Unity of Life
Biology 111A, Fall 2018

Instructor: David Sultemeier, Ph.D.
Office: Thompson 223c
Office Time: M 11:00-12:00 pm, T 12:00-1:00 pm, or by appointment
Email: dsultemeier@pugetsound.edu

Lecture: TH 193 MWF, 9:00-9:50 am
Lab: HA251 111AA, M 1:00-3:50 pm; 111AB, T 9:00-11:50 am; 111AC, T 1:00-3:50 pm

A Student Handbook for Writing in Biology, 4th ed., 2013, Knisely

Laboratory manual: All laboratories are posted on Moodle.

Course website: A Moodle site will be used to distribute class materials. http://moodle.pugetsound.edu/

COURSE DESCRIPTION

Biology 111 is an introductory-level course in the biological sciences that satisfies a Natural Sciences Approaches requirement. This course is designed for introductory level students intending to major in biology or a related science. Biology majors are required to complete both Biology 111 and 112 before taking most upper level courses in the major. If you do not plan to major in the sciences you may want to consider enrolling in Biology 101 or 102, Natural Science Approaches Core Biology courses designed for non-majors.

Adequate preparation for participation in Unity of Life would include satisfactory completion of one or more years of high school biology and chemistry. If you are considering a major in biology, you should seriously consider taking introductory chemistry concurrently.

Students in Biology 111 will begin to recognize and understand the cellular structure/function relationships that make life possible. In addition to basic structural features, I will emphasize the capacity of cells to process materials and energy, to reproduce, and to communicate with other cells. As students in Biology 111, you will be asked to go beyond memorizing details to applying these concepts to novel situations, such as considering how cellular processes underlie whole organism function or dysfunction in specific examples. In addition, you will be introduced to some of the principles underlying DNA technology and some recent applications of that technology.

To be successful, students in Biology 111 need to acquire a firm grasp of basic concepts and develop the ability to apply these concepts to new problems. Each student should begin to develop confidence in his or her ability to think logically and critically and to communicate ideas effectively. Writing clearly is one of the most important skills you will develop in college.
One of the goals of this course is to help you recognize the elements of good scientific writing and allow you to begin to develop your scientific writing skills.

EXPECTED LEARNING OUTCOMES

I. Understand and apply five core concepts of biology:
   1. **Evolution**: The diversity of life evolved over time via genetic alterations and selection of resultant phenotypes (from the protein to organismal level).
   2. **Structure and function**: Structure reflects function (from molecules to organisms).
   3. **Information flow, exchange, and storage**: Organisms interact with their environment through the context-dependent expression of the genetic information that they inherit (from cells to organisms).
   4. **Pathways and transformations of energy and matter**: Biological systems grow and change by processes based upon chemical transformation pathways and are governed by thermodynamics.
   5. **Systems**: A quantitative understanding of complex biological processes at multiple functional scales.

II. Gain experience applying the scientific process.

III. Communicate science in a clear and concise manner.

IV. Develop analytical reasoning skills.

V. Recognize the interplay between scientific advances and the broader community (individuals, government, corporations)

Instructor and Student RESPONSIBILITIES

I will facilitate an effective learning environment in which you can explore the fundamentals of biology. No question is unreasonable. However, ultimately you are responsible for your own education. You must dedicate ample energy and time to learn the material on your own. You are responsible for obtaining information on any schedule changes as well as on class materials you may miss during absence from class.

ATTENDANCE

Students are expected to attend lecture; however, attendance or participation grades are not given in this course and you will not be penalized for not attending the occasional lecture. With that being said, unexcused long-term absences from lecture will result with an automatic withdrawal from the course and/or a failing grade. A valid excuse for illness includes a doctor’s note. For non-medical personal and family-related issues that may cause extended absence should be communicated with the office of the registrar. The university allows a 3-day bereavement period; however, I am flexible with extent of time depending on the situation.

Laboratory attendance is mandatory. Students who have more than one unexcused absence from a laboratory will be dropped from the course.
TIME REQUIREMENTS

Please be aware that assessment in this course will be based on comprehension and application of biological knowledge in addition to basic knowledge. As such, you will need to plan on **SIGNIFICANT** additional time outside of lecture and lab so that you may move beyond simple acquisition of knowledge.

READINGS

The required texts for the course are HOW LIFE Works 2nd Ed. (2016), Morris et. al, and A Short Guide to Writing About Biology 4th Ed. (2013) by Pechenik. Our main textbook was written for a comprehensive, yearlong, introductory college biology course. It is highly readable, well-illustrated, and covers many more topics than we will be able to cover in Biology 111. In this respect, you are encouraged to keep this book and use it as a comprehensive, general resource for future biology courses and to study for the MCAT, GRE, etc. For each lecture, I've assigned a chapter and pages; this material should be read in preparation for the lecture. I may also hand out supplemental reading material from time to time. This material is required unless I state otherwise. Following each lecture, it is important that you integrate the information in the text with that from lecture.

STUDY STRATEGIES

A very effective vehicle for learning is to participate in or organize a small study group with other students in this class. Use this group to review information, test your knowledge, and practice explaining the concepts. Often it isn't until you try to explain a concept to someone else that you see a gap in your understanding. The more you intellectually engage your with your peers about these concepts, the more you will learn and the better prepared you will be for the quizzes and exams. If you find yourself searching for additional or novel study methods for biology please come visit me in my office.

LABORATORY

Each student must be registered for a laboratory section. Each laboratory section will meet at its assigned time each week for 3 hours. The laboratory activities provide an opportunity to make first-hand observations, learn data collection techniques, sharpen one’s skill in analysis and reasoning, and practice clear and effective communication. A short introduction to the laboratory will generally be given at the beginning of each lab period. This introduction will provide information not available in your lab manual and to demonstrate new techniques—but it cannot replace your own advance preparation.

**You are expected to attend the laboratory section for which you are registered and to be on time.** Labs start promptly. YOU CAN NOT ATTEND OTHER LABORATORY SECTIONS WITHOUT PROPER DOCUMENTATION. If you have proper documentation you must make up the lab within the same week.

You must carefully read through the laboratory description BEFORE the lab to know what it is you are expected to do during the laboratory session. I CANNOT EMPHASIZE THIS ENOUGH. If you do NOT do this, lab will take you much longer than it should to complete.
You should also review the portions of your text and lecture notes that relate to the laboratory topic. To help you prepare for each lab session, each lab “exercise” includes a set of pre-lab questions to turn in at the beginning of the lab period. Detailed instructions for each lab are included in each laboratory posted on the course Moodle page. Each lab description includes many questions for thought and most include a page or more of questions to be turned in at the end of the laboratory session.

One lab will provide data for writing a full lab report. This assignment is part of your introduction to scientific writing. In science it is essential to communicate observations and reasoning through clear, concise, and well-documented written papers.

DIVERSITY AND INCLUSION IN SCIENCE

In an ideal world, science would be objective. However, much of science is subjective and historically built on a small subset of privileged voices. Thus, even though the material covered in this course is of a scientific nature, I acknowledge that there may be both overt and covert biases within it. Integrating a diverse set of experiences is important for a more comprehensive understanding of science. I (like many people) am still in the process of learning about diverse perspectives and identities. Please contact me (in person, electronically, or anonymously) if you have suggestions to improve the representation of a diverse group of scientists in course materials.

APPROPRIATE BEHAVIOR

Students are expected to behave in an appropriate manner while attending this class.

- absolutely no food or drink in the laboratory. Drinks can be kept outside the lab door.
- if you leave the room during a test or quiz, your paper will be collected and you will not be permitted to complete the test/quiz.
- during class time I expect you to be working on materials for this course only.
- personal technology: Please be respectful of others in class:
  - switch your phones to vibrate or no-ring before coming to class.
  - no email or text messaging.
  - you may not touch or use any electronic devices in any way during an exam.
  - you may not have ear buds in at any time while in class.
- lack of respect for diversity will not be tolerated in the class. Diversity encompasses age, life experiences, profession, race, religion, gender, lifestyle, social class, learning style, philosophy of life, sexual orientation, personality, mental and physical challenges, customs, values, among other.
- student access to lab prep areas is prohibited unless authorized by an instructor.

STATEMENT CONCERNING ACADEMIC MISCONDUCT

Plagiarism and any other form of cheating will not be tolerated. I recommend you avoid even the appearance of cheating, particularly during quiz, exam, and practical times.
Plagiarism is defined as presenting the work of another as one's own. More than four consecutive words from a source other than the writer constitutes plagiarism when the source is not clearly identified in appropriate documentation format.

ACADEMIC DISHONESTY POLICY

All students as part of their obligation to University of Puget Sound assume the responsibility to exhibit in their academic performance the qualities of honesty and integrity. All forms of student dishonesty, which may include but not be limited to: cheating, fabrication, facilitating academic dishonesty, and plagiarism are subject to disciplinary action. Examples of academic misconduct may include:

- Representation of the work of others as one's own
- Use of unauthorized assistance in any academic work
- Failure to cite sources used
- Obtaining and/or using tests unless distributed and/or approved by the instructor
- Copying the work of another student on any form of test
- Knowingly help someone else cheat
- Modification, without the instructor's approval, of any form of test, computer program, paper, record, report, assignment, or project for obtaining additional credit or an improved grade
- Failure to meet other conditions of academic integrity as identified by the instructor in the course syllabus

Depending upon the severity of the incident, an instructor may, after discussion with the student, impose a penalty or penalties such as:

- Issue a warning
- Reduce the grade of the assignment, examination, or project assignment, any form of test, or project
- Give zero credit for the assignment, any form of test, or project
- Dismiss the student from the course and issue a withdrawal or failure for a grade

SPECIAL ACCOMMODATIONS

If you have a disability including a learning disability or health problem that interferes with ability to succeed in this class, you are encouraged to arrange support services and/or accommodations through Disabilities Services. Please see http://www.pugetsound.edu/disabilities.xml for more information.

Classroom Emergency Response Guidance

Please review university emergency preparedness and response procedures posted at www.pugetsound.edu/emergency/. There is a link on the university home page. Familiarize yourself with hall exit doors and the designated gathering area for your class and laboratory buildings.
If building evacuation becomes necessary (e.g. earthquake), meet your instructor at the designated gathering area so she/he can account for your presence. Then wait for further instructions. Do not return to the building or classroom until advised by a university emergency response representative.

If confronted by an act of violence, be prepared to make quick decisions to protect your safety. Flee the area by running away from the source of danger if you can safely do so. If this is not possible, shelter in place by securing classroom or lab doors and windows, closing blinds, and turning off room lights. Stay low, away from doors and windows, and as close to the interior hallway walls as possible. Wait for further instructions.

CLASS CANCELLATIONS DUE TO WEATHER

Closure of the University of Puget Sound due to weather will be announced on the major radio and television stations, on-line at the university website, or via the main telephone number of the university.

Please be aware that I live at some distance from campus and if weather and roads are treacherous near my home, even if they are fine near UPS, I may not be able to make it to class. In such a case I will email the class and attempt to have notice of class cancellation posted.
GRADING (subject to change at discretion of instructor at any time)

Grading Policies
- No make-up exams (except in cases of medical or family emergencies, documentation will be required to make up the exam).
- Late lab questions or assignments will have 25% deducted per day late. Labs or assignments will not be accepted after two days.
- No extra credit will be given.

Total Points Possible – 880 pts

Grading Scale

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<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>≥ 92.6%</td>
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<tr>
<td>A-</td>
<td>89.5-92.5%</td>
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<tr>
<td>B+</td>
<td>87-89.4%</td>
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<tr>
<td>B</td>
<td>82.5-86.9%</td>
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<tr>
<td>B-</td>
<td>79.5-82.4%</td>
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<tr>
<td>C+</td>
<td>77-79.4%</td>
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<tr>
<td>C</td>
<td>72.5-76.9%</td>
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<tr>
<td>C-</td>
<td>69.5-72.4%</td>
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<tr>
<td>D+</td>
<td>67-69.4%</td>
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<tr>
<td>D</td>
<td>62.5-66.9%</td>
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<tr>
<td>D-</td>
<td>60-62.4%</td>
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Exams
500 pts Three Exams (100 pts each)
Comprehensive Final Exam (200 pts)

Quizzes/In-Class Assignments/Participation
140 pts See the class schedule for dates of the five quizzes (20 pts each), and two in-class assignments with pre-class questions (20 pts). Quizzes will be given during the last 12 minutes of class. **There are no opportunities to make up quizzes.**

Take Home Assignment
20 pts One take home assignment is scheduled (20 pts).

Laboratory
220 pts Laboratory pre- and post-laboratory assignments (15 pts each; 150 pts)
Photosynthesis Lab Report (50 pts)
Lab Practical (20 pts)

**Special Note on Discussing Exams**

I will not discuss an exam or exam grade within 24 hours of returning the graded exam to you. If you wish to dispute the grade or further discuss how to improve your study habits I will be happy to meet with you after the 24-hour time period.

If you wish to dispute a test grade you must return the test directly to me with a typed appeal attached to the front of your test. This appeal should indicate (1) which question(s) you would like re-graded and (2) why you are disputing the grade you received. I will also check each exam to ensure that the point total was correctly calculated. I will accept appeals up to one week from the date that the test was returned to you.