions, primary literature assignments and grading keys/rubrics will be available via the KSU Blackboard site at: <https://lms.ksu.edu.sa/webapps/login/?action=relogin>

ASSESSMENT

IN CLASS ASSESSMENT/ASSIGNMENTS

Grades will be assessed based on class participation, presentations, and class discussions. This class is graded by percentage with each assignment having equal weighting. Then the final grade will be determined by examining the progress the student made during the semester to improve her skills. Class participation points will be determined through active discussions, contribution to student presentations, asking questions, etc. Students are responsible for reading the material prior to class.

NOTE: Failure to read an assignment before class will result in a zero for that class day.

Activity

During this course, students will learn to read and critically review scientific papers. They will also learn the important, sometimes intangible skills that are necessary for graduate student success. Almost every week, we are scheduled to have a student presentation (see syllabus below), the pre-determined paper will be assigned to a pair of students. One student will be responsible for the presentation (describing the assigned paper using the standardized classroom format) and the other student will be leading the paper discussion afterwards. Other students will participate in discussion and everyone will have to answer a short question by the end of class (written). Presenters will also get feedback from the class and instructor. Written assignments will involve writing a short response to a question from the presented paper.

The grading for this course will be as follows:

10% attendance/ participation

10% written assignments

10% presentations

30% Midterm

40% Final examination

Note that participation in class is equally weighted to class presentations so make sure that you have read assignments ahead of time for each class so that you are FULLY engaged in the discussions. Also note that if you do not attend class, you will miss both participation and presentation credit.

Class Participation

To obtain participation points, students must ask or answer a question during class. Multiple questions in the same class period will count as one question. Full participation credit requires students to ask/answer questions in 8 of 10 classes. Attendance will be taken from the first week. 100% attendance is necessary for all attendance points after the first week.

The cutoff values for letter grades are as follows:

100-90% A

89-80% B

79-70% C

69-60% D

59%- below F

Absence from class will count against your class participation grade unless the absence is excused by the instructor. Missing your class presentation will result in 0 points unless the absence is excused with reasonable justification. Any request to be excused from class must include official documentation (doctor's note, request from academic advisor, etc). Students are welcome to inform the instructor if they will be absent, but it will not be excused without a written note.

Student Presentations

Students should understand all of the figures in a paper before class to ensure that they are prepared for discussion.

Written assignment

LabxChange is has an interesting method in introducing and explaining material. The link will be available for you to review and answer the related questions for a period of ~4 weeks. You will have many opportunities to solve the questions. Once done (and before the due date), take a screen shoot of the result screen and upload it to Blackboard.

Additionally, you are required to review the material and answer the relevant questions uploaded to blackboard (written assignment #1 and written assignment #2). Once solved, upload the material to Blackboard using the format indicated at the end of this document.

Late Work Policy

There is no late work accepted in this class. Final written documents are due by the end of class on the specified due date. Late papers will receive a zero. If you have any disagreements with the way you have been graded, please consult the grading scale and then discuss them with me.

EXTRA CREDIT

Extra credit will be available under extenuating circumstances, on a case-by-case basis.

OBTAINING EXTRA HELP

Dr. AlAbdi will be available to answer your questions immediately after class or by appointment (scheduled via e-mail). You are highly encouraged to submit questions by e-mail that will be promptly answered by return e-mail. Otherwise, please refer to the office hours listed above.

CLASS ATTENDANCE

In accordance with University policy, you are expected to attend every scheduled class. If you have a valid reason for missing class such as a University-sponsored activity, illness, or family emergency, the instructor will assist you in obtaining information and materials you may have missed. Students who skip class without a valid excuse should not expect the instructor to supply class notes or provide special help. Note that absence from class will count against your class participation grade unless the absence is excused by the instructor.

ACADEMIC MISCONDUCT

Academic misconduct of any kind will not be tolerated in any course taught by Dr. AlAbdi. Any incidence of academic misconduct will be reported to the Department head and will be reflected in your grade.

The following are a few examples of academic dishonesty:

- Substituting on an exam for another student
- Substituting in a course for another student
- Paying someone else to write a paper or preparing a presentation and submitting it as one's own work
- Giving or receiving answers by use of signals during an exam
- Copying with or without the other person's knowledge during an exam
- Doing class assignments for someone else or with other classmates when instructed not to
- Plagiarizing published material, class assignments, or lab reports
- Turning in a paper that has been purchased from a commercial research firm or obtained from the internet
- Padding items of a bibliography
- Collaborating with other students on assignments when it is not allowed
- Fabricating data

Plagiarism is a special kind of academic dishonesty in which one person steals another person's ideas or words and falsely presents them as the ones own product. This is most likely to occur in the following ways:

- Using the exact language of someone else without the use of quotation marks and without giving proper credit to the author
- Presenting the sequence of ideas or arranging the material of someone else even though such is expressed in one's own words, without acknowledging the person who provided the original material.
- Submitting a document written by someone else but representing it as one's own"

ON-LINE COURSE EVALUATIONS

During the last two weeks of the semester, you will be provided an opportunity to evaluate this course and your instructor. To this end, KSU has transitioned to online course evaluations. You will receive an official email (through Dr. AlAbdi) from evaluation administrators with a link to the online evaluation site. Your participation in this evaluation is an integral part of this course. Your feedback is vital to improving education at KSU and the department of Zoology. I strongly urge you to participate in the evaluation system.

LECTURE SCHEDULE

This course is scheduled for two hours. Presenter's and discussion leader's names will be listed along with assignment for that day. Students are responsible for reading all assigned papers prior to class. Please refer to Blackboard for instructions.

Syllabus:

Week #	Date	Material to be covered	Presenter	Discussion leader	Writing assignment
1	08/31/2021	Introduction to Molecular Biology and Genetic Engineering	Lama	N/A	Writing Assignment #1
2	09/07/2021	Restriction enzymes, cloning vectors, and cloning	Lama	N/A	
3	09/14/2021	Construction of genomic, chromosome and cDNA libraries. Identifying specific cloned sequences in cDNA and genomic libraries.	Lama	N/A	
4	09/21/2021	DNA sequence analysis	Lama	N/A	
5	09/28/2021	Applications of genetic engineering, hazards and problems of recombinant DNA technology and the possible techniques to minimize biohazards	Lama	N/A	Writing Assignment #1 DUE
6	10/05/2021	Midterm	N/A	N/A	
7	10/12/2021	Student presentation and discussion	TBD	TBD	
8	10/19/2021	Student presentation and discussion	TBD	TBD	
9	10/26/2021	Student presentation and discussion	TBD	TBD	
10	11/02/2021	Student presentation and discussion	TBD	TBD	Writing Assignment #2
11	11/09/2021	Student presentation and discussion	TBD	TBD	
12	11/16/2021	Student presentation and discussion	TBD	TBD	
13	11/23/2021	Student presentation and discussion	TBD	TBD	
14	11/30/2021	Holidays	TBD	TBD	
15	12/07/2021	Student presentation and discussion	TBD	TBD	Writing Assignment #2 DUE
16	12/14/2021	Student presentation and discussion	TBD	TBD	

Presentations Rubric:

The presentation must discuss the following on its content:

1. The field of the study.
2. Previous literature.
3. Open questions in the field (or unanswered questions)
4. What question is the investigators trying to answer?
5. Significance of the study (why is this study important?)
6. For each figure, discuss the following:
 - a. Why was this experiment done? What question was it answering?
 - b. What technique did the investigators used? Do you think there is an alternative technique?
 - c. What controls were used?
 - d. What is the take home message from the figure.
7. Finally, conclude with a paper summary and conclusion.

Please submit both the presentation and the written assignemnt on-time and through the link provided in blackboard.

Also, make sure you submit your assignment after you save them in the following format:

ZOO553_student name_ presentation # or Labxchange # or WrittenAssignment#