



Master of Science in General Biology

Course Syllabus
Summer 2018 – Fundamentals of Biotechnology / BIO 6033
Instructor: Dr. Nancy Reichert

Learning Objectives

The goal of this course is to give you a breadth and depth of understanding for topics categorized under the umbrella of “biotechnology”. Basic as well as applied biology topics will be covered, including techniques that have enabled advances in biotechnology and regulatory agencies that oversee it. In addition, since the field of biotechnology is one of the most rapidly changing areas of science, facilitating your ability to stay up-to-date in these topics (long before they appear in textbooks) is also a goal. In this regard, you will be expected to learn how to navigate through, follow, and understand scientific articles. Questions specifically related to the identified articles will appear on two quizzes in this course (quiz 5, quiz 8).

Required Classroom Materials

There is one required textbook, *Biotechnology*, 2nd Ed., D.P. Clark and N.J. Pazdernik, 2015, Elsevier Academic Press. Required chapter readings are included in the class schedule and lecture modules (page 3). These assigned chapters correspond with each lecture to supplement the recorded video lectures. Some lectures may include other materials beyond the scope of the required textbook. All necessary information will be provided in the lectures, assigned articles and video links.

Course materials will be accessed through myCourses using your netID and password. Each topic discussed in this course will have lectures for viewing and listening (MP4 format, “myMedia Link” in myCourses will take you to recorded lectures). Corresponding lecture slides and lists of short external videos tied to individual lectures can be accessed in myCourses under “Lectures+Links” tab on left. Students are urged to check the course website and course emails daily.

Contact Information

You may contact the instructor via email through myCourses; send all course-related emails through this system. Dr. Reichert will try to respond within 24 hours, although response rates may vary, especially on weekends. In an emergency, you can contact her via nar1@msstate.edu. If email will not suffice, you can call her office phone (662-325-8068); if no answer, leave a message with a call-back number.

For all technical questions or problems with Blackboard Learn, contact the Center for Distance Education Technology Unit [phone: 662-325-0278, email: help@distance.msstate.edu, live chat (business hours) http://www.distance.msstate.edu/distance/technical_assistance]. The MSU ITS Helpdesk is also a resource available to provide students with free computing assistance [phone: 888-398-6394 or 662-325-0631, email: helpdesk@msstate.edu, online help ticket: www.its.msstate.edu].

Proctoring Requirements

All quizzes must be proctored through Proctortrack. A sample quiz to familiarize you with this system, as well as all quizzes in this course, can be accessed through “Proctored Quizzes” tab on left. For all technical issues concerning the Proctortrack System, contact technical support staff at Verificent Technologies

[phone: 844-753-2020, email: support@verificent.com, online request: <http://www.proctortrack.com/247-support/>]. MSU ITS Helpdesk cannot assist with Proctortrack.

Quizzes

The course is arranged into six modules, 4 lectures per module, and are posted in myCourses and myMedia. Six quizzes will correspond to these modules (lectures, videos and assigned readings) and will, primarily, consist of up to 40 multiple-choice, matching, true/false and short answer questions. All quizzes will be administered in a restricted time frame, closed book, and proctored via Proctortrack.

You will not be allowed to use any materials to complete these six quizzes. This includes notes, textbooks, any outside material – including any course materials from previous years, the internet, or textbook websites. Receiving quiz/exam questions and/or answers from previous years will be considered a breach of the MSU Honor Code (see below). Additionally, you will not be allowed to communicate with other people/students in any manner or any forum/format during the quiz and throughout the entire quiz window. Two additional quizzes will be given and will cover assigned articles. Students will be allowed to refer to those articles during those quizzes (#5, #8).

All quizzes must be taken within the dates indicated on page 3. Extensions of the time should not be expected. Exceptions to this policy include documented medical issues or other documented and approved conflicts. Foreseen or not, notify the instructor as soon as possible. As indicted below, the lowest score on one of the six course module-linked quizzes will be dropped.

Assignments

Seven assignments will be due during the indicated modules (page 3), and must be submitted as Word docs via myCourses through SafeAssign, a program that detects plagiarism. The overall list of assignment topics as well as individual assignment specifics are posted under the “Assignments” tab. A test assignment will remain open so students can pre-submit any assignment to check for plagiarism before actual submission. Most assignments should also be posted on the discussion board as directed.

Discussion Boards

Discussion board activities try to replace the traditional classroom discussions not able to take place in distance courses. A thread entitled “Let’s Chill” will be for informal, non-course related discussions. Effective use of the course-related discussion board will include clarification and/or greater discussion of course content, and sharing additional helpful information (e.g. website links, current research reviews). Individual student questions posed to the instructor via email may be answered in the discussion board if the question/response is believed to be of general interest to the class. Students will also post designated course assignments with the goal of enhancing class discussions.

Course Grade Determination

Quizzes (8 total, 50 pts each, lowest score dropped*)	350 pts
Assignments/discussion board	<u>50 pts</u>
	400 pts

*The lowest score among quizzes 1-4 and 6-7 will be dropped; quizzes 5 and 8 are mandatory so those scores will remain part of your overall course point total.

Final grade determination: A: ≥ 360 pts B: 320-359 C: 280-319 D: 240-279 F: ≤ 239

Course Syllabus, Assignments & Quiz Dates

Module (M) & Lecture Date	Lec. #	Lecture Topic	Req. Ch.	Assignment*	Quiz
M1: May 31-June 6	1	Introduction to biotechnology	1		
	2	DNA, RNA, protein	2		
	3	Recombinant DNA technologies	3		
	4	DNA synthesis	4		
M2: June 7-13	5	RNA-based technologies	5		#1 (JU 7-10)
	6	Genomics, gene expression	8		
	7	Proteomics, recombinant proteins, engineering	9, 10		
	8	Protein engineering, rProteins in bacteria	11		
M3: June 14-20	9	Immune technologies	6	#1	#2 (JU 14-17)
	10	Regulatory agency oversight, intellectual property			
	11	Plant tissue culture, somaclonal variation	15		
	12	Plant genetic engineering	15		
M4: June 21-27	13	Genome editing, mutation breeding, CRISPR	15	#2	#3 (JU 21-24)
	14	Transgenic plants - output traits			
	15	Commercial GM crops, US and worldwide			
	16	GMOs, food/feed labeling			
June 28-July 4				#3, #4	#4 (JU 28-JL 1)
M5: July 5-11	17	Forensic molecular biology	23		#5 (JL 5-8)
	18	Animal cloning, resurrection biology, stem cells	18		
	19	Tissue engineering, cultured meat	18		
	20	Transgenic animals	16		
M6: July 12-18	21	Transgenic animals, food/feed chain	16	#5, #6	#6 (JL 12-15)
	22	Inherited defects, gene therapy	17		
	23	Cancer, viral infections, therapies	19		
	24	Germline editing (CRISPR), bioethics	24		
July 19-25				#7	#7 (JL 19-22)
July 26-Aug. 1					#8 (JL 26-29)

*Due by last date listed in that specific module by 11:59 PM (CDT)

JU=June, JL=July

Quiz window opens day 1 at 12:01 AM (CDT) and ends day 4 at 11:59 PM (CDT) = 96 hours; taking assessments long before their windows close can help ensure time for troubleshooting, if necessary

Attendance Policy

Even though this is an online course, it is not self-paced. Reasonable deadlines have been posted for completion of each quiz and assignment.

Student Honor Code & Proctortrack Use

Mississippi State has an approved Honor Code that applies to all students. The code is as follows: “As a Mississippi State University student, I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do.” Upon accepting admission to Mississippi State University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor Code. Students will be required to signify their commitment to the MSU Honor Code by signing page 5 of this syllabus and sending a PDF or jpg of this entire signed & dated page to Dr. Reichert by June 6. Ignorance of the rules does not exclude any member of the MSU community from the requirements or the processes of the Honor Code. For additional information visit: <http://honorcode.msstate.edu/policy>.

Any suspected honor code violation will be dealt with according to MSU Student Honor Code Operational Procedures (link on website listed above). This includes a list of definitions and acts that constitute academic dishonesty. However, that is not meant to be an exhaustive list, and other acts may be determined to violate the Honor Code. Note that many acts of academic dishonesty in the online environment may not be covered in the specific listing of prohibited behaviors. Please note that the “act” does not necessarily have to be a willful and deliberate violation of the University policy in order for disciplinary actions to be initiated. Therefore, it is in the student’s best interest to act in such a manner as to avoid creating or becoming part of a situation in which the appearance of misconduct is evident. The student should inquire with the instructor if a situation arises which could be interpreted by the instructor or others as a violation of the policy on misconduct.

Under section I.C.8. “*Violation of Rules*” under Student Honor Code Operational Procedures, it states that “Students may not violate any announced departmental or college rule relating to academic matters...” Included in this are rules established for proper student conduct during proctored assessments. Proper student conduct is expected during proctored assessments in Proctortrack.

Title IX

MSU is committed to complying with Title IX, a federal law that prohibits discrimination, including violence and harassment, based on sex. This means that MSU’s educational programs and activities must be free from sex discrimination, sexual harassment, and other forms of sexual misconduct. If you or someone you know has experienced sex discrimination, sexual violence and/or harassment by any member of the University community, you are encouraged to report the conduct to MSU’s Director of Title IX/EEO Programs at 662-325-8124 or by e-mail to titleix@msstate.edu. Additional resources are available at <http://www.oei.msstate.edu/focus-areas/title-ix-sexual-misconduct>.

Accommodations for Students with Disabilities

Students with disabilities in need of accommodations to meet the expectations of this course are encouraged to bring this need to the attention of the instructor and should register with the Office of Student & Disability Support Services as soon as possible: 662-325-3335, and <http://www.sss.msstate.edu>.

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Portions of this text were provided by Dr. Gary Ervin, with his permission.

Cheating, plagiarism, or any other form of academic dishonesty will not be tolerated. Any violation will be dealt with as described in the MSU student handbook and the University web site (<http://www.honorcode.msstate.edu/>). Unfortunately, many students seem to have an inadequate understanding of what constitutes plagiarism. A fairly informative web resource on avoiding plagiarism: <https://blogs.ntu.edu.sg/library-resources/guide-to-academic-writing-and-avoiding-plagiarism/>.

Definition of academic misconduct:

Regarding this course, academic misconduct includes, but is not limited to, deceptive acts such as the following:

1. Using unauthorized materials (crib notes, books, etc.) as an aid during an assessment, such as a quiz or assignment.
2. Looking at or using information from another person's assessment.
3. Providing assistance to, or receiving assistance from, another person in any manner prohibited by the instructor.
4. Submitting any course materials or activities not the student's own, allowing such a submission to be made for oneself, or making such a submission for another.
5. Using the ideas, organization, words, or illustrations of another from a book, article, paper, computer file, or other source in any assignment without giving proper credit following accepted citation rules (plagiarism).

Sanctions against academic misconduct:

When determined by the Honor Code Council that a student has violated the MSU Honor Code, normal sanctions assigned for a first offense are a zero on the assessment (cannot be used as dropped quiz score) and/or a one letter grade deduction for the course, probation, and a requirement to complete the Academic Integrity Intervention Program. However, the Honor Code Council has the authority to remove a student from the University, even for first offenses. Decisions by the Honor Code Council Hearing Panels are binding on all parties.

By signing below, the student has read, and understands, this page, and agrees to uphold and adhere to the Mississippi State University Honor Code in all BIO 6033 assessments.

Additionally, by signing below, the student agrees to have read, and understands, this syllabus in its entirety, and the student will adhere to policies set in place for this course.

Signature of student

Date

Print name