

SYLLABUS

QBIO 490: Directed Research in Quantitative Biology

This course is a required course for students majoring in Quantitative Biology (<http://qbio.usc.edu>) and can only be taken by QBIO students.

Every Semester – Fall, Spring, and Summer

- Time and Location:** As agreed upon with research adviser
- Course Instructors:** Dr. Peter Calabrese (petercal@usc.edu, RRI 403F; 213-740-2434)
- Dr. Remo Rohs (rohs@usc.edu, RRI 413H; 213-740-0552)

Introduction: The Department of Biological Sciences offers a Quantitative Biology (QBIO) major to outstanding students who are already pursuing studies for the B.S. degree in Biological Sciences or who are admitted to the QBIO major. This major allows biology students to achieve a fuller background in the quantitative sciences such as computer science and statistics that are essential for modern data driven biological science.

Course Description: The QBIO major requires a research component that should be satisfied by taking QBIO 490. The QBIO curriculum committee and Department of Biological Sciences need to approve enrollment in QBIO 490 based on a project proposal submitted by the student and written agreement by the designated research adviser. QBIO 490 projects must be broadly within any the research area of the biological sciences with a quantitative component, such as computational, statistical, or modeling analysis. Any question regarding the appropriate fit of a project or its quantitative component can be directed to the instructors listed above.

Since QBIO 490 is required for graduation with a QBIO major, there is no GPA requirement for taking this course. The QBIO advisers will, however, evaluate student progress towards graduation and assess if the student is making appropriate advances towards the degree. Enrollment in QBIO 490 is recommended in the junior and senior year but can be approved by the advisers for the freshman or sophomore year. QBIO 490 can be taken as major credit towards the QBIO major.

Course objectives:

- To design and conduct an original research project.
- To develop first hand experience with research techniques discussed throughout the semester.
- To develop a knowledge of relevant research literature and to acquire this knowledge.
- To practice scientific writing and learn about the peer-review process.
- To be able to discuss the research and topic with peers.

Expectations:

- Students will develop (with guidance) a research project proposal at the beginning of the semester that will provide initiative, outline an experimental strategy, and serve as a request for funding of consumable supplies from the course budget (and possibly outside sources). The written proposal is due prior to starting the project.
- Student will present oral reports of research progress, relevant readings, and/or challenges at scheduled lab meetings.

- Students will take primary responsibility for conducting research and do so with professional attitudes and time commitments. Students will develop both a detailed written report and an oral presentation (with active feedback from the instructor and peers).
- Students will be self-motivated and work independently, approaching the instructor for guidance regularly.

Required Readings: Each student is expected to search appropriate databases (PubMed, etc.), read, and become familiar with the scientific literature relating to their research. In other words, with the help of participating faculty, the student should become an expert on the literature relevant to their research topic.

Grading: Your final letter grade in this course will be based on your final report and considers your contributions to the research project through time investment, creativity, curiosity, and commitment, rather than actual achievements as published results are not expected from such a fairly short research experience. The grade will be proposed by your research adviser and approved by the Q BIO 490 instructors following the criteria outlined below.

% of Grade	Criteria
15 %	Effort, attitude, and time invested (including lab safety/organization, attention to detail, participation in lab meetings, troubleshooting, working with other lab members, etc.)
30 %	Final written lab report (format will resemble a scientific paper)
15 %	Oral report. Note that this portion of your grade will be developed with input from peers and instructors in the audience.
15 %	Organization of lab notebook, computer files, and any other documentation that remains in the lab as your research legacy
10 %	Familiarity with relevant research literature and ability to convey this knowledge in conversations and as incorporation in written/oral reports
15 %	Evidence of original thought regarding the project

Statement for Observance of Religious Holidays: USC's policy grants students excused absences from class to observe religious holidays: <http://ori.usc.edu/life/calendar/absences/> In this case, please contact your instructor in advance to agree on alternative course requirements.

Statement for Students with Disabilities: Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

Statement on Academic Integrity: USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. *Scampus*, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: <http://www.usc.edu/student-affairs/SJACS/>.

Statement on Academic Conduct and Support Systems

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. Please familiarize yourself 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, <http://policy.usc.edu/scientific-misconduct>.

Student Counseling Services (SCS) – (213) 740-7711 – 24/7 on call

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

National Suicide Prevention Lifeline – 1 (800) 273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) – (213) 740-4900 – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. engemannshc.usc.edu/rsvp

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: sarc.usc.edu

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around issues of protected class. equity.usc.edu

Bias Assessment Response and Support

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. studentaffairs.usc.edu/bias-assessment-response-support

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations. dsp.usc.edu

Student Support and Advocacy – (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. studentaffairs.usc.edu/ssa

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. diversity.usc.edu

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible. emergency.usc.edu

USC Department of Public Safety – UPC: (213) 740-4321 – HSC: (323) 442-1000 – 24-hour emergency or to report a crime.

Provides overall safety to USC community. dps.usc.edu