Introductory Biotechnology Lab

BTEC1200[redacted]

Instructor Information

Course Description

This course teaches students practical aspects of aseptic technique and DNA technology that includes growing pure cultures, restriction digestion, properties of plasmids, recombinant DNA cloning, gel electrophoresis. Calculations commonly used in the lab are also covered.

Course Student Learning Outcomes

- Correctly use laboratory safety practices when using biological and chemical materials.
- Use common equipment found in a biotechnology laboratory.
- Prepare solutions to correct pH and concentration.
- Demonstrates the ability to perform aseptic technique.

- Demonstrates the ability to create and maintain microbial cultures.
- Run molecular biology lab experiments.
- Maintain accurate laboratory notebooks.
- Use common metric system quantities and conversions.
- Apply math concepts to solve common biotechnology quantitative tasks.
- The plasmid identification project requires students to interpret their own results, troubleshoot lab failures and optimize reactions for success.
- Use Excel to graph standard curves.

Course Prerequisites

BTEC1000

Communication Plan

- I will respond to email within 48 hours I will offer feedback on major assignments within 1 week. The best way to contact me is via the Canvas Inbox, as I will prioritize this email over other modes of communication
- Additionally, you can visit the lab as often as you want during open lab hours and discuss topics with all of the professors or practice the lab experiments as often as needed to gain competency.
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Keys for Success (how to succeed in the course)

Success in BTEC 1200 requires consistent effort and active participation in the experiments. First, go through and read the material and watch the videos for each module/experiment prior to visiting the open lab. When you come to the open lab, actively engage with the experiment and discuss topics with the professor and other students. These labs are designed to reinforce learning and help understanding of the

topics presented in canvas. Success in the course requires competency and therefore visiting the open lab often and practicing the techniques often will help you master the material.

Brief Description of Assignments/Exams

Lab #1: Making media and using the autoclave

Lab #2: Pouring Agar Plates

Lab #3: Streaking a plate

Lab #4: Liquid cultures

Lab #5: Gram Stain

Lab #6: Pipetting and serial dilutions

Lab #7: Making a buffer

Lab #8: Gel electrophoresis

Lab #9: Final Project - Plasmid Identification Project

Assignment Schedule

Due Date	Assignment Name	Assignment Type	Points
	Any Questions? (optional)	Discussion	0
	Any Questions? (optional)	Discussion	0
	Any Questions? (optional)	Discussion	0

Due Date	Assignment Name	Assignment Type	Points
	Calculating Molarity: Practice Quiz #3A (required)	Quiz	4
	Calculating Molarity: Practice Quiz #3B (optional)	Quiz	4
	Calculating Molarity: Practice Quiz #3C (optional)	Quiz	4
	Calculating Percentages: Practice Quiz #2A (required)	Quiz	4
	Calculating Percentages: Practice Quiz #2B (optional)	Quiz	4
	Calculating Percentages: Practice Quiz #2C (optional)	Quiz	4
	Calculations and Measurements Exam#1	Assignment	75
	Dilutions Equation: Practice Quiz #4A (required)	Quiz	4
	Dilutions Equation: Practice Quiz #4B (optional)	Quiz	4

Due Date	Assignment Name	Assignment Type	Points
	Dilutions Equation: Practice Quiz #4C (optional)	Quiz	4
	DNA Miniprepping Lab	Assignment	100
	Gel Electrophoresis Lab	Assignment	100
	Introduce Yourself	Discussion	0
	Introduce Yourself	Discussion	0
	Introduce Yourself	Discussion	0
	Introduce Yourself	Discussion	0
	Introduce Yourself	Discussion	0
	Introduce Yourself	Discussion	0
	Introduce Yourself	Discussion	0
	Lab #1: Making Media and Using the Autoclave	Assignment	50
	Lab #2: Pouring Agar Plates	Assignment	50
	Lab #3: Streaking a plate	Assignment	50
	Lab #4: Liquid Cultures	Assignment	50
	Lab #5: Gram Stain	Assignment	50
	Making a Buffer and Using a pH meter	Assignment	100

Due Date	Assignment Name	Assignment Type	Points
	Micropipetting lab with Artel	Assignment	100
	Plasmid Identification Lab and Write Up	Assignment	200
	Scientific Notation: Practice Quiz #1	Quiz	4
	Spectrophotometry Lab	Assignment	100

Grading Scale

Final Total	Grade	Final Total	Grade
930-1000	A	730-760	C
900-929	A-	700-729	C-
870-899	B+	670-699	D+
830-869	B	630-669	D
800-829	B-	600-629	D-
770-799	C+	Below 600	E

How to Navigate to Canvas

Institutional Policies

As members of our academic community, we would like to invite you to review the Institutional Syllabus which covers important policies and procedures. This document contains important links for students on the code of student rights and responsibilities, academic integrity, and grading policies, Title IX and other important acknowledgements.

By familiarizing yourself with this information, you can help us create a safe and respectful environment for everyone.

You can access the document by clicking on the following link: https://slcc.instructure.com/courses/530981/pages/institutional-syllabus

Learning Support and Tutoring Services

We are pleased to offer a range of tutoring and learning support services to help you achieve your academic goals. Whether you need assistance with a specific subject or want to improve your study skills, you have many options for tutoring or other support.

To learn more about the services we offer and how to access them, please visit the Institutional Syllabus under the Tutoring and Learning Support tab: https://slcc.instructure.com/courses/530981/pages/institutional-syllabus. We encourage you to take advantage of these resources to help you succeed in your studies. If you have any questions or would like to schedule a tutoring session, please don't hesitate to reach out to us. We are here to support you in any way we can.

Advising and Counseling Support Services

At our institution, we are committed to supporting your academic and personal growth. That's why we offer a range of advising and counseling services to help you navigate the challenges of college life. To learn more about the resources available to you and how to access them, please visit the Institutional Syllabus under the Advising and Counseling Support Services tab: https://slcc.instructure.com/courses/530981/pages/institutional-syllabus. Our advising team and the support centers across campus are here to support you in achieving your goals and overcoming any obstacles you may face.

Student Academic Calendar

As students you should be aware of all important dates in the semester, such as the day that courses begin and end, as well as the drop date and the last day to withdraw. To learn more about those dates, navigate to the Student Academic Calendar below:

SLCC Student Academic Calendar

Additional Policies

We've changed our attendance policy for all biotech classes and I wanted to give you an update. BTEC 1200 is designed to require approximately 2-3 hours of lab work each week, depending on your prior experience in biotechnology. While these classes are self-paced, it's important that students consistently progress throughout the semester. To support this, we have implemented a new policy for all biotechnology courses: you are required to attend lab and make measurable progress on your experiments at least once every three weeks. Failure to attend lab during this period, without prior communication and a written excused absence, may result in a failing grade for the course. I understand that we have just started the semester and the first week can be challenging as you navigate the campus and new courses. Therefore, I'll waive the first week as an exception. However, I expect to see you in the lab within the next 3 weeks. Please let me know if you have any questions or concerns.