

DEPARTMENT OF ZOOLOGY

ZOO551

Syllabus, Fall 2021

Instructor: Dr. Lama AlAbdi

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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

Wednesday 08:00-09:50am; lectures will be given in-person at lecture G064. 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

We will have extensive discussions on mutations, recombination in bacteria, transposable of genetic material and their use in science. We will also learn about genetic control of the immune response and cell division (oncogenes and proto-oncogenes). We will cover Important studies in genetics such as the experiments of Lederberg and Tatum, Hershey and Chase, Melson and Stahl. Chargaff's Rules and Griffin experiments. Watson and Craig contributions in discovery of the DNA structure.

LEARNING OUTCOMES

- Knowledge about basic concepts cell biology, cell divisions, molecular biology , genetics and the use of different biological systems to answer biological questions.
- To develop Knowledge about basic concepts of Zoology including Genetics, important studies in genetics, RNAi, Epigenetics and chromatin regulation, cancer genetics, Oncogenes and tumor suppressor genes.
- To learn about key and standard experiments in molecular biology and genetics.
- To understand the use of controls and their importance in data interpretation.
- Practical knowledge about principles of genetics.
- To practice reading and understanding how to read a scientific paper.
- To learn and receive feedback on how to present a scientific paper.
- To participate in group discussion and learn how to ask and answer questions professionally.
- To gain the skill of scientific writing and how to write a summary and critique of a paper.
- To appreciate how to evaluate a scientific body of work.
- To learn how to perform experiments and write a report.
- To gain experience on how to ask questions and answer them.

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/>

"At the Bench" is an essential guide in graduate school. It is recommended for all graduate students but will not be covered in the course.

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 written assignments. 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. There will be one opportunity for students to present during this semester. Class participation points will be determined through active discussions, contribution to student presentations, asking questions, etc. Students are responsible for reading material prior to class.

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

HOMEWORK

During this course, students will learn to read and critically review publications. They will also learn the important, sometimes intangible skills that are necessary for graduate school success. The first scientific homework assignment will require one student to read and describe an assigned paper using the standardized classroom format. Students will then use this format to write a "summary and critique" to be handed in the following two weeks. Students will also give in class presentations on assigned papers and get feedback from the class and instructor. Written assignments will involve writing one-page summaries of papers.

The grading for this course will be as follows:

5% attendance/ participation

15% written assignments

10% presentations

30% practical

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

All students will have one opportunity to present in class. Students should understand all the figures in a paper before class to ensure that they are prepared for discussions.

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 (by 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 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
- 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 plagiarist's 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 giving appropriate acknowledgment
- 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 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. I strongly urge you to participate in the evaluation system.

LECTURE SCHEDULE

This course is scheduled for two hours. Presenter's name 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	Presentation title/ presenter	Written Assignment due date
1	09/01/2021	Introduction to the course	Lama	N/A
2	09/08/2021	Types of mutations	Lama	N/A
3	09/15/2021	Chromosome X inactivation	Lama	N/A
4	09/22/2021	Saudi National Day	N/A	N/A
5	09/29/2021	Genetic recombination and recombination in bacteria	Lama	N/A
6	10/06/2021	Non-coding RNA	Lama	N/A
7	10/13/2021	Oncogenes and tumor suppressor genes	Lama	N/A
8	10/20/2021	POC1A Truncation Mutation Causes a Ciliopathy in Humans Characterized by Primordial Dwarfism	Reham AlAmri	N/A
9	10/27/2021	Breast cancer	Lama	N/A
10	11/03/2021	Mutations in PLK4, encoding a master regulator of centriole biogenesis, cause microcephaly, growth failure and retinopathy	Aisha Almulhem	POC1A Truncation Mutation Causes a Ciliopathy in Humans Characterized by Primordial Dwarfism
11	11/10/2021	Important studies in genetics	Lama	N/A
12	11/17/2021	Cortical neurogenesis in the absence of centrioles	Zainab Alnakhli	Mutations in PLK4, encoding a master regulator of centriole biogenesis, cause microcephaly, growth failure and retinopathy
13	11/24/2021	Student presentation and discussion.	TBD	N/A
14	12/01/2021	Holiday	N/A	Cortical neurogenesis in the absence of centrioles
15	12/08/2021	TBD	TBD	TBD
16	12/15/2021	Review and wrap up	N/A	N/A

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.

Written assignment Rubric:

1. One page.
2. Briefly summarize the field, area of study and question to be addressed.
3. What is the significance of the study and what are the major questions/ findings of the study, and briefly describe the methods used to answer these questions.
4. What are the final conclusions of the study and what do you think can be the next step?
5. What are some of the things you were not quite convinced of? Do you have any critique for this paper and do you have questions you think should be addressed?

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

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

ZOO551_student name_Assignment #