

**Molecular Biotechnology, BIOL 844 (3 credits)
Spring 2019**

Instructor

Dr. Saili Moghe

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You may contact me through email (using your Lopermail account) or Canvas inbox messages. Weekly discussion boards on Canvas can also be used to post general comments/questions/concerns. I will respond to emails, inbox messages and discussion board posts within 48 hours.

Course Description

The course will consist of a short review of pertinent principles in protein structure and function, enzyme mechanisms and kinetics, and the basics of the genetic dogma and recombinant DNA technology. The bulk of the course will be made up of a topical consideration of subjects in biotechnology such as: the production of protein pharmaceuticals, genetic engineering of animals and plants, and cloning of organisms.

Learning Objectives

1. Recognize the foundations of modern biotechnology
2. Identify the steps involved in gene expression and protein engineering
3. Describe the steps and principle of molecular cloning
4. Provide examples of current applications of biotechnology in different areas such as the medical, and agricultural fields
5. Describe the principles of generating transgenic plants and animals
6. Discuss the ethical challenges and issues related to biotechnology

Course Materials

- **Required Textbook:** Molecular Biotechnology , 5th Edition, by Bernard R. Glick and Cheryl L. Patten.
- **Technical Requirements:** Full access to a computer and high-speed internet

Course Structure

Weekly materials will be posted on Canvas every Tuesday at 8:00am(CT), and an announcement will always go up at this same time letting you know that all materials are up, and provide any information and other details you need to know for that particular week.

BIOL 844 Course Syllabus

Instructor: Dr. Moghe

Each week the following will be posted:

- Video lectures
- Outline lecture notes corresponding to the lecture videos
- Assigned readings from the textbook or supplemental readings
- Quiz or Assignment
- Link to the weeks discussion board for questions/concerns/comments
- Any needed supplementary materials/resources

Assessments

Your progress in class will be assessed by quizzes, assignments, and exams.

- **Quizzes**
 - 10pts each (total of 8 quizzes)
 - Multiple-choice questions (5-10 questions worth 1-2pts each)
 - 6-day access to each quiz
 - Timed at 10 minutes per quiz
- **Assignments**
 - 20pts each (total of 3 assignments)
 - Assignments will be 1-2 page short essays questions
- **Exams**
 - 100pts each (total of 3 exams)
 - Multiple choice, matching, fill-in the blank, short answer questions (2-6pts each)
 - 6-day access to each exam
 - Timed at 60 minutes per exam

Grades

3 Exams – 300pts

1 Introduction post – 10pts

8 Quizzes – 80pts

3 Assignments – 60pts

TOTAL: 450pts

Grade Assignment

Finals grades will be assigned using the following grade scale:

A+	97 - 100%	B+	88 - 89%	C+	78 - 79%	D+	68 - 69%
A	93 - 96%	B	83 - 87%	C	73 - 77%	D	63 - 67%
A-	90 - 92%	B-	80 - 82%	C-	70 - 72%	D-	60 - 62%
						F	Below 60%

All grades are final unless there is a calculation error.

Expectations from students

As students enrolled in this class it is your responsibility to meet the following basic expectations:

- Log on to Canvas at least weekly and keep up with the posted course materials. Make sure that you read the Announcements and stay informed about what is happening and going to happen in class.
- Complete exams and quizzes within the time that they are available and make any assignment submissions by the given deadlines (keep in mind all times are in Central Standard Time, so please account for any time differences if needed).
- Seek help when you need it and do not wait till the last moment to do this.
- You are encouraged to utilize the discussion board not only for any comments/questions/concerns that you may have, but also to interact with your classmates (provided you keep such interactions primarily related to the class). Always be respectful to everyone when using discussion boards.

Understandably, you all have several commitments in your life other than this class. Nonetheless, as a student who has registered for this class, it is your full responsibility to ensure that you can meet the above requirements and commit the needed time for this course.

Class Policies

- **Assignments, quizzes, exams will receive zero (0) points if they are not completed by the given due dates**
- **Extensions or rescheduling** of Exams/quizzes/assignments will NOT be possible unless circumstances are exceptional – a legitimate excuse (based on my discretion) with provided documentation will be required for such considerations
- **Policy on academic dishonesty:** Anyone caught plagiarizing or cheating on any exercise you will receive a 0 for that exercise; subsequent violations will result in referral to the Vice Chancellor for Academic Affairs for dismissal from the university.
- **Policy on incomplete:** All students are expected to progress through the requirements for this course in a timely fashion. Incompletes will only be considered if circumstances are extenuating and beyond your control, and will require documentation.

Students with Disabilities

It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students with documented disabilities. To receive accommodation services for a disability, students must be registered with UNK Disabilities Services Coordinator, David Brandt, in the Disability Services for Students office, 175 Memorial Student Affairs Building, 308-865-8214 or by email unkdso@unk.edu.

Students Who are Pregnant

It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students who are pregnant. To receive accommodation services due to pregnancy, students must contact Sue Pedersen in Student Health, 308-865-8218. The following link provides information for students and faculty regarding pregnancy rights. <http://www.nwlc.org/resource/pregnant-and-parenting-students-rights-faqs-college-and-graduate-students>

Reporting Student Sexual Harassment, Sexual Violence or Sexual Assault

Reporting allegations of rape, domestic violence, dating violence, sexual assault, sexual harassment, and stalking enables the University to promptly provide support to the impacted student(s), and to take appropriate action to prevent a recurrence of such sexual misconduct and protect the campus community. Confidentiality will be respected to the greatest degree possible. Any student who believes she or he may be the victim of sexual misconduct is encouraged to report to one or more of the following resources:

Local Domestic Violence, Sexual Assault Advocacy Agency 308-237-2599

Campus Police (or Security) 308-627-4811

Title IX Coordinator 308-865-8655

Veterans Services

UNK works diligently to support UNK's military community by providing military and veteran students and families with resources and services to help them succeed. Veterans Services assists with the GI Bill process and acts as a liaison between the student and the Veterans Administration. If you need assistance or would like more information, please contact Lori Weed Skarka at 308-865- 8520 or unkveterans@unk.edu.

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Tentative Class Schedule, BIOL 844

Topic	Assignment/Quiz/Exam	Week
Introduction to Biotechnology	Assignment #1 <i>Due: Jan 15</i>	1 (Jan 7)
Basics of Nucleic Acids & DNA Replication		2 (Jan 14)
RNA & Protein Synthesis	Quiz 1 (covers Wk 1-2) <i>Available: Jan 23 - Jan 29</i>	3 (Jan 21) MLK day Jan 21
DNA Amplification & Sequencing	Quiz 2 (covers Wk 3) <i>Available: Jan 30 - Feb 5</i>	4 (Jan 28)
Molecular Cloning	Quiz 3 (covers Wk 4) <i>Available: Feb 6 - Feb 12</i>	5 (Feb 4)
Recombinant Protein Production	EXAM 1 (covers Wk 1-5) <i>Available: Feb 13 – Feb 19</i>	6 (Feb 11)
Genomics & Proteomics	Quiz 4 (covers Wk 6) <i>Available: Feb 20 - Feb 26</i>	7 (Feb 18)
Molecular Diagnostics	Assignment #2 <i>Due: Mar 5</i>	8 (Feb 25)
Protein Therapeutics & Vaccines	Quiz 5 (covers Wk 8) <i>Available: Mar 6 - Mar 12</i>	9 (Mar 4)
Nucleic Acids as Therapeutics	EXAM 2 (covers Wk 6-9) <i>Available: Mar 12 – Mar 19</i>	10 (Mar 11)
	SPRING BREAK	11 (Mar 18)
Genetic Engineering in Plants	Quiz 6 (covers Wk 10) <i>Available: Mar 27 - Apr 2</i>	12 (Mar 25)
Transgenic Plants	Quiz 7 (covers Wk 12) <i>Available: Apr 3 – Apr 9</i>	13 (Apr 1)
Transgenic Animals	Quiz 8 (covers Wk 13) <i>Available: Apr 10- Apr 16</i>	14 (Apr 8)
Ethics in Biotechnology	Assignment #3 <i>Due: Apr 23</i>	15 (Apr 15)
Q & A	EXAM 3 (covers Wk 10-15) <i>Available: Apr 24 - Apr 30</i>	16 (Apr 22)
FINALS WEEK	EXAM 3 <i>Available: 25 Apr – Apr 30</i>	17 (Apr 29)

- All weekly materials will be posted by noon on Tuesdays
- Quizzes and exams will be available from noon on Wednesdays until noon on the following Tuesday
- All times in the syllabus and Canvas are in Central Standard Time

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