

# Introductory Biology

BIO 110.03

Winter 2019



**Number of Credits:** 4 credits

**Days Class Meets:** Mondays & Wednesdays

**Meeting Times:** Mon 1-4:20pm / Weds 1-2:23pm

**Location:** Lecture in JM 218/ Lab in JM 135

**Instructor:** Brenan Wilson, M.S.

**Office:** JM 150

**Contact Email:** WilsonBrenanM@jccmi.edu

**Office Hours:** At Request (Before or After Class)

## Course Description

Students will investigate the nature of science and critically analyze scientific data and current biological issues. Basic biological concepts including cancer, biostatistics, organic molecules and nutrition, biotechnology, nutrient cycles, and evolution cell structure and function, are presented in the context of current issues. This course is designed for non-science majors and includes a laboratory component.

## Prerequisite(s)

ENG 085 or 090, and MAT 031

## Course Focus

The main focus of this course is to improve scientific literacy. Many students fail to see the relevance of science in their lives. To address this, this course will approach science from current topics that you should be able to relate to in your life. We will need to learn some biology to understand these topics.

## Course Objectives

Students successfully completing this course should be able to:

1. Describe the nature of science and how it is a self-correcting process.
2. Understand the factors affecting global warming and other human impacts on the environment.
3. Identify cell structures and describe their functions.
4. Explain the origin of cancer cells and factors affecting their growth.
5. Understand the basic structure and function of DNA.
6. Understand the mechanisms of evolutionary change and how evolution differs from non-scientific explanations.

## General Education Outcomes

The course goals and objectives incorporate specific General Education Outcomes (GEOs) established by the JC Board of Trustees, administration, and faculty. These goals are in concert with four-year colleges and universities and reflect input from the professional communities we serve. GEOs guarantee that students achieve goals necessary for graduation credit, transferability, and professional skills needed in many certification programs. The GEOs and course objectives addressed in this class include the following:

**GEO 4—Demonstrate Scientific Reasoning** (addressed through course objectives 1-6)

## Textbook

- **Biology: The Core.** 2<sup>nd</sup> Ed. Eric J. Simon (ISBN: 978-013-415219-6)  
*Text Book Zero! This text is available for purchase in both electronic and printed formats. Both versions come with optional access to MasteringBiology.*
- **Biology 110 Lab Manual.** Must be purchased at campus bookstore.

## Grading Procedure

Your course grade will be based on your performance in the assessment categories found in the table below. The course will comprise both lecture (75%) and lab (25%) components.

Assessment Category	Points	Details
Attendance* & Passport Quizzes	120	27, each worth 5 points, drop lowest 3
Fact-Finding Missions	50	13, each worth 5 points, drop lowest 3
Group Assignments	50	10, each worth 5 points
End-of-the-Week Quizzes (online)	40	4, each worth 10 points
End-of-the-Week Position Papers	40	5, each worth 10 points, drop lowest
Lab Reports/Summary Write-Ups	100	12, each worth 10 points, drop lowest 2
Unit Learning Celebrations	300	4, each worth 100 points, drop lowest
Final Cumulative Learning Celebration	100	1, worth 100 points

**Attendance:** Attendance is critical to your success in this course. Full attendance points can only be earned if you are prompt, prepared, and present for the entire class period. 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. Arriving late to class is detrimental to your learning, and because it creates a distraction, it is also detrimental to the learning of other students. Because of this, it is essential that you arrive on time. On days that you arrive more than 3 minutes late to class, two (2) of the possible five (5) attendance points for that day will be deducted, but if you arrive more than 30 minutes late to class, four (4) of the possible five (5) points will be deducted. Leaving class early or refusing to participate will also result in the loss of two (2) attendance points for that day. \*No attendance points are awarded on days of in-class Learning Celebrations, but arriving late on these days will reduce the time you have available to work. (If you miss a class, it is your responsibility to get notes from a fellow student.)

**Passport Quizzes:** In order to be prepared for laboratory activities, you must read the assigned lab in the Laboratory Manual *prior* to attending lab. Each lab will begin with a brief, 2-question Passport Quiz that will require students to have knowledge of the assigned lab activity *prior* to attending lab. Each incorrect answer on the Passport Quiz will reduce one (1) point awarded for Attendance on that day. This means that coming to lab completely unprepared will reduce your points for Attendance on that day by a possible two (2) out of five (5) because you will fail the Passport Quiz. Because Passport Quizzes will be very brief, no more than three minutes will be given to complete each Passport Quiz. Arriving late to lab will limit the time available for you to complete your Passport Quiz.

**Learning Celebrations:** Learning Celebration formats may include multiple choice, matching, fill-in, short answer, essay, application, and problem solving; they will be 100 points each. A Final Cumulative Learning Celebration will be given on the last day of class. Your lowest Learning Celebration score for the semester will be dropped (the Final Cumulative Learning Celebration cannot be dropped). The intention of this policy is to account for a missed Learning Celebration or for a poor performance due to circumstances that are beyond your control. However, some students start to count on this dropped-lowest-Learning-Celebration policy to cover for a poor Learning Celebration score. Do not plan on this as you may experience an absence latter in the semester and no other accommodation will be given. During Learning Celebrations, electronic devices must be turned off and may not be within reach unless otherwise specified by the instructor. Violation of this will result in a zero and implementation of the academic dishonesty policy. A low score due to academic dishonesty cannot be dropped.

**Laboratory:** As a part of lab, you will be working in a group of up to four people. Lab groups will be reassigned throughout the semester and may be altered or rearranged at any time at the discretion of the instructor. It is expected that you will work together to complete the exercise. As such, you may not leave lab until all individuals in your group have completed the lab exercise. The reason for this is that lab is a group activity and cooperation is required. Prior to leaving lab, the lab needs to be clean. If the lab is in disorder, students leaving will lose points on the Lab Report for that day. Due to the fact that the laboratory rooms and equipment are not readily available, make-up laboratories will not be possible. However, the lowest 2 laboratory exercise grades will be dropped. In order to fulfill the General Education Outcomes for a laboratory science course, students must complete 11 out of the 13 laboratory exercises. Failure to do so will result in a course grade of 0.0 regardless of the grades in the rest of the course.

**Late work:** Unless special arrangements are made in advance, no credit will be given for late work. In fairness to students who complete their work on time, this policy will be strictly enforced.

**Extra Credit:** No extra credit can be given/accepted under any circumstance. Rather, time should be taken to learn the assigned material.

## Grading Scale

Final grades will be assigned based on the percentage of possible points earned as shown in the table below. The grading scale will be as followed pending further notice, and grades will be rounded to the nearest percent. Grades will be curved at the instructor's discretion and will only be applied to improve grades.

GPA	GRADE RANGE	POINTS RANGE
4.0	> 90%	720-800
3.5	85 - 89%	680-719
3.0	80 - 84%	640-679
2.5	75 - 79%	600-639
2.0	70 - 74%	560-599
1.5	65 - 69%	520-559
1.0	60 - 64%	480-519
0.5	55 - 59%	440-479
0.0	< 54%	< 439

## Course Management

**Incompletes:** In accordance with JC's Incomplete Grade policy, a student may request the grade of Incomplete if they are unable to complete the course work for some documentable unforeseen circumstance. The Incomplete will be granted if at least 50% of the assigned work in the course (including both assignments and exams) has been performed with sufficient quality (with an average grade of 2.0) and the student provides documentation of the circumstance. The student will be required to provide a detailed written schedule with due dates for making up the missing work during the following semester.

**Failure/Being Dropped from Class:** JC is required to drop students from classes if they are not participating. If you miss more than 4 lectures, 2 labs, or are not participating (not turning in assignments for example) you will be dropped from the class. 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 effects of being dropped. 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.

### **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

### **Help**

If you have special needs that I should be aware of in order to help you to best learn course material, please let me know as soon as possible. Students requiring special assistance (including those affected by the Americans with Disabilities Act) should contact the Center for Student Success in Bert Walker Hall Room 138 (517-796-8414) or visit the following website:

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

**Tutoring services:** Tutoring services are free at JC if at any point in the course you feel that you would benefit from a tutor, contact the Center.

**Accommodations:** If you need any specific accommodations, it is your responsibility to make me aware of those needs as soon as possible so that suitable arrangements may be made. In order to receive special accommodations, I will also need the necessary paperwork from Student Services. Accommodations cannot be applied retroactively.

## Student Responsibilities

Requirements beyond scheduled classes or laboratories can include clinicals, TBA sessions, field placement, special project instructions, contract learning conditions, study hours required outside class, unscheduled class meetings, attendance at concerts or other required events.

## Attendance Policy – HQV Grades

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 three non-transcripted 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

- H – The student is not doing acceptable work and needs **H**elp to be successful.
- Q – The student has not participated and the instructor believes they have unofficially withdrawn (**Q**uit). These students will be dropped/withdrawn from the class.
- V – The instructor **V**erifies that the student is participating and doing acceptable work.

## Caveat

The policies included in this document are subject to change at the instructor's discretion. Some minor revisions may be necessary during the semester due to unforeseen circumstances (e.g., weather-related school closings, instructor illness, etc.).

## Expectations & Guidelines for Success

- Attend all classes and arrive on time.
- When you have an unavoidable absence, contact the instructor for missed assignments (see the Late Work policy). Documentation may be required.
- Read the assigned chapters, either before or after lecture. This will help to reinforce the topics covered.
- Read the assigned labs from the Laboratory Manual *prior* to attending lab.
- Study class materials for at least 2 hours outside of class for each hour in class.
- Participate in class discussions.
- Participate in group study sessions; this can be the most effective form of learning for many students.
- Do not hesitate to contact the instructor about concerns you may have with the class.
- Make use of the instructor's office hours by contacting the instructor to arrange a meeting.
- Review study practices at <https://www.iccm.edu/science/how-to-study-science/>

## Other Course Policies

**Assistance:** If you need assistance in this course, I encourage scheduling a time to meet with me during office hours to discuss your study strategies or to ask questions about the material. You may also benefit from discussing strategies with your classmates or setting up group-study sessions. If you feel that you would benefit from a tutor, be aware that tutors are available free of charge. Additional information on special services may be found by contacting the front office or through the JC's Center for Student Success (517-796-8415).

**JetNet Resources:** Many course materials can be accessed through the JetNet course management system. This is the way you will be able to view your grades, announcements, screencasts, animations, etc. You are expected to use JetNet to help you track assignments and due dates.

**Email Protocol:** You must write BIO 110 in the subject line of your emails in order to ensure that you receive a timely response. If you put BIO 110 in the subject line, I will respond to your emails within 48 hours (unless I am hospitalized or I notify you ahead of time that I will be without an internet connection for a period). Though I will often respond to you much sooner, do not come to expect an immediate response. I am often unable to check my email throughout the day, so it is important that you write me as soon as possible in order for you to receive a response as soon as possible. To help us communicate effectively, please ask specific questions. I am happy to answer as many specific questions as you have, but I will not teach you by email. If you are absent, do not email me to ask what you missed; it is your responsibility to get notes from your fellow students.

**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, and being disrespectful of others. These behaviors will result in point deductions of up to 15 points and being asked to leave the class. Disrespectful or hateful behavior of any kind toward a fellow students will not be tolerated. If there are situations that I may not be aware of, please let me know so that the situation may be addressed.

**Phones in the Classroom:** Research has clearly 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 an even greater negative effect on their grade. JC has made a point of emphasizing student success. As such, **using your phone in class for personal reasons (this includes texting) is not permitted.** If you have a phone with you, it should be silenced and be left face down on your desk or put away. If you have a personal matter of such vital importance that it requires you to focus on text messages or calls, you probably should not be in class and should excuse yourself. If you access your phone in class for something other than a class activity, you will be asked to leave for 10 minutes while you take care of the matter. A refusal to leave or the third time you access your phone over the semester will result in application of the disruptive behavior policy.

**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.

## Calendar (subject to revision if necessary)

WEEK #	DATE	TOPIC	ASSESSMENTS
1	Jan 14 – Jan 18	Course Introduction	None
2	Jan 21 – Jan 25	Nature of Science	FFM 1, Quiz 1
3	Jan 28 – Feb 1	Evolution, Natural Selection	FFM 2, Position Paper 1
4	Feb 4 – Feb 8	Diversity of Life	FFM 3, <b>Learning Celebration 1</b>
5	Feb 11 – Feb 15	Population Growth	FFM 4, Position Paper 2
6	Feb 18 – Feb 22	Humanity's Impact on the Earth I	FFM 5, Quiz 2
7	Feb 25 – Mar 1	Humanity's Impact on the Earth II	FFM 6, Position Paper 3
8	Mar 4 – Mar 8	Humanity's Impact on the Earth III	FFM 7, <b>Learning Celebration 2</b>
	Mar 11 – Mar 15	MID-SEMESTER BREAK	
9	Mar 18 – Mar 22	Nutrition, Activity, Wellness	FFM 8, Position Paper 4
10	Mar 25 – Mar 29	Cell Division, Cancer	FFM 9, Quiz 3
11	Apr 1 – Apr 5	Genetics	FFM 10, <b>Learning Celebration 3</b>
12	Apr 8 – Apr 12	DNA	FFM 11, Quiz 4
13	Apr 15 – Apr 19	Reproduction I	FFM 12, Position Paper 5
14	Apr 22 – Apr 26	Reproduction II	<b>Learning Celebration 4</b>
15	Apr 29 – May 3	Course Review	<b>Final Cumulative Learning Celebration</b>

## Important Dates: Winter 2019

DATE	EVENT
Jan 4 – May 5, 2019	Semester Dates
Jan 14, 2019	Day and evening classes begin
Feb 1, 2019	In-Service Day. No classes
March 11-17, 2019	Mid-Semester Break. No classes
May 4, 2019	Commencement
May 5, 2019	End of Winter Semester
May 7, 2019	Grades Due

## Detailed Calendar (subject to revision if necessary)

<u>Date</u>	<u>Topic</u>	<u>Textbook References</u>
Jan 14-16	What can I expect from this prof and this course? What is biology? What is life? LAB: <i>Contact</i>	Chapter 1:1-2
20	<i>(Fact-Finding Mission 1)</i>	Chapter 1:3-6
21-23	Topic 1: The Nature of Science LAB: Modeling Scientific Investigation (page 1)	
25	<i>(End of the Week Quiz 1)</i>	
27	<i>(Fact-Finding Mission 2)</i>	Chapter 7:1-7; Chapter 8:8; Chapter 10:11
28-30	Topic 2: Evolution/Natural selection LAB: Evidence for Evolution (page 11), Natural selection (page 17)	
Feb 1	<i>(Position Paper 1)</i>	
3	<i>(Fact-Finding Mission 3)</i>	Chapter 3:1; Chapter 7:12
4-6	Topic 3: Diversity of Life LAB: Scientific Measurements (page 37)	Chapter 8:1-4, 7, 9; Chapter 9:1, 6; Chapter 10:1
<b>Feb 7-8</b>	<b>Learning Celebration 1 (at testing center)</b>	
10	<i>(Fact-Finding Mission 4)</i>	Chapter 12:4-6
11-13	Topic 4: Population Growth LAB: Epidemiology (page 33)	
15	<i>(Position Paper 2)</i>	
17	<i>(Fact-Finding Mission 5)</i>	Chapter 12:15, 17-19
18-20	Topic 5: Humanity's Impact on the Earth I LAB: DVD: <i>Before the Flood</i>	
22	<i>(End of the Week Quiz 2)</i>	
24	<i>(Fact-Finding Mission 6)</i>	<i>Stuff: The Secret Lives of Everyday Things</i>
25-27	Topic 6: Humanity's Impact on the Earth II LAB: My Carbon/Ecological Footprint	
Mar 1	<i>(Position Paper 2)</i>	
3	<i>(Fact-Finding Mission 7)</i>	Chapter 12:10-11
4	Topic 7: Humanity's Impact on the Earth III LAB: Graphing Data Sets (page 41)	
<b>Mar 6</b>	<b>Learning Celebration 2 (in class)</b>	
11-15	Enjoy your Mid-Semester Break	
17	<i>(Fact-Finding Mission 8)</i>	Chapter 2:7-12; Chapter 11:4-7
18-20	Topic 8: Nutrition, Activity, and Wellness LAB: Nutrition Inventory	
22	<i>(Position Paper 3)</i>	
24	<i>(Fact-Finding Mission 9)</i>	Chapter 5:1-10; Chapter 6:12
25-27	Topic 9: Cell Division and Cancer LAB: Microscopy and Pop Beads	
29	<i>(End of the Week Quiz 3)</i>	
31	<i>(Fact-Finding Mission 10)</i>	Chapter 5:11-15, 17
Apr 1-3	Topic 10: Inheritance and Genes LAB: Genetics (page 51)	
<b>Apr 4-5</b>	<b>Learning Celebration 3 (at testing center)</b>	

<u>Date</u>	<u>Topic</u>	<u>Textbook References</u>
Apr 7	( <i>Fact-Finding Mission 11</i> )	Chapter 3:5; Chapter 6:1-7; 10, 17
8-10	Topic 11: Genes and Physical Characteristics LAB: DNA Structure and Extraction (page 57)	
12	( <i>End of the Week Quiz 4</i> )	
14	( <i>Fact-Finding Mission 12</i> )	Chapter 11:16, 18
15-17	Topic 12: Reproduction I: Mating Strategies and Anatomy LAB: Experimentation- Week 1 (page 71)	
19	( <i>Position Paper 4</i> )	
21	( <i>Fact-Finding Mission 13</i> )	Chapter 11:17
22	Topic 13: Reproduction II: Childbirth and Development LAB: Experimentation- Week 2 (page 79)	
Apr 24	<b>Learning Celebration 4 (in class)</b>	
29	Course Review	
May 1	<b>Comprehensive Learning Celebration (in class)</b>	

## Typical Weekly Schedule

### (Sunday – Due by 11:50pm)

Upload Fact-Finding Mission Assignment

### Monday 1-2:23pm

Briefing

Mini-Lectures, movie clips, and/or newspaper articles, etc.

Learning Activities: Group Assignments, Small-Group Discussion, Large-Group Discussion, and/or Movie

### Monday 2:30-4:20pm

Read assigned lab from Laboratory Manual *prior* to lab.

### Wednesday 1-2:23pm

Re-briefing

Mini-Lectures, movie clips, and/or newspaper articles, etc.

Learning Activities: Group Assignments, Small-Group Discussion, Large-Group Discussion, and/or Movie

Debriefing

### (Friday – Due by 5pm)

Online End-of-the-Week Quiz or Upload End-of- the-Week Position Paper

"No one cares how much you know...once they know how much you care."

# Jackson College Biology 110 Learning Contract

As a student taking Biology 110, I understand my responsibilities as follows:

- I have read the BIO 110 syllabus (course policies, course calendar, and academic honesty policy).
- I understand and accept the policies outlined in the syllabus.
- I understand that this is a transferable college level course that transfers easily to most colleges and universities.
- I understand that this is not an “easy” or “blow-off” course.
- I understand that if I do not come to class prepared, having studied previous material, completed homework, and read from the book, that I will not be successful in this course.
- I understand that this course builds upon previous information and falling behind will make the course more challenging.
- I understand that attendance and being to class on-time are critical to my success in this course.
- I will ask questions that I have about the course material.
- I will help my fellow student understand the course material.
- I understand that if I cheat in this course, it may affect my ability to obtain certain jobs in health care or with the government for the rest of my life.
- If I need help or have special problems, I will see the instructor, or request a tutor before I fall too far behind.
- If I have a complaint about the course, I will first discuss it with the instructor as per JC policy.

Optional - Before signing this contract, I would like public / private (circle one) clarification on the items described below:

Full Name (printed) \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_