

JOHN JAY COLLEGE OF CRIMINAL JUSTICE
THE CITY UNIVERSITY OF NEW YORK

Biology 103: Fall 2012

Course Coordinator and Lecture Instructor:

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You are responsible for any and all course information, assignments, announcements, and communication that occurs through blackboard and/or your email account.

Required Texts:

Reece, et al. (©2010). *Biology* (9th ed.) New York: Pearson- Benjamin Cummings. ISBN 0321558146
John Jay College custom Biology 103 laboratory manual – available on Blackboard

Course description: Modern Biology I is the first half of an in-depth exploration of the basic properties of living systems on the molecular and cellular levels. Students will be introduced to cell structure, metabolism and respiration, photosynthesis, and genetics. Representative organisms from the prokaryotic and eukaryotic kingdoms are studied in detail. The laboratory portion of the course is designed to reinforce the concepts taught in the lecture and to teach basic laboratory skills. This course is designed for students with a science background and for Forensic Science majors. Biology 103 consists of lectures, laboratory experiments, and recitation discussions covering topics in modern biology. There are four (4) lecture exams and ALL will count, comprising 60% of the course grade. There is no dropped test in this course. The laboratory portion is worth 30% of the final grade and the recitation portion is worth 10% of the course grade.

Syllabus: Bio103, Fall 2012, John Jay College

Course Information

Learning Goals of Bio103:

- Knowledge
 - Outline some of the basic concepts of biology
 - Explain the following basic concepts in the field of modern biology: genetics, and gene regulation
- Reasoning
 - Use knowledge of genetics to solve problems regarding inheritance
- Practical skills
 - Illustrate the following laboratory skills and experimental techniques: principles of scientific measurement, identification of macromolecules, genetic crosses, and forensic DNA analysis.
 - Establish proper positive and negative controls for basic biochemical experiments
- Communication
 - Apply communication and analytical skills by writing a laboratory report and completing an oral presentation.

Statement of the College Policy on Plagiarism: Plagiarism is the presentation of someone else's ideas, words, or artistic, scientific, or technical work as one's own creation. Using the ideas or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations require citations to the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism. It is the student's responsibility to recognize the difference between statements that are common knowledge (which do not require documentation) and restatements of the ideas of others. Paraphrase, summary, and direct quotation are acceptable forms of restatement, as long as the source is cited. Students who are unsure how and when to provide documentation are advised to consult with their instructors. The Library has free guides designed to help students with problems of documentation. (JJC Undergraduate Bulletin, see Chapter IV Academic Standards). In this course, we will use www.turnitin.com for the lab reports and other assignments.

Accommodations for Students with Disabilities: Qualified students with disabilities will be provided reasonable academic accommodations if determined eligible by the Office of Accessibility Services (OAS). Prior to granting disability accommodations in this course, the instructor must receive written verification of a student's eligibility from the OAS which is located at L66 in the new building (212-237-8031). It is the student's responsibility to initiate contact with the office and to follow the established procedures for having the accommodation notice sent to the instructor.

Blackboard: Important course announcements, lecture notes, suggested homework assignments, review questions, a discussion forum for Q and A, and other resources will be posted to the course on Blackboard. Furthermore, **students are responsible** for checking their **John Jay e-mail account** regularly for important announcements. Contact DoIT, **not** your Bio instructor, for help with e-mail or Blackboard.

California Critical Thinking Skills Test: All students are required to take the California Critical Thinking Skills Test (CCTST). The exam will take 45-60 minutes. Students that complete the test properly **before September 8th** will receive a perfect score on the first recitation homework assignment, regardless of performance on the test. Those that do not complete the test properly will receive a zero on the first recitation homework assignment. The instructors of this course will not receive the individual scores of specific students, only aggregated results. The CCTST must be taken in the Math-Science Resource Center (MSRC) located in room **01.94** of the new building.

Instructions:

- 1.) Make sure that your John Jay email account is active and you have the correct password.
- 2.) Make an appointment through TutorTrac to take the exam in the MSRC:
 - A.) First, visit <http://www.jjay.cuny.edu/academics/4830.php>
 - B.) Watch the instructional video.
 - C.) Make an appointment for the CCTST (not for tutoring)
- 3.) You may take the exam between 12:05 P.M. and 2:50 P.M. Monday – Friday
- 4.) The exam will take 45-60 minutes to complete and must be completed before **September 8th**.

Important Policies

Lecture Attendance: You are required to attend the lectures. Attendance will be taken either by the use of the classroom response clickers or a sign-in sheet. More than four (4) unexcused lecture absences are considered excessive and **you will receive a grade of F**. Attendance is also required for the laboratory and recitation sections.

Grading Scale: The grade for the Bio103 course is a composite of lecture (60%), laboratory (30%), and recitation (10%). The grading scale here (→) is the official grading scale for this course. There will be no exceptions to this scale and grades will not be rounded, except as explained here. Following all computations, the grade will be rounded to the nearest tenth of a point in Microsoft Excel (one decimal place, e.g., 97.2%). This is the final grade and no further manipulations will be made. This scale (→) will then be strictly used. This means that a 72.9499% is a “C-” and a 72.9500% is a “C.” These calculations are done by the computer so there are no judgment calls or “leniency.”

93.0 and above	A
90.0 - 92.9	A-
87.0 - 89.9	B+
83.0 - 86.9	B
80.0 - 82.9	B-
77.0 - 79.9	C+
73.0 - 76.9	C
70.0 - 72.9	C-
67.0 - 69.9	D+
63.0 - 66.9	D
60.0 - 62.9	D-
below 60.0	F

Lecture Exams: There are four in-class lecture exams, the last of which, although not cumulative, will occur during finals week at the scheduled time. All exams are of equal weight (15% of the course grade each) and all will count. There is **NO AUTOMATIC DROP TEST** in this class.

If you miss an exam (or foresee that you will miss an exam) for any reason, you **MUST** contact the instructor **as soon as humanly possible**. You may be allowed to take the exam late (or early). However, you are **ONLY** eligible for this one-time consideration if you contact the instructor immediately and you arrange to take the exam **BEFORE** the corrected exams are handed back to the class. In all other cases, the missed exam **WILL** count as a ZERO. (Exception: a documented medical or personal crisis may result in being excused from an exam, but this will only be allowed **ONCE**. Further missed exams will count as a zero, regardless of reason.)

Clickers: Clickers will be used in this course and are **required** for all students. Students may choose to purchase their own clicker, or rent clickers from us, at no cost. These clickers were purchased by a grant to the college from the U.S. Department of Education and remain the property of the college. Rented clickers must be returned at the end of the semester. If a student fails to return a rented clicker at the end of the semester, or earlier, if the student withdraws from the course, s/he will be charged the full cost of the clicker and will have a stop placed on their registration until they pay this replacement fee.

Clickers will be used for in-class polling and quizzing, which will be used to establish the attendance record for each session. Polls taken near the beginning and end of class will be used to determine if students arrive late or leave early, respectively, either of which will count as a half-absence (see attendance policy).

Clickers may also be used for exams using a program built by Turning Technologies® for high-stakes testing. This program has been tested in thousands of trial runs with millions of answers submitted. Not one recording error was experienced in that testing, making the program far more accurate than standard scantron sheets. It is the student's responsibility to review his/her selected answers before final submission. Once a student submits her/his responses, the answers reported to the program through the clickers are final and cannot be challenged by the student.

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You are responsible for any and all course information, assignments, announcements, and communication that occurs through blackboard and/or your email account.

Lecture Schedule

Week	Date	DAY	LECTURE
1	Aug 28	Tues	Introduction: The Nature of Science and Biology
	Aug 30	Thurs	Chapter 02: The Chemical Context of Life
2	Sep 04	Tues	Chapter 03: Water and the Environment of Life
	Sep 06	Thurs	Chapter 04: Carbon and Molecular Diversity
3	Sep 11	Tues	Chapter 05: Biological Macromolecules
	Sep 13	Thurs	Chapter 06: Structure and Function of the Cell
4	Monday-Tuesday, September 17-18: No classes		
	Sep 20	Thurs	Chapter 06: Continued
5	Tuesday-Wednesday, September 25-26: No classes		
	Sep 27	Thurs	Chapter 07: Structure/Function of Membranes
6	Oct 02	Tuesday	EXAM #1: CHAPTERS 1-6
	Oct 04	Thurs	Chapter 08: Introduction to Metabolism
7	Oct 09	Tues	Chapter 09: Cellular Respiration
	Oct 11	Thurs	Chapter 09: Continued
8	Oct 16	Tues	Chapter 10: Photosynthesis
	Oct 18	Thurs	Chapter 11: Cellular Communication
9	Oct 23	Tues	Chapter 11: Continued
	Oct 25	Thursday	EXAM #2: CHAPTERS 7-11
10	Oct 30	Tues	Chapter 12: Cell Cycle
	Nov 01	Thurs	Chapter 13: Meiosis
11	Nov 06	Tues	Chapter 14: Mendel and the Gene
	Nov 08	Thurs	Chapter 14: Continued

**** November 09 – LAST DAY TO RESIGN WITHOUT ACADEMIC PENALTY****

12	Nov 13	Tues	Chapter 15: Chromosomes and Heredity
	Nov 15	Thurs	Chapter 16: Molecular Basis of Heredity
13	NOV 20	Tuesday	EXAM #3: CHAPTERS 11-16
	Thursday, Nov 22: NO CLASS!!! (Thanksgiving break)		
14	Nov 27	Tues	Chapter 17: From Gene to Protein
	Nov 29	Thurs	Chapter 17: Continued
15	Dec 04	Tues	Chapter 18: Regulation of Gene Expression
	Dec 06	Thurs	Chapter 18: Continued
16	Dec 11	Tues	Chapter 20: DNA technology

FINALS WEEK EXAM #4: Chapters 17-20

Session #1	Session #2:
Tues, Dec 18, 1015a-1145a	Thurs, Dec 20, 245p – 415p***

***Students that cannot attend this session must inform Dr. Lents **no later than December 10th** in order to schedule an alternate time. After December 10th, no alternate times will be accommodated.

Recitation Schedule

<u>Dates</u> (by section...)	<u>Topic Covered</u>	<u>Text book Chapters</u>		
1,3,5,7,9	2,4,6,8	10		
Aug30	Aug28	Aug31	Course Description, policies, grading, and...	
			Introduction to the chemistry of life – electrons and bonding	ch2
Sep6	Sep4	Sep7	Water: hydrogen bonding, hydrophilic/hydrophobic, pH calculations	ch3
Sep13	Sep11	Sep14	Structure/function of macromolecules, polymers/monomers	ch5
Sep20	---	Sep21	Cellular Organelles and the Endomembrane System	ch6
Sep27	Oct2	Sep28	Biological membranes, passive/active transport	ch7
Oct 02 Tuesday Lecture EXAM #1 (ch1-6)				
Oct4	Oct9	Oct5	Thermodynamics, Enzymes and Kinetics	ch8
Oct11	Oct16	Oct12	Cellular Respiration and Fermentation	ch9
Oct18	Oct23	Oct19	Cellular Signaling	ch11
OCT 25 Thursday Lecture EXAM #2 (ch6-10)				
Oct25	Oct30	Oct26	The Cell Cycle: Meiosis vs. mitosis	ch12-13
Nov1	Nov6	Nov2	Basic word problems with Mendelian genetics	ch14
** NOV 09 LAST DAY TO RESIGN WITHOUT ACADEMIC PENALTY**				
Nov8	Nov13	Nov9	More Genetics problems	ch14-15
Nov15	Nov20	Nov16	Gene expression and the genetic code	ch17
NOV 20 Tuesday Lecture EXAM #3 (ch11-16)				
Nov29	Nov27	Nov30	Gene expression control	ch18
Dec6	Dec4	Dec7	Biotechnology and Forensic DNA	ch20
---	Dec11	---	Genomes	ch21

Recitation Attendance and Participation is mandatory. Following one “freebie,” for every missed recitation class, a deduction of five (5) percentage points will be taken off of the final recitation grade. Absences may be excused only with valid written documentation. Following one warning, any student that does not actively participate in the in-class activities will be charged an absence.

Recitation Grades: The recitation section comprises 10% of the Bio103 course grade and is based primarily on homework, but may also include in-class assignments and quizzes, as explained by the instructor. Every week, students will be assigned homework through the internet portal *Mastering Biology*. Access codes are provided with the custom textbook, if bought in the John Jay Bookstore. Students that have purchased the text separately must purchase an access code through the Mastering Biology website. The homework assignments are required and will be graded. The instructor reserves the right to include in-class quizzes any time and the homework grade will be affected by attendance as described above.

Biology 103 Lab Policies

Attendance and Lateness

You are required to attend the laboratory – it is considered a necessary hands-on learning experience. More than three (3) unexcused absences are considered excessive and you **will receive a zero** for the lab part of the course. Lateness (missing first roll call or a class quiz administered at the start of a lab) is considered one-half (1/2) an absence. Missing second roll call is considered a full absence. Any quiz that is missed due to absence or lateness cannot be made up and will count as a zero. You are responsible for providing acceptable written documentation for each excused absence or lateness or it will not be excused. In the event that an absence is excused for a valid reason, the instructor will assign, collect, and grade a homework assignment to take the place of the missed quiz grade.

Lab quizzes

A quiz will be administered at the start of most labs. You are responsible for being prepared by doing the assigned pre-lab reading. Quizzes will be based on lab questions (homework) assigned in the previous lab and the assigned reading for the day's lab.

Lab homework

A few homework questions or problems will be assigned at the end of most labs. You are responsible for preparing the answers to these questions, which will help to prepare you for both next week's lab quiz, but also the midterm and the final exams. The instructor reserves the right to collect and grade these homework assignments.

Lab report

A report on genetics of the fruit fly is due by the start of lab #12. Reports will not be accepted after that date. Details will be provided at the appropriate time.

Lab notebook

A notebook is required. Everyone must use a three-ring binder with dividers for every week. No exceptions. It will be checked weekly for progress and must be handed in for a grade on the day of the midterm and again the day of the final. In this notebook, there should be found answers to all assigned lab questions, homework, detailed description of all lab procedures, your lab results (as well as the expected or "correct" results), data interpretation, conclusions, notes, etc. Your instructor will give you the details of his/her preferred format, which must be followed to receive credit.

Other

Bring the proper lab handout material to each lab. **You must bring and wear protective eyewear to each lab.** You should wear a lab coat and sensible clothing relevant for lab work. No food, drink, etc. Cell phones, iPods, mp3 players, etc. may not be used at any time.

Laboratory Schedule

Lab#	Dates			Topic Covered
	(by section...)			
	1,3,5,7,9	2,4,6,8	10	
1	Aug28	Aug30	Aug31	Course Description, policies, grading, and... Scientific Measurements and Scientific Notation
2	Sep04	Sep06	Sep07	pH and Buffers
3	Sep11	Sep13	Sep14	Organic Molecules: Carbohydrates, Lipids, Proteins
4	Oct02	Sep20	Sep21	Osmosis and Diffusion
5	Oct09	Sep27	Sep28	Enzyme Kinetics
6	Oct16	Oct04	Oct05	Energetics, Fermentation, Respiration
	Oct23	Oct11	Oct12	<u>LAB MIDTERM EXAM (Labs 1-5)</u>
7	Oct30	Oct18	Oct19	Photosynthesis
8	Nov06	Oct25	Oct26	Mating of Fruit Flies and Discussion of Mendel's Laws
9	Nov13	Nov01	Nov02	Mitosis, Meiosis, Genetics Problems, Removal of Parent Flies
10	Nov20	Nov08	Nov09	End of fruit fly experiment: Analyze Data, Chi-square Analysis
11	Nov27	Nov15	Nov16	Presentations on Genetic Diseases, discussion of lab reports
12	Dec04	Nov29	Nov30	Forensic DNA Analysis (Week #12 - <u>LAB REPORTS DUE!!</u>)
	Dec11	Dec06	Dec07	<u>LAB FINAL EXAM (Labs 6-12)</u>

Laboratory Grades: The laboratory section will comprise 30% of the course grade for Bio103. In-class quizzes will cover material from the assigned reading. Thus, the assigned reading **MUST** be done before the laboratory. Lab Grades will be based on the following required components:

The lab grade is calculated as follows:

Midterm exam	30%	
Final exam	30%	
Lab Quizzes	20%	(Lab quizzes are given at the beginning and/or end of class. Absent = zero)
Laboratory notebook	10%	
Laboratory report	<u>10%</u>	
	100%	

Strategy for Success in Biology 103

In-class

- Show-up, stay awake, LISTEN, bring the handouts
- Take careful notes, but still listen!
- Bring the text chapters to class – take notes right onto the figures

Homework

- Read the assigned reading BEFORE class! (maybe on the subway ride in?)
- Re-read your notes as soon as possible after class (that night!)
- Make notecards (flashcards) of everything in the notes
 - It is best NOT to wait until exam time to do this!
 - Take the flashcards with you everywhere you go... in the subway, on the bus, at home, in between classes, commercial breaks...
 - But even if you DO wait until the exam, still... make the flashcards!
- If you are struggling with a concept, come see me!!!

Exam Studying

- Read the notes AGAIN, then study those flashcards.
- Study the figures from the book that were used in class.
- Take the “self-quizzes” at the end of each chapter. Go find the answers.
- Use MasteringBiology and try all the activities that you can.
- Only study in groups if you stay focused the whole time.