

Spring 2-1-2018

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

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Course Syllabus & Lecture/Lab Outline  
BIOB 226  
Spring 2018

**Instructor:** Dr. Kevin Murray

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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 – 12:20 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 65 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.

**Course Outcomes.**

Upon completion of BIOB 226 students will have considered the origins of biological diversity, patterns of evolutionary diversification and structural/functional relationships among extant organisms and their relationship to a geologically complex environment. A primary general outcome of the course is to expose students to very complex sets of variously inter-related organisms wherein their capacity for careful observation and comparison is enhanced.

**Course accessibility.**

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you have a disability that adversely affects your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

**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, 2018

Date	Lecture topic	Readings	Lab activity
Jan 23	course introduction		
Jan 25	earth origins & structure	430 – 441; 354 - 356	
Jan 30	rocks & minerals	313 - 315	<b>Lab 1:</b> intro/tools
Feb 01	rocks & minerals	316 - 320	<b>Lab 1:</b> intro/tools
Feb 06	rocks & minerals	320 - 340	<b>Lab 2:</b> minerals & rocks
Feb 08	the nature of life	3 - 16	<b>Lab 2:</b> minerals & rocks
Feb 13	basics of cells	24 - 29	<b>Lab 3:</b> the nature of cells
Feb 15	basics of cells	30 - 32	<b>Lab 3:</b> the nature of cells
Feb 20	basics of cells	34 - 40	<b>Lab review</b>
Feb 22	diversity of life	129 - 140	<b>Lab practical exam I</b>
Feb 27	diversity of life	160 - 164	<b>Lab 4:</b> plant/animal diversity
Mar 01	<b>Exam I</b>		<b>Lab 4:</b> plant/animal diversity
Mar 06	evolution (natural selection)	96 - 104	plant/animal diversity cont.
Mar 08	evolution (natural selection)	96 - 104	<b>Lab 5:</b> fossils
Mar 13	the nature of DNA	65 - 70	<b>Lab 5:</b> fossils
Mar 15	the nature of DNA	72 - 78	<b>Lab 7:</b> maps
Mar 20	the nature of DNA	72 - 78	<b>Practical review</b>
Mar 23	<b>Exam II</b>		<b>Lab practical exam II</b>
Mar 27	<b>Spring Break</b>		
Mar 29	<b>Spring Break</b>		
Apr 03	plate tectonics	357 - 362	<b>Lab 8:</b> soils & plant growth
Apr 05	plate tectonics	357 - 362	<b>Lab 8:</b> soils & plant growth

Apr 10	photosynthesis	47 - 51	<b>Lab 9:</b> photosynthesis
Apr 12	photosynthesis	51 - 58	<b>Lab 9:</b> photosynthesis
Apr 17	plant production	Lecture only	grade school: <i>questions/answers</i>
Apr 19	human evolution	195 - 200	grade school: <i>questions/answers</i>
Apr 24	human evolution	195 - 200	<b>Lab 10:</b> lichens & biodiversity
Apr 26	environmental concerns	Lecture; pp. 242 - 265	lichens cont.; campus field trip
May 01	environmental concerns	Lecture; pp. 242 - 265	soils and plant growth cont.
May 03	course synopsis, final review		lab synopsis
May 10	<b>Final Exam (8:30 – 10:00 am)</b>		