Biology 111: Unity of Life

SYLLABUS

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Office Hours: T, Th: 11:00 - 12:00 and other times by appointment.

Texts:
2) A student handbook for writing in biology, K. Knisely
3) Biology 111 Laboratory Manual, Fall 2019 (will be provided as PDFs)

Webpage: Log in via Canvas

Practice/review sessions: These sessions are throughout the semester and especially before exams. They are held in the afternoon/evening, and are optional.

Center for Writing and Learning
The CWL is paid for with your student fees. You can get help with writing a paper, workshops, test taking, thesis writing etc. It is there for your use.
CWL: Howarth Hall 105, (253)879-3395

Introduction
Biology 111 is an introductory level course in the biological sciences. This course is designed for students intending to major in biology or a related science. If you are looking for a Biology course to fulfill your Natural Scientific Approaches Core Bio111 will work but you can also choose Bio101 (MWF 9-10), which is specifically for non-science majors. Bio111 focuses on structure and function in the biological world at the cellular and molecular levels. Compared to Bio101, the majors course Bio111 requires a lot more time and work on the students’ part. Please choose wisely!
Adequate preparation for participation in Bio111 includes satisfactory completion of one or more years of high school biology, chemistry or physics.

Learning Outcomes
1. To understand and apply five core concepts of biology:
   - **Evolution:** The diversity of life evolved over time via genetic alterations and selection of resultant phenotypes (from the protein to organismal level).
   - **Structure and function:** Structure reflects function (from molecules to organisms).
   - **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).
   - **Pathways and transformations of energy and matter:** Biological systems grow and change by processes based upon chemical transformation pathways and are governed by thermodynamics.
   - **Systems:** A quantitative understanding of complex biological processes at multiple functional scales.
2. To gain experience with scientific methodology.
3. To communicate science in a clear and concise manner.
4. To develop analytical reasoning skills.
5. To understand interconnections between scientific advances and the broader community (individuals, government, corporations).

Course Objectives
The primary objective of this course is for you to develop an understanding of how structure and function in the biological world is connected to composition and organization at the cellular and molecular levels.
Within this framework, course objectives include:

- understanding basic principles of modern biology,
- relate biological principles to your own experience as an individual and as a member of society,
- develop your power of reasoning and analysis through application of the scientific method,
- develop research skills, such as data collection, analysis, and interpretation,
- develop writing skills for effective communication.

**Strategies for Success**

Several patterns of behavior will contribute to your success in this course:

1. **Attend all classes and labs.** An essential factor for success in college courses is regular, on time, class attendance!

2. **Prepare for each class** by watching the assigned lectures, reviewing notes from previous lectures and reading the assigned textbook pages. Most important about the textbook are the figures!

3. Come to class prepared to think about a certain body of material having taken detailed notes from the lecture, and ask questions about material you do not understand. Reading ahead will give you an idea of what things will be considered in future lectures. You will find you understand some of what you read and do not understand other parts. Your questions should help you integrate that which you understand with that which you don’t.

4. Study material after each lecture by trying to integrate current lecture information with material from previous lectures and readings. Information and ideas will be freshest in your mind at this time.

5. Use each class session and your study time to prepare for quizzes. Breaking up the topics into small packages should help you manage your efforts. Consistently low quiz scores suggest a lack of preparation and will have a significant negative impact on your grade.

6. **Prepare for lab** well in advance by reading lab instructions, notes, and the relevant passages in the textbook. Think about and prepare answers to the prelab questions. Don’t wait until just before lab. Arrive at the lab on time, informed about what you will do, and prepared to efficiently use the time available. (The better you are prepared the earlier you will get done, too.)

7. Don’t be afraid to seek help from the professor or teaching assistant! While we want you to become independent learners, we also want to make this course interesting and enjoyable with as few frustrations as possible.

8. **Commit a substantial amount of time.** Plan to devote 6-8 hours a week outside of class time to the course. Approximately half of this time should be dedicated to preparing for upcoming lectures/labs/quizzes/exams and half the time should be dedicated to reviewing past lectures/labs/quizzes/exams. The week prior to an exam, you will probably need to devote an additional 6-8 hours to studying. It can help to set aside regular time slots in your schedule to stay on top of class.

9. **Get the most from assigned readings.** Lecture: when reading the indicated material prior to or after lecture, pay attention to the “big picture” and any unfamiliar terminology. The first reading of the text will help set up an intellectual foundation that should enable you to follow the lecture with relative ease. After lecture and/or class, go back over the reading this time focusing more deeply on the material that was covered in lecture. The LearningCurve activity for each chapter on Launchpad is very valuable in assessing your understanding of the material and includes some simple application problems. The Quick Check questions embedded in the text are especially useful in prompting you to apply material to a new situation, using your own words (similar to most quiz/test questions).

10. **Organize or join a small study group.** Use the group to review information and test each other’s knowledge and ability to explain the subject matter. The more you can do to intellectually engage your mind with the topic materials, the more you will learn and the better prepared you will be for the quizzes and exams.

11. **Use additional available resources.** If you’re struggling, bring your questions and/or concerns to office hours (or make an appointment if your schedule conflicts). Attend the study sessions. Meet with biology tutors at the Center for Writing, Learning and Teaching or through the Biology Honor Society, Phi Sigma (hours to be announced). These resources are for everyone, even if you are not struggling.

**Course Mechanics**

**Lectures:**

Most lectures will be “flipped”. That means I will record the lectures and make them available either on
YouTube or via Canvas for you to watch. You should watch the lectures before the day they are listed in the syllabus/schedule. During class time, we will usually do the following in this order: First, there will be time for questions about the lecture. Time spent for this will vary depending on the number of question you have. Second, there will be a short “mini-quiz” about the lecture content. Each min-quiz will consist of a few questions (multiple choice, maybe a few short answers). Third, there will be an activity scheduled on the topic of the lecture. These activities maybe practice questions for you to do alone, with one partner or a small group, or they maybe class activities. The idea of a “flipped classroom” is for you to practice in class (with my help) and hear the lecture at home (on your own) while having time for questions after listening to the lecture in class. The mini-quiz is meant as an incentive to listen to the lecture before class and to help you (and me) gauge your understanding.

Lecture topics will approximately follow the attached schedule. Please check for changes in the schedule often. It is your responsibility to stay informed of potential changes in the schedule.

If the lecture is flipped, should you take notes? Yes! In fact, you can stop the lecture many times and take notes carefully on your own time and pace. Writing down things that are important is one way of active learning. Your notes will be an important resource for you to study for exams and regular quizzes. Write down questions to ask in class the next day as you are listening to the lectures.

Readings:
The texts for this course are

   https://www.macmillanhighered.com/launchpad/morris2e/11045293#/start
2. A student handbook for writing in biology, K. Knisely
3. *Biology 111 Laboratory Manual*, Fall 2019 (will be provided as PDFs)

The *Biology* text was written for a comprehensive, year-long, introductory college biology course. It is highly readable, well illustrated and covers many more topics than will be covered in Bio111. The book is also used in Bio112, where the second half of the book is covered. The book exists in e-copy format and as printed book. We ordered the e-version for you packaged with Launchpad, which is an electronic resource designed to help you learn the material better. Think of Launchpad as your personal trainer. The more you use it, the more you will get out of it. Some Launchpad activities are required and will be graded. So it is mandatory for you to have.

The schedule identifies the pages in the textbook (Morris) appropriate to read in context with each lecture topic.

**What aspects of the book will you be held accountable for in exams?** Reading assignments cover a lot more than the lecture can cover. You will be first and foremost asked to know the material presented in lecture and lab. Use the additional information in the textbook to help you understand the lecture material better. In your textbook reading focus on those aspects covered in class, especially the concepts underlying the figures used as Powerpoint slides.

*A student handbook for writing in Biology* has been adopted by the biology department as a guide for writing papers in all biology courses. Specific readings are assigned in both the lecture and laboratory portions of the course. **Use this handbook as a resource and a guide for the various writing assignments and constructing figures, tables, and legends in this course.** It will also be useful for writing review and research papers in other courses and will help you organize poster presentations. Also, for this class and all other Biology classes, as an important resource for learning how to write technical reports, refer to the “example lab report” here:
https://www.pugetsound.edu/academics/departments-and-programs/undergraduate/biology/for-current-students/

**Laboratory:**
Safety first: You MUST wear goggles in most labs, and you MUST wear closed-toe shoes, long pants, long sleeves, and your hair tied back (if you have long hair). Your lab instructor is not allowed to let you into the lab if you are not in compliance with these rules. Lab coats are optional but a good idea!

This course includes an integral laboratory component. Laboratory topics are designed to complement and extend lecture subject areas. **Therefore, laboratory topics are appropriate material for quizzes**
and exams. Be sure to include lab activities in your study and review sessions.

Each student must be registered for a laboratory section of the course and attendance is mandatory. You must attend the lab for which you are registered. In extenuating circumstances, you may attend a different lab section, provided you first check with your instructor. Because our lab rooms are used by other courses, labs cannot be made up after the last lab section of the week has met.

You must come to lab prepared. Carefully read the appropriate section in your lab manual before coming to lab. Most of the lab exercises contain pre-lab questions that must be completed before your lab meets and must be submitted at the beginning of the lab session. Instructor assistants (IAs) will collect them before each lab and cannot accept them after the lab has started. Careful preparation before the lab will (1) allow you to get more out of the lab, (2) make it much more likely that you will enjoy the lab, and (3) increase the probability that you will finish the lab on time (or early).

In science it is essential to communicate one's observations and reasoning through clear, concise, and well documented written papers. All laboratories will include some form of written assignment. These are designed to strengthen your understanding of lab topics and writing skills. All late assignments (except for pre labs, see above) will be assessed a penalty. Check with your lab instructor for details.

Lastly, lab (including the lab report) is a separate part from all the other aspects of the class (lectures, quizzes, class activities, etc.). You will have a different lab instructor who is completely independent in their handling of the lab and not accountable to the instructor for the other parts of the class. That said, there will be one grade for the class only. For that, the lab instructor will provide the main instructor at the end of the course with the points earned in lab, which will then be added to your other class scores to generate your final grade.

Quizzes, Exams and Grading
There will be five quizzes given over the course of the semester (see schedule). Quizzes will be given during the first 10 minutes of class. Quizzes will cover topics from previous lectures, labs, and current reading assignments. Quizzes will only be administered during the first 10 minutes of lecture; no additional time or make-up quizzes will be given. In-class quizzes are closed book. Quizzes cannot be made up. However, I will drop the lowest quiz score in the final determination of your grade. Therefore, if you have to miss one quiz I will drop that one as your lowest score.

Mini-quizzes will be held every day and are different from quizzes in difficulty and scope. For more on mini-quizzes, see the lecture paragraph above. Mini quizzes cannot be made up, but at the end of the semester I will drop the lowest mini-quiz score, so if you have to miss class once, this policy will allow your grade not to suffer from one absence.
The three mid-term exams (see schedule) will each be 50 minutes in length. Exams will consist of objective (multiple choice, matching, and completion) and short essay based questions (definitions, explanations and text problems). The topic coverage for each exam is indicated in the schedule and will include material from readings, laboratories, and lectures. (See the comments above about what aspects of the readings to focus on.)

Any assignments that you turn in should only be handed in to me or the IAs in person. Some papers slipped under my office door or my mailbox, have been lost in the past. You may place assignments in my department mailbox in the Biology office after obtaining an official time stamp from the secretary or another faculty member. Make sure to tell this person your name and which class the assignment is for. Immediately afterwards, send me an email to alert me to the fact that something is in my mailbox. Keep back-up files of all parts of your paper, for example by using several flash drives with the documents. Computers do crash — don’t get caught by last minute computer problems without having your files backed-up.

The final exam is scheduled for 8:00am - 10:00am, Tuesday, December 17. Check this time for (very unlikely) changes in the last week before finals week! This exam will focus on material following the third mid-term, but will include material from all topics covered earlier in the course, and will require you to integrate the important topics covered throughout the semester. University policy dictates that the
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final can only be given during the times specified in the university calendar. Deviations from that have to be approved by the university provost, not the faculty member teaching the class.

To be fair to all students who take Bio111 THERE WILL GENERALLY BE NO MAKE-UP OF EXAMS OR QUIZZES. Absence for bona fide medical reasons will require written evidence and may (or may not) be considered in assigning the final grade. (But see quiz policy for dropping the lowest score quiz.)

Academic Honesty
UNLESS OTHERWISE STATED, ALL ASSIGNMENTS, QUIZZES, EXAMS AND LABS MUST BE WRITTEN INDIVIDUALLY, NOT JOINTLY WITH YOUR LAB PARTNER. ALL PARTS OF THE PAPER ALSO HAVE TO BE WRITTEN INDIVIDUALLY. DO NOT PLAGIARIZE.

Penalties for academic dishonesty are also outlined in Student Handbook and can affect your entire (university) career. Please read and understand what constitutes academic dishonesty and avoid it!

Point Distribution
The following table gives you an overview over the points you can earn during the semester. (The total may be up to 25 points higher if additional mini-assignments are added, see above.)

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 best quizzes (one dropped*) (20 points each)</td>
<td>80</td>
</tr>
<tr>
<td>3 mid-term exams (75 points each)</td>
<td>225</td>
</tr>
<tr>
<td>Final exam</td>
<td>150</td>
</tr>
<tr>
<td>Lab work (pre and post-labs, graphs etc), and lab report/paper, (pro-rated, not point-for-point) (assigned by your lab instructor)</td>
<td>230</td>
</tr>
<tr>
<td>17 mini-quizzes (one dropped*)</td>
<td>34</td>
</tr>
<tr>
<td>Launchpad/Learning curve activities (16 x 5 points)</td>
<td>80</td>
</tr>
<tr>
<td>Class participation</td>
<td>31</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>830</td>
</tr>
</tbody>
</table>

* If you have taken all lecture quizzes or mini-quizzes, I will drop your lowest score for one mini-quiz and one quiz. A (mini-) quiz missed for any reason (e.g., illness, school-related activity, or unexcused absence) will be considered your lowest score and will be dropped. It is still a good idea to have documentation for all absences due to illness, athletic events, etc., as I can consider them further in assigning your final grade.

** Slight adjustments in the total lab score may be necessary.

Letter Grade Assignments:
Generally, the following table applies to assign a letter grade:

<table>
<thead>
<tr>
<th>Percentage of all possible points</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100</td>
<td>A</td>
</tr>
<tr>
<td>80-90</td>
<td>B</td>
</tr>
<tr>
<td>70-80</td>
<td>C</td>
</tr>
<tr>
<td>60-70</td>
<td>D</td>
</tr>
<tr>
<td>Below 60</td>
<td>F</td>
</tr>
</tbody>
</table>

It may be necessary to adjust this table slightly to account for unforeseen events (e.g. if an exam was harder than assumed, if different IAs in lab sections grade slightly differently, or to offset differences
What is my current grade in the class?
I often get asked this question. To help you track your progress in class I encourage you to use the following table (with fictitious example values) to calculate your current grades from time to time if you are interested.

<table>
<thead>
<tr>
<th>Quizzes (80)</th>
<th>Mid terms (225)</th>
<th>Final (150)</th>
<th>Lab work (230)</th>
<th>Total (685)</th>
</tr>
</thead>
<tbody>
<tr>
<td>add points from all quizzes</td>
<td>add points from all midterms</td>
<td>add final points</td>
<td>add points from all labs, prelabs, papers etc.</td>
<td>total all your points</td>
</tr>
</tbody>
</table>

Divide the total points you have by the total number of points available so far. Then multiply by 100 and you have your current percentage. For example:

Let’s assume you have a total of 350 points but one quiz, the third midterm and the final have not been added yet as well as 40 points worth of lab work. In other words the current total possible at the point of your calculation is 435 points. (350/435) *100 = 80%. So currently you are somewhere in the B-/C+ range. One thing to note: Points for the lab are not “point-for-point”, meaning that 230 points in lab may not mean 230 points counting towards your final grade. The reason for that is that I don’t know the total number of points that each lab instructor will give over the course of the semester. At the end, I will scale up or down the total number of points so that your final score is the same percentage out of 230 points as your percentage of points of the total allotted by your lab instructor.

A note from the Provost:
Classroom Emergency Response Guidance into the syllabus for each of your courses and labs. Please review university emergency preparedness, response procedures and a training video 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. Lie on the floor out of sight and away from windows and doors. Place cell phones or pagers on vibrate so that you can receive messages quietly. Wait for further instructions.

Student Accessibility and Accommodation
If you have a physical, psychological, medical or learning disability that may impact your coursework, please contact Peggy Perno, Director of Student Accessibility and Accommodation, 105 Howarth, 253.879.3399. She will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Copyright and Fair Use
Course materials are subject to the copyright law of the United States (Title 17 U.S. Code). They are for educational purposes only and limited to students enrolled in the course. Further reproduction or distribution is prohibited.
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Student Contract

Please sign and return this contract to your class instructor in order to receive a grade for the course by the end of the second class in week 1. (This will earn you one extra credit point.)

I have read and I understand the syllabys and I am particularly aware of the following:

- Quiz and exam dates. I understand that in fairness to all class participants make-up quizzes and exams are generally not given. Exceptions can only be arranged in documented sickness and emergency circumstances.
- Assignment schedule: I understand that all assignments are due at the date and time stated and that points will be subtracted for late assignments.
- I have seen the note from the provost regarding emergency responses, accessibility, and copyright issues.

I have read and I understand the statement on academic honesty and scientific misconduct and the University policy on academic honesty (see links in syllabus). I understand the policies associated with violations of the guidelines stated in the Academic Handbook. I pledge to refrain from any act of academic dishonesty or scientific misconduct, including:

- cheating on exams, quizzes, or other assignments
- any form of plagiarism, including copying or paraphrasing any part of another student’s or researcher’s work (including textbooks and papers), and using the ideas or wording of another person without proper citation
- fabrication or falsification of data or research results

I understand that papers and assignments should only be handed in to the instructor in person. I take responsibility for lost assignments (for example those slipped under the door or into the mailbox) without an official time stamp by the department secretary or an other faculty member and subsequent instructor notification.

Name (please print)___________________________________________________

Signature:__________________________________ Date:___________________