البيولوجيا الجزيئية والهندسة الوراثية 553حين
Syllabus, Winter 2023

Course Designation	**Zoo-553**	553 حين	رقم المقرر ورمزه
Course Name	**Molecular Biology and Genetic Engineering**	البيولوجيا الجزيئية والهندسة الوراثية	اسم المقرر
No. of Credits	**2**	**2**	عدد الوحدات الدراسية المعتمدة
Prerequisites	**None**	لا يوجد	متطلب سابق
Co-requisite Course	**None**	لا يوجد	متطلب مصاحب

Dr. Nouf Alyami

office: bldg.5, 3rd fl, office #145 or

e-mail: nalyami@ksu.edu.sa,

Office hours: By appointment, I am available in my office; please check my office hours.

LECTURE TIME AND PLACE

Tuesday 8:00-10:50am; in-person. If you are more than 10min late without prior notice, please do not come to class. However, 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.

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TEXTBOOK

Most of the material from this course will be from Campbell's Biology textbook and 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

Activity

During this course, students will learn to read and critically review publications. They will also learn the important, sometimes intangible, skills necessary for graduate student success. Each week we are scheduled to have a student presentation, and 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 will lead the paper discussion afterward. Other students will participate in the 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:

15 points for writing assignments

15 Class participation

30 points Midterm 1st

40% Final examination

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

Student Presentations

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

Academic misconduct:

Academic misconduct of any kind will not be tolerated in any course taught by Dr. Alyami. Any academic misconduct will be reported to the Department head andreflected in your grade.
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 ismost likely to occur in the following ways:

- Using the exact language of someone else without the use of quotation marks and withoutgiving

proper credit to the author

- Presenting the sequence of ideas or arranging the material of someone else even though suchis expressed in one's own words, without giving appropriate acknowledgment. Submitting a document written by someone else but representing it as one's own".

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Syllabus:

Week #	Date	Material to be covered	Activity
1	6/12/2022	Introduction	
2	13/12/2022	Introduction to Molecular Biology and Genetic Engineering	Writing Assignment no.1 and labxchange Access https://www.labxchange.org https://www.labxchange.org/library/pathway/lx-pathway:5fc15658-7c9d-4742-bc34-999c6ac719a1
3	20/12/2022	Restriction enzymes, Cloning vectors and cloning till sliled 21	
4	27/12/2022	Restriction enzymes, Cloning vectors and cloning till sliled 21-41	
5	3/1/2023	Construction of Genomic/Chromosome and cDNA Library, Identification/Screening of Cloned Sequences in Genomic and cDNA Library	
6	10/1/2023	DNA Sequence Analysis	Writing Assignment no.1 DUE and a screen shoot completing the labxchange
7	17/1/2023	Midterm 3 lectures	Writing Assignment no.2 5 points Access https://www.labxchange.org https://www.labxchange.org/library/pathway/lx-pathway:b0fd731a-5bab-4fe2-8491-405292e5176e
8	24/1/2023	lectures Applications of genetic engineering	
9	31/1/2023	Hazards and Problems of Recombinant DNA Technology and the Possible Techniques to Minimize Biohazards	

10	**2/7/2023**		**Writing Assignment no.2 DUE and a screen shoot completing the labxchange**
11	**2/14/2023**		
		Final on edugate	

Please submit your 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:

ZOO553_student name_ presentation # or Writing Assignments # or Labxchange #