DISCOVER BIOLOGY (BIOB 101)
Fall Semester 2018

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Office: Health Science Bldg 210
Email Address: annie.green@mso.umt.edu
Office hours: 12 pm to 2pm M, T, Th
Course hours and location: Lecture: Monday and Wednesday 11-12pm in NULH
Lab sections: 12-2 pm M,T,W,Th 9-11 am T, 3-5 pm M, W, Th in NS 202

Overview

Welcome to the world of biology! Biology is a fascinating subject. In BIOB 101, *Discover Biology*, we will explore the natural world by examining the organization and complexity of living organisms and the systems in which they live. This course is a one semester course on the fundamental principles and concepts forming the foundations of the science of biology. In this course we will elucidate the central questions of biology such as the relationship between form and function, acquisition and use of energy, and the continuity between generations. Since this is an introductory course, in depth discussions of any one topic will not be possible, but the course will provide a general overview of many of the cornerstones of biology.

Discover Biology is a cumulative course, so that your success in grasping the material presented one week will depend on your having mastered material presented in previous weeks. It is essential for you to keep up with the readings and assignments. If you fall behind, it will be difficult to catch up. If you find yourself in trouble, please advise me as EARLY as possible. I will be better able to help you if you talk with me as problems arise; I will be less sympathetic right before an exam is due or near the end of the semester. If needed I am available to meet via online chat or in my office on the university campus. Please email me to schedule an appointment.

Learning is not a passive activity in BIOB 101 (and in all your coursework!) you need to take an active role. I am here to facilitate your learning, but I ask that you:

- Actively participate in the course
- Work cooperatively to answer questions from colleagues
- Take responsibility for being prepared before completing coursework.
- Reflect objectively on your own progress and understanding

Learning Outcomes

At the end of the course, students will be able to:

1. Use vocabulary needed to discuss biological topics
2. Understand and summarize the scientific method
3. Demonstrate a fundamental understanding of the important molecules of life
4. Exhibit a thorough knowledge of the structure and function of cells.

5. Understand basic metabolic processes and how energy flows from organism to organism
6. Understand the basic principles cell reproduction and heredity
7. Understand, identify, and describe anatomical structures and the physiological function of the body systems
8. Understand the basis of organism classification systems.
9. Understand the process of evolution and how evolution accounts for the unity and diversity of life
10. Be equipped to apply these principles to problems and issues of everyday life and on the way to becoming scientifically literate citizens.

COURSEWORK

- ***Lectures and Labs***

I have divided the course into 10 units. For each unit, I will present 2-3 lectures during our scheduled lecture meeting time on Mondays and Wednesdays. Once a week you will attend a laboratory section with exercises to supplement your learning. Your lab TA will provide you with further information on requirements in lab.

- ***Recommended Readings***

We will be using the free online text book in Biology available through OpenStax. I have provided the OpenStax chapters that correspond with our lecture materials on the syllabus. Optionally, you can purchase access to the online learning management platform LRNR for this course. This platform provides online access to the OpenStax book with the abilities to highlight, bookmark, take notes, make flashcards, etc. in order to personalize the learning process and better manage your learning experience. This is not a required resource, but is available if you desire.

- ***Problem sets and Exams***

There are 40 problem sets/practice quizzes in this course corresponding to each module. These problem sets will require application of information from lectures and further insight exercises in new contexts related to the material. The problem sets (quizzes) will be on Moodle. You have 2 attempts at each practice quiz.

There will be four exams in total for this course, three unit exams and one final. The lowest grade of these three unit exams will be dropped. The final exam will be comprehensive with about 70% new material and 30% older material from the three prior unit exams. Study guides will help you study for each exam. Each exam will consist of multiple-choice, true/false, short answer, and matching questions. Each unit exam will consist of approximately 50 questions. The final exam will have approximately 100 questions. Your answers for all exams will be recorded on electronically-graded Scantron forms (red narrow), which are available at the bookstore.

Makeup exams are possible if you have a serious personal emergency. You will receive a zero for a missed, unexcused exam. Only students presenting verifiable medical or university excuses directly to Dr. Green at least 24 hours before the regularly scheduled exam will be eligible for a make-up exam. Students with disabilities and applicable testing accommodations should contact Dr. Green to ensure appropriate accommodations are available.

- ***Further Insight Exercises***

To perform well on the problem sets, quizzes, and exams, one must use problem-solving to tackle a biological concept. Many course units will include further insight videos or exercises. Further insights (FI) give you the opportunity to work through a biology problem step-by-step or hear a more detailed explanation of a concept taught in the lecture. These exercises are designed to help you develop your scientific problem-solving skills. I strongly recommend reviewing these videos/exercises.

- ***Taking Notes and Keeping a Lab Notebook***

I strongly recommend that you take notes while watching videos, reviewing lecture materials, and when completing further insights exercises. Additionally, I recommend keep a lab notebook with details about what you did, how you did it, what you found, and your thoughts. Research shows that people perform better on conceptual tests when drawing and writing notes rather than typing the notes. If you have never taken college-level notes before or want some advice, check out this video describing five note-taking techniques aimed at college students. One of these techniques may work for you.

- ***Forums and "Office Hours"***

Office hours are held in my office (HS210) from 12:00 to 2:00pm on Monday, Tuesday, and Thursday or by appointment. Furthermore, I maintain an open door policy with all of my students. If my door is open, please feel free to come on by to chat. Additionally, there is a discussion forum at the top of the Moodle page, which students can use to post comments/questions about course material. I will read the posts and answer them if appropriate. I aim to provide answers within 24 hours.

- ***Grading***

Grades in this course will be assigned in the +/- system. Your grade will be based on the following:

2 Lecture Exams (at 50 pts each)	100
1 Final Exam (at 100 pts each)	100
20 Problem sets (at 5 pts each)	100
Laboratory participation	200
Total	**500pts**

COURSE POLICIES

- ***Make-up examinations***

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- ***Technical Requirements***

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://www.umt.edu/it/default.php). Students must have software capable of downloading and reading PDF files. If you are having any technical issues please contact the IT department at http://www.umt.edu/it/support/default.php.

IMPORTANT - it is imperative that you understand how to operate Moodle. I have posted a Moodle tutorial to help anyone who is unfamiliar with the platform. This important orientation will require less than 1 hour of your time. You will earn a Moodle certificate as proof of your mastery.

- ***Adds, drops, and changes of grading***

University policies on drops, adds, changes of grade option, or change to audit status will be strictly enforced. These policies are described in the 2018-19 UM course catalogue, http://catalog.umt.edu/. The last day to drop fall courses without the Dean's signature is 5:00PM on Monday October 29. Thereafter, a DROP may be requested by petition, but the petition must be accompanied by documentation of extenuating circumstances.

- ***Cheating and Plagarism***

Although I encourage students to work collaboratively with others, ***the work you hand in must be your own.*** A good rule of thumb is that you can work together up to the point of committing words to paper (or word processor). After that, the words you put down should be your own. We remind you of the official University policy on 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." (Quotation from the University of Montana Catalog). If you have any questions about the line between collaboration and plagiarism, see your professor before you hand in material. Assignments from two or more students that have significant overlap will be regarded as reflecting a violation of the expectation that students turn in independent work. All the students involved will be given no points for that material, and the violation will be dealt with according to the Student Conduct Code. Penalties for plagiarism and cheating can be as severe as suspension or expulsion from the university.

- ***Students with Disabilities***

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with DSS, please consult http://life.umt.edu/dss/ and contact DSS in Lommasson 154. I am happy to work with you and DSS to provide appropriate accommodations for your learning and testing. If you would like to request reasonable accommodations, you are advised to provide your DSS verification letter to Dr. Green the first week of class so appropriate arrangements can be made. If you decide after the semester begins to disclose your disability and request accommodations, you should provide documentation, if possible, at least 10 days prior to the upcoming assessment so I may prepare appropriately. It is the responsibility of students to make sure they understand the types of modifications available to them prior to assessments.

- ***Classroom Behavior***

You are not required to attend lecture, but you are responsible for all information presented during lecture. In my experience, students who come to class regularly do better on exams and quizzes than those who do not! If you choose to come, conduct yourself as a responsible, courteous adult. Students who are being disruptive in lecture by talking, sending or receiving messages, reading the newspaper, eating, or playing computer games/videos will be asked to leave the classroom. Such behaviors affect the learning of other students in the classroom and will not be tolerated. Re-admittance to class is at the discretion of the instructor. The second such offense will result in dismissal from BIOH 113 with a grade of F.

- ***A Note on Email and Spam Filters***

All email communication for the course will be sent to your official university email, and not to other email providers. If you don't normally check your university email you will miss important emails. You can have your university email forward messages to other email addresses (e.g., gmail, yahoo, etc). When I email the whole class the message will go to lots of email addresses, and some email providers will block this as spam. You will want to check the settings of your spam filters so that they allow such messages.

	Discover Biology (BIOH 101) Course Schedule		
Date	**Lecture Topic**	**Reading**	**Assignment**
	WEEK 1: Course Introductions		
8/27	Course Overview	Syllabus	Moodle Tutorial Certificate
8/29	Scientific Method	Science pdf	Syllabus Practice Quiz
Lab	**No labs**	No Labs	
	WEEK 2: What is biology		
9/3	NO Classes		
9/5	What is Biology?	Chapter 1	Biology Practice Quiz
Lab	**Introductions/ Microscopes**	Monday different	
	WEEK 3: Evolution		
9/10	Evolution	Chapters:	Evolution Practice Quiz 1
9/12	Evolution	18.1,19,20.1,20.2	Evolution Practice Quiz 2
Lab	**Study of Pond Water**	All Labs	
	WEEK 4: Exam 1		
9/17	***EXAM 1 – Covering weeks 1-3***		
9/19	Introduction to chemistry	Chapter: 2.1-2.3	Chemistry Practice Quiz
Lab	**Evolution**	All Labs	
	WEEK 5: Biological Macromolecules		
9/24	Carbohydrates and Proteins	Chapter: 3	Carbs and Proteins Quiz
9/26	Lipids and Nucleic Acids	3	Lipid and Nucleic Acid Quiz
Lab	**Eukaryotic Cells**	All Labs	
	WEEK 6: Cells		
10/1	Tour the cells	Chapter: 4	Eukaryotic Cells Quiz
10/3	Cell Functioning	Chapter: 5	Cell Functioning Quiz
Lab	**Diffusion and Osmosis**	All Labs	
	WEEK 7: Energy		
10/8	Cellular Respiration	Chapter: 6, 7	Respiration Quiz
10/10	Photosynthesis	Chapter: 8	Photosynthesis Quiz
Lab	**Digestion and Respiration**	All Labs	
	WEEK 8: Exam 2		
10/15	Continue with energy		
10/17	***Exam 2 – Covering weeks 4-8***		
Lab	**Photosynthesis**	All Labs	
	WEEK 9: Cellular Division		
10/22	The Cell Cycle	Chapter 10	Cell Cycle Quiz
10/24	Meiosis	Chapter 10	Meiosis Quiz
Lab	**Mitosis and Cell Reproduction**	All Labs	
	WEEK10: Genetics		
10/29	Classic Genetics	Chapters: 12, 13	Classic Genetics Quiz
10/31	Molecular Genetics	Chapters 14, 15	Molecular Genetics Quiz
Lab	**Microbes in the Environment**	All Labs	
	WEEK 11: Exam 3		
11/5	Continue with genetics		
11/7	***Exam 3 – Covering weeks 9-11***		

Lab	**Microbes in the Environment**	No Tuesday Labs	
	WEEK 12: Tissues and organ systems		
11/12	Tissue	Chapter 33	Tissue Quiz
11/14	Organ systems	Review of 34-43	Organ Systems Quiz
Lab	**Microbes in the Environment**	Tuesday Only	
	WEEK 13: Thanksgiving break		
11/19	Continue with organ systems		
11/21	No class – Thanksgiving Break		
Lab	**No Labs Thanksgiving**	No Labs	
	WEEK 14: Ecology		
11/26	What is Ecology?	Chapter 44	Ecology Quiz
11/28	Populations	Chapter 45	Populations Quiz
Lab	**Bioethics Presentations**	All Labs	
	WEEK 15: Ecology		
12/3	Communities	Chapter 45	Community Quiz
12/5	Ecosystems	Chapter 46	Ecosystem Quiz
Lab	**Ecology**	All Labs	
	WEEK 16: Final Exam		
12/14	**Final Exam - (~ 70% from weeks 12-15 and ~ 30% from prior exams) December 14, 2018 from 8am to 10am in NULH**		

Please note this course schedule is subject to change. Students are responsible for all changes.