



General Biology – Survey of Life

BIO 161.02

Winter 2019

Number of Credits: 4

Office: JM 136C

Days Class Meets: Lect.: Mon. and Wed.

Contact Phone: (517) 796-8599

Lab: Mon

Contact Email: powelljonf@jccmi.edu

Meeting Times: Lect. 9:00 – 10:23

Office Hours: Tue. & Thur. 9:00 – 12:30 PM

Lab. 10:30 - 1:23

Wed. 10:30 – 1:00

Location: JM 133

Instructor: Jon F. Powell, Ph.D.

Online: See JetNet

Course Description

Biology 161 is the first semester of a one year general biology experience intended for science major or pre-professional students. This course covers nature of science, a survey of the major groups of living organisms (bacteria, fungi, plants, & animals), the process and evidence for evolution, and the fundamentals of ecology. It provides the foundation for upper level biology courses. The course includes a laboratory component that includes dissections.

Prerequisite(s)

Prerequisite: ENG 090 or higher and MAT 031 or higher

*Note: CEM 131 or higher is required for Bio 162

Textbook

- **Biology, 11th Edition**, Raven, Johnson, Mason, Losos, & Singer ISBN: 9781259188138

Text Book Zero! *This text is available in a digital format. Please see the links posted on our class Jet Net site. This text is available to rent or purchase in digital format through the JC Bookstore.*

- **Student Lab Notebook**: Hayden McNeil ISBN 1930882351

*These two text will be required in BIO 161 and BIO 162, if you take BIO 162 you will not need to buy additional books

Course Objectives

1. The student will be able to explain the scientific process and reasoning, and be able to apply that understanding to real world examples.
2. The student will be able to demonstrate the ability to discern science from pseudoscience and apply that understanding to real world examples.
3. The student will be able to explain how modern evolutionary theory developed and provide supporting evidence for the modern theory from the current knowledge base of science.
4. The students will be able to explain how new species arise and be able to compare and contrast various species concepts.
5. The student will be able to develop a complete cladogram for several given organisms, and demonstrate a grasp of the fundamental tenants of cladistics as applied to biology.
6. The student will be able to differentiate the major groups in modern biological taxonomy to at least the Phylum level in all life, and the Class/Order level in specific subsets of life.
7. The student will be able to construct a plausible timeline, based on the modern scientific body of knowledge, for the development of life on Earth, including the evolution of humans from earlier organisms.
8. The student will be able to explain basic ecological principles as they apply to individual organisms and populations
9. The student will be able to apply basic wet and/or dry biology lab techniques to given experimental designs, generate data, and analyze the data with appropriate measures.
10. The student will be able to differentiate the basic visceral anatomy of several representative specimens during dissection.

Introduction

As a college student you are responsible for your own learning. This course is intended to prepare you for higher level biology courses and we will be covering a large amount of material in a relatively short amount of time. To be successful you will need to allocate sufficient time and discipline to your studies. There are no quick and easy ways to be successful.

Grading Procedure

Final grades will be comprised of 75% from lecture and 25% from lab.

Lecture:

- Each day a portion of the book will be assigned. A ten point quiz over the assigned material will be given during the first 10 minutes of the next class period. To aid in your success on the quiz, you will be able to use any handwritten notes you have taken (only handwritten notes can be used). The two lowest daily quizzes will be dropped for the semester.

- Exam formats may include, multiple choice, matching, fill-in, short answer, essay, application, and problem solving. Up to 15% of the exam may include material from previous chapters. Dates for the exams will be discussed in class. Exams will be 100 points each. A final cumulative exam will be given on the last day of class.
- If you miss an exam (for **any** reason) you will receive a zero (0%) for the exam. Your lowest exam score can be dropped (the final exam cannot be dropped). The intention of the policy to drop your lowest exam of the semester is to account for missed exams or poor test performances due to circumstances that are beyond your control. Make-up exams will **not** be given because of this policy. A note of caution, some students start to count on using the dropped test policy to cover for poor performance on an exam. Beware of this as you may have to miss a test later in the semester due to unforeseen circumstances.
- Electronic devices must be turned off and out of reach during exams (including smart watches), violation of this will be considered cheating and will result in a 0 for the exam. Low scores due to academic dishonesty **will not** be dropped.

Lab:

- Points will be awarded for each lab whether they are graded or not. Labs that are not graded will receive up to 5 points. Labs that are collected will be graded out of 10 points and scored on content.
- A formal lab report will be written based on the results of a lab exercise or experiment. The format of the report will be provided. The lab report will be worth 25 points.
- Lab knowledge will be assessed through lab quizzes. The lab quizzes will cover the material related to the lab activities and concepts. The final lab practical will consist to two 25 point quizzes. Missed lab quizzes cannot be made up, but your lowest lab quiz can be dropped.
- If you are going to miss your lab section you may attend another lab section with the instructor's permission. If you cannot make up the lab, one lab grade over the course of the semester may be made up by writing a typed review (2 pages, double spaced, 1 inch margins, 12 point font) of a biology related article (must be longer than two pages long) from Scientific American magazine (paper, not online version, available in the library). In the review you should provide a reflective statement of your perspective on the article. Include a photocopy of the article with the assignment.

Grading Scale

GPA	GRADE RANGE
4.0	90.0-100%
3.5	85.0-89.9%
3.0	80.0-84.9%
2.5	75.0-79.9%
2.0	70.0-74.9%
1.5	65.0-69.9%
1.0	60.0-64.9%
0.5	55.0-59.9%
0.0	0-54.9%

Extra Credit

Extra credit will NOT be given under any circumstance. Instead, take the time that you would have spent on doing the extra credit to learn assigned material.

Academic Honesty Policy

Academic Honesty is defined as ethical behavior that includes student production of their own work and not representing others' work as their own, by cheating or by helping others to do so.

Plagiarism is defined as the failure to give credit for the use of material from outside sources.

Plagiarism includes but is not limited to:

- Submitting other's work as your own
- Using data, illustrations, pictures, quotations, or paraphrases from other sources without adequate documentation
- Reusing significant, identical or nearly identical portions of one's own prior work without acknowledging that one is doing so or without citing this original work (self-plagiarism)

Cheating is defined as obtaining answers/material from an outside source without authorization.

Cheating includes, but is not limited to:

- Plagiarizing in any form
- Using notes/books/electronic material without authorization
- Copying
- Submitting others' work as your own or submitting your work for others
- Altering graded work
- Falsifying data
- Exhibiting other behaviors generally considered unethical
- Allowing your work to be submitted by others

- Consistent with JCC policy, cheating and plagiarism (copying another's work and presenting it as your own) will **not** be tolerated. To minimize the risk of this, phones will not be permitted out or within reach in any way during tests and quizzes. Having a phone within reach will be sufficient evidence of cheating and will result in implementation of the cheating policy.
- A first offense of cheating, plagiarism, and unethical behavior will result in a zero for the assignment. This score may not be dropped. A second offense will result in a zero for the course. All cases of academic dishonesty will be documented and forwarded to the Academic Dean.

Course Management

Absences and Arriving to Class Late:

The doors on classrooms are now required to be locked at all times for security purposes. If you arrive late, please knock and wait patiently until you are allowed in the class.

Attendance is an important factor to your learning and success in this course. In the case of an absence it is **your** responsibility to contact the instructor about missed materials or assignments. You are strongly encouraged to get the notes from a classmate. Missed in-class assignments may not be made up and assignments will not be accepted after the scheduled. Late take home work will be accepted at a 20% deduction in points possible and will only be accepted prior to when the assignment is returned to class. Labs will only be accepted if you participated in the lab activity.

Being Dropped from Class:

JC faculty are required to drop students from classes if they are not participating. You may be dropped from this class if you miss more than 4 lectures, or 2 labs, or are not participating in assignment. You will accumulate a missed class if you are not present for the daily quiz or if you miss significant class time after the quiz. Be aware that this is a lab course and attendance/participation in lab is required to receive credit for the course. After the drop date, a student missing sufficient days will receive a 0.0 for the course.

Students own the responsibility of the effect of being dropped. Be aware that being dropped from the class may affect financial aid or housing status. If you are dropped, the drop status will **NOT** be changed due to the impact on financial aid, housing status, etc.

Incompletes:

Incompletes will only be issued if the student and is unable to complete the course due to extenuating circumstances. In order to receive an incomplete the student must have completed a vast majority (over 90%) of the course and have been earning a minimum of a 2.0 at the time of the request. If a grade of incomplete is issued all grades/scores earned to that date will be used in calculated the course grade.

Students that have medical issues or extreme family hardships such as a death in the family during the term should discuss the possibility of a medical withdrawal from the course with the Admissions Office.

Communication:

Students are expected to check their JC email on a regular basis or have the JC email forwarded to another address. However, for purposes of this class, I will only respond to emails from the JC email as I am unable to verify other addresses. You should also sign up for Nixle notifications so you can get notifications in case the College is shut down.

Phones in the Classroom:

Research has repeatedly shown that having a cell phone out in class has a negative effect on learning and success. One study reported that students accessing their phones even once in class have an average earned grade 0.5 points less than those that do not have a phone out. Students with grades less than a 3.0 have even greater negative effect on their grade.

JC has made a point of emphasizing student success. As such, **phones are not permitted to be out in class (this includes texting)**. If you have a phone with you, leave it in your backpack or pocket. If you have matters that require such vital importance that it requires you to focus on text messages or calls, you probably should not be in class. If you access your phone in class you will be asked to leave for 10 minutes while you take whatever the pressing matter may be. A refusal to leave or more than three time of being asked to leave class will result in application of the disruptive behavior policy.

Audio and Digital Recording:

Audio and photographic recordings during class may only be permitted with instructor permission. This is due to federal laws protecting student privacy in class. Any recordings permitted in class may not be posted on the internet or shared otherwise without instructor permission.

Disruptive Behavior:

Disruptive behaviors will not be tolerated in this class. Disruptive behaviors include (but are not limited to) having side discussions, being distracting to class when arriving late, cell phone constantly ringing, constantly arriving to class late, and being disrespectful of others. These behaviors will result in point deductions of up to 15 points and being asked to leave the class. If there are situations that I may not be aware of, please let me know so the situation may be addressed.

I am not opposed to the use of computers in the classroom if they are being used for classroom purposes. However, you should note that research has repeatedly demonstrated that taking notes by hand promotes better learning than using a keyboard. The use of computers for non-class activities (facebook, YouTube, etc...) is distracting to others learning. If you use the computer for non-class activities you will not be allowed to use a computer during class. If you use a computer please sit in the back of class as screens may be distracting to others.

Grievances:

If you have a concern about any aspect of the course it is your responsibility to bring it to the instructor's attention. This is the first step of handling any academic concern. Academic complaints need to be handled by having a scheduled meeting with the instructor.

Makeup Policy

There are no make-up laboratories granted in this class due to the nature of work done. Exams are not available for make-up. The dropped exam score is a policy to account for missed exams or other circumstances.

Help

Available learning services or opportunities for students seeking help with their course work. May include information about tutors, learning centers, reserved library materials, open labs, counseling services.

It is important to contact a Center for Student Success professional prior to the start of the semester in order to receive accommodations in a timely manner. While we will make every effort to coordinate accommodations in a timely manner, failure to self-identify prior to the start of the semester may delay notification to instructors and timeliness of acquiring accommodations. Accommodations do not automatically carry over to the next semester.

<https://www.jccmi.edu/center-for-student-success/accommodations-for-students-with-disabilities/>

Tentative Calendar

**all dates below are subject to change by the instructor with prior notice, at least one week in the case of major assessments (such as exams).*

DATE	TOPIC	CHAPTER	MODULE
January 14	Intro		
January 16	Nature of Science	1	1
January 21	Scientific Inquiry	1	2
January 23	Natural Selection	20	3
January 28	Evidence for Evolution	20/21	4
January 30	Evidence for Evolution	22	5
February 4	Origin of Species	22	6
February 6	Exam 1		
February 11	Introduction to Systematics	23	7
February 13	Prokaryotic Cells	28	8
February 18	Prokaryotic Cells	28	9
February 20	Protists	29	10
February 25	Protists	29	11
February 27	Exam 2		
March 4	Seedless Plants	30	12
March 6	Seed Plants	31	13
March 18	Fungi	32	14
March 20	Exam 3		
March 25	Animal Overview	33	15
March 27	Sponges and Cnidaria	33	16
April 1	Flatworms & Mollusks	34	17
April 3	Annelids & Arthropods	34	18
April 8	Fish & Amphibians	35	19
April 10	Reptiles and Birds	35	20
April 15	Mammals and Primates	35	21
April 17	Exam 4		
April 22	Population Biology	55	22
April 24	Population Ecology	55-56	23

April 29	Ecosystems	57	24
May 1	Final Exam	-	

Tentative Lab Schedule:

DATE	TOPIC
January 14	Introduction to Lab
January 21	Basic Techniques
January 28	Evolution
February 4	Systematics
February 11	Prokaryotes
February 18	Protists
February 25	Plants
March 4	Fungi
March 18	Protostome I: Spiralian
March 25	Protostome II: Ecdysozoans
April 1	Deuterostome I: Fishes & Amphibians
April 8	Field Ecology*
April 15	Deuterostome II: Reptiles, Birds, & Mammals
April 22	Lab Practical
April 29	No Lab

*May be switched with Deuterostomes II lab pending weather conditions.

Important Dates: Winter 2019

DATE	EVENT
JAN. 14, 2019	DAY AND EVENING CLASSES BEGIN
FEB. 1, 2019	IN-SERVICE DAY. NO CLASSES
MARCH 11-17, 2019	MID-SEMESTER BREAK
MAY 5, 2019	END OF SEMESTER
MAY 7, 2019	GRADES DUE

Student Responsibilities

Regular attendance and participation is required for successful completion. This class will also require considerable out of classroom study, reading, and practice. There are no extra-credit assignments.

Attendance Policy

In compliance with Federal Title IV funding requirements, as well as college initiatives, reporting of student participation in classes will occur at three designated times each semester. Instructors will assign one of two non-transcribed letter symbols to each student during each reporting period (see below). Students identified as no longer participating will be dropped or administratively withdrawn from the class, and students identified as needing academic assistance will be contacted.

Participation/Progress Symbols

- Q – The student has not participated and the instructor believes they have unofficially withdrawn (Quit). These students will be dropped/withdrawn from the class.
- V – The instructor Verifies that the student is participating and doing acceptable work.

Caveat

All policies above are subject to change, with notice, by the instructor for reasons the instructor deems necessary (pedagogic issues, school closings, illness of the instructor, etc.).

Reasons for Receiving a Q in the HQV System

The reasons for a Q are straight forward.

- You fail to show for the first week of class and do not contact me.
- You fail to attend five class sessions
- You fail to attend three laboratories
- You fail to take two exams.

If any of these conditions are met before an HQV point you may receive a Q and be dropped from the course (in addition, you will not be reinstated, which I must sign off on). If you meet a condition after the last HQV date you will automatically fail the course with a grade of 0.0 for failure to complete the course.

General Education Outcomes

The Board of Trustees has determined that all JC graduates should develop or enhance certain essential skills while enrolled in the college. Several of these outcomes are addressed in this class, including critical thinking, scientific reasoning, and a knowledge of science.

GEO 4: Scientific Reasoning

Students will be able to design and carry out valid experiments to assess a given hypothesis, and draw appropriate conclusions based on the results.

Lab Notebook Requirements

1. In a research setting, a laboratory notebook is a legal document which is used to record what is done, how experiments are carried out, calculations, data, conclusions, and reflections. In this class we will work on developing out lab notebook keeping skills and lab results will be submitted from your lab notebook.
2. Your lab notebook needs to be bound and pages must be consecutively numbered to assure that data has not be removed. At the end of lab you will submit the yellow “copy” page. Hanging fringe paper must be removed before submitting your lab.
3. Lab entries need to be written by hand in either blue or black ink in such a way that it is legible to you and others.
4. If you make a mistake, do not attempt to erase or white-out the error. Mistaken entries are indicated by drawing a single line through the error. If there is a large portion of a page that is not used, mark it with a large X through the section.
5. For each lab period, start the next page of the lab and label that page with the lab title and your name.
6. Indicate each section of the lab for the day with a heading. Briefly describe what is being done in that section. If you are following clearly described procedures you may indicate that you followed the procedures as described in the lab handout. However, if you are performing your own experiment or deviating from the written lab procedures, you need to record these clearly in your lab so that someone could adequately follow the same procedures that you used.
7. Diagrams of organisms should be at least 3 cm in diameter and be sufficiently large so that it is clear that it represents what was observed. Be aware that your diagrams will be what you use as your study notes for the lab quizzes.
8. All observations and data needs to be collected in your lab notebook. Your notebook does not need to be perfect. Your data/observations should be recorded in your lab notebook as you work and NOT on

scrap paper. The notebook should show your thought process, if you start down a path and realize that there made a mistake, the notebook should show this thought process. The use of scrap paper will result in a point deduction from you lab.

9. Notebook entries should not include personal pronouns such as “I”, “we”, or personal names.

10. If you are using the microscope, always record the number of the microscope on the top of your lab

11. At the end of the lab you should include a “Reflection” section that highlights what was learned in the lab. You should also comment on what parts of the lab were or were not particularly interesting or helpful to your learning.