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BIOB 101N.50: Discover Biology - Online

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DISCOVER BIOLOGY (BIOB 101) Online *Summer Semester 2022*

Professor: Annie Green, PhD

Office: Health Science Bldg. 210

Email Address: annie.green@mso.umt.edu

Office hours: by appointment (email me to schedule)

Online meeting link: <https://umontana.zoom.us/my/biology.professor>

Course hours and location: This course is taught online via Moodle
(<https://moodle.umt.edu>)

Description

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.

Learning Outcomes

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

1. Use vocabulary needed to discuss biological topics
2. Apply the scientific method to experimental investigations
3. Distinguish the important molecules of life
4. Exhibit an understanding of the structure and function of cells.
5. Contrast basic metabolic processes and assess how energy flows from organism to organism
6. Comprehend the basic principles of cell reproduction and heredity
7. Identify, describe, and explain anatomical structures and the physiological function of the major body systems in a human.
8. Describe and apply the basis of organism classification systems.
9. Demonstrate an understanding of evolutionary process and explain why evolution is a unifying theory in biology.
10. Be equipped to apply these principles to problems and issues of everyday life and on the way to becoming scientifically literate citizens.

This course also addresses the following Natural Science general education goals:

1. Understand the general principles associated with the discipline(s) studied
2. Understand the methodology and activities scientists use to gather, validate and interpret data related to natural processes;
3. Detect patterns, draw conclusions, develop conjectures and hypotheses, and test them by appropriate means and experiments;
4. Understand how scientific laws and theories are verified by quantitative measurement, scientific observation, and logical/critical reasoning
5. Understand the means by which analytic uncertainty is quantified and expressed in the natural sciences.

COURSEWORK

- **Lectures and Labs**

The course is divided into 10 units. For each unit, I will present 3-5 lectures in video and PDF format that correspond to the unit topic. Additionally, there is a laboratory exercise for each unit with a corresponding lab quiz. There are 10 laboratories organized along with their corresponding unit. After completing the laboratory assignments, please go to Moodle to complete the corresponding lab quiz. You will also be responsible for maintaining a complete lab notebook on each lab exercise. Please review the lab notebook guidelines for the proper format. You can complete the work at your own pace prior to the hard deadline. I have provided suggested due dates to keep you on track throughout the semester. The hard deadline is the week of exam. On this date, ***all assignments corresponding to the units covered by the exam are due by Friday at 11pm the week of the exam.*** Please note that time is determined by our servers here at the University of Montana which is Mountain Time. Each unit will include lectures, a lab exercise and quiz, problem sets and further insight exercises. To successfully complete the course, I recommend completing the recommended reading, lectures, labs, problem sets, and further insight assignments.

- **Recommended Readings**

We will be using the free online text book *Concepts of Biology* available through [OpenStax](#). I have provided the OpenStax chapters that correspond with our module themes 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, take practices quizzes, and other exercises to personalize the learning process and better manage your learning experience. Email me if you are interested in purchasing LRNR. I will provide the login information for registration.

- **Problem sets and Exams**

There are 35 problem sets in this course corresponding to each lecture. These problem sets will require application of information from lectures and further insight exercises in new contexts related to the material. The problem sets will be on Moodle. You have 2 attempts at each problem set to get the highest grade possible.

There will be five exams in total for this course. The exams follow the associated lectures, problem sets, and further insight exercises. The exams are noted on the schedule with the due date. The lowest of these five exams will be dropped. Study guides will help you study for each exam. Each exam will consist of multiple-choice, true/false, short answer, matching questions and one essay question. Each unit exam will consist of approximately 35-50 questions. You will have **70** minutes to complete each unit exam. I recommend taking the last exam even if you are pleased with the prior exam grades. You should assess your knowledge of the concepts, and you might do better than a prior exam.

Once begun, exams must be completed as students cannot exit and re-enter the exam. It is the responsibility of the student to utilize a **reliable** internet connection. If you experience technical difficulties, please contact me **as soon as possible**. Please try to troubleshoot your computer problems way before the deadline to be sure that Moodle is accessible and labs run accordingly. Do not wait until the last minute to find out your computer is not working properly. For IT and Moodle questions, please call 243-4999.

Makeup exams are possible if you have a serious personal emergency. You will receive a zero for a missed, unexcused exam. Since the lowest exam grade is dropped in this course, if you miss an exam, that will be the one 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, laboratory exercises, 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.

- **Participation**

Participation expectations include completing lab exercises, documenting your lab work in a laboratory notebook, and contributing to discussion in the forum. Your lab notebook will be submitted two times in the semester. You can recuperate some lost points on the first lab notebook submission if you correct your lab notebook and submit the entire lab notebook in the second submission. 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.

- **Forums and “Office Hours”**

There is a general discussion forum at the top of the Moodle course page which students can use to post comments/questions about course material to classmates and/or the professor. I ask that you please refrain from posting anything related to exam questions. The forum is a great way to engage with your classmates about the material discussed in the course. If further guidance is required, students can request a “live” online chat by appointment only to be facilitated through Zoom or meet me at my office on the UM campus.

- **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, you will keep a lab notebook with details about what you did, how you did it, what you found, and your thoughts. A digital copy of your lab notebook will be submitted via Moodle two times during the semester. [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.

- **Grading**

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

5 Lecture Exams (at 75 pts each) [lowest grade dropped]	300
35 Problem sets (at 5 pts each) [5 lowest grade dropped]	150
10 Laboratory Quizzes (at 40 pts each) [lowest grade dropped]	360
<u>1 Laboratory notebook [graded twice during the semester]</u>	<u>190</u>
Total	1000

COURSE POLICIES

- **Late submission of work and examinations**

There will be a penalty for late submission of work. **10%** will be subtracted each day for late assignments. I will take into account any **documented** extenuating circumstances. But try your utmost to **NOT TO FALL BEHIND!**

Make-up exams are possible if you have a serious personal emergency. You will receive a zero for a missed, unexcused exam. Since the lowest exam grade is dropped in this course, if you miss an exam that will be the one exam dropped. 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.

Discover Biology is a cumulative course, so that your success in grasping the material presented one week will depend on your understanding of 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.

- ***Technical Requirements***

Students must have software capable of downloading and reading PDF files and their computer must be Java-enabled. Some of the online labs require Java. I have found Mozilla or IE to best at handling those labs.

IMPORTANT - it is imperative that you take the Moodle tutorial. This important orientation will require less than 1 hour of your time and will be the first problem set for Unit 1. You will earn a Moodle certificate which is a requirement for this course. For those who already have a certificate, you may upload your certificate to Moodle without retaking the tutorial.

- ***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 2021-22 UM course catalogue, <http://catalog.umt.edu/>. The last day to drop courses without the Dean's signature is 5:00PM on Friday, July 1st. Thereafter, a DROP may be requested by petition, but the petition must be accompanied by documentation of extenuating circumstances.

- ***Cheating and Plagiarism***

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. When taking an exam online, you are expected to behave as if the exam were proctored in the lecture hall. You will use only the device on which you are taking the exam, and all other devices will be turned off and put away. You will be honest with yourself and fair to your colleagues and professor. You will not use any outside resources for information on an exam. You attest that the exam is a true assessment of your knowledge. Any indication of accessing outside resources will be dealt with according to the Student Code of Conduct.

- ***Students with Disabilities***

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and the Office for Disability Equity (ODE). If you anticipate or experience barriers based on disability, please contact the ODE at: (406) 243-2243, ode@umontana.edu, or visit www.umt.edu/disability for more information. Retroactive accommodation requests will not be honored, so please, do not delay. As your instructor, I will work with you and the ODE to implement an effective accommodation, and you are welcome to contact me privately if you wish. If you would like to request reasonable accommodations, you are advised to provide your ODE

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.

- ***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 many 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.

Please review the course schedule below