Biology 155Q – Applications and Communications in the Biological Sciences
Course Syllabus
Spring 2012

Faculty Information: Dr. Nitya Jacob, *Office*: Room 104, Pierce Hall; *Phone*: 770-784-8346
Office Hours: Tuesday: 1:30-2:30 pm; Friday: 9:30-10:30 AM or by appointment
Email: Learnlink or njacob@emory.edu

Lecture: MWF 12:50-1:40 PM, Room 101, Pierce Hall
Laboratory: Monday, 2:00-5:00 PM, Room 119, 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 are also assigned to you along the way. Electronic 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 through applied topics such as living organisms, genetics, human health, evolution, and the environment which are particularly relevant to human life and society. The scientific foundations of these topics will be closely studied. These topics are conveyed to the public by various means - scientific research papers, newspaper or magazine articles, books, documentaries, radio programs and popular culture. We will examine and critique these sources of communication. In addition, you will also learn to write or communicate scientific information yourself using more than one method. In the laboratory you will gain hands-on experience with 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), the continuing writing requirement (WRT), and Ways of Inquiry (INQ). This course does not fulfill any requirements towards biology or other science majors but covers information that is very useful for students majoring in the sciences.

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 2012

Date	**Topic**	**Assigned Reading**
W, Jan 18	Science, Biology, and The World	
F, Jan 20	Thinking scientifically	Angier: pp. 1-46 (Blackboard)
M, Jan 23	Science and Life	Loomis: Preface and pp. 1-25
M, Jan 23	*Laboratory 1 - Thinking Scientifically I*	*Blackboard Reading*
W, Jan 25	Living organisms	Loomis: pp. 1-25
F, Jan 27	Composition of living organisms Assignment due: short essay on science	
M, Jan 30	Genes and proteins Assignment due: summary of a scientific research paper	Loomis: pp. 81-101
M, Jan 30	*Laboratory 2 – Thinking Scientifically II*	*Blackboard Reading*
W, Feb 1	Genes, proteins and the whole organism	Loomis: pp. 81-101
F, Feb 3	Scientific literature research	
M, Feb 6	Film: The Human Genome	
M, Feb 6	*Laboratory 3 – The human genome I*	*Blackboard Reading*
W, Feb 8	The conundrum of the human genome	Loomis: pp. 81-101
F, Feb 10	The human genome Assignment due: scientific research paper draft (labs 1 and 2)	Loomis: pp. 81-101
M, Feb 13	Genetics and human disease	
M, Feb 13	*Laboratory 4 – The human genome II*	*Blackboard Reading*
W, Feb 15	Genetic technology and improving life	Loomis: pp. 51-79
F, Feb 17	**EXAM 1 (covers topics from Jan 18 - Feb 13)**	
M, Feb 20	Genetic technology and improving life	Loomis: pp. 51-79
M, Feb 20	*Laboratory 5 – Genetic engineering*	*Blackboard Reading*
W, Feb 22	Genetic engineering	
F, Feb 24	Discussion – Henrietta Lacks Part I Assignment due: Questions and Reflections	Skloot: pp. 1-86

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Date	Topic	Assigned Reading
M, Feb 27	Stem cells	Loomis: pp. 27-49
M. Feb 27	**Laboratory Exam 1 (covers Labs 1-5)**	
W, Feb 29	Stem cells	Loomis: pp. 27-49
F, Mar 2	Gene Therapy	Loomis: pp. 53-59
M, Mar 5	Gene Therapy	*Supplemental Reading (Blackboard)*
M, Mar 5	*Laboratory 6 – Field trip: research lab* (Pre-laboratory assignment due)	*Blackboard Reading*
W, Mar 7	Human health and industry	*Supplemental Reading (Blackboard)*
F, Mar 9	Personalized medicine Assignment due: scientific paper final version (labs 1 and 2)	*Supplemental Reading (Blackboard)*
M, Mar 12 – F, Mar 16	***Spring Break***	
M, Mar 19	Discussion – Henrietta Lacks Part II Assignment due: Questions and Reflections	Skloot: pp. 89-176
M, Mar 19	*Laboratory 7 – Cells, Cell culture, and HeLa*	*Blackboard Reading*
W, Mar 21	Discussion – Henrietta Lacks Part II	Skloot: pp. 89-176
F, Mar 23	The diversity of life Assignment due: news article	
M, Mar 26	The diversity of life Due: Presenter teams and topic	*Supplemental Reading (Blackboard)*
M, Mar 26	*Laboratory 8 - Biodiversity of organisms I*	*Blackboard Reading*
W, Mar 28	Understanding Evolution	Loomis: pp. 181-205
Th, Mar 29	***Oxford Studies/Lyceum lecture: Dr. Mark Frankel; 7 p.m. – Williams Hall***	
F, Mar 30	Evolution and Evidence Assignment due: Presentation topic and preliminary bibliography	Loomis: pp. 181-205
M, Apr 2	Evolution in the public eye	
M, Apr 2	*Laboratory 9 – Biodiversity of organisms II*	*Blackboard Reading*
W, Apr 4	**EXAM 2 (covers topics from Feb 14-Mar 18)**	
F, Apr 6	The Importance of Conservation	
M, Apr 9	The Importance of Conservation	*Supplemental Reading (Blackboard)*
M, Apr 9	**Laboratory Exam 2 (covers labs 6-9)**	
W, Apr 11	The Importance of Conservation	
F, Apr 13	Effective presentations	

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Date	Topic	Assigned Reading
M, Apr 16	Student Oral Presentations	
M, Apr 16	*Laboratory* - Student Oral Presentations	
W, Apr 18	Sustainable life	Loomis: pp. 207-230
F, Apr 20	Sustainable life	Loomis: pp. 207-230
M, Apr 23	Atlanta Botanical Gardens	
M, Apr 23	*Laboratory 10 – Field Trip: Atlanta Botanical Gardens*	
W, Apr 25	Discussion – Henrietta Lacks Part III	Skloot: pp. 179-310
	Assignment due: Questions and Reflections	
F, Apr 27	Discussion – Henrietta Lacks Part III	Skloot: pp. 179-310
M, Apr 30	Science and the importance of communication	
	No lab this week	

****FINAL EXAMINATION** Thursday, May 3, 7:00-10:00 PM**

GUIDE TO BIOLOGY 155Q

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.

Ways of Inquiry (INQ): Biology 155 is designated as a "Ways of Inquiry" or INQ course. In INQ courses, students "understand and question the way knowledge is sought by actively learning and practicing the discipline's approaches to inquiry" (INQ Vision Statement). In Biology 155, you will have many opportunities to engage in biological inquiry by asking questions, designing experiments, reading and writing critically, and working independently to seek knowledge.

Expectations/ Tips for Success:

- **Take good notes in class!** This is THE **most important** tip 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 and on time!** There is a FIRM **attendance policy**, including tardiness, 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 (or tardiness counting as 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.**

Special Lecture. We have the special opportunity this semester to have on campus Dr. Mark Frankel from the American Association for the Advancement of Science who will give an Oxford Studies/ Lyceum Lecture about the legal ramifications of recent advancements in neuroscience on March 29 at 7pm in Williams Hall. There is an extra credit option for attending this lecture.

College-Wide Assessment: Student work submitted as part of this course may be reviewed by Oxford College and Emory College faculty and staff for the purposes of improving instruction and enhancing Emory education.

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

Evaluation Points:

Lecture exams (2)	200 points
Laboratory exams (2)	100 points
Final exam	150 points
Science essay	10 points
Scientific paper summary	10 points
Scientific paper draft	10 points
Scientific paper	20 points
News article questions	5 points
News article	20 points
Henrietta Lacks Discussions	60 points
Class participation and discussion	10 points
Presentation topic and bibliography	5 points
Oral presentation	25 points

Total points: 625 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