BSC 1010 General Biology I:
The Molecular and Genetic Basis of Life
Spring 2017 (MW 9:00-10:15am)

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Office Hours:
M/W 11:00am-12:00pm
T/Th 6:30-7:30pm

Course Description: Life on Earth is in you, on you, around you. Everything that is alive (plants, whales, bacteria, you) shares a common 'language of life.' This language is the signals sent between cells and even the organelles and structures inside cells. From the slime on a green pool to your baby brother, all life is linked through the use of a shared alphabet, and here's where it gets interesting…

How does the diversity of life exist using only five letters (ATCG, and U)? How is it that the DNA in each of your cells is so long that if extended, could go to the moon and back? How does it all fit in there? How do we go from ATTCCGAGG… to a clown fish or palm tree or Lebron James? Extraordinary, isn't it?

This is the study of life via genetic, molecular and cellular mechanisms. Welcome aboard!

Course Objectives:

- Understanding the process that enables one cell to become an organism
- How genetic information stored in DNA leads to proteins, life's essential molecule
- How genetic information is transferred between generations
- How cells acquire and assimilate the energy they need to survive
- How cell signaling shapes organisms

Course Themes: Basic biological themes include structure dictates function, information flow, cellular organization (simple to more complex) and energy utilization.

Learning Outcomes:
You will be able to:

- Detail the events necessary for cellular replication
- Describe the replication, transcription and translation of DNA
- Connect inheritance to meiosis
- Explain the variety of inheritance patterns
- Compare energy flow and metabolism in animals vs. plants

- Identify the processes occurring as molecules are transported across membranes
- Predict the movement of substances across membranes
- Relate cell signaling to the growth of an organism

How does this play out?
We will be learning about genetic and molecular mechanisms and seeing how these are the basis for all levels of organization: (1) molecular/cellular; (2) tissues/organs/muscles; (3) organismal; and, (4) emergent properties. In other words, we will be looking at biology from beneath the microscope to large-scale observations (e.g., from DNA to a white whale).

Overview of the semester:
How do we explain life?

Unit (3 weeks)	**Information Flow**	**Structure/Function** (selected examples)
1: Cellular Replication	Cell to cell (growth)	Chromosomes DNA Enzymes Microtubules
2: Genetic Replication	Central Dogma (DNA → RNA → Pro …at least for the most part)	DNA tRNA Ribosomes Proteosomes
3: Sexual Replication	Parent → offspring (over generations)	Chromosomes DNA Enzymes Microtubules
4: Energy for Replication (Sexual, Genetic, Cell)	Cell to cell (Energy for growth & maintenance)	Enzymes Mitochondria Chloroplast
5: Signaling for Replication (Sexual, Genetic, Cell)	Within and between cells	Membrane Receptors Cytoskeleton Organelles

Weeks will typically have the following format:

Monday	**Wednesday**
Intro – 1st day Other days: 2 quiz-quiz Content discussion with Clicker questions, possible in-class activities	Content discussion with • Clicker questions • in-class activities 5min Reflection **-or-** Culminating activity

Textbook: Biology by Raven, Johnson, Mason and Singer, 11th edition, ISBN: 9781259188138. For buying options, pls see Syllabus part 2 in Blackboard.

iClickers: For buying options, pls see Syllabus part 2 in Blackboard.

Grade Scheme:
A: 90-100
B: 80-89
C: 70-79
D: 60-69
F: <59

How you earn your grade:
I. Exams – 60%
II. Quizzes – 10%
III. iClicker – 10%
IV. PLTL – 10%
V. Class Activities & Homework – 10%

Exams (100pts each, 60% of total grade): All exams will focus on the unit they pertain to, but will also contain several concept integrating questions to ensure that important themes are being learned and carried throughout the semester. Exams will be multiple choice and will be thoughtful, clear and challenging, not tricky. If you come to class, participate in the activities, study on your own and with your new friends, you will ace this course and leave being able to think like a biologist!

Exams will be a 2 test-test format; the 1st exam is taken individually (70% of the grade) and the 2nd exam (30% of the grade) is done in groups. The individual exam will be taken from 6:30pm-7:30pm and the group exam will be taken from 7:35pm-8:30pm. If you arrive late, you will take your exam at 7:30pm-8:30pm in another room; this will count as 100% of your grade. You will receive a separate scantron for each exam. We encourage you to discuss the questions with your tablemates during the group exam but you are free to answer each question independently. Have confidence in your own thinking and also give your friends the space to think and answer for themselves.

During the group portion of the exam you may use 1-5x7" index card with handwritten notes. You may submit these cards with your exam for 1 extra credit point per exam. To earn this extra point, index cards will be checked for effort and potential study effectiveness.

There are a total of 5 exams, 1 every 3 weeks with the last exam being during finals week. **Exams 1-4 will take place in the evening, from 6:30pm-8:30pm,**

Exam 5 will take place during our scheduled final exam time. Exams dates are:

- Exam 1: Wed, 25 Jan
- Exam 2: Wed, 15 Feb
- Exam 3: Wed, 8 Mar
- Exam 4: Wed, 5 Apr
- Exam 5: Fri, 28 Apr, 7:30am-9:30am (during finals time)

There are no makeup exams. Given the large size of this class, it is impossible to create makeup exams and ensure the same level of difficulty as the original exam.

II. Quizzes (10pts each for 10% of total grade): The first quiz-quiz will be on Wed, 18 January (9:00am sharp), due to MLK day. After this, quizzes will be every Monday at 9:00am sharp. You will take the quiz twice, once on your own (70% of the grade), and once in groups (30% of your grade). During your group portion of the quiz, you are allowed to discuss your answers. Quizzes will have 1-2 questions from previous material, 3-4 questions on the coming week's material.

III. iClickers (10% of total grade): Starting the second week of the semester, every class will begin with 3 clicker questions and end with a final question. Clicker questions will also be interspersed throughout the class to serve as a marker, for both you and us, to see if you understand the material. This enables us to clarify misconceptions on the spot.

Each clicker question can be worth 2 pts: 1 for answering, 1 for getting it correct.

We begin using iClickers on Wednesday, 11 Jan, so that you can connect to our class and practice using the device. Official points begin accruing on Wednesday, 18 Jan.

IV. PLTL (**Peer Led Team Learning**, 10% of total grade): A weekly meeting with up to 11 of your classmates typically led by a biology major with junior or senior standing who did very well in this course. Using currently learned information, you will answer a list of questions, problems or case studies. This group setting has been created as another way to help you engage with the material but in a more intimate setting. Studies have shown that this learning environment really works.

V. Class Activities & Homework (10% of total grade): We will be engaging in some kind of class activity every day. Quizzes and iClicker questions will earn their own points, and participation in in-class activities will constitute these points. These activities may range from drawing concept maps to Venn diagrams, case studies, reflections, and more.

VERY important! We do not give busy work (we don't like to do it either). All homework assignments are meant to provide a good foundation of the material to be discussed and/or serve to incorporate the central concepts and facts learned thus far into your understanding of biology. We have thought about each assignment carefully and feel that it adds to your body of knowledge. Please do your homework thoughtfully and attentively.

Laws of the Land:

Cell phone use - there is none. No calls, no texting, nothing. If you have some kind of emergency situation talk with one of us before class. Otherwise, no excuses. Turn it off.

No computers - unless we use it during class.

Be respectful - There are 182 of us in this room. Everyone deserves (and is encouraged) to participate in our discussions. Please do not have side conversations - if you have something important to say, we would like everyone to benefit from your wisdom or question. If it is not important, save it for when you are out of class.

Academic Honesty - is of the utmost importance. This is an indicator of how you will behave as a professional, whether as a physician, dentist, scientist, preschool teacher, etc. We all value people who are honest and trustworthy. Be one.

Plagiarism - don't do it. We will check, and we are not forgiving. The University is also unforgiving. University policy states that the proper consequence for plagiarism is failure of the course. A complaint will be placed in your file and has the power to follow you. No graduate school, medical school, employer, etc., will accept an applicant who waivers on their integrity. Why should they? And by the way, if someone cheats off of your paper you are implicated as well. If you need the specifics, please read the Academic Misconduct procedures and sanctions as outlined in the *Student Handbook*.
(http://academic.fiu.edu/polman/sec2web.htm - two-forty-four)

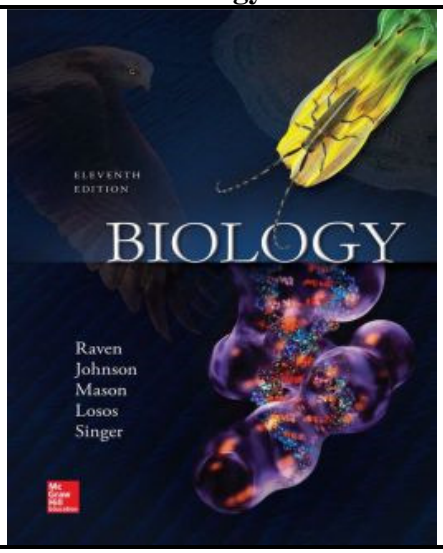
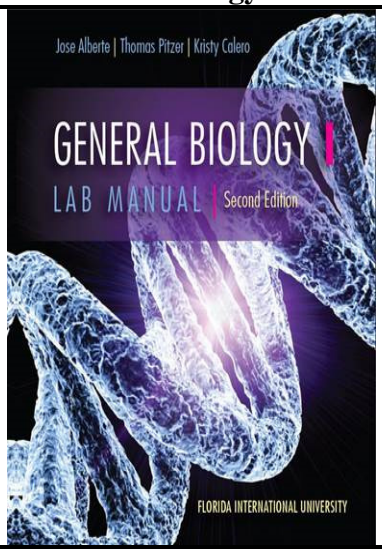
Note: if an exam falls on a religious holiday, please let us know within the first two weeks of the semester. If needed, we will change the date of the exam so that everyone can take it together.

Syllabus is subject to change

Spring 2017
General Biology I (BSC-1010)

Textbook, iClicker and General Policies

REQUIRED TEXTBOOK

General Biology I Lecture	General Biology I Lab
	
Title: Biology	**Title:** General Biology I Lab Manual
Authors: Raven, Johnson, Mason	**Authors:** Jose Alberte, Thomas Pitzer, Kristy Calero
Edition: 11th	**Edition:** 2nd
ISBN: 9781259188138	**ISBN:** 9781259158841

TEXTBOOK BUYING OPTION

McGraw Hill Website	Price	Click below to purchase packages	MMC Bookstore	Price
Package Includes: 1. General Biology I Lab (BSC-1010L) Manual 2. General Biology II Lab (BSC-1011L) Manual 3. Raven "Biology" 11th edition Textbook 4. Raven "Biology" 11th edition Ebook 5. Connect/Learn Smart ISBN for Package: 9781260057720	$167.00	**MGH Total Package** *If you need to take General Biology I and General Biology II for your major, your best option is this one because it'll be used for both courses as well as the labs that go with it.	**Package Includes:** 1. General Biology I Lab (BSC-1010L) Manual 2. General Biology II Lab (BSC-1011L) Manual 3. Raven "Biology" 11th edition textbook 4. Raven "Biology" 11th edition EBOOK 5. Connect/Learn Smart *The MMC bookstore also has textbooks for rent which are 50% off the regular price.	$238.55

Ebook with Connect & Learn Smart This gives you access to the Ebook for the entire Raven Biology 10th edition AND access to Connect/Learn Smart. You will have access for 2 years.	$76.50	1. Click on this link 2. Click "Register Now" 3. Put in your email address 4. If you need to buy an access code click on "Buy Online". 5. To buy the Ebook with Connect and Learnsmart click on the first option that's called "**Connect Plus**". 6. Click "submit". The rest is self-explanatory	General Biology I Lab Manual only	$73.35
General Biology I Lab Manual Only	$55	**GBI Lab Manual**		
Free 2-week Ebook and Connect Trial: MGH has a free 2-week trial that allows you try out the Ebook and Connect to see if you would like to purchase it. To access the free 2-week ebook follow the steps to the right.		1. Click on this link 2. Click "Register Now" 3. Put in your email address 4. Click on "Start courtesy access" 5. The rest is self-explanatory		

CLICKERS

You will need to purchase an **i-clicker2** if you want to receive **extra credit.** If you do not participate in the i-clicker questions, it will **NOT** count against you because it's used as extra credit. You can purchase the clickers at the MMC bookstore (see prices below).

MMC Bookstore i-clicker2
$60 (Buy New)
$49.20 (Buy Used)
$46.20 (Rent New)
$38.40 (Rent Used)

CLICKER POLICIES:

For every clicker question done in class, a student can receive a max of 2 points per clicker question. The student will get 1 point for participating in the question and another point for getting the answer correct. A total of 10% of your final grade will come from these points.

Students will **NOT** be allowed to use the i-clickerGO which is used through smartphones/ipads/laptops because some of the lecture rooms we use do not have wi-fi and therefore the i-clickerGO will not work.

Students can use the iclicker1 but keep in mind that two of the differences is that it won't show you how much battery life you have left on the clicker and it won't show you on the LCD screen a check mark once you submit your answer to know that it went through.

****If a student is caught with more than 1 clicker in their hand, the instructor will confiscate both clickers, take a picture of the clicker ID numbers, return the clickers to the students and let them know that neither one of them will be receiving any credit at all for the clickers.**

**It is the student's responsibility to check their clicker points online within a week of us posting it on Blackboard. We do this so that they can make sure that their clicker is logging in their answers. This allows the instructor to fix any small technical issues. After that one week, there's nothing that the instructor can do if their clicker wasn't logging in points.

GENERAL POLICIES

Labs: We do NOT give over rides into lab. If you are trying to get into lab and they are full, just keep checking my.fiu.edu to see if anyone drops so that you can take their spot. ***PLEASE NOTE: LABS WILL MEET THE FIRST WEEK OF CLASSES. PLEASE PURCHASE YOUR LAB COAT AND SAFETY GOGGLES (OR SAFETY GLASSES); AND BE PREPARED TO PERFORM A LAB THE FIRST WEEK.***

E-mail: Roberto can answer just about any question you may have about the course. So you can e-mail him at genbio@fiu.edu and he will get back to you as soon as he can. Keep in mind that Roberto handles about 1,500 students per semester so if he doesn't respond to you right away give him about 24-72 hours (**not** including weekends) for a response. Sometimes he does read e-mails throughout the weekend but not always. Make sure to read the e-mails that he sends to everyone **thoroughly** because he addresses things that might answer your questions. If you ask a question that Roberto or the professor answers in a mass e-mail, we will not specifically address your e-mail, so make sure you read ALL e-mails!!! Also, use the discussion boards to ask questions that you think may have been covered or if you don't feel you're getting adequate responses from us--students will often answer questions for you faster than we will. If you have questions about the actual material that is being taught in the class, it's best to e-mail/talk to the professor of the class because they know exactly what details you are supposed to be learning. Please don't bother the professors with questions that Roberto could answer for you. Also, look at the FAQs page as a lot of questions are answered there.

Disability Students: If you are registered with the Disability Center at FIU make sure to provide Roberto with a copy of the document at the **beginning** of the semester so that he can accommodate you with whatever your needs are for the class.

Religious Holidays: Students must notify us **within the first 2 weeks of the semester** if there is a conflict with their religious holiday and an exam date so that we can make accommodations from the very beginning.