

BIOL100: PRINCIPLES OF BIOLOGY
Spring 2014

GENERAL INFORMATION:

Instructor: Dr. Heather B. Felise (Lecture)
Office: Collier Hall of Science Room 323
Office Hours: Tuesdays 10-11:30am; Thursdays 1 - 3pm or by appointment
Phone: 610-861-1428
Email: feliseh@moravian.edu

Instructor: Dr. Christopher Jones (Lab)
Office: Collier Hall of Science, Room 310
Office Hours: Mondays 1–2pm, or whenever you find me free
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Classrooms: Lecture – Collier Hall of Science (CHOS) Room 202
Lab – Collier Hall of Science (CHOS) Room 300
Time: Lecture - MWF 11:45am – 12:35 pm
Lab – R 12:45 – 3:45pm (section LB) **OR** F 12:45 – 3:45pm (section LA)

REQUIRED MATERIALS:

Textbook: *What is Life? A Guide to Biology*, by Jay Phelan, W.H. Freeman and Company, 2013. Second Edition. Registration and access to this course within the online BioPortal associated with your textbook is required. If you purchased your textbook through the Moravian College Bookstore your access card is bundled with your textbook.

To sign up for this course on the BioPortal:

1. Go to <http://courses.bfwpub.com/phelan2e.php> (Mac users need to use Firefox).
2. Click on the link "REGISTER AN ACTIVATION CODE."
3. You will be prompted to follow the on-screen instructions to find this course. Start by selecting the school's state/province, the school name, then instructor, course, and/or section.
4. Enter the activation code that came with your textbook. You will also be asked to enter your email address, choose a password and then you are ready to go!
5. You can also purchase access on the website by clicking on the "PURCHASE" link.

Classroom Clicker: Response card NXT with backlight by Turning Technologies. Students will be provided a clicker for use in this course. The clicker is to be returned at the end of each class.

Laboratory Exercises: Will be posted on the course website.

COURSE DESCRIPTION: This course will provide an introduction to a broad range of topics in the biological sciences, including biomolecules, metabolism, biotechnology, genetics, molecular biology and evolution. But overall, I hope this course will instill a lifelong enthusiasm for science and a solid base of knowledge for application beyond the classroom in the years ahead.

COURSE OBJECTIVES:

By the end of this course students will have:

- a knowledge of and ability to apply the scientific process
- the ability to objectively analyze and interpret data
- the confidence to independently evaluate scientific claims made by others and/or society
- the means to recognize pseudoscience and anecdotal observations
- an appreciation of how science changes and will continue to change in the future

LECTURE:

Attendance and participation: *It is my experience that those students who do not show up for class, do not perform well in class.* Therefore to further encourage you to attend class you will receive **50 points for attending lecture and actively participating in class.** Students are allowed a maximum of five absences during the semester, including those due to illness, school activities, and family emergencies. If you miss class more than the allowed number of absences, 25 points will be deducted from your lecture attendance grade and 5 points will be deducted for each additional absence. **Please note that absences are not divided into excused and unexcused.** Therefore it is not necessary to notify the instructor of an absence, unless it is a scheduled exam (see above). It is the student's responsibility to identify and obtain missed work, assignments, lecture slides and notes. ***If you arrive late to class after attendance has been taken, you will be marked absent for the class.***

Active Learning Exercises: In this class I will be using a variety of teaching strategies, including both traditional lecture and active learning pedagogies. Therefore some of these activities will require active involvement on your part. It is my hope that you find these approaches interesting and engaging and that they enable you to be more successful in this course. Active learning techniques that will be used in this course include the following:

Clicker Questions – Multiple-choice questions will be embedded within lectures to provide an opportunity for students to test their newly acquired knowledge as well as allowing me to gauge student comprehension and to adjust the remainder of the lecture accordingly.

Think, Pair, Share – Students think about a question and then share their thoughts with one or two other students. Often this will be followed by a class debriefing of responses.

Brainstorming – Class discussion to generate ideas about a topic. Responses will be recorded on the blackboard.

Online Study Activities – Independent computer exercises to be performed by student to facilitate student comprehension of course material.

Small Group Problem Based Activities – Students will work together in a small group setting to investigate a scenario or solve a problem provided by the instructor.

Reading Reflections – Written summaries of a scientific news stories and/or reading assignments. These will also include student's personal opinions or reflections of the article.

Level of student engagement and participation in these activities will be considered when assessing the student's participation grade for the course.

Lecture Exams: There will be four lecture exams, each worth 100 points, given during the designated class sessions (Please see the attached course schedule). The 4th exam will be given during the final exam period and **will not be cumulative**. Both lecture material, textbook readings and assigned supplemental readings are fair game for lecture exam questions. Lecture exams will be a combination of multiple-choice and short-answer essay questions.

In the event of special needs (such as medical excuse or family emergency) make-up exams will be given, but arrangements must be made **in advance** with Prof. Felise and **documentation for the absence, e.g. a doctor's note, is required**. If there is an emergency please contact me ASAP. **Make-up exams may be oral** and will be given at a time I deem appropriate.

Quizzes: There will be four quizzes throughout the course each worth 10 points. The dates for these quizzes are listed on the lecture schedule. The quizzes will be taken online through the BioPortal and will consist of 10 multiple-choice questions. As these quizzes are administered online, there will be **no make-up quizzes**.

LABORATORY:

General: Student's will typically work in groups of four on the laboratory exercises and then submit a single group report. All students in the group will need to sign the group report. Students may choose their own groups. But if a group is disruptive and/or is not actively participating in the experiment, the instructor reserves the right to assign groups. There is no laboratory manual for the course. **Laboratory exercises will be posted in advance on Blackboard and students are expected to print, read and bring these exercises with them to lab unless otherwise specified**. This does not include the lab exercise for the first week of class.

There is to be NO food, drink or use of cell phones in the lab!

Attendance: Each student is required to attend lab and take an active role in performing the exercises offered. In order to meet this requirement it is necessary that you arrive for lab on time and remain engaged in the work until the scheduled lab period ends. If you arrive late, leave early, or appear disengaged from the effort of the group it is customary to reduce the student's score on that exercise relative to that received by other members of the group. The amount of this reduction is at the discretion of the instructor and will depend upon the degree to which the student's absence or lack of engagement impacted the work of the group.

Please let Dr. Jones know **in advance** if you will miss lab due to a field trip, sporting event or other school-related function. In the event of an unforeseen circumstance, such as an illness, make-up labs **may** be offered at the instructor's discretion, but **documentation for the absence, e.g. a doctor's note is required**.

Laboratory notebook: Students are required to bring a bound notebook to lab. This will be maintained throughout the course and **may be used when taking the laboratory final exam**. In your notebook you should record the title and date of the experiment, purpose of the experiment and your data from the experiment. **Lab notebooks will be turned in the last week of class**. Your notebooks will be returned during the final examination period for use with your laboratory final exam. There should be no loose pages in your notebook, all pages should be bound and or taped into your notebook.

Lab reports: The content and nature of the lab report will be dictated and outlined in the corresponding laboratory exercise. But in general the following guidelines should be followed:

- Include the date, title and names of students in the group on the first page.
- Every student must sign the report indicating they are satisfied with the contents.
- Use “we” not “I” in your group report.

GRADING: The final grade in the course will be based upon the following items:

LECTURE: (60% of Final Grade)

- Lecture Mid-term Exams 1-3 (3 x 100 points each) 300 pts.
- Lecture Final Exam (not cumulative) 100 pts.
- Lecture Quizzes 40 pts.
- Class Attendance 50 pts.
- Biology in the News! Journal and Presentation 60 pts.
- Class Participation/Active Learning Exercises 50 pts.

LABORATORY: (40 % of Final Grade)

- Laboratory Reports (12 lab reports x 25 points each) 300 pts.
- Laboratory Final Exam 50 pts.
- Independent Research Project 50 pts.

Grading Scale

%	GRADE
93-100	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
67-69	D+
63-66	D
60-62	D-
59% & below	F

BLACKBOARD: All information, including announcements, lecture slides, study guides, and grades for this course will be posted on Blackboard. You must register for this course on Blackboard during first week of class. ***Your opportunity to register will expire on Wednesday, January 22nd.*** For instructions visit the following website: <http://home.moravian.edu/public/cit/help/blackboard/bbstudent.asp>. The

course ID is BIOL100AB.S14 and the enrollment code is “biology”. ***When registering, please use the email account where you would like to receive course notifications.*** I frequently send out notifications via email.

CLASS POLICIES:

Cell phones: ***As a courtesy to the professor, turn all cell phones OFF before class! No calls or texting during class.*** If you are observed texting during class you will be asked to leave the classroom. If this occurs, you will not receive credit for attendance.

Academic Integrity: I expect all class members to adhere to the Moravian College policy on academic honesty (please see **Student Handbook**). If dishonesty is observed on a student’s exam, a course grade of an F will be assigned and the individual will not be allowed to withdraw from the course. If dishonesty is observed on an assignment the student will receive a zero for that assignment.

Disability Support: Students who wish to request accommodations in this class for a disability should contact Elaine Mara, Assistant Director of Learning Services for Disability Support at 1307 Main Street or by calling 610-861-1510. Accommodations cannot be provided until authorization is received from the Academic Support Center.

*****Any portion of this syllabus is subject to change at the discretion of the instructors.***

BIOL100 TENTATIVE LECTURE SCHEDULE

DATE	DAY	LECTURE TOPIC	BACKGROUND READING
1/13	M	Introduction/Syllabus/What is Science?	Chpt. 1
1/15	W	Scientific Thinking	
1/17	F	Evaluating Scientific Experiments	
1/20	M	NO LECTURE (Martin Luther King Day)	
1/22	W	QUIZ #1 DUE /Chemistry of Life; Carbon as a Versatile Component of I	Chpt. 2; Supplemental Readings
1/24	F	Biomolecules; Carbohydrates, Proteins, Lipids and Nucleic Acids	
1/27	M	NO LECTURE	
1/29	W	NO LECTURE	
1/31	F	Biomolecules; Carbohydrates, Proteins, Lipids and Nucleic Acids	
2/4	M	Nutrition, Metabolism and Enzymes	
2/6	W	EXAM I	
2/8	F	What is a cell?	Chpt. 3
2/10	M	Functions of Cellular Membranes	
2/12	W	NO LECTURE	
2/14	F	NO LECTURE	
2/17	M	QUIZ #2 DUE /Energy Flow and Photosynthesis	Chpt. 4; Supplemental Readings
2/19	W	Photosynthesis and Biofuels	
2/21	F	Food Powers Cellular Work	
2/24	M	Food Powers Cellular Work	
2/26	W	Alternate Pathways to Energy Acquisition	
2/28	F	EXAM II	
3/3-3/7	M, W, F	NO LECTURE (Spring Recess)	
3/10	M	What is DNA?	Chpt. 5; Supplemental Readings
3/12	W	Genes to Proteins	
3/14	F	Mutations / Biotechnology	
3/17	M	Biotechnology in Agriculture and Health	
3/19	W	QUIZ # 3 DUE /Cell Division and Mitosis	Chpt. 6; Supplemental Readings
3/21	F	Cancer: Cell Division Gone Awry	
3/24	M	Meiosis and Generation of Gametes	
3/26	W	Crossing Over and Sexual Reproduction	
3/28	F	EXAM III	
3/31	M	Mendelian Inheritance of Single Gene Traits	Chpt. 7; Supplemental Readings

4/2	W	Mendelian Inheritance of Single Gene Traits	
4/4	F	Complex Inheritance	
4/7	M	Translation of Genotypes	
4/9	W	QUIZ #4 DUE /Darwin's Dangerous Idea	Chpt. 8; Supplemental Readings
4/11	F	Mechanisms of Evolution	
4/14	M	Adaptation and Natural Selection	
4/16	W	Evidence for Evolution	
4/18-4/21	F, M	NO LECTURE (Easter Break)	
4/23	W	To be determined	
4/25	F	To be determined	
4/29	T; 1:30pm	EXAM IV/LAB FINAL EXAM	