

Introduction to Biotechnology: BME5 (42606)

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9:20-10:25am

Office Hours: 8:00-8:35am, MWF in 405A PSB
150

Office Phone: (831) 459-1623

Winter 2018

MWF

Steven Acad

Course Description

Lecture course providing an introduction to the tools and applications of biotechnology in the fields of medicine, agriculture, the environment and industry.

TAs and Discussion Sections *Attendance/registration at sections is not mandatory*

TAs: Akshar Lohith alohith@ucsc.edu and Allysia Mak amak@ucsc.edu

Section	Class #	Day	Time	Location
01A	42607	Tu	9:50-10:55am	Cowell 223
01B	42608	We	4:00-5:05pm	Engineering 2 room 194

Text and other sources

- Text: *Introduction to Biotechnology* third edition, Thieman and Palladino (2013); the second edition is also acceptable. Both editions are available on reserve in the Science and Engineering library

- Companion website <http://www.pearsonhighered.com/biotech/>

- Canvas account: see *Canvas Instructions* at the end of the syllabus.

National Center for Biotechnology Information (NCBI): <http://www.ncbi.nlm.nih.gov/>

Grading

Grades will be based on performance on 8 homework assignments (lowest score of 9 dropped), 2 exams and one research paper describing a newly developed biotechnology approach or tool. Weighting of each component in the grade is shown below.

assignment	number	points each	total points	% of grade
Homework	8	10	80	40%
Exams	2	50	100	50%
Paper*	1	20	<u>20</u>	10%
			200	

* Please refer to the Research Paper Handout (available on Canvas) for details regarding format, etc.

Homework assignments are due every Monday at the start of class unless otherwise noted.

Note* add 5 points extra credit if all 9 homework assignments are turned in*****

Late assignments are accepted but are marked off late points

The final exam is not comprehensive and will be given on **Tuesday, March 20 from 12:00-3:00pm** in Steven Acad 150. Don't be late! If you arrive after someone has finished the exam, and left the room, you will not be allowed to take it.

Grading

I do not expect to grade on a curve although I will wait until I see the final scores to make that assessment. I will not, however, pass anyone who earns fewer than 60% of the total points.

Course Organization

As I give the lectures I will be filling in lecture outlines that have been previously prepared.

Copies of each of these outlines will be made available on the Canvas Course Website prior to each lecture and will be formatted such that students can fill them in with the information as I lecture. Therefore, it will be important for students to have these printed out and ready to fill in at the start of each lecture (or available on a computer).

Whenever possible I will use figures from your text in my lectures. However, on many occasions I will be using other sources from the internet and I also utilize handouts. Links to the internet sources will be provided within the text in each lecture outline. Handouts will be made available on the Canvas Course Website.

Exams

The format of the exams will include short answer, matching, true-false and multiple choice questions. No scantrons or bluebooks will be needed. Also, no electronic devices (cell phones, etc) will be needed or allowed. Bring 2 sharp pencils with erasers. **NO MAKE-UP EXAMS WILL BE PROVIDED. NO EXCEPTIONS.** Therefore, you may want to give yourself extra time to get to school on exam days (in case something happens on the way to school).

Disability Resource Center (DRC) Accommodations

If you qualify for classroom accommodations because of a disability, please get an Accommodation Authorization from the Disability Resource Center (DRC) and submit it to me in person outside of class (e.g. during office hours) within the first two weeks of the quarter. Contact DRC at 459-2089 (voice), 459-4806 (TTY), or <http://drc.ucsc.edu> for more information on the requirements and/or process

Important Dates

1/18: Permission code required for adding

1/29: Last day to add/drop

1/30: Withdraw (W) option begins

2/20: Last day to Withdraw (W)

Academic Integrity

Behaviors considered to constitute academic misconduct (cheating, plagiarism, or aiding others in cheating) will be taken very seriously and will result in anything from a zero score on the assignment to failing the class. For detailed information about the University policy please see the following URL: https://www.ue.ucsc.edu/academic_misconduct

Note that plagiarism means the act of presenting work/ideas from someone else as your own. This involves not only taking text word-for-word from another source but also includes moving a few words around to make a new sentence based on text by someone else. Also, even if the information was put into your own words, failing to reference the source of findings described within a publication is another form of plagiarism.

Excellent information regarding plagiarism, what it is and how it can be avoided can be found at: Indiana University Writing Tutorial Services. I urge you all to visit this site. <https://wts.indiana.edu/writing-guides/pdf/plagiarism.pdf> (you will need to copy and paste this URL in order to make it work)

Tutoring

Tutoring services will be available for this class. Please see the link on Canvas for more information.

Lecture Schedule (subject to change with fair notice) *Reading assignments for each lecture are noted at the start of each lecture outline (available on the Canvas course website)*

1/08 (Mon): The History, Promise and Challenges of Biotechnology (Lecture 1)

1/10 (Wed): Lecture 1 continued

1/12 (Fri): Lecture 1 continued

1/15 (Mon): Dr. Martin Luther King Jr. Day

1/17 (Wed): Genes, Genomes, Chromosomes and Cells (Lecture 2)

1/19 (Fri): Lecture 2 continued

1/22 (Mon): Lecture 2 continued

1/24 (Wed): Lecture 2 continued

1/26 (Fri): Recombinant DNA Technology and PCR (Lecture 3)

1/29 (Mon): Lecture 3 continued

1/31 (Wed): Lecture 3 continued

2/02 (Fri): Lecture 3 continued

2/05 (Mon): Producing and Isolating Proteins (Lecture 4)

2/07 (Wed): Lecture 4 continued

2/09 (Fri): Lecture 4 continued

2/12 (Mon): Midterm Exam (covers information through 2/07 lecture)

2/14 (Wed): Microbial Biotechnology (Lecture 5)

2/16 (Fri): Lecture 5 continued

2/19 (Mon): President's Day

2/21 (Wed): Lecture 5 continued

2/23 (Fri): Lecture 5 continued

2/26 (Mon): Engineering Plants and Animals (Lecture 6)

2/28 (Wed): Lecture 6 continued

3/02 (Fri): Biotechnology and the Environment (Lecture 7)

3/05 (Mon): Aquatic Biotechnology (Lecture 8)

3/07 (Wed): Medical Biotechnology: Diagnosis and Treatment of Disease (Lecture 9)

3/09 (Fri): Lecture 9 continued

3/12 (Mon): Lecture 9 continued **Research Paper due**

3/14 (Wed): Lecture 9 continued

3/16 (Fri): Student small group discussions/presentations (attendance required)

**3/20 (Tues): Final Exam (covers information from the 2/09 lecture on) from
12:00-3:00pm in Stevenson Academy 150**

Canvas Login Instructions and Support Resources

Logging in to Canvas: To log into Canvas, you must obtain and use a CruzID Gold password. For more information, and to obtain the password, visit http://its.ucsc.edu/services/accounts/change_gold_password.php

Once you have your CruzID Gold password, you can log into Canvas by going to canvas.ucsc.edu

Support for Students: The best way for students to request support for Canvas is to contact the ITS Help Desk:

Online: <http://itrequest.ucsc.edu/>

Phone: (831) 459-HELP

Email: help@ucsc.edu

In-Person: Kerr Hall

Kerr Hall Rm. 54 - M-F 8am to 5pm