HON 120-308 Modern Biotechnology: Research and Careers

Instructor:

Ying Wang, Ph.D., Veteran 3045, 910-962-7721, wangyy@uncw.edu

Office Hours: by appointment

Location and Time:

Veteran 3008 Tuesday 2:00 pm - 2:50 pm

Attendance Policy:

Attendance is required.

Reference books and Other Materials:

Biotechnology Business -- Concept to Delivery, Springer, edited by Saxena

https://libcat.uncw.edu/record=b3366049~S4 *(ebook, UNCW library)*

Search "Biotechnology" ebooks at UNCW library

Course Description:

HON 120-308 is a student-driven learning course on Modern Biotechnology. Through small group study and discussion, the students will learn about the diverse areas of biotech research and businesses, the scientific bases, and the career opportunities of modern biotechnology.

After this class, the students will:

(1) have the basic knowledge about biotechnology research and industry.

(2) be proficient at conducting bibliographic and bioinformatic studies on new research topics.

(3) be able to critically synthesize the information from literature and other sources for advancing their own project.

(4) be efficient in communicating knowledge, idea, or proposal to target audiences.

Course Activities:

- **Group Research Project**

In consultation with the instructor, students in small groups (3-5 persons) will conduct research on a special topic of Biotechnology and present the results of their study to targeted audience. The students will choose their own research topic, conduct traditional and modern multimedia bibliographic study, and prepare for presenting their research outcomes.

Each group can choose their **research topics** from the broadly defined field of biotechnology, including but not limited to Medical Biotechnology, Ocean Biotechnology, Plant Biotechnology, Energy Biotechnology, Industrial Biotechnology, Environmental Biotechnology, Biotechnology careers, and Biotechnology Entrepreneurship.

Each group can choose their **final deliverables** and **delivery methods** for their research project according to their interests. For example, the students can:

- give a seminar presentation on a cutting-edge technology to scientists in the field
- deliver a course about biotechnology to high school students
- present a business plan to investors for raising fund for your startup company
- develop a Podcast/YouTube channel for teaching biotechnology
- interview a scientist on their research on biotechnology for a science radio/TV program
- deliver the study outcomes in any other creative formats for any selected purpose

Students are encouraged to be creative when choose the research topic, deliverables, delivery methods, and platform. On the other hand, the **final goal** and **audience** should be kept in mind when conducting the research project. Students are expected to **revise** or **refine** their research topic, deliverables, and delivery methods during the research inquiry.

The students in each study group will work together in developing the research project. Each student should assume leading **roles** in one or more activities in the project, e.g.,

- collect, organize the raw information, and synthesize the information into ideas.
- summarize the research outcomes and author the contents for result delivery
- create and edit the multimedia materials for delivering the research outcomes.
- coordinate the activities with the group, act as inter-group liaison to get suggestions and feedback from outside the group for the project materials and presentation.
- design and moderate the final project presentation in multimedia and/or multiplatform

Each group will assign the project roles to each member. The roles will be used as the base for peer grading as described in the Grading Policy section. Each student's contribution in the research project should be described in the final reflection reports.

- **Midterm and Final Presentation and Reflection:**

Each group will present the results of their project in the class before the final project presentation. After the midterm presentation, each student will submit a reflection on things that worked and that need to be improved in the project delivery, as well as comments and suggestions to other groups' projects.

At the end of the semester, each group will present their project to external target audience. The instructor will help students to identify and invite the audience. After the final presentation, each student will submit a reflection describing their contributions in the research project, comments on the research projects, and things related to Biotechnology that they wish to learn in the future.

- **Tech Sound Bite Presentations:**

Each group will give at least one technical sound bite presentation on a special biotech technology at the beginning of the classes. The sound bites will be a 5-minutes presentation followed by 5-minutes Q&A. On the days no students are presenting, the instructor will give the sound bite talks.

- **Biotech Research Lab Visits:**

The class will visit the biotech research labs at UNCW in Veterans Hall and MARBIONC. Students will see the lab settings for biotechnology research, talk to the researchers in the labs, and ask them questions. Students could use this opportunity to answer the question they may have in their research projects.

- **Conversation with a Biotech Professional Guest:**

  We will invite a guest who works in a biotech career to talk to the students. The guest will join one class either in person or virtually. Students are expected to prepare discussion topics and questions for the guest.

Grading Policy:

- Your final grade will be based on your contributions to the research project, your reflections, and the technical sound bite presentation. Your performance will be graded by your partners in the group, peer students from other groups, and the instructor. Each student will be graded by their partners for their contributions to the team using the rubrics provided by the instructor. The peer grading will be done via anonymous survey. The scores for the midterm and final presentations will be given for the project presentation and will be assigned to individual students based on their role assignment.

Bases	Grader	Grading Date	Percentage
Contributions before midterm presentation	Team members	At the time of midterm reflection	15%
Midterm project presentation	Peers from other teams	At the time of midterm reflection	12%
Midterm Reflection	Instructor	At the time of midterm reflection	5%
Contributions after midterm presentation	Team members	At the time of final reflection	25%
Final project presentation	Peers from other teams	At the time of final reflection	30%
Final Reflection	Instructor	At the time of midterm reflection	3%
Tech sound bite	Instructor	After each sound bite	10%

- **Final Grades** will be determined using following percentages:

  A = 90% - 100% B = 78% - 89.99% C = 70% - 77.99% D = 60% - 69.99%
  F = < 60%

Class Schedule:

The general schedule of class activities are as follows. This schedule can be subjected to revision. Students will be noticed about any changes.

Date	Activities	Assignment Due
Aug. 24	Class Orientation	

Aug. 31	Bibliographic studies, formulate your ideas,	
Sept. 7	Brainstorm your ideas, goal, target audience, and deliverables of the project; Assign the project roles in your team	
Sept. 14	Brainstorm initial project milestones and timeline	
Sept. 21	*Visit Biotech Labs at Veterans Hall*	
Sept. 28	Brainstorm progress of contents development	
Oct. 5	*Visit MARBIONC Labs at CMS*	
Oct. 12	Brainstorm content delivery implementation	
Oct. 19	**Midterm presentation**	
Oct. 26	**Midterm presentation**	
Nov. 2	Reflection discussion about midterm presentation	Midterm reflection
Nov. 9	*Conversation with a biotech professional*	
Nov. 16	Discuss preparation for the final presentation	
Nov. 23	**Final presentation**	
Nov. 30	**Final presentation**	Final reflection due Dec. 2

Services for Students with Disabilities:

Students with diagnosed disabilities should contact the Office of Disability Services (962-7555). Please give me a copy of the letter you receive from ODS detailing class accommodations you may need.