

DEPARTMENT OF ZOOLOGY

ZOO551

Syllabus, Fall 2022

Instructor: Dr. Nouf Alyami

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Office hours: By appointment.

LECTURE TIME AND PLACE

Tuesday 08:00-10:50am; lectures will be given in-person at lecture G079. 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% midterm 1st

10% Quize

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. Alyami 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. Alyami. Any incidence of academic misconduct will be reported to the Department head and will be reflected in your grade. Similarity test must be no more than 15% based on the Blackboard similarity tests that all students and faculty have access to.

- 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, that can 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. For example, 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. Therefore, I strongly urge you to participate in the evaluation system.

LECTURE SCHEDULE

Syllabus:

Week#	Date	Material to be covered	Presentation title/ presenter
1		Types of mutations	Nouf
2		Chromosome X inactivation	Nouf
3		Genetic recombination and recombination in bacteria	Nouf
4		Saudi National Day	N/A
5		Non-coding RNA	Nouf
6	10/4/2022	Midterm 15%	
7		Oncogenes and tumor suppressor genes	Nouf
8		Breast cancer	Nouf
9		Important studies in genetics	Nouf
10		Quiz 10%	N/A
11		Review and wrap up	Nouf
12	11/15/2022	Final	

For the practical 551 Zoo syllabus

Week#	Material to be covered
1	Lab safety and working guidelines
2	Mouse dissection and RNA extraction with Trizol from liver-kidney and brain/ Quiz 5%
3	RNA extraction with Trizol/ based on the RNA results (5%)
4	Saudi National Day
5	Protein extraction and Bradford assay
6	Types of lysis buffer (each 200ml) / Quiz 5%
7	Protein extraction and Bradford assay/ Quiz 5%
8	Western Blotting/ Quiz 5%
9	Western Blotting Quiz 5%
10	Review and wrap up