

## BTEC 1000: Biotechnology: Engineering Life

CATALOG DESCRIPTION: Biotechnology uses materials from living organisms to improve the quality of life: insulin saves lives, smallpox has been eradicated, and altered organisms can produce biofuel. In this course, students conduct experiments that are used in biotechnology, explore current global issues, and consider the ethical implications and conflicts inherent in altering living organisms to improve lives.

IN-DEPTH COURSE DESCRIPTION: Biotechnology has eradicated smallpox from the globe, altered crops, and produced mosquitos that can reduce transmission of diseases (and spread beyond geopolitical boundaries). Now it's genetically engineering patients' own immune cells against certain cancers—if the patient can afford it. And while current laws forbid it, the technology exists to genetically engineer human babies. *Biotechnology: Engineering Life* combines hands-on experimentation with analysis of the effects of these powerful technologies on global populations, both human and non-human. The signature assignment requires students to research and think critically about a current issue in biotechnology, explore the various possible effects of the issue, and form an opinion on what should or should not be done. Students will be expected to use legitimate, evidence-based sources, and to justify their choices of sources. Students must effectively communicate their knowledge and opinion of a current issue in biotechnology, in a modality of their own choice, and use graphs and/or other quantitative data in their analysis. Because biotechnology is predominantly a tool of educated, wealthy populations, the assignment requires students to consider the effects on human populations that may not have the resources to use the technologies themselves, and those who might disagree with their use. Students will be given the opportunity to realize that we are not isolated populations but that the choices we make will have a broad impact eventually felt by all peoples.

INSTRUCTOR: Jean M. Bower, PhD

[jean.bower@slcc.edu](mailto:jean.bower@slcc.edu) (preferred method of contact)

801-957-6337

JHS 257 (please feel free to come by and talk!)

PREREQUISITES: None.

COURSE MATERIALS: Students need access to the Canvas online course management system ([slcc.instructure.com](http://slcc.instructure.com)). Instructional material can only be accessed through Canvas. A lab coat and lab notebook will be provided.

COURSE FORMAT and OBJECTIVES: The course uses a hybrid, competency-based format in which online instruction and activities are reinforced by select laboratory experiences. Students may conduct experiments during the open lab hours whenever it suits their own schedule.

This course has four primary learning objectives (referred to as competencies). Within each competency, there are multiple objectives.

1. The student explains how biotechnology can both benefit and harm members of the global population.
2. The student produces a genetically modified organism (GMO).
3. The student purifies a useful protein from a genetically modified organism (GMO) in a process analogous to modern pharmaceutical production.
4. The student analyzes their own DNA to predict a (non-medically relevant) trait.

LEARNING LAB: The standard hours for the learning lab are Tuesday – Friday, 8:00 am – 8:00 pm, and Saturday 8:00 am – 2:00 pm. Semester breaks and college holidays are observed. Unless otherwise noted, there will always be a faculty member in the learning lab during open lab hours. All students who work in the lab must

Danielle Mills 10/17/17 11:23 AM

**Comment [1]:** If going to a CBE model and a B is a minimum grade requirement to prove proficiency, I recommend putting that in the syllabus. Especially if it is a pre-req to another class.

Jean Bower 10/20/17 1:01 PM

**Comment [2]:** I emphasized that information by making it bold.

Julia Miller 10/16/17 10:56 AM

**Comment [3]:** The Title IX Statement appears to be an outdated version.

Danielle Mills 10/16/17 1:33 PM

**Comment [4]:** Here is a link to the newest statement:  
<http://www.slcc.edu/title-ix/docs/Title%20IX%20Syllabus%20Statement%20for%20SLCC%20Faculty.pdf>

Jean Bower 10/20/17 1:00 PM

**Comment [5]:** fixed

clean up after themselves, participate in community chores, and maintain an environment conducive to experimentation and learning for all who use the learning lab.

**GENERAL EDUCATION:** This course fulfills the International and Global Learning requirement (with focus on Global Learning) for the General Education Program at Salt Lake Community College. Each student in General Education courses at SLCC maintains a General Education ePortfolio. Instructors in every Gen Ed course will ask you to put at least one assignment from the course into your ePortfolio, and accompany it with reflective writing. It is a requirement in this class for you to add to your ePortfolio, and this syllabus details the assignments and reflections you are to include. Your ePortfolio will allow you to include your educational goals, describe your extracurricular activities, and post your resume. When you finish your time at SLCC, your ePortfolio will then be a multi-media showcase of your educational experience. For detailed information visit: <http://www.slcc.edu/gened/eportfolio> or <http://eportresource.weebly.com>

Starting Fall 2016, all students new to SLCC will use Digication as their ePortfolio platform. Any students who have created ePortfolios prior to Fall 2016 on other platforms will be allowed to continue using those sites. For Digication tutorials, please go to the following site:

[https://slcc.digication.com/slcc\\_digication\\_tutorials/Welcome/](https://slcc.digication.com/slcc_digication_tutorials/Welcome/)

If you would like in-person help with your ePortfolio please visit an ePortfolio Lab on the Taylorsville-Redwood, Jordan, or South City Campus during business hours, and staff will help you. No appointment necessary. For lab hours and locations please look at the following site: <http://eportresource.weebly.com/lab-information.html>

Questions regarding the ePortfolio can be directed to [Emily.Dibble@slcc.edu](mailto:Emily.Dibble@slcc.edu).

**SIGNATURE ASSIGNMENT:** Students will research a current issue in biotechnology, and create some form of media (e.g., podcast, video, article) that explains the technology, its applications, and how its use or non-use will affect the global population. Because biotechnology is predominantly a tool of educated, wealthy populations, students must especially consider the effects on human (and non-human) populations that may not have the resources to use the technologies themselves, and those who might disagree with their use. The signature assignment must be uploaded to the student's eportfolio.

Related general education learning outcomes:

- Students communicate effectively.
- Students think critically and creatively.
- Students develop civic literacy and the capacity to be community-engaged learners who act in mutually beneficial ways with community partners.
- Students develop the knowledge and skills to work with others in a professional and constructive manner.
- Students develop computer and information literacy.

**GRADING:** Because this course is competency-based, grades are given solely on the four performance assessments associated with this course (1 signature assignment and 3 lab experiments). Each performance assessment is worth 25% of a student's total grade. Grades will be assigned based on the percentage scale below. **Students must achieve a B or better on all aspects of each assignment to proceed to the next biotechnology course.**

Performance Assessments	
Signature Assignment	25%
Bacterial Transformation	25%
Protein Purification	25%
DNA Analysis	25%
<b>TOTAL</b>	<b>100%</b>

Final %	Grade
93-100	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
67-69	D+
63-66	D
60-62	D-
Below 60	E

POLICIES:

1. Plagiarism/cheating will result in zero credit for the applicable assignment.
2. Students are expected to follow the SLCC Code of Conduct found at [http://www.slcc.edu/policies/docs/Student\\_Code\\_of\\_Conduct.pdf](http://www.slcc.edu/policies/docs/Student_Code_of_Conduct.pdf)
3. As outlined in the SLCC Policy and Procedures Manual, the instructor will “monitor and promote safe, effective and supportive learning environments and exercise defined prerogative when dealing with student behavior that distracts students from learning.” [http://www.slcc.edu/policies/docs/c4s01-03\\_.pdf](http://www.slcc.edu/policies/docs/c4s01-03_.pdf)
4. SLCC values inclusive learning environments and strives to make all aspects of the College accessible to our students. If you have a disability and believe you need accommodations to improve access to learning materials or the learning environment, please contact the Disability Resource Center: (phone) 801-957-4659; (email) [drc@slcc.edu](mailto:drc@slcc.edu); (website) [www.slcc.edu/drc](http://www.slcc.edu/drc).
5. SLCC is committed to fostering and assessing the following student learning outcomes in its courses:
  - \*Acquiring substantive knowledge in the field of their choice
  - \*Developing quantitative literacies
  - \*Developing the knowledge and skills to be civically engaged
  - \*Thinking critically
  - \*Communicating effectively
6. Title IX of the Educational Amendments of 1972 prohibits discrimination based on sex in any educational institution that receives federal funding. Salt Lake Community College does not tolerate sex discrimination of any kind including: sexual misconduct; sexual harassment; relationship/sexual violence and stalking. These incidents may interfere with or limit an individual’s ability to benefit from or participate in the College’s educational programs or activities. If you have questions or concerns regarding your rights or responsibilities, or if you would like to file a Title IX complaint please contact: Kenneth Stonebrook, J.D.

Dean of Students and Assistant Vice President, Title IX Coordinator  
Salt Lake Community College Taylorsville Redwood Campus – STC 276A  
(801) 957-5027 [ken.stonebrook@slcc.edu](mailto:ken.stonebrook@slcc.edu)

Online Reporting Form: [https://cm.maxient.com/reportingform.php?SaltLakeCC&layout\\_id=20](https://cm.maxient.com/reportingform.php?SaltLakeCC&layout_id=20)

Students may also report incidents to an SLCC faculty or staff member, who are required by law to notify the Title IX Coordinator. If a student wishes to keep the information confidential, the student may speak with staff members of the Center for Health and Counseling, (801) 957- 4268. For more information about Title IX, go to: <http://www.slcc.edu/title-ix/index.aspx>

7. The syllabus is not a binding legal contract. It may be modified by the instructor when the student is given reasonable notice of the modification.

## Syllabus Statement—Important Information for Students

**General Education** Regardless of your major, General Education courses build a foundation of broad knowledge and skills that help you in your further career and life. <http://www.slcc.edu/gened>

**General Learning Support & Tutoring Services** provide support for SLCC students enrolled in any class at the College. All resources are provided free-of-charge. Ask your instructor about discipline-specific learning support and tutoring services.

The **Tutoring and Learning Centers** provide free assistance in Math, Science, Accounting, CSIS and Allied Health Classes at 6 campus locations. <https://www.slcc.edu/tutoring>

The **Student Writing Center** provides in-person and online feedback on all writing assignments. <http://www.slcc.edu/swc>

The **Academic Literacy Center** provides tutoring in reading and conversation. <https://www.slcc.edu/english/academic-literacy-center.aspx>

**Library Services** provides research help, print and online resources, computers and study space. [libweb.slcc.edu](http://libweb.slcc.edu)

The **ePortfolio Lab** provides drop-in assistance for all ePortfolio questions. <http://eportresource.weebly.com/>

**eLearning Support** provides support for navigating online and hybrid classes. <https://slcc.instructure.com/courses/297606>

The **Business Resource and Innovation Center** provides tutors and a study space for students in Business and CSIS courses. Located in BB 226 on Taylorsville-Redwood Campus.

**Advising and Counseling Support Services** provide support for students enrolled in any class as the college.

The **Center for Health and Counseling** provides health care, mental health counseling, massage therapy services and healthy lifestyle programs. <http://www.slcc.edu/chc/index.aspx>

**Veterans' Services** assists hundreds of students in using their VA education benefits each semester. <http://www.slcc.edu/veterans>

**Academic and Career Advising** helps students plan, explore, make decisions, access resources and evaluate their academic and career goals. And the Academic Achievement Center helps students achieve GPA requirements for graduation. <https://www.slcc.edu/academicadvising>  
<https://www.slcc.edu/academic-achievement-center/index.aspx>

**Student Code of Conduct:** [http://www.slcc.edu/policies/docs/Student\\_Code\\_of\\_Conduct.pdf](http://www.slcc.edu/policies/docs/Student_Code_of_Conduct.pdf)

David Hess 10/17/17 3:30 PM

Comment [6]: Reviewed 10/17/2017