

BISC 502B Molecular Genetics and Biochemistry

Time: Spring 2025, MW 2:00-4:00 pm

Location: RRI 301

Course Coordinator: Prof. Fabien Pinaud

Office: RRI 204A; **Phone:** (213) 740-2262; **email:** pinaud@usc.edu

Office Hours: T 1-2 PM

Description: This course is a graduate-level survey course covering the following topics: Cell biology and microscopy, Gene expression and signal transduction, Developmental Biology, Structural biology, and Population genetics. The goal of this course is to introduce graduate students to basic concepts on these topics, with particular emphasis on experimental methods and practical reasoning. The course is designed for graduate students in the Molecular and Computational Biology PhD programs. Graduate students in related fields with a suitable background in biological sciences may also be admitted at the discretion of the faculty. This course assumes familiarity with Cell and Molecular Biology principles and methods. It is not appropriate for undergraduate or non-scientists students.

Format and material: The course will be taught in a mixed format of lectures and analysis of primary scientific literature. No book is required. Resources and scientific articles will be uploaded on Blackboard (<http://blackboard.usc.edu>). Background reading in any Cell and Molecular biology, Structural biology, Microscopy or general Genetics textbooks may be helpful.

Grading: Each topic includes an exam in the form of a problem set, questions (essay or short answer) or other evaluation of the material (50 pts). The exam is submitted by the Professor lecturing the topic.
Total Grade: 250 points

Requirements: All students are expected to attend lectures. Additional material will be provided on Blackboard. Students should monitor the Blackboard site for course announcements, Zoom links and new materials.

Instructors:

Fabien Pinaud, Associate Professor pinaud@usc.edu (Course director)

Lin Chen, Professor linchen@usc.edu

John Tower, Professor jtower@usc.edu

Cornelius Gati, Assistant Professor gati@usc.edu

Matt Dean, Associate Professor matthew.dean@usc.edu

Date	Lecturer	Topic
M 13 Jan	Pinaud	Cell biology and microscopy
W 15 Jan	Pinaud	Cell biology and microscopy
M 20 Jan	HOLIDAY	
W 22 Jan	Pinaud	Cell biology and microscopy
M 27 Jan	Pinaud	Cell biology and microscopy
W 29 Jan	Pinaud	Cell biology and microscopy
M 3 Feb	Exam	Cell biology and microscopy
W 5 Feb	Tower	Germlines stem cells and aging
M 10 Feb	Tower	Germlines stem cells and aging
W 12 Feb	Tower	Germlines stem cells and aging
M 17 Feb	HOLIDAY	
W 19 Feb	Tower	Germlines stem cells and aging
M 24 Feb	Tower	Germlines stem cells and aging
W 26 Feb	Exam	Germlines stem cells and aging
M 3 Mar	Chen	Gene expression and signal transduction

W 5 Mar	Chen	Gene expression and signal transduction
M 10 Mar	Chen	Gene expression and signal transduction
W 12 Mar	Chen	Gene expression and signal transduction
M 17 Mar	Spring Break	
W 19 Mar	Spring Break	
M 24 Mar	Chen	Gene expression and signal transduction
W 26 Mar	Exam	Gene expression and signal transduction
M 31 Mar	Gati	Structural biology
W 2 Apr	Gati	Structural biology
M 7 Apr	Gati	Structural biology
W 9 Apr	Gati	Structural biology
M 14 Apr	Gati	Structural biology
W 16 Apr	Exam	Structural biology
M 21 Apr	Dean	Population genetics
W 23 Apr	Dean	Population genetics
M 28 Apr	Dean	Population genetics
W 30 Apr	Dean	Population genetics
M 5 May	Exam	Population genetics

Disclaimer: It may be necessary to make some adjustment to the syllabus during the semester.

General Policies:

Exam: Exam dates are firm. If a student misses an exam due to a true emergency (an acceptable written excuse or presentation of a doctor’s note must be provided), we MAY schedule a make-up exam, or at our discretion MAY permit the use of the average of other exams in determining the course grade. No one will be admitted to an exam after the first student has left the exam. Exams will be kept in Dr. Pinaud’s office for the required period.

Exam Regrading: Regrading of exams will be done only by the professor who wrote the questions. Regrading can only be done within one week of the day the exam is initially returned to the class, and will only be considered for exams written in ink. If you use pencil on an exam, we will accept the exam, but we will not allow regrading in the event of a dispute.

Academic Conduct: Academic integrity policies of the university will be strictly followed. Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Students are expected to familiarize themselves with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems:

Student Health Counseling Services - (213) 740-9355 – 24/7 on call:

<https://studenthealth.usc.edu/counseling/>.

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call: suicidepreventionlifeline.org .

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services - (213) 740-9355(WELL), press “0” after hours – 24/7 on call: studenthealth.usc.edu/sexual-assault.

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) (213) 740-5086 | Title IX – (213) 821-8298: equity.usc.edu, titleix.usc.edu.

Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298: usc-advocate.symplicity.com/care_report.

Avenue to report incidents of bias, hate crimes, and micro-aggressions for appropriate investigation and response.

The Office of Disability Services and Programs - (213) 740-0776: dsp.usc.edu.

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Campus Support & Intervention - (213) 821-4710: campussupport.usc.edu.

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101: diversity.usc.edu

Information on events, programs and training, the Provost’s Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call: dps.usc.edu, emergency.usc.edu.

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call: dps.usc.edu.

Non-emergency assistance or information.