

BIOB 160 Syllabus Summer 2018

Principles of Living Systems

Course Information:

Instructor: Laurie Minns, PhD

Office: 106 Bio Research Building

Phone: 406-243-6013

Office Hours: Tuesdays 12:30-1:30pm; Fridays 10am-11am, by appointment

Email: Laurie.Minns@mso.umt.edu

Lecture: 10:30am-12:20pm M, T, W, Th

General Course Information:

During this course, we will cover the unifying principles of biological structure-function relationships at different levels of organization and complexity. We will discuss reproduction, genetics, development, evolution, ecosystems as well as the inter-relationships of the human species to the rest of life.

Principles of Living systems is a broad survey course that is a prerequisite for all options in the Biology and Wildlife majors and is generally required for all pre-professional programs in the health sciences. The content of this course will provide foundational knowledge for future studies in Cell and Molecular Biology, Genetics and Evolution, Developmental Biology, Anatomy and Physiology, Ecology, and related options.

Course Goals:

Upon successful completion of this course, you will have a broad knowledge of biology including cell and molecular biology, genetics and evolution, development biology, physiology, and ecology. You will also have a better understanding of the scientific method and the means by which scientific discoveries shaped our current understanding of biology.

Course Objectives:

- 1) Gain an appreciation for how science works and how the scientific method increases our understanding of biology.
- 2) Gain an appreciation of biological concepts from the most basic macromolecules syntheses to the diversity of living systems.
- 3) Understand how biological systems work to maintain homeostasis.
- 4) Use critical thinking skills to predict the consequences of homeostatic imbalances.

Course outcomes:

- 1) Demonstrate understanding of chemical and biological principles and knowledge.
- 2) Understand and analyze cellular processes governing development, growth and normal function of living organisms.
- 3) Understand the processes involved with maintaining homeostasis in living organisms and anticipate what may occur when homeostatic balance mechanisms are lost.

- 4) Demonstrate practical knowledge of basic chemistry, biological molecules, cells, membranes, energy and metabolism, the cell cycle, evolution and ecology.
- 5) Identify biological molecules and structures and analyze their relationship with other structures.
- 6) Practice the scientific method by making predictions, performing biological experiments and interpreting results, and determining the potential biological consequences.

Course Information:

Teaching methods: Lecture

Student Responsibilities:

- 1) Students are expected to complete the required reading assignments prior to class meeting times.
- 2) Students are expected to log on to the course Moodle site regularly to download course materials and read updated course announcements.
- 3) Regular attendance in lectures and laboratory is strongly recommended for successful completion of the course.
- 4) If absence from lecture or laboratory is necessary due to illness, it is your responsibility to obtain notes from another student.
- 5) Students are expected to be respectful during all course meetings and during meetings with course staff and Dr. Minns. Students who fail to do so will be subject to the student conduct code.

Required Course Materials Information:

Campbell Biology. Urry, Cain, Wasserman, Minorsky, Reece. 11e. Pearson Higher Education, 2016. ISBN 10:: 0-134-09341-0; ISBN 13: 978-0-134-09341-3

* Mastering Biology and the Campbell etext are integrated into the Moodle page*

Computers and Course Website Information

Students are expected to be familiar with computers and the Internet. Students are responsible for their own software and computer equipment maintenance and setup as recommended by the University of Montana.

<http://umonline.umt.edu/student-support.php>

Class-Specific Computer and Software Requirements:

- Students will complete activities in the University of Montana Moodle BIOB160 course website and in Mastering Biology. Students are expected to have a 'back up plan' if personal computers become compromised.
- The University of Montana maintains several computer labs on campus:
<http://www.umt.edu/it/support/computerlabs/default.php>
- Students are expected to download copies of course information from the Moodle website and to check email for class announcements.
- **For technical support for using Moodle, please contact UM IT support:**

<http://www.umt.edu/it/support/default.php>

Course Policies

Dr. Minns and the Laboratory Instructors follow academic policies as stated in the 2017-2018 UM Catalog. Students are responsible for being familiar with these policies.

<http://www.umt.edu/catalog/>

These policies include but are not limited to:

- Student Conduct (http://life.umt.edu/vpsa/student_conduct.php)
- Class attendance
- Credit/No Credit Grading
- No more than 18 CR credits may be counted toward graduation. Courses taken to satisfy General Education Requirements must be taken for traditional letter grade. Courses required for the student's major or minor must be taken for traditional letter grade, except at the discretion of the department concerned.
- A CR is given for work deserving credit (A through D-) and an NCR for work of failing quality (F). CR and NCR grades do not affect grade point averages. The grades of CR and NCR are not defined in terms of their relationship to traditional grades for graduate course work.
- Election of the credit/no credit option must be indicated at registration time or within the first 15 class days on CyberBear. After the fifteenth day, but prior to the end of the 30th day of instruction, an undergraduate student may change a credit/no credit enrollment to an enrollment under the A F grade system, or the reverse by means of a drop/add form.
- The University cautions students that many graduate and professional schools and some employers do not recognize non traditional grades (i.e., those other than A through F) or may discriminate against students who use the credit/no credit option for many courses. Moreover, students are cautioned that some degree programs may have different requirements regarding CR/NCR credits, as stipulated in the catalog.
- Audit
- Incomplete Grading Policy

Plagiarism

- Plagiarism is the representing of another's work as one's own. It is a particularly intolerable offense in the academic community and is strictly forbidden. Students who plagiarize may fail the course and may be remanded to Academic Court for possible suspension or expulsion. (See Student Conduct Code section of this catalog.)
- Students must always be very careful to acknowledge any kind of borrowing that is included in their work. This means not only borrowed wording but also ideas. Acknowledgment of whatever is not one's own original work is the proper and honest use of sources. Failure to acknowledge whatever is not one's own original work is plagiarism.

Students with Disabilities:

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in

Lommason Center 154 or 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

Cell Phones and other electronic devices

The use of cell phones and other electronic devices (including cameras, video recorders) is STRICTLY prohibited during all class times, including examinations.

Disruptive behavior

Students who are being disruptive in lecture by talking, texting or playing computer games will be asked to leave the classroom. Such behaviors impact the learning of other students in the classroom and will not be tolerated. Re-admittance to class is at the discretion of the instructor.

Evaluation Methods:

Your course grade will be determined by your performance in the lecture and online activities.

Activity	# of points
Lecture exam 1	100
Lecture exam 2	100
Lecture exam 3	100
Online activities	100
Total	400

Grading System:

Final Grades will be based upon your # of points earned/ 400 points.

Grades will be calculated based upon the following system:	
Grade	Percent of Total Points
A	94-100%
A-	90-93%
B+	87-89%
B	84-86%
B-	80-83%
C+	77-79%
C	74-76%
C-	70-73%
D+	67-69%
D	64-66%
D-	60-63%
F	59% and Below

Make-up Examinations

Make-up examinations are reserved for those students who cannot take an exam on the originally scheduled date due to:

- **A documented illness**
- **Documentation of participation in a University-sanctioned activity**

- **Participation in a University-sanctioned activity requires written communication from the University of Montana Office of Academic Advising**
- **Student athletes must provide documentation to Dr. Minns within the first week of classes**

After receipt of *written* documentation supporting the reason for absence is received, Dr. will determine whether a make-up exam is merited and Dr. Minns will schedule the make-up exam. Please note that the make-up exam may be different than the original exam. Lecture make-up exams will contain short answer and essay questions.

Late Work Policy

Late work is not accepted in this class due to the condensed nature of the course. Missed online lab quizzes cannot be made up for any reason.

Important Dates and Assigned Readings (this may be amended by Dr. Minns during the Semester)

Lecture Schedule

Day of the week	Dates	Monday	Readings	Mastering Biology Activities
Monday	May 14	Review Syllabus and Course Policies Introduction to BIOB160 Evolution, the Themes of Biology and Scientific Inquiry	Chapter 1	Introduction to Mastering Biology (due 5/20)
Tuesday	May 15	Water and Life (if you have never taken a Chemistry class, you should make sure to review Chapter 2) Carbon and the Molecular Diversity of Live	Chapter 3 Chapter 4	Chapter 1 Quiz (due 5/20) Chapter 3 Quiz (due 5/20) Chapter 4 Quiz (due 5/20)
Wednesday	May 16	The Structure and Function of Large Biochemical Molecules	Chapter 5	Chapter 5 Quiz (due 5/20)
Thursday	May 17	The Cell	Chapter 6	Chapter 6 quiz (due 5/20)
Monday	May 21	Membrane Structure and Function	Chapter 7	Chapter 7 quiz (due 5/20)
Tuesday	May 22	Membrane structure and function	Chapter 7	
Wednesday	May 23	Exam 1	Chapters 2, 3, 4, 5, 6, and 7	
Thursday	May 24	Introduction to Metabolism	Chapter 8 Chapter 9	Chapter 8 quiz (due 5/27) Chapter 9 quiz (due 5/27)

		Cellular Respiration and Fermentation		
Monday	May 28	No Class- Memorial Day		
Tuesday	May 29	Cellular Respiration and Fermentation Photosynthesis	Chapter 10 Chapter 11	Chapter 10 quiz (due 5/27) Chapter 11 quiz (due 5/27)
Wednesday	May 30	The cell cycle	Chapter 12	Chapter 12 quiz (due 6/3)
Thursday	May 31	Mendel and the Gene idea	Chapter 14	Chapter 14 quiz due (6/3)
Monday	June 4	Mendel and the Gene idea	Chapter 14	Chapter 14 quiz due (6/3)
Tuesday	June 5	Exam 2	Chapters 8, 9, 10, 11, 12, 14	
Wednesday	June 6	The molecular basis of inheritance	Chapter 16	Chapter 16 quiz (due 6/10)
Thursday	June 7	Gene expression: from gene to protein	Chapter 17	Chapter 17 quiz (due 6/10)
Monday	June 11	Gene expression: from gene to protein	Chapter 17	
Tuesday	June 12	Regulation of Gene expression	Chapter 18	Chapter 18 quiz (due 6/10)
Wednesday	June 13	DNA tools and biotechnology	Chapter 20	Chapter 20 quiz (due 6/10)
Thursday	June 14	Exam 3	Chapters 16, 17, 18, 20	