Texas Tech University
Center for Biotechnology and Genomics

Spring 2020 Course Syllabus

Course Number: BTEC 5335-001
Course Name: Capstone in Biotechnology
Course Instructor: Jatindra N Tripathy
Title: Research Associate Professor
Office: EXPSC, Room 103
Phone: (806)834 1837
Email: Jatindra.n.tripathy@ttu.edu
Office Hours: By appointment
Course Schedule: Wed, 10:00 am to 12:50 pm

Course Description:
The course serves as the degree capstone course and is mandatory for the graduate students pursuing one-year M.S. program in Biotechnology. The course prepares students to integrate the skills and knowledge learned from their course-work to help synthesize new concepts and innovate new ideas, products and processes to meet the demand of global challenges.

The student will identify an existing problem in the areas of biotechnology, analyze the problem and propose solutions that involve the use of biotechnology tools and concepts.

Prerequisite:
Students will be permitted to take this course in their final semester as a requirement for graduation. Students are expected to complete all core courses before taking capstone course. This course can be taken in concurrent with other elective courses.

Learning Outcome:
Upon completion of this course, the fully prepared student will be able to:

- Demonstrate the integration of knowledge and skills to identify research problems, develop hypotheses, design scientific methodologies and propose appropriate solutions.
- Demonstrate the scientific acumen in literature survey, literature analysis ability to build scientific model.
- Demonstrate the skills of presenting the results to general audience and writing scientific reports.
- Demonstrate the integration of skills and knowledge to synthesize and translate new insights into innovations.
Lecture:
There is no formal lecture for this course. However, we will meet once in a week to discuss the requirements, progress, outcomes and future work.

Assessments and Grading:
Students will be evaluated based on their performance on the research project. Following criteria will be followed to determine the final grade.

Identifying a research problem: 10%
Project goal, hypothesis, background information: 15%
Literature survey: 15%
Interpretation and model development: 20%
Project report: 20%
Project Presentation: 20%

Assignments Due Dates:

Identifying a research problem: Due on Tuesday Jan 22, 12:00 noon
Identify a research problem in biotechnology. The problem should be a pressing one affecting humankind and there is no existing solution available yet. Provide evidence to support your claim by citing appropriate literature. (One page)

Project goal, hypothesis, and background information: Due on Tuesday Feb 5, 12:00 noon
In this section, you should provide detail background of the project. You should write a brief history, origin and current situation of the problem. Clearly mention project’s goal, objective. State your hypothesis. (Three pages)

Literature survey, data collection: Due on Tuesday Feb 26, 12:00 noon
Collect appropriate data and refer literature that is required to work on your hypothesis. This is mostly a review of literature section (Four pages)

Data Interpretation and model development: Due on Tuesday March 19, 12:00 noon
In this section, you need to be more creative. Apply knowledge and skills learned from your course-work to synthesize new concepts and tools to solve the problem. Develop model(s) to support your data and argument. (Four pages)

Final Project Report: Due on Tuesday April 2, 12:00 noon
The final project should be 12 to 14 pages (1.5 spacing, 12-point Times New Roman, and one-inch margin) long.

Final Project Presentation: April 2 week, date and time will be decided later
Thirty minutes power-point presentation followed by final comprehensive examination.
**Student Accessibility:** OP 34.22: Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor’s office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office in 335 West Hall or 806-742-2405.

**Academic Integrity:** It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and a high standard of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offenders liable to serious consequences, possibly suspension.

“Scholastic dishonesty” includes, but not limited to, cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, and any act designed to give unfair academic advantage to the student or the attempt to commit such and act.

**Cheating:** Dishonesty in examinations, quizzes, or homework assignments, illegal possession of examinations, the use of unauthorized notes during an examination or quiz, obtaining information during an examination from the examination paper or otherwise from another student, assisting others to cheat, alteration of grade records, illegal entry to or unauthorized presence in an office are instances of cheating.

**Plagiarism:** Offering the work of another as one’s own, without proper acknowledgement, is plagiarism; therefore, any student who fails to give credit for quotations or an essentially identical expression of material taken from books, encyclopedias, magazines, internet web sites, and other reference works, or from the themes, reports or other writings of a fellow student is guilty of plagiarism.

**Civility in the Classroom:** Students are expected to assist in maintaining a classroom environment that is conducive to learning. In order to ensure that all students have an opportunity to gain from time spent in class, unless otherwise approved by the instructor students are prohibited from using cellular phones or beepers or engage in any other form of distraction. Inappropriate behavior in the classroom will result in a request to leave the class.

**Religious Holy Day:** By OP 34.19, a student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.

**TTU Resources for Discrimination, Harassment, and Sexual Violence:** Texas Tech University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from gender and/or sex discrimination of any kind. Sexual assault, discrimination, harassment, and other Title IX violations are not tolerated by the University. Report any incidents to the Office for Student Rights & Resolution, (806)-742-SAFE (7233) or file a report online at titleix.ttu.edu/students. Faculty and staff members at TTU are committed to connecting you to resources on campus. Some of these available resources are:
TTU Student Counseling Center, 806-742-3674, https://www.depts.ttu.edu/scc/ (Provides confidential support on campus.) TTU Student Counseling Center 24-hour Helpline, 806-742-5555, (Assists students who are experiencing a mental health or interpersonal violence crisis. If you call the helpline, you will speak with a mental health counselor.) Voice of Hope Lubbock Rape Crisis Center, 806-763-7273, voiceofhopelubbock.org (24-hour hotline that provides support for survivors of sexual violence.) The Risk, Intervention, Safety and Education (RISE) Office, 806-742-2110, rise.ttu.edu (Provides a range of resources and support options focused on prevention education and student wellness.) Texas Tech Police Department, 806-742-3931, http://www.depts.ttu.edu/ttpd/ (To report criminal activity that occurs on or near Texas Tech campus.)