Biology 110 – World Campus – Spring 2021
Biology: Basic Concepts and Biodiversity

Biology 110 is a four-credit course. The course will utilize web-based tutorials, online homework assignments, and a laboratory kit. The goal of this course is to introduce you to fundamental concepts that are common to all organisms and to explore the biological diversity of life on Earth.

Course Goals: These are the comprehensive goals for the course. Each tutorial contains learning objectives that describe what we expect you to be able to do when you understand the material.

- Know why water and carbon are essential to life on Earth
- Understand the antiquity of life on Earth and how fossil remains are dated
- Appreciate the diversity of life on Earth, both prokaryotic and eukaryotic, identify defining characteristics and evolutionary trends in each group
- Recognize the major organelles in a eukaryotic cell and the function(s) of each
- Identify the types of cell division that occur in prokaryotic and eukaryotic cells and understand the purpose of each type
- Describe how eukaryotic cells transform energy through cellular respiration and photosynthesis
- Understand the basic principles of Mendelian genetics and the role of meiosis in the inheritance of characters
- Distinguish among the processes of replication, transcription and translation, and how each is important in the transmission and expression of information encoded in DNA
- Discuss how the genetics of a population is different than that of individuals and how the forces of evolution affect the genetic structure of populations
- Explain the process of natural selection and the role that it plays in the evolution of species

General Education Course Goals:

- Students will develop key literacies through exposure to scientific literature written for the general public as well as peer-reviewed literature regarding foundational biological concepts and how these topics relate to society.
- Students will develop critical thinking skills by being introduced to the role of biological knowledge in their personal lives and society, and by analyzing the role of basic biological knowledge and technologies in health care, agriculture and industry.
- Students will develop effective communication skills through the production of written and oral reports that share scientific knowledge and encourage the exchange of ideas.

Instructor: Dr. Denise Woodward (contact through Canvas).

Laboratory Teaching Assistant: TBA

Online learning is not for everyone; some people may not be able to manage a course that does not meet face to face to learn. Online learning requires lots of planning and self-pacing so that you may be successful in this course. Since we will be covering a great deal of material this semester, I highly recommend treating this course like a regular lecture course, and keeping up with lectures, lab activities, readings and assignments.

Course Communication

In this class our official mode of communication is through the "Conversations" function located inside Canvas. All communication between student and instructors and between student and student should be respectful and professional. It is the student's responsibility to check for course communication frequently.

You can also take advantage of online office hours. There is a link posted in Canvas that will connect you to the office hours. You may want to have a headset so you can verbally ask questions, but it is also possible to type your questions and comments into a text box. Office hours are by appointment.

Course Materials

Online Lecture Tutorials and practice questions: The format of this course is designed to let you know, on a regular basis, how you are progressing through the course (and to let us know how you are doing with the material). We will use on-line computer tutorials (accessed through Canvas) to guide you through the course.

Each tutorial has a series of practice questions to test your understanding of the material and provide you with feedback to help you better understand the topics covered. These questions are posted on Canvas. Think carefully before you select an answer; these questions are designed to let you know if your level of understanding is adequate. These questions are **NOT** graded; however, you should try to answer the questions correctly because your performance on the questions is an indication of your understanding of the course material.

Laboratory Kit: For this course you will need a customized kit that includes all the materials needed to complete the hands-on portion of the BIO 110 Laboratory. You can purchase your kit in two ways, and it will ship directly to you.

1. Online ordering: https://www.carolina.com/catalog/detail.jsp?prodId=581866

2. Bookstore ordering: You can purchase a voucher directly from your bookstore (which also allows you to use your financial aid) and redeem it at the above link.

Please Note: Students that are located in Alaska, Hawaii, Internationally, or via an APO/DPO/FPO address please contact Tina Mansfield at 800-334-5551 ext: 4371 or via email at Tina.Mansfield@Carolina.Com

Upon receiving your kit, please be sure to check your kit, using the packing list for all required items. If anything is missing or broken contact Customer Service at 1-800-334-5551 (7:30a.m – 8:00p.m. M-F) or Customer_service@carolina.com within 24 hours upon receipt. **Kits can only be returned if they are unopened and still sealed.**

Lab Manuals are not included in your kit. These will be shared with you through Canvas.

Questions?
At Carolina, we do everything we can to assist students. Please contact Customer Service at 1-800-334-5551 or Customer_service@carolina.com.

Exam Proctoring
This course will require you to take exams using certain proctoring software that uses your computer's webcam or other technology to monitor and/or record your activity during exams. The proctoring software may be listening to you, monitoring your computer screen, and viewing you and your surroundings. By enrolling in this course, you consent to the use of the proctoring software selected by your instructor, including but not limited to any audio and/or visual monitoring which may be recorded.

In this class you will take your tests remotely and they will be proctored by a service called Examity®. A Student Quick-Guide will be provided on how to use Examity®. Please log in as soon as possible to set up your profile. You will not be able to schedule exams until your profile is complete.

Examity® system requirements are:

- Desktop computer or laptop (not tablet)
- Webcam and microphone (built-in or external) – test your webcam at www.testmycam.com
- Connection to network with sufficient internet speed: at least 2 Mbps download speed and 2 Mbps upload – test internet speed at www.speedtest.net
- Operating systems: Windows XP – Windows 10, Mac OS X 10.8 (Mountain Lion) – 10.11 (El Capitan)

- Browser with pop-up blocker disabled: Google Chrome v39 or later, Mozilla Firefox v34 or later, Internet Explorer v8 or later, Microsoft Edge, Apple Safari v6 or later

If you have any questions or concerns, contact Examity's technical support team 24/7 via email at support@examity.com or phone at (855)-392-6489.

Graded Assignments (Please note: all assignments have specified due dates and late submissions will result in a loss of points.

Quizzes, 300 points total: You will be responsible for understanding all material presented in the online Voice Thread lectures and posted on the course website. There will be 5 quizzes (75 points each). Your lowest quiz score will be dropped. The quizzes are not proctored, and you may use your notes. However, most questions on the quizzes will be application questions and you will need to thoroughly prepare for each quiz.

Exams, 330 points total: There will be a midterm exam (worth 110 points) and a final exam (worth 220 points). You will be responsible for understanding all material presented in the online VoiceThread lectures and posted on the course website. The midterm and final exam will be proctored using the Examity system (see above for more information about Examity). There is no dropped exam score – both the midterm and the final exam will count toward your final grade.

Lecture Homework Assignments, 100 points total: Each week there will be assigned activities and reading questions (10 points) posted on Canvas. Each assignment will have a due date and you must complete the assignment by the due date to receive full credit. Your three lowest homework scores will be dropped.

Laboratory Exercises, 200 points total: Each week there will be a laboratory assignment (20 points) that you must submit for grading; your lowest lab assignment score will be dropped. You can earn a maximum of 200 points for the lab portion of the course.

Late Assignment Policy: Late assignments will be accepted but you will lose 10% of the possible points per day for up to one week after the due date. Emergencies do arise, so please contact Dr. Woodward if you experience an emergency where you need extra time to complete an assignment. Please do not put yourself in danger, such as going out in the dark to find internet access to complete an assignment. Each request will be considered on an individual basis.

*No extra credit will be offered beyond the existing extra credit assignments built into the course (you will receive information about the extra credit opportunity later in the course). If you are concerned about your grade, please contact Dr. Woodward as quickly as possible and state your concerns.

Academic Integrity:

Professional behavior includes academic integrity. Academic dishonesty is not limited to simply cheating on a quiz and/or assignment. The following is quoted directly from the "PSU Faculty Senate Policies for Students" regarding academic integrity and academic dishonesty: "Academic integrity is the pursuit of scholarly activity in an open, honest and responsible manner. Academic integrity is a basic guiding principle for all academic activity at The Pennsylvania State University, and all members of the University community are expected to act in accordance with this principle. Consistent with this expectation, the University's Code of Conduct states that all students should act with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts. Academic integrity includes a commitment by all members of the University community not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others."

All University and Departmental policies regarding academic integrity/academic dishonesty apply to this course and the

students enrolled in this course. Refer to the following URLs for further details on the academic integrity policies at PSU of the Eberly College of Science: http://www.science.psu.edu/academic/Integrity/Policy.htm

Each student in this course is expected to work entirely on her/his own while taking any quiz, to complete assignments on her/his own effort without the assistance of others unless directed otherwise by the teaching assistant, and to abide by University, College and Department of Biology policies on academic integrity and academic dishonesty. If you have any questions about an assignment, please ask. Academic dishonesty can result in assignment of "F" by the course instructors or "XF" by Judicial Affairs as the final grade for the student. Students are responsible for ensuring that their work is consistent with Penn State's expectations about academic integrity.

Assignment of Grades:
Lecture material counts for 730 points and lab material counts for 200 points for a total of 930 points. If you do not pass lab (your score is less than 60%), you will not pass the course, regardless of your grade in the lecture portion of the class. The grading scale (in points) is:

A	855-930 points	C+	697 – 743 points
A-	837 - 854 points	C	651 – 696 points
B+	800 - 836 points	D	558 – 650 points
B	772 - 799 points	F	Fewer than 558 points
B-	744 - 771 points		

Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic adjustments in this course, contact the Office for Disability Services (ODS) at 814-863-1807 (V/TTY). For further information regarding ODS, please visit the Office for Disability Services Web site at http://equity.psu.edu/ods/.

In order to receive consideration for course accommodations, you must contact ODS and provide documentation (see the documentation guidelines at http://equity.psu.edu/ods/guidelines/documentation-guidelines). If the documentation supports the need for academic adjustments, ODS will provide a letter identifying appropriate academic adjustments. Please share this letter and discuss the adjustments with your instructor as early in the course as possible. You must contact ODS and request academic adjustment letters at the beginning of each semester."

Biology 110 Weekly Schedule – Spring 2021

Note: The due date for all assignments is 11:59 PM on the indicated date. There are no exceptions – if you wait until the last minute, you run the risk of losing points.

Weekly Schedule	Tutorial Readings, Laboratory Exercises and Assignments (all readings and assignments are accessed through Canvas)
Week 1 Week of January 19th	***Orientation activities and syllabus quiz on Canvas (5 points) due at 11:59PM EST on Wednesday, January 27th*** Tutorial 1 - Introduction to the Course and How to Use Successful Learning Strategies Tutorial 2 – Life, Natural Selection, and Evolution Tutorial 3 – Water, Carbon and Life ***Lecture Homework #1 (10 points) due at 11:59PM EST on Wednesday, January 27th -*** **Homework assignments are posted on Canvas** ***Laboratory Assignment #1 (20 points) due at 11:59PM EST on Wednesday, January 27th***
Week 2 Week of January 25th	Tutorial 4 - Prokaryotes I - Cellular and Genetic Organization Tutorial 5 - Prokaryotes II - Structure and Function Tutorial 6 - Prokaryotes III - Evolution and Early Metabolism ***Lecture Homework #2 (10 points) due at 11:59PM EST on Sunday, January 31st*** ***Laboratory Assignment #2 (20 points) due at 11:59PM EST on Sunday, January 31st***
Friday January 29th – Monday February 1st	**Quiz #1 (covers Tutorials 1- 6): due by 11:59PM**
Week 3 Week of February 1st	Tutorial 7 - Subcellular Architecture of Eukaryotes Tutorial 8 - Protists I – Protists with modified mitochondria, Kingdoms Euglenozoa, Alveolata, Tutorial 9 - Protists II - Kingdoms Stramenopila, Rhodophyta, and Chlorophyta ***Lecture Homework #3 (10 points) due at 11:59PM EST on Sunday, February 7th*** ***Laboratory Assignment #3 (20 points) due at 11:59PM EST on Sunday, February 7th***
Wellness Week #1 **February 8th – 12th**	Penn State has scheduled wellness days into the spring course schedule. In this class, we will have a wellness week from February 8th – 12th. Please rest, relax and enjoy!
Week 4 Week of February 15th	Tutorial 10 – Mitosis Tutorial 11 – Heredity, Meiosis and Life Cycles Tutorial 12 - Fungi I - Evolution and Diversity, Phyla Chytridiomycota and Zygomycota Tutorial 13 - Fungi II - Phyla Ascomycota and Basidiomycota ***Lecture Homework #4 (10 points) due at 11:59PM EST on Sunday, February 21st*** ***Lecture Homework #5 (10 points) due at 11:59PM EST on Sunday, February 21st*** ***Laboratory Assignment #4 (20 points) due at 11:59PM EST on Sunday, February 21st***

Friday February 19th - Monday February 22nd	**Quiz #2 (covers Tutorials 7- 13): due by 11:59PM**
Week 5 Week of February 22nd	Tutorial 14 – Animals I - Phylogeny and Diversity; Animals without Body Cavities - Parazoa, Radiata, Acoelomates Tutorial 15 - Animals II - Animals with Body Cavities: Pseudocoelomates and Protostome Coelomates Tutorial 16 - Animals III - Animals with Body Cavities: Deuterostomes - Echinoderms and Chordates ***Lecture Homework #6 (10 points) due at 11:59PM EST on Sunday, February 28th*** ***Laboratory Assignment #5 (20 points) due at 11:59PM EST on Sunday, February 28th***
Week 6 Week of March 1st	Tutorial 17 - Energy I - Cellular Respiration (Glycolysis) Tutorial 18 - Energy II - Cellular Respiration (Krebs Cycle and Electron Transport Chain) ***Lecture Homework #7 (10 points) due at 11:59PM EST on Sunday, March 7th*** ***Laboratory Assignment #6 (20 points total) due at 11:59PM EST on Sunday, March 7th***
Friday March 5th - Monday March 8th	**Quiz #3 (covers Tutorials 14- 18): due by 11:59PM**
Wellness Week #2 **March 8th – 12th**	Penn State has scheduled wellness days into the spring course schedule. In this class, we will have a wellness week from March 8th – 12th. Please rest, relax and enjoy!
Week 7 Week of March 15th	Tutorial 19 - Energy III - Photosynthesis (Light Reactions) Tutorial 20 - Energy IV – Photosynthesis (Calvin Cycle) ***Lecture Homework #8 (10 points) due at 11:59PM EST on Sunday, March 21st*** ***Laboratory Assignment #7 (20 points) due at 11:59PM EST on Sunday, March 21st***
Week 8 Week of March 22nd	Tutorial 21 - Plants I - Evolution and Diversity Tutorial 22 - Plants II - Vascular Non-flowering Plants Tutorial 23 - Plants III - Vascular Flowering Plants ***Lecture Homework #9 (10 points) due at 11:59PM EST on Sunday, March 28th*** ***No Laboratory Assignment this week.***
Midterm Exam	**The midterm exam can be taken on any day from noon on Monday, March 22nd – Sunday, March 28th by 11:59PM.** • **The midterm exam will be 50 questions and worth 110 points. You will have 90 minutes to take the exam.** • **It will cover the material through Tutorial 20.** • **The exam will be taken using Examity. See Exam information sheet on Canvas.**

Week 9 Week of March 29th	Tutorial 24- Mendel and Modern Genetics Tutorial 25 - Predicting Phenotypes and Genotypes Tutorial 26 - The Complex Expression Patterns of Multiple Alleles and Pedigree Analysis ***Lecture Homework #10 (10 points) due at 11:59PM EST on Sunday, April 4th*** ***Laboratory Assignment #8 (20 points) due at 11:59PM EST on Sunday, April 4th***
Friday April 2nd - Monday April 5th	**Quiz #4 (covers Tutorials 21-26): due by 11:59PM.**
Wellness Week #3 **April 5th – 9th**	Penn State has scheduled wellness days into the spring course schedule. In this class, we will have a wellness week from April 5th – 9th. Please rest, relax and enjoy!
Week 10 Week of April 12th	Tutorial 27 - Chromosome Behavior and Sex Chromosomes Tutorial 28 - Chromosome Behavior and Gene Linkage ***Lecture Homework #11 (10 points) due at 11:59PM EST on Sunday, April 18th*** ***Laboratory Assignment #9 (20 points) due at 11:59PM EST on Sunday, April 18th***
Week 11 Week of April 19th	Tutorial 29 - DNA Replication Tutorial 30 – From Gene to Protein: Transcription and Translation ***Lecture Homework #12 (10 points) due at 11:59PM EST on Sunday, April 25th*** ***Laboratory Assignment #10 (20 points) due at 11:59PM EST on Sunday, April 25th***
Friday April 23rd - Monday April 26th	**Quiz #5 (covers Tutorials 27-30): due by 11:59PM.**
Week 12 Week of April 26th	Tutorial 31 – Population Genetics and Evolution ***Lecture Homework #13 (10 points) due at 11:59PM EST on Sunday, May 2nd*** ***Laboratory Assignment #11 (20 points) due at 11:59PM EST on Sunday, May 2nd***
FINAL EXAM	**The Final Exam can be taken any day from noon on Monday, May 3rd – Friday, May 7th by 11:59PM.** • **The exam is cumulative and covers all material covered in the course.** • **The exam will be comprised of 80 questions and it is worth 220 points. You will have 2 hours to complete the exam.** • **The exam will be taken using Examity. See Exam information sheet on Canvas.**