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BIOB 160N.50B: Principles of Living Systems

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BIOB 160 Syllabus Summer 2020

Principles of Living Systems

Course Information:

Instructor: Laurie Minns, PhD
Office: 106 Bio Research Building
Phone: 406-243-6013
Office Hours: Mondays 10-11am- email me to set up a zoom meeting
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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:
Principles of Life, 3rd Edition. David M. Hillis, MV Price, RW Hill, DW Hall, MJ Lakoswki. Macmillian 2019. ISBN 9781319017712; Online supplement and ebook. No purchase necessary.

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 LaunchPad (the online supplement for the ebook). Students are expected to have a 'back up plan' if personal computers become compromised.
- The University of Montana maintains several computer labs on campus: 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:**

Course Policies
Dr. Minns follows academic policies as stated in the 2020-2021 UM Catalog. Students are responsible for being familiar with these policies.

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.

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

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
LaunchPad Exercises (14x15 points each)	210
Moodle Discussion Boards (6x 5 points each, drop 1)	25
Total	535

Grading System:
Final Grades will be based upon your # of points earned/ 535 points.

Grades will be calculated based upon the following system; grades will be rounded. (i.e. if a student earns 83.44%, their grade will round to 83% or a B-; if a student earns 83.45% their grade will be rounded to 84% or a B):	
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

Late Work Policy
All assignments are due by the listed due dates. Late work is not accepted in this class due to the condensed nature of the course. If you have a documented extenuating circumstance, please contact Dr. Minns via email.

Netiquette:
Interactions in an online classroom are in written form. Your comfort level with expressing ideas and feelings in writing will add to your success in an online course.

The ability to write is necessary, but you also need to understand what is considered appropriate when communicating online.

The word "netiquette" is short for "Internet etiquette. Wait to respond to a message that upsets you and be careful of what you say and how you say it.

- Be considerate. Rude or threatening language, inflammatory assertions (often referred to as "flaming"), personal attacks, and other inappropriate communication will not be tolerated.
- Never post a message that is in all capital letters -- it comes across to the reader as SHOUTING! Use boldface and italics sparingly, as they can denote sarcasm.
- Keep messages short and to the point.
- Always practice good grammar, punctuation, and composition. This shows that you've taken the time to craft your response and that you respect your classmates' work.
- Keep in mind that threaded discussions are meant to be constructive exchanges.
- Be respectful and treat everyone as you would want to be treated yourself.
- Use spell check

Discussion Board Rubric

Be sure to use appropriate citations in your discussion board posts and in your written work.

Grade	Evaluation Criteria	Point Range
A	• **Participates with the required number of relevant postings of required length** • **Initial response posted by *Tuesday*; Responses posted by *Friday.*** • **Posts are clear, coherent, relevant, logical, reflect original thought and critical thinking** • **Responses to the content discussed by others add to the discussion and move the discussion effectively** • Supports position, agreement or disagreement with supporting evidence as needed with appropriate citations and references • Consistently uses grammatically correct, complete sentence in Standard American English with rare misspellings • Presents creative approaches to topic	**5**
B	• **Participates with the required number of relevant postings of required length** • **Initial response posted by *Tuesday*; comments posted by *Friday*** • Postings reflect the reading and some outside source material but may not be accurately cited • Uses citations and references to support assertions as appropriate	**4**

	• Consistently uses grammatically correct, complete sentence in Standard American English with rare misspellings • Comments are logical and reflect critical thinking	
C	• **Participates with the required number of relevant postings of required length** • **Initial response posted by *Wednesday* comments posted by *Friday.*** • Participates, but does not post anything that adds to the discussion • Minimal grammatical or spelling errors are noted in posts • Opinions and ideas are stated clearly	**3**
F	• **Provides an initial post after Thursday** • **Provides only one response to others by Sunday** • Significant errors in spelling and/or grammar • Content was not relevant to discussion question and did not enhance the discussion • Posts do not meet length requirements • Comments are plagiarized	**0-2**

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

Lecture Schedule

Week	Dates	Topics	Readings and Lectures	Discussion Board	LaunchPad Activities
Week 1	May 11-17	Review Syllabus and Course Policies Principles of Life Chemistry and Importance of Water Macromolecules	Chapter 1 Chapter 2 Chapter 3	Initial Post by Tuesday, Respond to 2 other students by Friday	Chapter 1 Chapter 2 Chapter 3
Week 2	May 18-24	Cell Structure and Membranes Cell Metabolism **Exam 1**	Chapter 4 Chapter 5	Initial Post by Tuesday, Respond to 2 other students by Friday	Chapter 4 Chapter 5
Week 3	May 25-31	Cell Signals and Responses The Cell Cycle and Cell Division	Chapter 6 Chapter 7	Initial Post by Tuesday, Respond to 2 other students by Friday	Chapter 6 Chapter 7
Week 4	June 1-7	Inheritance, Genes and Chromosomes DNA and its role in heredity **Exam 2**	Chapter 8 Chapter 9	Initial Post by Tuesday, Respond to 2 other students by Friday	Chapter 8 Chapter 9
Week 5	June 8-14	From DNA to Protein: Gene expression Biotechnology Genomes	Chapter 10 Supplemental Readings Chapter 12	Initial Post by Tuesday, Respond to 2 other students by Friday	Chapter 10 Chapter 12
Week 6	June 15-21	Processes of Evolution Evolution of Genes and Genomes Speciation **Final Exam**	Chapter 13 Chapter 15 Chapter 16	Initial Post by Tuesday, Respond to 2 other students by Friday	Chapter 13 Chapter 15 Chapter 16