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Spring 2-1-2017

### BIOB 226N.00: General Sceince - Earth and Life Science

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Course Syllabus & Lecture/Lab Outline  
BIOB 226  
Spring 2017

**Instructor:** Dr. Kevin Murray

**Office:** NS 113; office hours Tues 1:00 pm – 2:30 pm; Thur 1:00 pm – 2:00 pm

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**BIOB 226** is a course designed to explore the interconnections between earth physical characteristics and processes and living organisms. Geologic events since the formation of the earth have had profound effects on the course of biological change. Likewise, modern geological processes and conditions strongly affect the distribution, abundance and characteristics of living organisms. But living things have also had fundamental and substantial effects on the physical characteristics of our planet, including geologic features of the earth as well as characteristics of the atmosphere and hydrosphere. Earth history and biological history have been episodic; many revolutionary changes in the life-earth system have punctuated the history of our planet. Hopefully, this course will help you appreciate connections among living and non-living parts of the earth-biosphere system, how the history of the earth is intertwined with the history of life and how scientists engage in inquiry about the natural world we live in.

There are two lectures a week (**11:00 – 12:40 pm; T, Th**) as well as **2, two-hour lab meetings**. It is required that you attend lecture, discussion and laboratory components of the course. Lack of attendance in lecture or lab will be noted and will affect final grade. Furthermore, your professors as well as other students will appreciate your participation in lecture (asking/responding to questions). Your lecture notes will be of prime importance when studying for exams, and classroom participation will help reinforce course concepts.

**Textbook:**

Symbiosis: a Pearson Custom textbook: Essential Biology & Conceptual Physical Science. Custom edition for The University of Montana.

**Grading:**

There will be 2 regular session exams and a final exam; the final is partly comprehensive. Exams will consist of objective (true/false, multiple choice) as well as short answer questions. Each exam will be worth approximately 75 points. Scantron (Parscore) answer forms are required for all exams. Your grade can be modified (either up or down) by classroom attendance and participation. Your final grade in this course will be a composite of your lecture and laboratory scores and performance. Your laboratory instructor will explain grading procedures and student obligations during the laboratory segment of the course.

**Makeup exams:**

With legitimate evidence makeup exams will be scheduled, typically one week following the date listed in the lecture schedule. NOTE: there will be no makeup for the final.

**Lab:**

Students are required to attend lab sessions and actively participate in lab/field investigations. Lab investigations will require teamwork and student interaction. This is viewed as a crucial component of the lab experience. You will need a lab notebook (standard 3-ring binder recommended). The notebook should be a record of investigations made in lab or in the field. Your lab instructor will periodically examine the contents of your notebook for content and clarity; your lab instructor will further assess your performance in lab through quizzes, 2 lab practical exams and participation / interaction with other students.

Your lab "textbook" is a Web-based resource located on Moodle. While some copies of lab procedures will be available in lab, it is your responsibility to read, study and print lab exercises before coming to lab meetings. Use of virtual learning tools is a critical part of education at all levels, and demonstration of your proficiency in its use is a component of BIOB 226. Further details on laboratory requirements will be discussed in lab.

### Lecture and lab schedule - BIOB 226 - Spring, 2017

Date	Lecture topic	Readings	Lab activity
Jan 26	course introduction		
Jan 28	earth origins & structure	430 – 441; 354 - 356	
Feb 02	rocks & minerals	313 - 315	<b>Lab 1:</b> intro/tools
Feb 04	rocks & minerals	316 - 320	<b>Lab 1:</b> intro/tools
Feb 09	rocks & minerals	320 - 340	<b>Lab 2:</b> minerals & rocks
Feb 11	the nature of life	3 - 16	<b>Lab 2:</b> minerals & rocks
Feb 16	basics of cells	24 - 29	<b>Lab 3:</b> the nature of cells
Feb 18	basics of cells	30 - 32	<b>Lab 3:</b> the nature of cells
Feb 23	basics of cells	34 - 40	<b>Lab review</b>
Feb 25	diversity of life	129 - 140	<b>Lab practical exam I</b>
Mar 01	diversity of life	160 - 164	<b>Lab 4:</b> plant/animal diversity
Mar 03	<b>Exam I</b>		<b>Lab 4:</b> plant/animal diversity
Mar 08	evolution (natural selection)	96 - 104	plant/animal diversity cont.
Mar 10	evolution (natural selection)	96 - 104	<b>Lab 5:</b> fossils
Mar 15	the nature of DNA	65 - 70	<b>Lab 5:</b> fossils
Mar 17	the nature of DNA	72 - 78	<b>Lab 7:</b> maps
Mar 22	the nature of DNA	72 - 78	<b>Practical review</b>
Mar 24	plate tectonics	357 - 362	<b>Lab practical exam II</b>
Mar 29	plate tectonics	357 - 362	<b>Lab 8:</b> soils & plant growth
Mar 31	<b>Exam II</b>		<b>Lab 8:</b> soils & plant growth
Apr 05	<b>Spring Break</b>		
Apr 07	<b>Spring Break</b>		

Apr 12	photosynthesis	47 - 51	<b>Lab 9:</b> photosynthesis
Apr 14	photosynthesis	51 - 58	<b>Lab 9:</b> photosynthesis
Apr 20	plant production	Lecture only	grade school: <i>questions/answers</i>
Apr 22	human evolution	195 - 200	grade school: <i>questions/answers</i>
Apr 27	human evolution	195 - 200	<b>Lab 10:</b> lichens & biodiversity
Apr 29	environmental concerns	Lecture; pp. 242 - 265	lichens cont.; campus field trip
May 04	environmental concerns	Lecture; pp. 242 - 265	soils and plant growth cont.
May 06	course synopsis, final review		lab synopsis
May 13	<b>Final Exam (8:30 – 10:00 am)</b>		