

BIO 110.04 - INTRODUCTORY BIOLOGY – FALL, 2016

LECTURE: MON 6:00 – 7:50PM AND WED 6:00 – 6:55 PM (JM 211)

LAB: WED 7:00 – 8:50 PM (JM 135)

Course Description:

Students will investigate the nature of science and critically analyze scientific data and current biological issues. Basic biological concepts including cell structure and function, molecular biology, biotechnology, nutrient cycles, and evolution are presented in the context of current issues. This course is designed for non-science majors, and includes a laboratory component. Prerequisites: ENG 085, 090, and MAT 031 or higher.

The main focus of this course is to *improve scientific literacy and thinking*. The course material provides a biological foundation of concepts and terms to understand current topics. Although this is an introductory course, “introductory” doesn’t mean “easy” -- but rather that the course does not require background knowledge in biology. Students will need to spend significant time studying to succeed – JCC’s recommendation is 2 hours per week per credit hour = 8 hours per week for this course. Students successfully completing the course should develop lifelong skills to critically evaluate scientific claims and information.

Course Objectives:

At the end of this course, you should be able to:

- Describe how scientists gather knowledge about the natural world by using observations and experiments.
- Explain how science is a self-correcting process.
- Identify cell structures and describe their functions.
- Understand how cancer cells form and multiply.
- Describe the structure and function of DNA.
- Be familiar with various biotechnology procedures and applications
- Understand the process and mechanisms of evolutionary change and how evolution differs from non-scientific explanations.
- Understand the factors affecting climate change and other human impacts on the earth.
- Design experiments which include a testable hypothesis, accurate observations/measurements, data analysis, and clear conclusions. *
- Read, analyze, present, and interpret scientific data, news&information. *

*(General Ed Outcome 4: Critical Thinking)

Instructor: Prof. Alan Gamble
Phone: 517-513-1909

Office: in class/lab room #JM211/135
e-mail: gamblealanj@jccmi.edu

Office Hours: Mon & Wed 5:20-5:55pm, Wed 8:00-8:30pm or by appointment

Required Materials:

Text: [Biology Science For Life With Physiology](#), Belk and Maier
ISBN 1-323-19264-6

Lab Packet : available at the bookstore

Course Pack: available at the bookstore – “A. Gamble sections”

Calculator: cell phones or other electronic devices may not be used during any exams or lab quizzes; a calculator will occasionally be needed during lab

Incompletes - Consistent with JC policy, Incompletes are granted with instructor permission only in situations where a student is passing the course and encounters an unusual emergency that prevents them from completing very limited coursework.

Instructor Absence/School Closing: If instructor is unable to attend class, the building secretary will be notified, email will be attempted, and a notice posted outside our room. If the college is closed due to weather, notifications are made via Nixle, e-mail, jccmi.edu, and local TV/radio stations. With the exception of these two situations, **ASSUME WE WILL HAVE CLASS.**

Plagiarism and Cheating - Be sure that homework and any assignments are your own work. Copying anyone else's work is **plagiarism**, and plagiarized work will **not be accepted**. Evidence of plagiarism or cheating on any exam, lab, lab quiz or assignment will result in a "0" score for that assignment and notification of the Academic Dean, with no possibility for dropping a quiz or exam. Please see the attached JC Academic Honesty Policy.

Extra Credit - is not given in the course. It is best to focus time and energy on completing course assignments and studying for lab quizzes and lecture exams.

Course Help and Special Needs - if you have special needs of which your professor should be aware in order to help you to best learn course material, please let him 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 123, 796-8415. Tutoring services are free at JC - if at any point in the course you feel that you would benefit from a tutor, contact Mr. Gamble and/or the CSS and we will make effort to assist.

JetNet Resources – reliable computer access is necessary for this course, as some course materials can be accessed only through the JetNet course management system. Your professor will post announcements and grades, as well as many other course materials through this system. Simply type in the URL <http://classes.jccmi.edu> or access JetNet through the JC web page by choosing "Online classes".

Grading Scale - Grades will be rounded to the nearest percent. Grades may be curved at the instructor's discretion.

<u>Percent</u>	<u>Grade</u>	<u>Percent</u>	<u>Grade</u>	<u>Percent</u>	<u>Grade</u>
90 - 100%	4.0	75 – 79 %	2.5	60 – 64 %	1.0
85 – 89 %	3.5	70 – 74 %	2.0	55 – 59 %	0.5
80 – 84 %	3.0	65 – 69 %	1.5		

Student Responsibilities:

Attendance – You are expected to do your best to attend every class. Because testing is primarily from lectures, and in-class discussion is important, missing class will negatively affect your grade. Please call, text, or email Mr. Gamble if you anticipate missing class.

Keep Up With Assignments - If you miss class, it is your responsibility to track exam, quiz, homework and discussion due dates. In class assignments cannot be made up.

Contribute to a courteous learning environment – Our class time is valuable. Please be punctual, especially on exam days, to avoid disruption to others and to be aware of class announcements. Anyone who interferes with the learning of others will be asked to leave class. This includes talking while the professor or classmates called upon are talking, texting or using cell phones or other devices during class, or being disruptive or disrespectful to others.

Study - This is a difficult course that will take significant study time outside of class. You will need to use the text and electronic resources, review notes and do study questions to prep for exams and lab quizzes.

Grading:

Lecture accounts for 75% of the overall grade, and is described here. To determine your overall course grade at any point, use the following formula: $\text{Course \%} = (\text{Lecture \%} \times 3) + (\text{Lab \%}) / 4$

Exams – There will be five exams in the course, which may include multiple choice, short answer, fill-in, problem solving, and essay. The lowest of the first four exam scores will be automatically dropped if no exams have been missed. The final exam score may not be dropped.

A missed exam for whatever reason (illness, car trouble, bad weather, etc.) will count as the dropped exam – there are no makeup exams unless prior arrangements are made. Subsequent missed exams will count as a “zero” except at the instructor's discretion, in very unusual circumstances that can be documented, like hospitalization or death in the immediate family.

Assignments - will be accepted up to one class day late, but with a 20% point reduction of possible points after the first five minutes of class time the day they are due. All assignments should be typed or *neatly* handwritten free from tattered edges. In class assignments cannot be made up. Technology failure is not an excuse for late work. Protect your work carefully, including saving often, and backing up work in more than one place.

Academic Honesty Policy

Academic honesty is expected of all students. It is the ethical behavior that includes producing their own work and not representing others' work as their own, either by plagiarism, by cheating, or by helping others to do so.

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

Plagiarism includes, but is not limited to:

- Using data, quotes, or paraphrases from other sources without adequate documentation
- Submitting others' work as your own
- Exhibiting other behaviors generally considered unethical

Cheating means obtaining answers/material from an outside source without authorization.

Cheating includes, but is not limited to:

- Plagiarizing in all forms
- Using notes/books 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

Collaboration

While JC encourages students to collaborate in study groups, work teams, and with lab partners, each student should take responsibility for accurately representing his/her own contribution.

Consequences/Procedures

A faculty member who suspects a student of academic dishonesty may penalize the student by taking appropriate action up to and including assigning a failing grade for the paper, project, report, exam or the course itself. Instructors document instances of academic dishonesty in writing to the Dean of Faculty.

Student Appeal Process

In the event of a dispute, both students and faculty should follow the Conflict Resolution Policy. The policy is presented in the Student Rights & Responsibilities section of the student handbook. The first step of this process is to set up a conference with the **instructor** to discuss the issues of concern.

Tentative Topics Schedule*: (* Schedule may be altered as necessary)

LO = Lecture Outline SG = Study Guide

<u>Approximate Date</u>	<u>Topic</u>	<u>Chapter Reading</u>
<u>Nature of Life/Science</u> 9/7	Introduction	Preface iv-xvii, Contents
9/12	What is Life? LO-1	
9/14	Nature of Science	Chap 2.1 p31-32 & 1 p2-7
9/19	How does Science work? LO-2	Chapter 1 p8-15
9/21	Statistical Significance LO-3	Chapter 1 p16-20
9/26	Standard Error and P-Values	JetNet sources
9/28	Exam 1 (SG 1-3)	
<u>Chemistry of Life and Nutrition</u> 10/3	Chemistry of Life LO-4	Chapter 2.2-2.3 p33-38
10/5	Carbohydrates LO-5	Chapter 2.4&3.1 p39, 52-53
10/10	Lipids	Chapter 2.4&3.1 p41, 54-55
10/12	Proteins LO-6	Chapter 2.4 p40, 53
10/17	Exam 2 (SG 4-5)	
<u>Characteristics and Requirements for Life</u> 10/19	Proteins	Chapter 2.4 p55-58
10/24	Nutrients & Nucleic Acids	Chapter 2.4 p42-43,
10/26	Cell Structure LO-7	Chapter 3.2-3.3 p59-69
<u>Cancer</u> 10/31	Cancer Basics LO-8	Chapter 6.1 p106-110
11/2	Exam 3 (SG 6-7)	
11/7	student presentations	
11/9	DNA Structure & Mutations	Chap 6.2&6.4 p110-12, 116-7
11/14	Cancer Treatment	Chapter 6.5 p118, 126-129
<u>Biotechnology</u> 11/16	Biotech – DNA Fingerprinting LO-9	Chapter 8 p158-175
11/21	PCR and Mitochondrial DNA	Chapter 9 p176-199
11/23	<i>Thanksgiving Break – no classes</i>	
11/28	Exam 4 (SG8-9)	
11/30	Darwin’s Dangerous Idea LO-10	Chapter 10.1-10.2 p200-208
<u>Evolution</u> 12/5	Evidences for Evolution	Chapter 10.3-10.4 p209-231
12/7	Natural Selection LO-11	Chapter 11 p232-255
12/12	Energy, Nutrients, Interrelationships LO-12	Chap 5.1-5.2 p86-92
<u>Earth Systems</u> 12/14	Climate Change	Chapter 5.5, 12.4 p99-105, 276-285
12/19	Exam V (SG 10-12)	
12/21	summary/wrap-up	

Important Dates **

09/14/16	First electronic grade entry on E-Services – check these
09/16/16	Last Day For Refund/Drop With No W
10/03/16	HQV 2 mark entered in E-Services
11/06/16	Mid term grades posted on E-Services
12/10/16	Last Day To Withdraw – consult an advisor first!
12/21/16	Our Last Day of Class – F16

** may change; accurate as if 5 September 2016; check e-services every 2 weeks

Jackson College Learning Contract – BIO 110 – Fall16

I have read the BIO 110 course information packet (course information, course calendar and academic honesty policy). I understand the information they contain. However, I would like public/private clarification (circle one) on the item(s) described below:

Why are you taking this course?

What do you expect/intend/hope to learn?

Briefly describe an instance where you reexamined your assumptions.

List 3 favorites (people, book, film, music, game, activity...)

Print Name _____ Signature _____

Cell # _____ Preferred email _____

The return of this completed sheet by 12 September is an assignment worth 3 pts.