

**Quantitative Biology and Bioinformatics**  
**01:447:302**  
**Course Information and Policies**

<b>Semester:</b>	Spring 2014
<b>Classroom:</b>	Nelson B125
<b>Meeting Times:</b>	Mondays and Thursdays, 10:20-1:00
<b>Course URL:</b>	<a href="https://sakai.rutgers.edu">https://sakai.rutgers.edu</a>
<b>Course Director:</b>	Dr. Tara Matisse matisse@dls.rutgers.edu 848-445-3125 Office hours: by appt. Nelson C205
<b>Teaching Assistant:</b>	Ms. Maria Qadri maria.qadri@rutgers.edu Office hours: Mon/Thurs 1-2pm Nelson B125
<b>Instructors:</b>	Dr. Marco Azaro, Dr. Linda Brzustowicz, Dr. Deanne Taylor, Dr. Vikas Nanda, Dr. Wilma Olsen

**Course Description:** Quantitative Biology and Bioinformatics is a computer-based laboratory course that introduces students to the use of computers in biological research. Instruction is given in introductory computer programming while developing applications and analyses for problems in genetics and molecular biology. Classes consist of a mixture of lecture and computer-based exercises, as well as time for students to work on assignments. The course provides the introductory skills needed to conduct basic computational research in the life sciences, including many aspects of computer programming and data analysis. This course is particularly aimed at students who plan to pursue research careers, attend graduate or medical school, or enter the biomedical/research workforce.

**Course Goals:** The Goals of Quantitative Biology and Bioinformatics reflect the learning Goals of the Department of Genetics, and include 1) knowledge specific goals: know the terms, concepts and theories in genetics; 2) integrate the material from multiple courses and research.

**Course Materials:** The computer lab has Windows 7 computers. Class materials and files should be copied after each class to a portable USB flash drive (Windows formatted) to continue working at home. No textbook is required as most of the needed material is made available during class. A useful resource to have on hand if a hard-copy book is preferred is:

**Beginning Python. By Magnus Lie Hetland 2<sup>nd</sup> edition**  
Amazon link : <http://www.amazon.com/Beginning-Python-Novice-Professional-ebook/dp/B001FA0HNY>

**Contacting the Instructors:** The best way to contact the instructors is by email. **NOTE:** we get scores of email each day. To ensure your email is noticed, **be sure to put "Quant Bio 2014"** in your email subject header. We try to respond within 24 hours M-F.

**Attendance:** Attendance is expected at all classes; in-class demos and exercises are an integral part of this class. A maximum of 2 classes can be missed without an excuse; beyond that advance notice (except in emergency) and documentation is required for a doctor's visit or

interview. Completion of all assignments is required, including any that may have been missed due to absence in class.

**Assignments, Due Dates, and Course Announcements:** You are responsible for being aware of all assignment due dates, which are included with each assignment. Changes to due dates or lecture topics are made in class and/or will be posted on the class Sakai website. There are no late submissions. Most assignments are handed in via the Sakai site, so even if a class must be missed when an assignment is due assignments can be uploaded to the Sakai site early. Advance arrangements can be made if a class must be missed when a hard-copy assignment is due. **There is no extra credit or make-up work available for this class.**

**Computer Use:** A username and password is assigned to use on the computers in the computer lab for the duration of the course. These student accounts provide individual space for class work. The lab computers are Windows computers. Work can be done outside of the computer lab, but everything used in class would need to be installed and setup to mirror the classroom environment as the computer lab accounts and installed programs are not accessible outside the computer lab. Many Rutgers lab computers have software installation restrictions, so personal computers are recommended for work done outside of the computer lab. Printing is not available during class. Some of the programs used in class will not run on Mac computers.

**Laptop Policy:** Laptop computers are welcome in class if preferred. There is wireless access to the Rutgers network from the classroom (called RUWireless-DLS). Instructors are not responsible for ensuring that class programs will run on student laptops.

**At the End of Class, Before Leaving:** Backup your entire network scratch space folder to a USB Flash Drive. Shutdown your computer *and* turn off the monitor.

**Classroom Time:** Computers are for work in Quantitative Biology and Bioinformatics. Please do not do other work, email, or web browse, etc. during class.

**Performance Expectations and Evaluation:** The course is graded on the basis of weekly assignments and the Final Exam. The Final Exam is an in-class cumulative exam that accounts for 20% of the final grade. All assignments will be turned in via the Sakai website, following instructions provided by the instructor or the TA.

Grades will be calculated based on overall course performance. The following grading scale will be used:

90% A  
87% B+  
80% B  
77% C+  
70% C

D and F grades will be determined based on the final score distribution at the end of the course.

**Academic Integrity:** *We expect the honesty and integrity of every student in this course.* Students are encouraged to interact with other students while doing assignments in class, and in some cases may be required to work with one another. However assignments that are turned in for grading must represent each student's individual work – they may not be copied from another person's work.

Scientists and doctors and all professionals must be intellectually honest. The most unforgivable thing that any scientist can do is to fake his/her data. Scientists who fabricate data lose their grants and jobs. Doctors who fake lab results or are dishonest in other ways not only lose their jobs and licenses but might also go to jail.

Plagiarism, a form of cheating, is quite easy to do. If you “cut and paste” from any source and then try to change a few words, this is still plagiarism. Never use terms unless you know the meaning of them. If I suspect plagiarism I will ask you to come in and explain your answers or writing.

The official Rutgers policy on cheating can be found here:  
**<http://academicintegrity.rutgers.edu/>**

There are at least 5 categories of violations: cheating, fabrication, plagiarism, denying others access to information or material, and facilitating Violations of Academic Integrity. Students who violate the Rutgers Integrity policies will be reported to the Office of Student Conduct. Sanctions will be determined by the Office of Student Conduct according to the procedures described in the University Policy on Academic Integrity.

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**447:302 Quantitative Biology and Bioinformatics  
Class Schedule Spring 2014**

<b>CLASS</b>	<b>DAY</b>	<b>DATE</b>	<b>TOPIC</b>	<b>INSTRUCTOR</b>
1	Th	1/23	Class Introduction/Python	Azaro/Matise/Brzustowicz
2	M	1/27	Python Instruction	Azaro/Matise/Brzustowicz
3	Th	1/30	Python Instruction	Azaro/Matise/Brzustowicz
4	M	2/3	Python Instruction	Azaro/Matise/Brzustowicz
5	Th	2/6	Python Instruction	Azaro/Matise/Brzustowicz
6	M	2/10	Python Instruction	Azaro/Matise/Brzustowicz
7	Th	2/13	Python Instruction	Azaro/Matise/Brzustowicz
8	M	2/17	Genetic Association Analysis	Matise/Brzustowicz
9	Th	2/20	Genetic Association Analysis	Matise/Brzustowicz
10	M	2/24	Genetic Association Analysis	Matise/Brzustowicz
11	Th	2/27	Genetic Association Analysis	Matise/Brzustowicz
12	M	3/3	Genetic Association Analysis	Matise/Brzustowicz
13	Th	3/6	Genetic Association Analysis	Matise/Brzustowicz
14	M	3/10	Sequence Analysis	Taylor
15	Th	3/13	Sequence Analysis	Taylor
	M	3/17	<b>SPRING BREAK</b>	
	Th	3/20	<b>SPRING BREAK</b>	
16	M	3/24	Sequence Analysis	Taylor
17	Th	3/27	Sequence Analysis	Taylor
18	M	3/31	Sequence Analysis	Taylor
19	Th	4/3	Sequence Analysis	Taylor
20	M	4/7	Sequence Analysis	Taylor
21	Th	4/10	Sequence Analysis	Taylor
22	M	4/14	Structural Biology	Nanda/Olson
23	Th	4/17	Structural Biology	Nanda/Olson
24	M	4/21	Structural Biology	Nanda/Olson
25	Th	4/24	Structural Biology	Nanda/Olson
26	M	4/28	Structural Biology	Nanda/Olson
27	Th	5/1	Structural Biology	Nanda/Olson
28	M	5/5	Review	
		12-May	<b>Final Exam 9-11 AM</b>	