SYLLABUS FOR BIO 110 – INTRODUCTORY BIOLOGY – WINTER 2014

LECTURE (RM 219): TUESDAY & THURSDAY 9:00 AM – 10:26 AM
LAB (RM 118): TUESDAY 10:30 AM – 12:26 PM

INSTRUCTOR:

Siri Ibarguen, Ph.D. **Email:**IbarguenSiriB@jccmi.edu

Office Hours: By appointment. I will check my email daily, so this is the best way to get in touch with me.

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. This course includes a laboratory component. Pre-requisites: English 085 or 090, and Math 098.

COURSE OBJECTIVES:

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

1) Describe how scientists gather knowledge about the natural world by using observations and experiments.
2) Explain how science is a self-correcting process.
3) Identify cell structures and describe their functions.
4) Understand how cancer cells form and multiply.
5) Describe the structure and function of DNA.
6) Be familiar with various basic biotechnology procedures and applications.
7) Understand the process and mechanisms of evolution.
8) Identify the factors that affect global warming and other human impacts on the environment.
9) Be able to design experiments that include a testable hypothesis, accurate observations and measurements, data analysis, and clear conclusions. (Associate Degree Outcome 4: Scientific Reasoning.)
10) Critically read and understand scientific information. (Associate Degree Outcome 7: Critical Thinking.)

REQUIRED MATERIALS:

1) Discover Biology, 5th Edition, Singh-Cundy & Cain
2) Laboratory Packet (available at the bookstore)
3) Calculator (you MAY NOT use cell phones or other electronic devices other than a calculator during exams or quizzes).

PLEASE NOTE:

This is a course designed to teach biology to students with little or no firm background in biology. This class will not be easy, especially given all the new vocabulary and biological concepts that will be introduced. I will require you to critically read book chapters and papers, produce clear, well written and thought-out essays and answers, and participate in class discussions. You will need to set aside ample time to study and prepare for lectures, laboratories, discussions, exams, and quizzes.

EXPECTATIONS:

- Attend all classes and arrive on time. (In-class assignments cannot be made up.)
- Read the assigned chapters and papers, preferably before the lecture.
- Study and read for at least 10 hours a week.
- Participate in class discussions.
- Do not disrupt the lecture or lab by texting; do not talk while I am talking, or distract the class in other ways.

GUIDELINES FOR SUCCESS:

- If you are late or absent for a class or lab, contact me for any take-home assignments and ask a classmate for a copy of their notes.
- Form a study group. This can be helpful for studying for exams and quizzes and working on lab assignments. This does not mean copying assignments! But it does mean discussing the material and helping each other understand difficult concepts.
- Talk to me about your concerns about the class.
- Check the class JetNet page for changes, updates, and notices.

PLAGIARISM AND CHEATING:

All homework and assignments should be your own work, so do not copy from others. Plagiarism is unacceptable. Any evidence of plagiarism or cheating will result in no points earned for an assignment, exam, or quiz and I will notify the Academic Dean. Please see the attached JCC Academic Honesty Page.

INCOMPLETES:

Incompletes are granted to students who are passing the course and have encountered unexpected emergencies making it impossible to complete this course.

INSTRUCTOR ABSENCE/SCHOOL CLOSING:

Assume that we will have class unless one of these two situations arises: (1) if I cannot attend class, I will notify the building secretary who will post a notice outside the classroom. (2) If the college is closed due to extremely bad weather, announcements will be made on local radio stations.

ACADEMIC HELP AND SPECIAL NEEDS:

Please let me know if you have any special needs that I should be aware of, so that I can help you. Students requiring special assistance (including those affected by the Americans With Disabilities Act) should contact the **Center for Student Success (CSS)** in **Bert Walker Hall, Room 123, 517-796-8415**. Tutoring services are free at JCC, so contact me or the CSS if you think you would benefit from a tutor.

JETNET RESOURCES:

Reliable computer access is necessary for this course, as some course materials may be accessed only through the JetNet course management system. I will post announcements and grades, as well as many other course materials like discussion papers through this system. JetNet can be found at http://classes.jccmi.edu or through the "JetNet Online Classes" tab on the JCC homepage at the top right side of the page.

GRADING

The lecture accounts for 75% of the overall grade and the laboratory accounts for the other 25%. Please use the Grading Scale table to keep track of your grade throughout the course, and use the Grade Point Distribution table to see how many points each assignment, exam or quiz is worth.

GRADING SCALE

Points Earned	Percent	Grade	Points Earned	Percent	Grade
1000-900	100-90	4.0	749-700	74-70	2.0
899-850	89-85	3.5	699-650	69-65	1.5
849-800	84-80	3.0	649-600	64-60	1.0
799-750	79-75	2.5	599-550	59-55	0.5

GRADE POINT DISTRIBUTION

Lecture			Laboratory		
	Max. Points	Subtotal		Max. Points	Subtotal
Exams (4 of 5)	100	400	Lab work (12)	10	120
Discussions (5)	20	100	Quiz I	30	30
Classwork (25)	5	125	Quiz II	20	20
Final Exam	125	125	Quiz III	20	20
			Quiz IV	30	30
			Quiz V	20	20
			Biostatistics assignment	10	10
Total Points		750	Total Points		250

EXAMS:

There are five exams plus a comprehensive final exam. You will have the entire class period to complete each of exam; I may spend the first 10-15 minutes answering any last minute questions before the exam. An exam may consist of multiple choice, matching, fill-in-the-blank, short answer, problem solving, and essay. Exams will include information from lecture, discussion papers, supplemental readings and chapter readings. I will drop the lowest of the first five exam scores. THE FINAL EXAM SCORE WILL NOT BE DROPPED.

DISCUSSIONS:

We will have five discussion papers. For each paper, you will need to carefully read the paper, answer discussion questions and participate in a class discussion about that paper. The answers must be TYPED and will be graded both on content and grammar. I will only accept papers that are turned in by you, in person during the class period they are due, after participating in the discussion. More detailed guidelines are attached. Even though the discussions are part of your lecture component, we will do most of them during lab, where we have a room that is more comfortable for a discussion group.

CLASSWORK:

I will provide worksheets for students to work on during class. These are to be turned in at the end of class and are worth 5 points each. These cannot be made up if you are absent.

LAB WORK AND LAB QUIZZES:

You will need to turn in your lab work at the end of each lab. Lab quizzes vary in the amount of maximum possible points because they will cover the topics of either two or three previous labs.

DISCUSSION QUESTIONS REQUIREMENTS

Good writing is a skill developed over a lifetime, and needs to be practiced in more than English classes. Discussion sessions are our opportunity to critically consider concepts that are being presented in lecture. I expect you to read the discussion articles thoroughly, typically more than once. I will give you a series of questions to answer based on the reading assignment. When answering the questions, be sure to:

1. Write complete sentences and paragraphs (*at least three sentences*) for each question. Answers of less than three sentences will lose a minimum of 1 point.

2. Include the questions in the same document with your answers. Discussion responses without the questions included *will not be accepted*.

3. Use correct grammar, spelling, punctuation and sentence structure. Use the "Spelling and Grammar" check provided in your word processing program. These common errors will cause a loss of points:

    a. Using "scientist" when you mean the plural, "scientists".
    b. Using "it's" for "its" possessive – "its' possessive does not have an apostrophe.
    c. Incorrectly using "then" (usually a reference to time or sequence) instead of "than" (used for comparison).
    d. Using the wrong form of a verb.
    e. Using apostrophes incorrectly to designate plural forms of nouns. Apostrophes are typically appropriate for contractions or to indicate possession.
    f. Using sentence fragments rather than sentences. Fragments are phrases without a clear subject and verb.
    g. Avoid using vague references like "it" or "they". Answers should stand on their own without making the reader refer back to the question.

4. Give responses in *your own words*, except for brief references to the author's actual words, where you should use quotation marks. Using the author's words rather than your own will minimally cause a loss of 1 point per response, or the paper may be returned to you as unacceptable.

5. Have your responses ready as a typed, hard copy at the beginning of class. This is the *only way* I will accept them. You must be present for a discussion to get discussion points.

6. Address all parts of the question, and support your answers with examples.

Discussion papers are worth 20 points each. If you miss a discussion assignment, you may do *one* make-up discussion that consists of answering questions from a discussion that is not part of the regular assignments – talk to me about how to access these discussion questions. You must complete the makeup discussion within one week of the date the original assignment was due.

Before the first discussion paper, I will provide you with more guidelines.

TENTATIVE SCHEDULE – CHECK JETNET FOR CHANGES & UPDATES

DATE	TOPIC	READING	LAB
1/14	(A) Introductions/What is Life?	Sections 1.2 & 1.3	Lab Safety/Scientific Measure/Graphing Data
1/16	(B) What is Science?	Pages 3 & 13, Section 1.1	
1/21	(C) Statistics	JetNet sources	Experiment I
1/23	(D) Chemistry of Life Exam 1 Review	Page 111, Sections 5.1, 5.2, 5.3	
1/28	Exam 1 (A, B, C)		Experiment II
1/30	(E) Chemistry of Life	Sections 5.4, 5.5, 5.6	
2/04	(F) Carbohydrates, Proteins	Sections 5.7 & 5.8	Quiz I Paper Discussion (1)
2/06	(G) Lipids and Your Health	Section 5.9 & pages 132, 137-138	
2/11	(H) Nucleotides and Nucleic Acids	Section 5.10	Biostatistics & Forensic Analysis
2/13	(I) Plasma Membrane Exam 2 Review	Page 143, Sections 6.1, 6.2	
2/18	Exam 2 (D, E, F, G, H)		Microscopes & Cells
2/20	(J) Prokaryotic & Eukaryotic Cells	Sections 6.3	
2/25	(K) Cell Structures – nucleus, endoplasmic reticulum, transport	Pages 152- top of 155	Quiz II Paper Discussion (2)
2/27	(L) Cell Structures – lysosomes, vacuoles, mitochondria, chloroplasts	Pages 155-158	
3/11	(M) DNA Exam 3 Review	Sections 14.1 & 14.2, Page 331	Epidemiology Genetics
3/13	Exam 3 (I, J, K, L)		
3/18	(N) Mutation	Sections 15.6 & 15.7	NOVA: Cancer Warrior
3/20	(O) Cancer Biology & Treatments	Section 11.2	
3/25	(P) Biotechnology, DNA Fingerprinting	Page 363, Sections 16.1, 16.2, 16.3	Quiz III Paper Discussion (3)
3/27	(Q) Genetic Engineering, PCR, mitochondrial DNA, Stem cells	Sections 11.1, 16.4, 16.5, 16.6, 16.7	
4/01	(R) Observations of Evolution Exam 4 Review	Section 17.4, Pages 384-385, 403-405	DNA Structure & Extraction
4/03	Exam 4 (M, N, O, P, Q)		
4/08	(S) Darwin	Section 17.1	Biotechnology & DNA Fingerprinting
4/10	(T) Mechanisms of Evolution	Section 17.2	
4/15	(U) Diversity of Life	Sections 17.3, 2.1, 2.2, 2.4	Quiz IV Paper Discussion (4)
4/17	(V) The Biosphere Exam 5 Review	Pages 468-469, 484, Section 21.1, 21.3, 21.4	
4/22	Exam 5 (R, S, T, U)		Evidences for Evolution
4/24	(W) Pollutants & Biomagnification	Section 25.1, 25.2, 25.3	
4/29	(X) Global Warming	Section 21.2, 25.4, Pages 546-547, 559-560	Evolution/Population Genetics
5/01	Final Exam Review/ Paper Discussion (5)		
	Final Exam (Comprehensive, with an emphasis on (V, W, X).		

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

CHEATING means a person obtains answers or materials 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 JCC 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 should 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 and Responsibilities section of the student handbook. The first step of this process is to set up a scheduled conference with the **instructor** to discuss the issues of concern.

JCC LEARNING CONTRACT

BIOLOGY 110, WINTER 2014

INSTRUCTOR: SIRI IBARGUEN

I have read the Bio 110 course information packet (Course Information, Grading, Discussion Questions Requirements, Tentative Schedule, and Academic Honesty Policy). I understand the information they contain. However, I would like clarification on the items I have described below:

_____
_____
_____
_____
_____
_____
_____
_____

I would like this clarification to be (check one):

____ Public ____ Private

Printed Name: _____ Signature: _____

Why are you taking this course?

_____
_____
_____

What is your major? Will you be transferring to another institution?

_____
_____
_____

Is this your first college science course? If not, what else have you taken?

_____
_____
_____

Is there anything else I should know?

_____
_____
_____

The return of this sheet is an assignment worth **two points**.