Biology 155 – Applications and Communications in the Biological Sciences
Course Syllabus
Spring 2011

Faculty Information: Dr. Nitya Jacob, *Office*: Room 104, Pierce Hall; *Phone*: 770-784-8346
Office Hours: Tuesday: 10-11 AM; Friday: 10:30-11:30 AM or by appointment
Email: Learnlink or njacob@emory.edu

Lecture: MWF 12:50-1:40 PM, Room 102, Pierce Hall
Laboratory: Wednesday, 2:00-5:00 PM, Room 123, Pierce Hall

Required Books:
1) Life As It Is: Biology for the Public Sphere by William Loomis. 2008. University of California Press, Berkeley.

2) *The Immortal Life of Henrietta Lacks* by Rebecca Skloot. 2010. Crown Publishers, New York.

Readings: Specific pages from the required books will be assigned periodically (see schedule). In addition to the required books, other readings will be assigned to you along the way this semester. Electronic or printed copies of these readings will be provided on the course Blackboard site (classes.emory.edu) according to the schedule of topics for the course.

Laboratory Readings: There is no published laboratory manual for this course. The laboratory exercises for each week will be posted on Blackboard. You are required to print a copy and read the exercise prior to the lab period each week. Please organize your lab exercises in a 3-ring binder as you will need these to study for lab exams.

Course Objectives: The purpose of this course is to introduce you to the world of biology, particularly topics that are particularly relevant to human life and society such as living organisms, genetics, human health, evolution, and the environment. The course will examine the scientific principles behind these topics. We will also examine and critique the various forms in which these topics are conveyed to the public such as scientific papers, newspaper or magazine articles, books, documentaries, radio programs and popular culture. To develop a better understanding of how scientific information can be accurately communicated, you will also learn to write or communicate in a variety of ways. In the laboratory you will gain hands-on experience with actual types of experiments that are conducted in the areas of biology that we will cover this semester. This course fulfills the general education requirement for a laboratory science (SNT with lab) and the sophomore writing requirement. This course does not fulfill any requirements towards biology or other science major.

This syllabus, particularly the schedule, may be changed at any time with some advanced notice. You will be notified of any changes in the classroom, through email, or through the Blackboard site. It is your responsibility to pay close attention to any changes. All assigned readings (from books or additional materials on Blackboard) must be completed PRIOR to the day of the class that uses that reading.

Biology 155 – Lecture and Laboratory Schedule Spring 2011

Date	**Topic**	**Assigned Reading**
W, Jan 12	Science, Biology, and The World	
F, Jan 14	Thinking scientifically	
M, Jan 17	*Martin Luther King Day – no class*	
W, Jan 19	Science and Life	Loomis: Preface and pp. 1-26
W, Jan 19	*Laboratory 1 - Thinking Scientifically I*	*See Blackboard Posting*
F, Jan 21	Living organisms	Loomis: pp. 1-26 Angier: pp. 1-46 (Blackboard)
M, Jan 24	Composition of living organisms	
W, Jan 26	Genes and proteins Assignment due: summary of a scientific paper	
W, Jan 26	*Laboratory 2 – Thinking Scientifically II*	*See Blackboard Posting*
F, Jan 28	Genes, proteins and the whole organism	Loomis: pp. 81-102
M, Jan 31	The conundrum of the human genome	Loomis: pp. 81-102
W, Feb 2	Film: The Human Genome	
W, Feb 2	*Laboratory 3 – The human genome I*	*See Blackboard Posting*
F, Feb 4	The human genome Assignment due: scientific paper draft (labs 1 and 2)	Loomis: pp. 81-102
M, Feb 7	Medicine and the personalized genome	*Supplemental Reading (Blackboard)*
W, Feb 9	Genetics and human disease	
W, Feb 9	*Laboratory 4 – The human genome II*	*See Blackboard Posting*
F, Feb 11	**EXAM 1 (covers topics from Jan 19-Feb 9)**	
M, Feb 14	Genetic technology and improving life	Loomis: pp. 51-79
W, Feb 16	Genetic technology and medicine	
W, Feb 16	*Laboratory 5 – Genetic engineering*	*See Blackboard Posting*
F, Feb 18	Discussion – Henrietta Lacks Part I Assignment due: Questions and Reflections	Skloot: pp. 1-86

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Date	Topic	Assigned Reading
M, Feb 21	How organisms develop	Loomis: pp. 27-49
W, Feb 23	Stem cells	Loomis: pp. 27-49
W. Feb 23	**Laboratory Exam 1 (covers Labs 1-5)**	
F, Feb 25	Stem cells	Loomis: pp. 27-49
M, Feb 28	Gene Therapy	Loomis: pp. 53-59
W, Mar 2	Gene Therapy	*Supplemental Reading (Blackboard)*
W, Mar 2	*Laboratory 6 – Field trip: Gene therapy lab* (Pre-laboratory assignment due)	*See Blackboard Posting*
F, Mar 4	Human health and industry Assignment due: scientific paper final version (labs 1 and 2)	
M, Mar 7 – F, Mar 11	***Spring Break***	
M, Mar 14	Human health and industry Assignment due: news article	*Supplemental Reading (Blackboard)*
W, Mar 16	Discussion – Henrietta Lacks Part II	Skloot: pp. 89-176
W, Mar 16	*Laboratory 7 – Cells, Cell culture, and HeLa*	*See Blackboard Posting*
F, Mar 18	Discussion – Henrietta Lacks Part II Assignment due: Questions and Reflections	Skloot: pp. 89-176
M, Mar 21	The diversity of life Due: Presenter teams and topic	
W, Mar 23	The diversity of life	
W, Mar 23	*Laboratory 8 - Biodiversity of organisms I*	*See Blackboard Posting*
F, Mar 25	**EXAM 2 (covers topics from Feb 14-Mar 18)**	
M, Mar 28	Understanding Evolution	Loomis: pp. 181-205
W, Mar 30	Evolution and Evidence	
W, Mar 30	*Laboratory 9 – Biodiversity of organisms II*	*See Blackboard Posting*
F, Apr 1	Discussion – science and religion Assignment due: Presentation topic and preliminary bibliography	*Supplemental Reading (Blackboard)*
M, Apr 4	The Importance of Conservation	
W, Apr 6	The Importance of Conservation	*Supplemental Reading (Blackboard)*
W, Apr 6	**Laboratory Exam 2 (covers labs 6-9)**	
F, Apr 8	Pharmacology: Types of drugs, approval, testing	

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Date	Topic	Assigned Reading
M, Apr 11	Pharmacology: Drug side effects, dependence	
W, Apr 13	Student Oral Presentations	
W, Apr 13	*Laboratory* - Student Oral Presentations	
F, Apr 15	Discussion	
M, Apr 18	Discussion – Henrietta Lacks Part III	Skloot: pp. 179-310
	Assignment due: Questions and Reflections	
M, Apr 18	***Evening lecture by Nathaniel Comfort, Genetics Historian from the Johns Hopkins University School of Medicine; 7 p.m. in Williams Hall***	
W, Apr 20	Atlanta Botanical Gardens	
W, Apr 20	*Laboratory 10 – Field Trip: Atlanta Botanical Gardens*	
F, Apr 22	Discussion – Henrietta Lacks Part III	Skloot: pp. 179-310
M, Apr 25	Science and the importance of communication	

****FINAL EXAMINATION** Thursday, April 28, 9:00AM-12:00PM**

GUIDE TO BIOLOGY 155

Please read this syllabus carefully and please be sure that you understand it very well. Continue to refer to it regularly through the semester. I will expect that you have read it thoroughly.

Expectations/ Tips for Success:

- **Take good notes in class!** This is one of the **most important** tips for success. There is no standard textbook for this course and you will be tested on the material explained to you in class. Taking detailed, organized notes is the key to your learning process and for a successful performance in this course. Fundamental scientific knowledge that you are expected to know on tests will be covered in class and may not be in your readings.
- **Attend class regularly!** There is a firm **attendance policy** for this course. Only 4 unexcused absences are permitted after which a penalty applies. There are no unexcused absences in the laboratory – a point penalty applies on the first absence and the second absence can lead to **failure** of the course. Read the attendance policy carefully for all details.
- **Be fully engaged and participate.** Be fully alert in the classroom and be ready to participate. Your valuable intellectual contributions in discussions and your attentiveness to the material covered in class are very important to your success.
- **Complete all readings regularly.** You must complete the readings PRIOR to the class and laboratory period. Take good notes from your readings and be ready to contribute your knowledge or questions in the classroom.
- **Complete all assignments on time!** There are two lecture exams, two laboratory exams, readings, multiple writing assignments, and a presentation. Prepare a time table of deadlines and assignments and be well organized. Instructions for assignments will be posted on Blackboard.
- **Communicate clearly.** Please communicate with me clearly about any questions, problems or issues regarding this course. I can be more understanding of difficulties if your communication is clear and in advance.

Blackboard Site: There is a Blackboard site for this course. Please go to classes.emory.edu for access. Check the site regularly for readings, assignment instructions, and other messages.

Attendance Policy: The Biology department has a firm absence policy – please see the attached handout. Absences can result in a grade penalty or failure so please be fully aware of the policy.

Laboratory. This is a laboratory course and therefore the laboratory is a critical part of the course. There is no published lab manual for this course. A laboratory exercise will

be available a week in advance on the Blackboard site. Please print out the laboratory exercises, read them PRIOR to the laboratory period, and store your exercises in a 3-ring binder. You will be tested on this information in the laboratory exams. You are expected to read each exercise thoroughly and be fully prepared for each lab. Your attendance in laboratory is **REQUIRED**; absences can lead to failure of the course (see absence policy). There are certain **safety guidelines** to follow in the laboratory – please refer to the sheet attached at the end of the syllabus BEFORE you come to the lab.

Honor Code: All of your work in this course comes under the regulations of the Honor Code. Please follow the Honor Code and include your signature on your work as your pledge. Plagiarism is a serious academic offense.

Writing Assignments: This is a writing course and there are multiple writing assignments. Please consult the syllabus for the date when each assignment is due. Specific guidelines will be posted on Blackboard under the "Assignments" tab.

Oral Presentation: An oral presentation is part of your evaluation in this course. You need to choose a presentation partner from the class early in the semester. This semester, the topic of presentations will be "biology in art". Together with your partner, you need to pick an example of how biology is represented in art form (visual or performing arts). You and your partner will have to research the example and give a 10-12 minute presentation in class on the scheduled day. You will be expected to use Powerpoint slides for your presentation. You will receive further guidance on this project early in the semester.

Cell Phones: The use of cell phones is strictly prohibited in the classroom and the laboratory. Please turn off your phone before you come to class and leave your phone at the front of the room during exams. Photography and using calculators on phones is also prohibited.

Personal Computer: If you would like to take notes on your personal laptop in class you must seek special permission from the instructor. Use of laptops for surfing the web, Facebook, Skype or other networking/chat during class is **completely unacceptable.**

Evaluation: Please remember that grades are earned and not given! Please pay careful attention to the evaluation criteria for this course on page 7. Your final grade is determined by the total number of points that you earn through the course of the semester.

Extra credit. We have the special opportunity this semester to have on campus Dr. Nathaniel Comfort, a Genetics Historian from the Johns Hopkins University School of Medicine. Dr. Comfort will give a Lyceum Lecture on April 18 at 7pm in Williams Hall. You will be awarded extra credit for attending this lecture and writing a response.

Evaluation Points:

Lecture exams (2)	200 points
Laboratory exams (2)	100 points
Final exam	150 points
Scientific paper summary	10 points
Scientific paper	20 points
News article	20 points
Presentation topic and bibliography	10 points
Henrietta Lacks Discussions	30 points
Other discussions	10 points
Oral presentation and product	25 points
General class participation/engagement	10 points

Total points: 585 points

Final grade determination *(Plus and minus final grades are given)*

90 - 100%	A
80 – 89%	B
70 – 79%	C
60 – 69%	D
<60	F