

BIOLOGICAL SCIENCES I (BI 1110)**Lecture: M W F 11:15 AM – 12:05 PM, Boyd 144****Labs: 2 ¼ hr – Tu {9:30 AM & 12:30 PM} & Th {8:30 & 11:30 AM}, Boyd 121**

Dr. Michele Pruyn: Boyd 226; phone ext. 5-3320; E-mail: mlpruyn@plymouth.edu; Office hrs: W & F 1 – 3 PM.
Additionally, I am happy to meet at other times. Stop by my office, or call/email to set up an appointment.

Objectives: This course will provide you with the fundamentals of biology – the study of life – on the cellular and sub-cellular level. Through this, you will develop your ability to think scientifically and to evaluate biological issues. In this course, we will build an understanding of biological systems starting with the chemistry of life, building up to cell structure and function, and ending with the flow of information in cells and the mechanisms of inheritance.

Technology in the Disciplines: In the modern world, technology has application to every academic discipline, and educated people must have an understanding of technology that will allow them to adapt to rapid technological change. Students take a three-credit Technology in the Disciplines (TECO) course specified as required for the major. This biological science course is taught within the discipline and will help students examine the role of technology within biological sciences and within a larger societal and cultural context. This TECO course will provide students with hands-on experience using current technologies; with a broad understanding of the concepts underlying current technology; with an understanding of the potential ethical issues involved with the use of technology; and with an understanding of forces, based in the needs and values of our culture, that drive technological innovation.

E-book: Principles of Biology, NatureEducation: <http://www.nature.com/principles> Take advantage of this valuable resource to review what is covered in lecture and to investigate in more detail topics that spark your interest. The more time you spend reading the material and working through the questions/activities for each chapter, the better you will understand biology. You are expected to keep up with the reading and come to class prepared. If you haven't purchased your Access Kit already, here are two ways to do so:

- ❖ Buy the Access Kit in your campus bookstore.
- ❖ Buy access directly online using a credit card at the above website.
- ❖ Once you've purchased your kit: the Class Code is: 18118583.
- ❖ If you prefer, I can provide you with a PDF of the text, from which you can print the relevant chapters.

Recommended: A Short Guide to Writing About Biology (8th Edition, 2012) by J.A. Pechenik

Lab work: The two-hour laboratory sessions will provide hands-on experience corresponding to the topics covered in class. They will also expose you to protocols and technology used to test specific scientific hypotheses. Lab Materials and Instructions will be available in Moodle – **you must print these out before coming to lab**. You should use a three-ring binder to keep an organized notebook of your lab. You are expected to attend lab every week and come prepared to participate in all activities. A missed lab is very difficult (sometimes impossible) to make up.

Please come to class ready to listen and participate! Turn your cell phone off and refrain from sleeping, reading outside materials or chatting during class.

Honesty Code: I trust that your completed assignments will be of your own creation. It is acceptable to work in groups and discuss assignments, but the final product should be your own. Please reference any outside resources (e.g. textbook, web sites, journal articles) you use to complete your work. Anyone turning in an assignment that appears to be plagiarized from either your classmates or other resources will automatically receive a zero, and/or be directed to the Counsel of Academic Integrity for a Hearing, which can result in academic failure of the course or more severe consequences. No Exceptions!

Students with Documented Disabilities: Those in need of accommodations, who have any emergency medical information the instructor should be aware of, or who need special arrangements in the event of an evacuation should make an appointment with the instructor no later than the first week of the semester. Class materials will be made available in accessible format upon request. Students may also contact Plymouth Academic Support Services for additional information (<http://www.plymouth.edu/pass/>).

When you are struggling: (experiencing difficulties, missing classes, personal or family problems)... there are offices at PSU available to provide academic support, as well as career and personal counseling. The PSU Counseling and Human Relations Center (Across from Hyde Hall, <http://www.plymouth.edu/counselr/>), 535-2461, can direct you to the proper source of help. Confidentiality is assured.

Evaluation: Grades from the lecture portion of the course constitute ~60% of your final grade. Grades from the laboratory portion of the course constitute ~40% of your final grade.

| Lecture | Points |
|---|------------|
| Exams (4 @ 75 points each) | 300 |
| Quizzes & Assignments (7 @ 5-8 points each) | 50* |
| Lab | |
| Partial Lab Write-Ups (4 @ 25 points each) | 100* |
| Full Lab Write-Up (1 @ 40 points each) | 40* |
| Lab Notebook Check (2 @ 25 points each) | 50 |
| Lab Exam (2 @ 30 points each) | 60 |
| TOTAL | 600 |

****All assignments must be uploaded onto Moodle – no hard copies or email attachments will be accepted!!***

Late Assignment / Exam Make-Up Policy

Bi-weekly lecture quizzes: No late quizzes accepted. The lowest of the seven will be dropped.

Lab Reports & Notebooks: 10% off per day late. Not accepted after five days.

Missed Exams (Lecture and Lab): Students will only be allowed to make up exams if 1) the professor is notified at least a week in advance* (for athletics, field trips, etc), 2) acceptable documentation of the reason for the absence is provided, and 3) a make-up exam is completed within a week of the class exam.

*Illness: Students should send an e-mail to notify instructor before the exam in cases of illness.

*Emergencies: If an unforeseen emergency occurs before or on the way to an exam, students should provide instructor with an explanation & appropriate documentation as soon as they are relieved from the emergency situation.

Extra Credit Policy: There is no formal extra credit offered in this course, aside from extra credit problems on quizzes and exams. However, there are opportunities to improve your grade on a case-by-case basis. All students will receive equal opportunities for improving their grade, although the particular improvement exercises (usually in the form of an assignment rewrite) may differ among students and will be assigned individually, based on student performance and participation. ***All assignment rewrites must be completed within one week of receiving the graded work and rewrites will only be accepted for Labs 1&2 and Exams 1&2 (students may earn up to 20 rewrite points)!*** Students are encouraged to prioritize their time by attending class and lab and completing all assignments, which I consider to be the best and primary strategy for improving grades.

Tentative lecture & lab schedule

Teaching Assistants:

Lily Zahor (zahorlil@gmail.com) – Tues 9:30a; Donovan King (kingsofnh@gmail.com) – Tues 12:30p; Rebecca Webster (rnwebster@plymouth.edu) – Thurs 8:30a; Christopher Wilk (cawilk@plymouth.edu) – 11:30a.

Please contact them with any laboratory-based questions you may have, or to schedule an office visit.

This schedule is subject to change. We will not have time to cover all of the chapters listed in their entirety – you will be kept informed as we progress through the material!

| Wk. | Dates | Textbook Module | Assignments / Exams | Lab Topic |
|-------------|---------------|--|--|---|
| 1 | 9/4 – 9/6 | Introduction (Unit1) | <i>No Labs This Week</i> | |
| 2 | 9/9 – 9/13 | Carbon (Unit 2.3) | Lect. Quiz 1 (Weds) | Food Chemistry (Lab 1) |
| 3 | 9/16 – 9/20 | Water & Biology (Units 2.4 & 2.5) | Lab 1 Due (Friday) <i>Methods</i> | Spec 20 Usage (Lab 2) |
| 4 | 9/23 – 9/27 | Macromolecules: Structure & Function (Unit 2.6-2.10) Fri: Tour of the Cell (Unit 3+) | Lect. Quiz 2 (Weds) | Ecology of Microbes I (Lab 3) |
| 5 | 9/30 – 10/4 | Tour of the Cell (up thru Unit 3.14, con't) | Lab 2 Due (Friday) <i>Results</i> | Ecology of Microbes II (Lab 3) |
| 6 | 10/7 – 10/11 | Membranes (Unit 3.15-3.17) | <u>Exam 1 (Monday)</u> <i>(Units 1 – 3.13)</i> Lect. Quiz 3 (Weds) | Transport I: Osmosis (Lab 4) |
| 7 | 10/14 – 10/18 | Metabolism (Unit 3.18-3.20) | <i>No class on Mon. 10/14</i> Notebooks Due (Friday) | Transport II: Transpiration (Lab 4) |
| 8 | 10/21 – 10/25 | Respiration (Unit 3.22-3.24) | Lect. Quiz 4 (Weds) | Respirometer (worms & germinating peas, Lab 5) |
| 9 | 10/28 – 11/1 | Photosynthesis (Unit 3.25-3.28) | Lab Exam Due (Friday) | Photosynthesis I Light Reactions (Lab 6) |
| 10 | 11/4 – 11/8 | Mitosis, Meiosis and Cell Cycles (Unit 4.29-4.33) | <u>Exam 2 (Monday)</u> <i>(Unit 3.15-3.28)</i> Lect. Quiz 5 (Weds) | Photosynthesis II Light-Independent Reactions (Lab 6) C-ferns I (meiosis) Introduction and Set-up (Lab 7) |
| 11 | 11/11 – 11/15 | Mendel and the Gene Idea (Unit 4.34-4.38) | <i>No class on Mon. 11/11</i> Lab 3 Due (Friday) <i>Introduction</i> | Library Lab (Lab 8) |
| 12 | 11/18 – 11/22 | Chromosomal Basis of Inheritance (Unit 4.39-4.40) | Lect. Quiz 6 (Weds) <u>Exam 3 (Friday)</u> <i>(Unit 4.29-4.40)</i> | C-ferns II 1 st Recording, Look for Sperm (Lab 7) Transformation I: P-Glo (Lab 9: Bacteria / DNA) |
| 13 | 11/25 – 11/29 | Molecular Basis of Inheritance (Unit 4.41-4.44) | <i>No class: 11/27 – 11/29</i> | No Labs This Week! |
| 14 | 12/2 – 12/6 | Genes to Proteins (Unit 4.45-4.47) | Lect. Quiz 7 (Weds) Lab 4 Due (Friday) <i>Discussion</i> | C-ferns III Count Gametophytes Transform. II: P-Glo Protein (Lab 9b: Protein Isolation) |
| 15 | 12/9 – 12/13 | Viruses (Unit 4.48) BioTech (Unit 4.49-4.53) | Lab Exam Due (Friday) Notebooks Due | C-ferns IV Count Sporophytes, Transplant Transformation III |
| <i>fini</i> | 12/16 – 12/20 | <i>Final Exam</i> <i>Friday</i> <i>Dec 20, 11am-1:30 pm</i> | Exam 4* (Unit 4.41-4.53) Lab 5 Due (Monday) <i>Full Report</i> | *Exam #4 will be given during our final exam time slot. |

Reminder for Prof and TAs: ~10/14 germinate peas, start thinking of shading treatment for Lab 6 & ~10/21 spread C-fern