Syllabus for ABT700
Principles of Biotechnology

NOTE: This syllabus document contains the basic information of this course. The most current syllabus is available in the full course.

Course Description

Principles and techniques pertaining to biotechnology and its applications to our society. Survey of classical and emerging techniques.

Prerequisite(s)

None.

Course Outcomes

Upon completing this course, you will be able to do the following:

- Appraise the applications of biotechnology to various industrial settings.
- Demonstrate general understanding on the key concepts and assess the technologies that impact current biotechnology developments.
- Demonstrate understanding pertaining to genes, genomes and their organizations, gene expression, genetic variation and genetic engineering.
- Compare various biotechnologies approaches and recommend appropriate strategies for problem solving.
- Critique biotechnology-related journal articles and appraise the broader impacts of such studies.
- Demonstrate the ability to synthesize ideas to solve given problems and write scientific reports in the area of biotechnology.

Course Requirements/Components

Weekly Assignments: (about 700 grade points) Each week, students will be given reading assignments that comparise of one or more of the following: reference book chapters, case studies, research papers, review articles, popular articles, etc. In addition to the reading assignments, students may be asked to listen to the lecturette(s) for the respective module and associated educational video(s). Students may also be asked to search for information on selected topics using online resources to complete the assignments. The weekly assignments will be based on these readings, educational videos, or online surveys. The instructions for completion of the assignment, due dates (for initial posts and follow-up posts during the discussions, if applicable), file format, etc will be available in the course Canvas page. Each weekly assignment is worth about 50 points and there are fourteen such weekly assignments, totaling about 700 total grade points. Throughout the course, there are few opportunities for

students to complete optional assignments towards bonus points; hence look out for such optional assignments when you review the modules in Canvas.

Presentation of Research Paper: (upto 80 grade points) During week 8, a set of research papers from different areas of biotechnology will be made available to the students. These research papers are selected from variety of different scientific journals to cover different types of biotechnology. Students get an opportunity to select a research paper based on their interests and expertise (educational and research experience) in the subject area on a first-come-first-serve basis (a sign-up sheet will be made available to you in Canvas). You need to read and comprehend the research article so as to prepare and record your presentation as if you are presenting in a conference or symposium to scientific community. The guidelines on preparing the presentations will be made available in Canvas. You can consider this activity as a cumulative final as you will apply what you have learned throughout the semester to understand, comprehend and present the paper in a professional setting. In addition to submitting your presentation (worth 50 points), you will be randomly assigned three presentations prepared by your fellow classmates for peer evalution and *reflection of what you have learned* (30 points). This activity will enable you to appraise the applications of biotechnology in many different fields.

Pre-course and post-course surveys: (up to 20 grade points) You will be asked to complete a pre-course survey during week 1 to understand your backgrounds and educational experiences, and a post-course survey during week 15 to assess your learning and the quality of instruction. These surveys will be graded based on whether or not you participated and completed, not based on 'right or wrong answers'. Students will receive 10 points for completing each survey.

Grading

The following grading scale will be used to evaluate all course requirements and to determine your final grade:

Grade	Percentage Range
A	93 - 100%
A-	90 - 92.9%
B+	87 – 89.9%
B	83 – 86.9%
B-	80 – 82.9%
C+	77 – 79.9%
C	73 – 76.9%
C-	70 – 72.9%
F	0 – 69.9%

Assignment	Points
Weekly Assignments @ 50 points each	~700
Presentation of Research Paper	< 80
Pre-Course and Post-Course Surveys	< 20
Total Points	**< ~800**