**Course Syllabus**
**INTRODUCTION TO CELLULAR BIOLOGY AND GENETICS LABORATORY**
**BIOL 200L Section 004 & 008**

## Instructor

Dr. Carolyn Dabirsiaghi
cdabirsiaghi@towson.edu
Office Hours: By appointment and times will be posted in Blackboard.

## Meeting Times and Rooms

This class will be conducted on-line and via a combination of synchronous meetings and asynchronous assignments. There will be weekly synchronous meetings during your regularly scheduled lab time. These meetings are important introductions to class activities, your instructor and your classmates in this virtual environment. Attendance at these sessions is required.

## Resources

**Text**
No textbook is required. Required readings will be posted in the Content section of the class Blackboard site.

**Recorded Class Sessions**
Each class meeting will be recorded and posted

## Course Description

An introduction to biology, including biologically important molecules, cell and tissue structure, respiration, photosynthesis, mitosis, meiosis and genetics. Average of three laboratory hours per week.

## Course Learning Outcomes and Objectives

The following outline summarizes the objectives for BIOL.200L. It is not meant as a specific study guide and does not include the details you need to know to accomplish the goals. The objectives summarize the "big ideas" that we will be covering in this course.

I. Understand and apply the scientific method to solving problems
   A. Recognize that the scientific method is simply a way of approaching a problem that begins with understanding a set of basic information.
   B. Learn to develop hypotheses and design controlled experiments to test them.

II. Be able to analyze and interpret data
   A. Be able to calculate the appropriate descriptive statistics.
   B. Be able to apply the concept of significant figures.
   C. Be able to calculate and interpret basic statistical tests.
   D. Be able to present data graphically and interpret graphs

III. Be able to explain and apply basic concepts of enzymology.

A. Explain what a temperature optimum is and why activity decreases at temperatures below and above that optimum.

B. Explain what a pH optimum is and why activity decreases at pHs below and above that optimum.

C. Be able to explain why salt concentrations might affect enzyme activity

IV. Integrate the processes of sexual reproduction (meiosis and fertilization) with the ability to predict the frequencies of traits in the offspring.

A. Explain Mendel's laws of inheritance, gene linkage, and crossing-over.

B. Correlate Mendel's laws to the movement of chromosomes during meiosis.

C. Use probability to calculate the results of genetic crosses.

We want you to appreciate that science is a process of investigating the natural world, not a collection of "facts" in a textbook. This requires active participation in the process. The virtual laboratories that you will be participating in during this semester are going to involve testing various aspects of the models that we will be studying in lecture. Following discussion of the models and introduction to the types of techniques and equipment available, you will design experiments to test aspects of the models. We will work through the semester to help you develop the following skills:

- to work with others effectively in cooperative efforts
- to design well-controlled experiments
- to recognize the difference between data and results
- to analyze data using appropriate calculations and graphing capabilities
- to prepare an accurate, well-organized report

## Course Requirements

**Reading Assignments**

There will be reading assignments for most assignments of the course. Students are expected to complete the reading assignments and attend class or view recorded lectures before starting any assignment.

**Assignments**

There will be **1-3 assignments due each week**. Some will be graded based on participation, others will be graded based on content. Grading of the later will be based on a rubric reflecting the instructions for the assignment.

**Examinations**

There will be two exams. Approval to miss an exam will only be given in the case of a documented illness or emergency. Extended illnesses or the death of a close relative or friend should be reported to the Division of Student Affairs. Missing the midterm exam due to excused absence will be "made up" by a final exam worth a point value equal to the normal final exam plus the value of the missed midterm. Appeals to grading must be in writing.

Tests will be open-book and open-note. You may not use other external resources or communicate with others about the tests. The exams will consist of applications of the materials and techniques.

## Grading Policy

The final grade will be calculated based on a total of 600 points as follows:

| Assignment | Pts/assignment | Total Points |
|---|---|---|
| Preliminary Experimental Designs | 6@10pts each | 60 pts |
| Final Experimental Designs | 2@25pts each | 50 pts |
| Draft Reports on Experiments | 4@10 pts each | 40 pts |
| Feedback on Draft Reports | 4@10pts each | 40 pts |
| Final Reports on Experiments | 2@50 pts each | 100 pts |
| Exams | 2@100pts each | 200 pts |
| Genetics Assignments | 1@10 pts each | 10 pts |
| Total | | 500 pts |

| Letter Grade | % Range | Letter Grade | % Range | Letter Grade | % Range | Letter Grade | % Range |
|---|---|---|---|---|---|---|---|
| A | 92 - 100% | B+ | 88 – 89.9% | C+ | 78 – 79.9% | D+ | 68 – 69.9% |
| A- | 90 - 91.9% | B | 82 - 87.9% | C | 70 – 77.9% | D | 60 - 67.9% |
| | | B- | 80 – 81.9% | | | F | < 60% |

## Policies

### Copyright

All lectures and course materials, including, but not limited to power point presentations, tests, outlines, and similar materials, are protected by copyright. Dr. Larry Wimmers is the exclusive owner of copyright of those materials. You may take notes and make copies of course materials for your own use; however, you may not, nor may you allow others to, reproduce or distribute lecture notes and course materials publicly whether or not a fee is charged without written consent of Dr. Wimmers.

### On-Line Participation

There will be both asynchronous and synchronous online activities and you are expected to be "virtually" present for synchronous activities just as if you were meeting in a regular classroom. You must have a working computer, microphone, webcam, and internet connection to participate in the synchronous activities. We will adhere to the following policies for the synchronous activities:

··**Attendance at all synchronous sessions is required.** For each lab you attend AND participate you will get 1 point. It might not sound like much, but it adds up at the end. Permission to miss a laboratory will only be given in case of a documented emergency, illness or in the case of the death of a loved one. A missed laboratory will be made up by the submission of an acceptable 1000-word summary of a chapter from the text to be assigned. You may not get the participation points if you come late without notifying the professor ahead of time.

In the event of technical difficulty, email the instructor immediately. Do your best to resolve the issue before class.

· In the event the instructor has technical difficulty and disappears and doesn't return in 3 minutes, please wait an additional ten minutes before logging off. The instructor will be trying to reestablish the connection and/or may be trying to reach an alternate internet connection. If the instructor does not return within those 10-15 minutes, see Blackboard for instructions which will be posted as soon as possible.

· In the event of a snowstorm, hurricane, or any widespread loss of power and/or internet connections which disrupts many participants, alternate materials will be posted on Blackboard. Make sure to check as soon as you are able to connect to the internet.

· Use of a webcam is mandatory. Each student will be permitted 1 instance where technical difficulties or other issues are cited for lack of camera use. For every incident past the first, the extra credit points for that class meeting will be decreased by 5 points.

· "Attentiveness." It will be evident to the instructor if you are not at your PC and engaged with the class. Remember, you are expected to be present, available to be called upon to comment or contribute at any time. **Twenty five points will be lost for any class session where you are "present" but evidently not engaged.** Such measures are used to ensure that you are actually receiving the instruction required in your online course.

## Late Work

Assignments submitted late without permission will receive a grade reduction of 20% of the maximum score for the first day and 20% for each week or part of a week late after that first day.

### Academic Honesty

The Towson University Code of Conduct prohibits "all forms of dishonesty including cheating (and) plagiarism." The consequences of academic dishonesty will be a failing grade of 0 points for the assignment.

Students are responsible members of the academic community. You are therefore obligated not to violate the basic standards of integrity. You are also expected to take an active role in encouraging other members of the community to respect those standards. Should you have reason to believe that a violation of academic integrity has occurred, you are encouraged to make the suspicion known to a member of the faculty or University administration.

Cheating means misusing, attempting to misuse, and/or disseminating unauthorized materials, information, notes, study aids, videos or other devices in any academic exercise. This includes unauthorized communication of information during an exercise or exam. Some examples include but are not limited to: Copying from another student's paper or receiving unauthorized assistance during any graded deliverable; using books, notes or other devices (e.g., calculators, phones, watches, laptops, or other internet enabled devices) when these are not authorized; procuring without authorization tests or examinations before the scheduled exercise (including discussion of the substance of examinations and tests when it is expected these will not be discussed); copying reports, laboratory work, computer programs or files and the like from other students; collaborating on laboratory or computer work without authorization; having a substitute take an examination, using solutions manuals, providing exam and assignment questions to student websites or using such a website to complete an assignment and/or exam (including free or pay websites that maintain textbook and/or instructor solutions). To clarify, copying or collaborating with other students or using external resources, including other people, on any type of assignments that are expressly designed to be completed individually is cheating.

Recorded sessions and any associated materials are designated ONLY for registered students in the class. Any sharing or dissemination of recordings beyond the student body registered in the course and section constitutes a violation of privacy and may also be categorized as cheating or defamation of character (depending on the circumstance), a possible copyright infringement.

Complicity in Academic Dishonesty means helping or attempting to help another commit an act of academic dishonesty. Some examples include but are not limited to: Allowing another to copy from one's paper during an examination or test; distributing test questions or substantive information about the material to be tested without authorization before the scheduled exercise; collaborating on academic work that is expressly designed to be completed individually; taking an examination or test for another student; signing a false name on an academic exercise; or sharing assignment or exam information before, during, or after the deliverable in written, electronic, video, or verbal form. (Note: Collaboration and sharing information are characteristics of academic communities. These become violations when they involve dishonesty. Students should seek clarification when in doubt).

Abuse of Academic Materials means destroying, stealing, or making inaccessible library or other resource materials. Some examples include: Stealing or destroying library or reference materials needed for common academic exercises; hiding resource materials so others may not use them; destroying computer programs or files needed in academic work; stealing or intentionally destroying another student's notes or laboratory experiments; receiving assistance in locating or using sources of information in an assignment where such assistance has been forbidden by the instructor.

**Student Conduct**

To make our time together more valuable, we are going to establish a basic philosophy:
**"Every student has the *right* to learn, as well as the *responsibility* not to deprive others of their right to learn."** To ensure that we observe this philosophy, I will ask you to respect the following policies. The discussion board should be viewed as a course forum to discuss the readings, videos, and other course-related content. Your participation in the discussions counts as attendance in this asynchronous online course. The tone of all posts should be respectful and professional in nature.

· Treat the other students and your faculty member the same online as you would in person. Engage with others in a respectful manner.

· Keep in mind that written communication lacks the non-verbal cues we use to understand each other. It may be helpful to review what you write to ensure the message reads the same way you are intending it to.

· Remember the TU Student Code of Conduct in all online engagement.

· It is not appropriate to post statements of a personal or political nature, or statements criticizing classmates or faculty. Inappropriate statements/language will be deleted by the course faculty

**Americans with Disabilities Act**

If you are a qualified student with a disability seeking accommodations under the Americans with Disabilities Act, you are required to self identify with Disability Student Services in the Administration Building. Accommodations cannot be provided without a letter from Disability Services. This should be done during the first week of class.

**Diversity**

Towson University values diversity and fosters a climate that is grounded in respect and inclusion, enriches the educational experience of students, supports positive classroom and workplace environments, promotes excellence, and cultivates the intellectual and personal growth of the entire university community. Should you feel that you are experiencing a negative environment related to diversity issues or cultural sensitivity, we encourage you to contact the

Department's Diversity Committee Chair, [Dr. Colleen Winters cwinters@towson.edu ]. For more information go to http://www.towson.edu/fcsm/diversity/

**Career Center Resource**

The Career Center can help you with your major/career exploration and planning, developing your personal brand documents (resume, cover letter, LinkedIn, etc.) and job/internship resources and connections. You can make a virtual or phone appointment through Handshake at your convenience. For more information visit: https://www.towson.edu/careercenter/

## Course Calendar

| Date | Lab (Assignment #) | Assignment: Due Date | Class Discussion |
|---|---|---|---|
| Week 1<br>1/25 - 1/29 | Vit C, Round 1, Draft Design (1) | 1: Tuesday, 2/2 | Class + Vit C Intro |
| Week 2<br>2/1 – 2/5 | Vit C, Round 1, Final Design (2) | 2: Tuesday, 2/9 | Revising First Vit C Exp. Design |
| Week 3<br>2/8 – 2/12 | Vit C, Round 1, Draft Presentation (3)<br>Comments on Draft Presentation (4) | 3: Tuesday, 2/16<br>4: Thursday, 2/18 | Preparing First Draft Vit C Report |
| Week 4<br>2/15 – 2/19 | Vit C, Round 2, Draft Design (5) | 5: Tuesday, 2/23 | Preparing Second Enzyme Exp. Design |
| Week 5<br>2/22 – 2/26 | Vit C, Round 2, Final Design (6) | 6: Monday, 3/1 | Revising Second Vit C Exp. Design |
| Week 6<br>3/1 – 3/5 | Vit C, Round 2, Draft Presentation (7)<br>Comments on Draft Presentation (8) | 7: Monday, 3/8<br>8: Thursday, 3/11 | Preparing Second Draft Vit C Report |
| Week 7<br>3/8 – 3/12 | Vit C, Round 2, Final Presentation (9) | 9: Monday, 3/22 | Revising Second Vit C Report |
| Spring Break<br>3/15 – 3/19 | | | |
| Week 8<br>3/22 – 3/26 | Enzyme, Round 1, Draft Design (10)<br>Midterm Exam | 10: Monday, 3/29 | Preparing First Enzyme Exp. Design |
| Week 9<br>3/29 – 4/2 | Enzyme, Round 1, Final Design (11) | 11: Monday, 4/5 | Revising First Enzyme Exp. Design |
| Week 10<br>4/5 – 4/9 | Enzyme, Round 1, Draft Presentation (12)<br>Comments on Draft Presentation (13) | 12: Monday, 4/12<br>13: Thursday, 4/15 | Preparing First Draft Enzyme Report |
| Week 11<br>4/12 – 4/16 | Enzyme, Round 2, Draft Design (14) | 14: Monday, 4/19 | Preparing Second Enzyme Exp. Design |
| Week 12<br>4/19 – 4/23 | Enzyme, Round 2, Final Design (15) | 15: Monday, 4/26 | Revising Second Enzyme Exp. Design |
| Week 13<br>4/26 – 4/30 | Enzyme, Round 2, Draft Presentation (16)<br>Comments on Draft Presentation (17) | 16: Monday, 5/3<br>17: Thursday, 5/6 | Preparing Second Draft Enzyme Report |
| Week 14<br>5/3 – 5/7 | Enzyme, Round 2, Final Presentation (18)<br>Genetics Exercises (19) | 18: Monday, 5/10<br>19: Monday, 5/10 | Revising Second Enzyme Report<br>Genetics Problems |
| Finals | Final Exam | | |