

Genomes

Course Syllabus (Fall 2021)

Course number: 01:447:451

Class location: Busch Campus – PH-115

Class meeting times: Tuesday and Thursday, 1:00pm – 2:20pm

Canvas site: <https://rutgers.instructure.com/courses/134071>

Instructor: Jinchuan Xing, PhD

Office address: Life Science Building, Room 325, 145 Bevier Rd, Piscataway, NJ

Email: Jinchuan.xing@rutgers.edu – preferred way to contact Dr. Xing

Phone: 848-445-9663 – the phone should be used only for emergencies.

Office Hours – Tuesday 3:00 pm - 4:00 pm and by appointment. The office hour will be held by Zoom and the appointment will be made ONLY by email. Let me know in the email if you plan to join the office hour by computer or phone and I will send you the information for the Zoom meeting. If for some reason I cannot make my office hours, I will announce this on the **Canvas** site.

Catalog description: This course will focus on Genetics, Bioinformatics, and Evolution from a Genomics perspective. Special attention will be given to the organization and functioning of the human genome.

Prerequisites: 01:447:380 or 01:447:384

Learning objectives

After completing this course, students will be able to:

- Describe the components and structure of viral, prokaryotic, and eukaryotic genomes
- Describe the methods and principle of modern genome analysis
- Explain the basic techniques of genome sequencing and analysis
- Describe the way genomes change over time
- Apply principles of genomics to modern biological questions
- Explain the objectives and outcomes of a variety of genome projects

Materials

iClicker: Please bring to every class, this will be used for attendance and quizzes.

Optional textbook

There is no official required textbook for the class. I used two books when designing the lectures: Introduction to Genomics by Arthur M. Lesk (ISBN-10

0198754833) and Genomes by TA Brown (ISBN-10: 0815345089). Feel free to purchase them or not.

Academic integrity policy

Cheating and plagiarism will not be tolerated. In accordance with Departmental and University Policies, violations of academic integrity will immediately be referred to the dean. Violations include: cheating, fabrication, plagiarism, denying others access to information or material, and facilitating violations of academic integrity See the following website for details: [https://
http://academicintegrity.rutgers.edu/](https://http://academicintegrity.rutgers.edu/)

Class Attendance

Students are expected to attend and be punctual for all classes. Attendance will be taken at the beginning of class. However, if you are experiencing symptoms of any transmittable disease, please remain at home/dorm and not attend in-person class meetings. If you expect to miss a class, you **must** use the University absence reporting website <https://sims.rutgers.edu/ssra> to indicate the date and reason for your absence. An email is automatically sent to the course instructor.

Grading system

10% Attendance and Quiz
20% Homework (roughly 8 Assignments)
20% Midterm exam
30% Final exam (cumulative)
20% Presentation

Grading will be as follows:

90% A
85% B+
75% B
70% C+
60% C

I reserve the right to modify the grading scale downward (e.g., making the lowest A an 88%), but I will not adjust the grading scale upward. Grades below "C" will be determined based on the final score distribution at the end of the course.

Important: points will be taken off for not following instructions or not meeting deadlines!

Rules of conduct

No cell phones are allowed in class. Laptops are permitted for the purpose of taking notes but not surfing the internet or playing games. Such behavior is distracting to other students in the class. If found violating this policy, a student will no longer be allowed to bring his/her laptop to class.

Safety requirement

The University safety requirements are observed for the class. To protect the health and well-being of all members of the University community, masks must be worn by all persons on campus when in the presence of others (within six feet) and in buildings in non-private enclosed settings (e.g., common workspaces, workstations, meeting rooms, classrooms, etc.). **Masks must be worn during class meetings; any student not wearing a mask will be asked to leave.**

Masks should conform to CDC guidelines and should completely cover the nose and mouth:

<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/about-face-coverings.html>

Each day before you arrive on campus or leave your residence hall, you must complete the brief survey on the My Campus Pass symptom checker self-screening app.

What is the class like?

This course will be taught at a descriptive level targeted at Genetics and biology major undergraduates. Students are strongly encouraged to review Genetics 380 or 384, as well as Genetics 385 if they have taken it. Exams are cumulative – they will stress recent material but may test earlier material, especially if earlier concepts were difficult for the class.

Class schedule

Please see class schedule on Canvas. This schedule is tentative. It is likely to change during the course of the semester.

Rules for assessment

You are allowed, and indeed encouraged, to work in groups up to 3 on your homework. This is to encourage discussion and learning of the material. **You must write down who you have collaborated with and you must write your answers individually in your own word.** Identical answers from students are a violation of this policy. No late homeworks are allowed.

All exams are in-class. No internet access (e.g., phones), laptops, or calculators are allowed. No books or course Powerpoint slides are allowed. Students are allowed to bring one US Letter sheet of paper with hand-written notes to the exam.

There will be group presentations based on primary or secondary articles closely related to the course material chosen by the student in consultation with the professor. Group presentations will be about 15 min long and use Powerpoint. Groups will consist of multiple students and each student must present for roughly an equal amount of time. Before the presentation, you must meet with the instructor one time at office hours, during a class break, or after class, to

discuss the presentation. If you are doing research, you are encouraged to read a paper related to your research but you must relate it to the course material.

Recommendation letters

Due to the high number of requests for recommendation letters, requests will be granted only for students receiving an A in the course. Requests will not be taken until after the final course grades have been given.

Information for Student-Wellness Services:

Just In Case Web App

<http://www.ereadia.com/#cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/

<http://rhscaps.rutgers.edu/>

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 /

<http://vpva.rutgers.edu/>

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

The Office of Disability Services works with students with a documented disability to determine the eligibility of reasonable accommodations, facilitates and coordinates those accommodations when applicable, and lastly engages with the Rutgers community at large to provide and connect students to appropriate resources.

Scarlet Listeners

Sign up for information about times and locations at

tinyurl.com/SLGroupSessions or email scarlet.listeners@gmail.com

Get things off your chest in a non-judgmental, empathetic space facilitated by trained students. Sessions are held Monday-Thursday evenings during the Fall and Spring semesters.