Welcome to the study of the broadest, most dynamic, and (we think) most exciting of the natural sciences, the study of life itself, biology. The Department of Biological Sciences invites you to join our community of scholars as we teach, learn, and explore the living world together. Our students will gain a deep appreciation of organisms, from their smallest molecular mechanisms to their largest interactions within ecosystems. We will help you refine your skills in critical thinking, communication, and collaboration, as well as understand how biology can contribute to solving society’s problems. We also offer the opportunity to participate in the discovery of new knowledge, by working alongside our faculty members in their laboratories. Students who complete our degree programs will be well prepared for professional careers in the health sciences as well as for careers in research and education in the basic biological and biomedical fields, and in many other professions.

We look forward to meeting you.

Doug Capone, Ph.D.  
Professor and Chair

Albert Herrera, Ph.D.  
Professor and Vice Chair

The Biological Sciences Department would like to extend their gratitude and appreciation to David Lichtenstein who first conceived and put together the BISC Guide.
Learning Objectives

A. General Skills and Breadth
- Develop the ability to manage one's time, work independently, take initiative, and collaborate.
- Develop the ability to think critically, analyze, synthesize, and use information to solve problems.
- Acquire broad knowledge in the humanities, social sciences, mathematics, and physical sciences, and understand the relevance of these disciplines to the biological sciences.
- Develop the ability to communicate scientific ideas, orally and in writing.
- Develop facility in the use of computer applications and the internet.

B. Scientific and Experimental Skills
- Understand and apply the scientific method, including forming hypotheses, designing experiments to test hypotheses, and collecting, analyzing, interpreting, and reporting data.
- Develop the ability to use appropriate laboratory or field procedures, methods, and instrumentation for biological studies.

C. Biological Skills
- Develop breadth of knowledge in the biological sciences, including the fields of biochemistry, cell biology, ecology, evolution, molecular biology and genetics, and physiology.
- Acquire an appreciation for all levels of biological organization, including the molecular, cellular, organismal, and systems levels.
- Understand the processes that underlie embryonic development, cellular differentiation, and reproduction.


2. *Cell Biology*: Understand the structure and function of prokaryotic and eukaryotic cells, as whole entities and in terms of their subcellular processes.

3. *Ecology*: Understand the interactions between organisms and their environments, and the consequences of these interactions in natural populations, communities, and ecosystems.

4. *Evolution*
   - Understand evolution as the central unifying concept in the biological sciences.
   - Understand natural selection, and how it contributes to the formation of species, biodiversity, and patterns of biological evolution.
   - Appreciate the scope of biological diversity in terms of the evolutionary history of the major groups of organisms.

5. *Molecular Biology and Genetics*
   - Understand the synthesis, structure, and function of nucleic acids and proteins in prokaryotes and eukaryotes.
   - Understand the principles of inheritance from molecular mechanisms to population consequences.
   - Understand the flow of genetic information in populations and the relationship between genetics and evolutionary theory.

6. *Physiology*: Understand the functioning of organisms, at the molecular, cellular, organ, and organismal levels.

D. Ethics / Society
- Be able to place biological knowledge into an ethical context, especially how biology can contribute to the resolution of ethical, social, and environmental issues.

E. After Graduation
- Prepare students with a sufficient depth of knowledge and abilities to prepare them for entry-level employment in a wide variety of fields, or for graduate study in the health professions or other biology-related disciplines.
Philosophy of Academic Advising

Academic advising is an integral component to success in higher education by which professional advisors work collaboratively with students to help foster their intellectual and personal development toward graduation, post-graduation, and lifelong goals. The objective of academic advising is to engage students by extending learning opportunities beyond the classroom by facilitating personal reflection and by empowering students with the necessary information to make informed decisions.

Learning Outcomes for Students

**Personal Growth:** Develop effective communication skills, achieve greater autonomy, and problem-solving skills.

- Clearly articulate short and long term goals which are congruent with your values, interests, and personality
- Describe the relationship between academic goals and your personal values and goals
- Analyze problems and embrace all challenges as an opportunity for learning and growth
- Make your own decisions after gathering all the available facts and pertinent information

**Institutional Knowledge:** Awareness of programs, resources and opportunities to maximize learning.

- Identify location of major campus offices and their function within student services
- Apply for scholarships, internships, and special programs

**Co-curricular Integration:** Establishing link between current academic experiences to your future career and personal goals.

- Describe the relationship between major(s) and minor(s) and how they can assist in achieving future goals
- Define the knowledge gained from courses and identify skills and competencies developed through participation in extracurricular activities

Mandatory Advisement Hold

Advising holds help ensure that students and advisors meet periodically, typically once each semester, to monitor progress toward graduation. Students cannot enroll in courses without first meeting with their academic advisor. Mandatory advising sessions are limited to 30 minutes. Students can always meet with an advisor by scheduling an appointment or coming to the office during walk-in hours anytime throughout the year.

Important Links

**Academic Review** - usc.edu/academicreview - Academic probation, disqualification, petitions
**Articulation** - usc.edu/articulation - Reviews transfer course work from outside institutions
**Catalogue** - usc.edu/catalogue - Covers most academic policies and university programs
**Grades** - usc.edu/grades - Information about grading policies and procedures
**OASIS** - usc.edu/oasis - Grades, STARS Report, Transfer Credit Report, pre-approval for transfer course work
**Schedule of Classes** - usc.edu/soc - Course offerings, important university dates, syllabi
Partnership for Success

Advisors expect you to:

• Take ownership of your own education by taking an active role in all advisement meetings
  ▶ Come prepared with questions and documents (if applicable)
  ▶ Voice your concerns and speak up if anything is still unclear
  ▶ Be honest
  ▶ Review your own STARS Report before coming in for advisement
  ▶ Make your own decisions after being advised
• Be punctual to all appointments. If you need to cancel an appointment, do so at least 24 hours in advance.
• Regularly check your USC.EDU email account; this is the official method of communication between the university and students.
• Establish rapport with professors and teaching assistants
• Promptly schedule an appointment if you have any issues that may affect your academic success. In other words, do not procrastinate as smaller problems can potentially turn into much larger problems if not addressed in time.
• Become knowledgeable about university policies, procedures, and resources
• Conduct yourself appropriately during meetings

You can expect your advisor to:

• Assist you in creating a personalized course plan for an enriching undergraduate experience by integrating your short and long-term goals with university resources and opportunities
• Listen carefully to your questions and concerns
• Be available and accessible during office hours or email during normal business hours
• Provide accurate information of university academic policies and regulations to help you make the best informed decision
• Support you toward achieving your personal best by serving as an advocate and mentor
• Adhere to the highest standard of ethics and best practices of academic advising
• Conduct himself or herself in a professional manner

I have read the above expectations and agree to take responsibility for my role in ensuring academic success and timely progress toward graduation.

Signature

Date
Meeting With Your Advisor

Your academic advisor is available to discuss academic, career and personal issues and acts as your liaison to university resources. BISC majors communicate and meet with their advisor throughout their USC career to ensure satisfactory and timely academic progress. For the best experience, you should meet consistently with the same advisor so you can both get to know one another. Please call (213) 740-3800 to schedule an appointment.

Carolyn Ruiz
Irene Shvarts

carolycr@usc.edu
ashvarts@usc.edu

Your advisor will assist in navigating your academic career and selecting courses, and provide guidance for the various USC policies and procedures. Advisors also possess a wealth of information about campus resources, graduate school, internships and careers, student organizations, extracurricular opportunities and so on. We’re generally pretty nice people who are looking out for your best interests and are available to talk about any concerns you may have. Come prepared with questions to make the most out of advisement meetings.

USC Catalogue and Degree Requirements

You must meet the degree requirements for your major outlined in the USC Catalogue. Degree requirements fall into the following categories:

**Major** – BISC core, collateral (CHEM, MATH, PHYS) and upper-division BISC electives.

**Minor or additional major** – All course requirements for other programs of study.

**General Education** – Six courses including Western and non-Western civilization, history, culture, literature, the arts, sciences and social sciences.

**Skill Level** – Writing (WRIT140 & WRIT340), foreign language (three semesters or equivalent), and diversity (certain GE Categories I, II & VI can fulfill the diversity requirement).

**Electives** – Any course work not included in the above categories but for unit and grade credit only.

**Units** – There are many different unit requirements and limitations (overall degree, upper-division, Dornsife College, physical education, transfer, etc.).

**GPA** – Grade point average requirements including: cumulative, major(s), minor(s), university honors, etc.

All of these requirements can be quite confusing. This is why you should **meet with your advisor regularly** to ensure that you are on track toward graduation.
Choosing a Major

The BISC programs are designed for students passionate about biology and the natural sciences. Many pre-health students choose the BISC major because most of the course requirements overlap with the pre-health curriculum. Some get “bit by the research bug” and decide to enter careers in academia or science. Rigorous training in scientific methods paired with a broad liberal arts education prepares BISC majors for careers in diverse fields such as business, education, law, and technology.

If you’re unsure about pursuing the BISC major and want to explore other options, you should meet with an undecided advisor at Dornsife College Advising located in CAS 120. Walk in or schedule an appointment by calling (213) 740-2534.

Major Course Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>BA (56 units)</th>
<th>BS (72 units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BISC-120L or 121L – Organismal Biology and Evolution</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>BISC-220L or 221L – Cell Biology and Physiology</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>BISC-320L – Molecular Biology</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>BISC-330L – Biochemistry</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>BISC-325 – Genetics</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CHEM-105aL or 115aL – General Chemistry I</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CHEM-105bL or 115bL – General Chemistry II</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CHEM-322aL – Organic Chemistry I</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CHEM-322bL – Organic Chemistry II</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MATH-125 – Calculus I</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MATH-208 or BISC-305* – Statistics</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>PHYS-135aL – Physics for Life Sciences I</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>PHYS-135bL – Physics for Life Sciences II</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Upper-Division BISC Electives</td>
<td>8 units</td>
<td>20 units (8 w/ lab)</td>
</tr>
</tbody>
</table>

*Most introductory statistics courses can be substituted.

Upper-Division BISC Electives

Upper-division courses provide opportunities to explore cutting-edge, specialized topics within biology. BISC majors are required to complete upper-division BISC elective courses (8 units for BA, 20 units for BS). 300- and 400-level BISC courses meet this requirement (with the exception of the core BISC-320L, 325, 330L, and honors 493 & 494 courses). Many students opt to take BISC-490 Directed Research to fulfill part of this requirement. For more information about BISC-490, refer to the Research section on page 10.
# Bachelor of Arts

More flexibility to pursue additional major(s) or minor(s), study abroad, or graduate early  
Complete most pre-health requirements without additional science courses  
Less depth in biology course work

## Sample Course Plan

### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>BISC-120L or 121L</td>
<td>BISC-220L or 221L</td>
</tr>
<tr>
<td>CHEM-105aL or 115aL</td>
<td>CHEM-105bL or 115bL</td>
</tr>
<tr>
<td>WRIT-150</td>
<td>Foreign Language I</td>
</tr>
<tr>
<td>GE Category VI</td>
<td>Elective/2nd Major/Minor</td>
</tr>
<tr>
<td>FSEM-100 or 180</td>
<td>BISC-194</td>
</tr>
</tbody>
</table>

### Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>BISC-320L</td>
<td>BISC-330L</td>
</tr>
<tr>
<td>CHEM-322aL</td>
<td>CHEM-322bL</td>
</tr>
<tr>
<td>Foreign Language II</td>
<td>Foreign Language III</td>
</tr>
<tr>
<td>GE Category V</td>
<td>Elective/2nd Major/Minor</td>
</tr>
<tr>
<td>Elective</td>
<td>Elective</td>
</tr>
</tbody>
</table>

### Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>BISC-325</td>
<td>Upper-Division BISC Elective</td>
</tr>
<tr>
<td>MATH-125</td>
<td>PHYS-135aL</td>
</tr>
<tr>
<td>GE Category I</td>
<td>GE Category II</td>
</tr>
<tr>
<td>Elective/2nd Major/Minor</td>
<td>Elective/2nd Major/Minor</td>
</tr>
<tr>
<td>Elective</td>
<td>Honors Seminar</td>
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</tbody>
</table>

### Senior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>BISC-490 (or UD BISC Elective)</td>
<td>GE Category IV</td>
</tr>
<tr>
<td>PHYS-135bL</td>
<td>WRIT-340</td>
</tr>
<tr>
<td>Elective/2nd Major/Minor</td>
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<td>Honors Thesis</td>
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BISC major requirement
Bachelor of Science

Sample Course Plan

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<tr>
<td>BISC-320L</td>
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</table>

### Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>BISC-325</td>
<td>Upper-Division BISC Elective</td>
</tr>
<tr>
<td>PHYS-135aL</td>
<td>PHYS-135bL</td>
</tr>
<tr>
<td>GE Category I</td>
<td>WRIT-340</td>
</tr>
<tr>
<td>Elective/2nd Major/Minor</td>
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</tr>
<tr>
<td>Elective</td>
<td>Honors Seminar</td>
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</tbody>
</table>

### Senior

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<tr>
<th>Fall</th>
<th>Spring</th>
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</thead>
<tbody>
<tr>
<td>BISC-490 (or UD BISC Elective w/ lab)</td>
<td>Upper-Division BISC Elective w/ lab</td>
</tr>
<tr>
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</tr>
<tr>
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<td>Honors Thesis</td>
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</tbody>
</table>

- BISC major requirement
- "It is recommended to take MATH-125 in summer or during a semester with only one other lab science course."

+ Excellent for students interested in research or graduate education in the natural sciences
+ Greater depth and opportunities to specialize
- Less space for additional programs of study
Minors

Natural Sciences

Designed for students pursuing majors outside of the natural sciences or engineering, the Minor in Natural Sciences requires a broad array of course work in biology, chemistry and physics with elective offerings in math, earth sciences, and kinesiology. The minor also requires a 2-unit, Spring semester capstone course.

For pre-health students not majoring in the natural sciences.

Core Courses – 20 units (choose 5 of 6)
BISC-120L or 121L
BISC-220L or 221L
CHEM-105aL or 115aL
CHEM-105bL or 115bL
PHYS-135aL or 151L
PHYS-135bL or 152L

Elective Courses – 8 units
Any courses offered for major credit in the following departments: biology, chemistry, earth sciences, human biology, physics & astronomy.

Capstone Course – 2 units
BISC-321x: Multidisciplinary Seminar in Science, Technology and Society.

Computational Biology and Bioinformatics

This minor engages students to use computational, statistical and informatics tools to solve biological problems relating to the environment, health, food and energy. Addressing these urgent problems requires integrative knowledge in mathematics, statistics, computer science and biology. The Human Genome Project and new biotechnologies are generating enormous data and, as such, the new biology is becoming more data driven. Bioinformatics are in high demand in biotech companies, academia, medical centers, government agencies such as the NIH, EPA, and FDA among other emerging fields.

A total of 30 units is required for the minor.

Biological Sciences Courses – 16 units
BISC-305: Introduction to Statistics for Biologists
BISC-320L: Molecular Biology
BISC-478: Computational Genome Analysis
BISC-481: Modeling of Biomolecules and Biological Systems

Elective Courses (if needed)
Computer Science: CSCI-170, 201L, 270, 477a, 477b, 485
Mathematics: MATH225, 226, 408, 432, 458, 465, 466, 467

Mathematics Courses – 8 units
MATH-125: Calculus I
MATH-126: Calculus II

Computer Science Courses – 6 units
CSCI-103L: Introduction to Programming
CSCI-104L: Data Structure and Object Oriented Design

Marine Biology - Coming in Fall 2015

Students pursuing a minor in Marine Biology will learn about the biology, evolution and ecology of organisms that inhabit marine environments and the ecological and physical processes linking them. In addition to courses on the main campus, students can gain field experience at the USC Wrigley Marine Science Center and other off-campus experiential learning opportunities.
Biotechnology

This interdisciplinary minor combines courses in accounting, biology, business and chemistry to provide the essential scientific, analytical and corporate skills required in the rapidly growing biotechnology industry.

Well-suited for business, biology chemistry and engineering majors seeking careers in biomedical/biotechnical sciences or the administrative/business side of a biotechnology company.

**Business and Accounting Courses – 16-20 units**

*Accounting (choose 1)*
- ACCT-410x: Accounting for Non-Business Majors
- BUAD-280 & 281: Accounting I & Accounting II

*Business*
- BUAD-215x or BUAD-306: Business Finance
- FBE-403: Introduction to the Legal Environment of Business

*Elective (choose 1)*
- BUAD-304: Organization Behavior
- BUAD-307: Marketing Management

**Natural Sciences Courses – 28 units**

- BISC-220L or 221L: Cell Biology & Physiology
- BISC-320L: Molecular Biology
- BISC-330L: Biochemistry
- BISC-406L: Biotechnology
- CHEM-105aL or 115aL: General Chemistry I
- CHEM-105bL or 115bL: General Chemistry II
- CHEM-322aL: Organic Chemistry I

Craniofacial and Dental Technology

The USC School of Dentistry, Viterbi School of Engineering and Dornsife College jointly offer the Minor in Craniofacial and Dental Technology. This program is designed to prepare students to enter the dental biotechnology industry and introduce recent innovations in craniofacial science and therapeutics. Course work includes craniofacial histology, embryology, head and neck anatomy, genetics, biochemistry and biotechnology along with applications to dental diagnostics, imaging and therapies.

For more information or to declare the minor, contact Viterbi Biomedical Engineering, (213) 740-7237.

**Core Courses – 16 units**

- DENT-412: Fundamentals of Craniofacial and Dental Technology
- DHIS-310: Basic Tissues and Histology and Embryology
- BISC-320L: Molecular Biology
- BISC-325: Genetics
- BME-410: Introduction to Biomaterials and Tissue Engineering

**Electives – 6-8 units (choose 2)**

- BISC-330L, BISC-403, BISC 406L, BISC-410, BISC 435,
- BME-404, BME-416, BME-451, DENT-221, ENGR-305, HP-340L, HP-350L, MASC-310,

For details, please see catalogue:
https://catalogue.usc.edu/schools/dentistry/undergraduate/#minor-craniofacial-and-dental-tech
Progressive Masters

Progressive Masters Degrees:

Earn a Bachelor's and Master's degree in as little as 5 years, with a reduction of up to one-third of the units required for the Master's degree. Apply theoretical knowledge and basic research skills acquired as an undergraduate to practical applications of the professional world. Take your education a step further and better prepare yourself for a final degree, whether a PhD or M.D. Apply to the Graduate School without an application fee, and without the need to take the Graduate Record Examination. If you have a USC G.P.A of 3.0 or higher and will have 64-96 units completed in the near future, you are eligible to apply.

Master of Science in Marine and Environmental Biology

The Master of Science degree in Marine and Environmental Biology (MEB) is designed to provide admitted students with a rigorous, quantitative and focused introduction to the burgeoning fields and breadth of topics in marine environmental biology/chemistry, geobiology, oceanography, conservation biology and population dynamics (depending upon the concentration selected). MEB provides students with independent research experiences that satisfy their own specific interests. The program is intended to position and stimulate students for possible advanced study leading to a Ph.D. in one of the areas stated above, and/or provide a unique facet to the background of a prospective medical student. The program will also provide fundamental tools and expertise for entry into a master’s level position in academic, government or private sector research laboratories. It will prepare students interested in governmental and non-government (NGO) environmental regulatory science and forge career pathways into private sector positions in environmental consulting and business.

Details at  http://dornsife.usc.edu/bisc/progressive-masters-in-marine-and-environmental/

Master of Science in Molecular Genetics and Biochemistry

This degree option is available for a limited number of highly qualified students who want to take an extra year for an intensive graduate-level research experience with Molecular Biology faculty. Students apply at the end of their junior year, generally after at least 1 semester of research in their proposed mentor's laboratory. Application consists of a 2 page research proposal, letter of support from the mentor, and transcript, which will be reviewed by the Master’s committee for admission. Admission is not guaranteed. Students who are accepted will take the graduate core course in Molecular Biology (502a/b) as well as a literature seminar and relevant electives, but a substantial part of the credit will be graduate-level research. Students will be reviewed during their senior year to ensure progress. All MS students must complete a summative paper at the end of their Master’s year to be approved by their mentor and one member of the Master's committee.
Getting Involved
http://dornsife.usc.edu/bisc/research/

Laboratory and field research can help students develop and refine their scientific inquiry and technical skills. Participation in research can be intellectually and personally illuminating, and is requisite for students pursuing graduate education in the natural sciences. There are several ways to get involved: volunteering, part-time work, or for course credit (BISC-490, Directed Research). Ambitious students often aspire to dive into research during their freshman year. However, many professors prefer students with science courses and college experience under their belt, as participation requires basic science knowledge and can be a significant time commitment.

Conduct outstanding original research, become a Discovery Scholar and earn the chance to compete for a $10,000 scholarship for graduate study!
Learn more at http://www.usc.edu/programs/ugprograms/discovery/become_scholar.shtml

Directed Research (BISC-490)

For those interested in major credit for research participation, the BISC department offers an upper-division course, BISC-490, that can be taken for a maximum of 8 units, but only 4 of those units will count toward upper division elective requirements. Students enrolled in BISC-490 are expected to work an average of 3-4 hours per unit per week in their lab and complete a final project due at the end of the semester.

Some tips for finding a research sponsor:

- Talk to your current instructors. Initial correspondence via email is appropriate but we recommend discussing research opportunities with professors in person when possible.
- Visit the BISC website (dornsife.usc.edu/bisc) to locate faculty based on their research topics. You can peruse faculty in Marine Environmental Biology, Molecular and Computational Biology, Integrative and Evolutionary Biology, and Neurobiology to find prospective sponsors that match your interests.
- Visit the Programs in Biomedical & Biological Sciences website (usc.edu/pibbs). The Faculty Research Topics link helps students locate faculty engaged in research at the University Park and Health Sciences campuses.
- If you are still having difficulty locating a faculty sponsor and would like additional tips, speak with your advisor.

Programs, Funding and Scholarships

Student Opportunities for Academic Research (SOAR) provides funding to undergraduate students for participation in faculty-assisted research or pursuing scholarly projects of their own choosing. The Summer Undergraduate Research Fund (SURF) provides funding for undergraduate research, on or off campus, during summer. Info and application instructions at http://dornsife.usc.edu/undergraduate-research-opportunities/

Read more about USC research programs and funding for undergraduate students on the Undergraduate Programs website, undergrad.usc.edu/research
Freshman Science Honors Program

dornsife.usc.edu/freshman-science-honors – (213) 740-2961

Exceptionally qualified incoming freshmen may participate in the Freshman Science Honors Program (FSH), which allows students the opportunity to take enriched biology and chemistry courses in the first semester sequence: BISC-121Lg and CHEM-115aLg in the first semester, and BISC-221L and CHEM-115bLg in the second semester. The FSH courses tend to have smaller class sizes and offer students access to special lectures, tours, and field trips. Some students are invited prior to their acceptance of admission to the University, while others apply during Freshman Orientation. Students majoring in Biology who secure good grades in the program are typically invited to participate in the Department of Biological Sciences Honors Program.

BISC Honors Program

http://dornsife.usc.edu/bisc/undergraduate-honors/

For outstanding students pursuing majors in Biological Sciences or Biochemistry, the Department of Biological Sciences Honors Program provides students the opportunity to enhance and deepen their involvements in the field through participation in honors seminars, undergraduate research opportunities, and faculty-advised writing of an honors thesis. In addition to major requirements, students pursuing departmental honors must take two semesters of BISC-493x Honors Seminar (1 unit per semester) and one semester of BISC-494x Honors Thesis (2 units). Honors students must also take BISC-490 Directed Research as one of the upper-division electives required for the major. In order to receive honors, students must complete their degrees with a GPA of 3.5 or higher in math and science courses being applied to the major. Successful completion of this program will earn students the transcript notation of “B.A./B.S. in Biological Sciences with Honors.”

Department Honors and Awards

These awards, determined by the faculty and lab directors, are presented each Spring at the Honors Luncheon.

Milo Don Appleman Award
Established in 1974, this award is given to the most outstanding graduating senior pursuing a career in the health sciences.

SCynergy Award
Established in 1998, this award is given to the most outstanding graduating senior pursuing a career in the biological sciences.

Okin Scholarship
This award, established in memory of Dr. Milton Okin, is given to the most outstanding sophomore or junior in the Department of Biological Sciences.

Course Honors
Awarded to the most high achieving biology and biochemistry undergraduates in the BISC core courses: BISC-120L, BISC-121L, BISC-220L, BISC-221L, BISC-320L, BISC-325 and BISC-330L.
Maymester & Studying Abroad

Maymester
Learn more at dornsife.usc.edu/scholars-global
Contact: Dr. Linda Duguay (213) 821-1335 or duguay@usc.edu

Maymester courses take place directly after graduation but are included as part of spring tuition. They are taught intensively and immersively over a 4 week period at the Wrigley Marine Sciences Center on Catalina.

**BISC 431L: Aquatic Microbial Ecology**
Many people are aware that microbes can be harmful to humans, but few realize that microbes and their interactions (with each other and with other organisms) are essential for human life. Sample marine and terrestrial microbial communities on and around Catalina Island and learn what microbes live in the oceans, how they function, and how their presence and activity affect climate and ecosystem function.

**BISC 457L: Methods in Marine Biology and Biographical Oceanography**
The purpose of this highly popular course is to introduce students to laboratory and field skills in Marine Biology and Oceanography. Students learn scientific methodology in the context of global environmental issues (human impacts on coastal environments, watershed interactions, future challenges). The course provides exposure to hands-on science and data-rich interdisciplinary science methodology, writing and oral presentations.

Overseas Study
dornsife.usc.edu/overseas-studies – (213) 740-3636

Studying abroad offers an unparalleled opportunity for personal growth through immersion in foreign culture, allowing students to gain insights into themselves and others, while developing leadership and networking skills for the future. The Overseas Studies office offers students exciting and diverse opportunities to study abroad in 52 unique programs in 28 countries. The myriad programs offered enable BISC majors to choose programs that compliment their program of study. The majority of USC students who receive Fulbright fellowships have participated in a study abroad program.

Join the ranks of the Global Scholars and earn the chance to compete for a **$10,000 scholarship for graduate study**! Learn more at dornsife.usc.edu/scholars-global

Problems Without Passports
dornsife.usc.edu/problems-without-passports

Each summer, the USC Dana and David Dornsife College of Letters, Arts and Sciences offers students the opportunity to help solve global challenges, such as climate change or pandemics, through the Problems Without Passports program (PWP). PWP courses combine problem-based or inquiry learning research exercises with study in a foreign country, Washington D.C., or Los Angeles. Through PWP, students participate in field research, experience different cultures, and problem-solve transnational problems, all while earning credit toward their USC degrees. Examples of past PWP courses are: Anthropology 301: The Global Performance of Healing in Brazil, Biological Sciences 499: Global Health in Oxford, England, and International Relations 308: Super Tourism - Impacts on Sustainable Development in Cairo, Egypt. Students applying to a PWP program are eligible to apply for the Summer Undergraduate Research Fund (SURF).
A Community Place (ACP)
http://sait.usc.edu/stuorgs/organizations_list.asp
Student-run service organization that works with the homeless and working poor in the USC Community. We provide sack lunches, transportation assistance, and referrals to other social programs. Gain hands-on experience with our neighbors and to begin to understand larger problems facing our society.

Alpha Epsilon Delta (AED)
aedusc.webs.com
National pre-med honor society. Students become Associate Members as freshmen, and can pledge to become Full Members once they are sophomores. Full Members of AED enjoy a pledge semester during which they receive mentoring on how to navigate the medical school application process. We also have regular social and philanthropy events throughout the semester.

Alpha Phi Omega (APO)
http://apousc.org/home.php
National coeducational service fraternity founded on the cardinal principles of Leadership, Friendship, and Service. It provides its members the opportunity to develop leadership skills as they provide service to their campus, to youth and the community, to the nation, and to members of the Fraternity.

Always Living in View of the Environment (ALIVE)
www.scf.usc.edu/~alive/
Bringing environmental awareness to the forefront of the USC community and the surrounding Los Angeles area. We also strive to inspire students to enact change and take responsibility for their environment. Events include hiking, recycling, tree-planting and more.

Chicanos/Latinos for Health Education (CHE)
http://sait.usc.edu/elcentro/involvement/undergraduate-organizations.aspx
Pre-health group which provides resources and opportunities to explore and learn about various health professions and issues. Conducts community service programs and events providing health-related community service and information to the surrounding community.

Community Health Involvement Project (CHIP)
chipcommunity.org
Volunteer organization dedicated to providing basic health screenings and awareness to underserved communities around USC. Members attend blood pressure and glucose training as well as health communication and language workshops. Students interact with adults and children in a variety of healthsites and at our Annual Community Health Fair.

Delta Delta Sigma (DDS)
deltadeltasigma.net
Represents USC undergraduate students interested in the profession of dentistry. We participate in health-related volunteer opportunities with the USC Herman Ostrow School of Dentistry and feature guest speakers and workshops from dental schools around the nation.
Global Water Brigades

globalbrigades.org/?page_id=967

Travel to Honduras during Winter or Spring break to implement sustainable water systems and work with community members to build water systems. We prepare for the trip by teaching students some basic Spanish and Honduran etiquette, fundraising for supplies, preparing an educational skit regarding proper sanitation for the children, and designing the water system.

Female Undergraduates Educating and Leading in Science (FUELS)

fuels.usc@gmail.com

Provides resources and encouragement to women in the science field through education, leadership and mentoring. Promotes both the achievement of women in science and our future successes. Meets every other week to discuss issues facing women in science through panels and special guests. Underclass students are paired with upperclass student mentors, while upperclass students meet with graduate students and faculty members in their field of interest. Also includes an outreach component involving social, educational and service events.

Global Health Student Club

http://usglobalhealthclub.wordpress.com/

A multidisciplinary organization that raises awareness of global health issues on campus and seeks to provide a way for Trojans to be involved in global health initiatives. Serves as a base for other health- and non-health related organizations to collaborate. Officially supported by the USC Institute for Global Health.

Global Medical Brigades (GMB)

trojangmb.wordpress.com

Dedicates an entire semester to planning and organizing a brigade to Honduras during Winter/Spring break. These life-changing brigades bring health care and medicine to underserved communities that otherwise wouldn’t have access to such resources. On a typical brigade, students work alongside physicians, RNs, dentists, and other health professionals.

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GlobeMed

http://globemed.org/impact/university-of-southern-california/

Student-run nonprofit organization dedicated to furthering the movement for global health equity. As part of the national GlobeMed network, USC’s chapter has a long-term partnership with Care Net Ghana, a nonprofit organization working to provide maternal health care and promote education and rights for children in rural Ghana. There are three main components to our work: Education, Fundraising, and Grass Roots On-site Work.

Health Care Business Club (HCBC)

uschcbc.com

Organizes professional, academic and social activities for students interested in exploring opportunities in the health care and life science industries. Learn about the business of health care and the life sciences, interact with other interested students, meet with leaders and other health care and life science decision makers, and become better prepared for a career in these industries.

Expanding Horizons with Mentorship (EHM)

ehmentorship@gmail.com

Brings together USC students to teach science at Jefferson High School. We focus on building relationships with the students as well as teaching effectively. This organization offers opportunities to lead, prepare for entrance exams, and expand one's horizons through relationship building.

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Interaxon
usc.edu/interaxon
A non-profit educational outreach group that focuses on teaching neuroscience to students in K-12 underprivileged schools. Neuroscience knowledge is not necessary--only enthusiasm for science and teaching kids.

JEP Young Scientist Program (YSP)
dornsife.usc.edu/joint-educational-project/
Brings together undergraduate students majoring in the natural sciences to implement hands-on science lessons at two local schools. Pairs of teaching assistants support classroom teachers in science instruction as they introduce integrated education and project-based science lessons to fourth and fifth grade classrooms.

Peer Health Exchange
peerhealthexchange.org
Peer Health Exchange gives teenagers the knowledge and skills they need to make healthy decisions. We accomplish this by training college students to teach a comprehensive health curriculum in public high schools that lack health education. Our vision is to give as many teenagers as possible the knowledge and skills they need to make healthy decisions by building a health education organization that serves teenagers nationwide.

Phi Sigma Biological Honors Society
uscphisigma.weebly.com
Phi Sigma is the national honor society that strives to promote research and academic excellence in the biological sciences. In addition to engaging in intimate, out-of-the-classroom discussions with USC faculty, members also partake in field trips. Applicants need not be biology majors, but should have a minimum GPA of 3.0 and demonstrate in interest in the biological sciences and research.

Premed Asian Pacific American Medical Student Association (APAMSA)
uscpremedapamsa.webs.com
Pre-medical organization that provides members with opportunities to address the health issues in the Asian Pacific American community, to learn more about medical-related careers, to interact with other premed students at USC, and to network with medical students in other APAMSA chapters through shadowing and health conferences. Membership and participation in events is open to all students.

Pre-Pharmacy Society
www-scf.usc.edu/~prepharm
Encourages interest in careers in pharmacology and generates awareness of pharmacy-related opportunities, supports and educate pre-pharmacy students regarding graduate school options, and provide students with opportunities to contribute to the LA community through service projects.

Science Outreach (SCout)
http://dornsife.usc.edu/wrigley/outreach/
Promotes scientific literacy at USC and in the Los Angeles community. We strive to provide an enriching and fun environment for elementary school kids to experience math, science, and engineering.
**Student Organizations**

**SC Homelessness Initiative (SCHI)**
http://schomelessnessinitiative.wordpress.com/
Dedicated to addressing issues of homelessness and poverty in the Los Angeles community, with a special emphasis on reducing health disparities. Volunteer opportunities include developing and leading healthy living workshops at the Downtown Women's Center on topics such as diabetes, nutrition, and dental health, promoting literacy among low income children at the Children's Bureau, raising awareness with film screenings, and more.

**SC Outfitters**
scoutfitters.org
Student-run organization aims to create an outdoor community at USC, to foster a spirit of adventure, as well as to inspire an appreciation of the natural beauty in Southern California. SC Outfitters now has over 25 volunteer student guides, who lead day and overnight hiking, backpacking, kayaking, surfing and climbing trips each semester.

**Support for International Change (SIC)**
sichange.org
Focuses on combating HIV/AIDS in rural Tanzania and training future leaders in global health. We train volunteers to travel to Africa and spend 2-4 months running HIV prevention campaigns, aiding community health workers, and training peer health educators.

**Trojan Health Connection**
trojanhealthconnection.com
USC’s pre-health news organization. We strive to provide accurate and timely news pertaining to health, provide credible and meaningful advice to students with a pre-health emphasis, and connect readers to USC’s pre-health community.

**Undergraduate Science Journal (USJ)**
uscusj.weebly.com
Student run online publication that serves to highlight research projects at USC, with an emphasis on research conducted by undergraduate students. Our goal is to promote scientific literacy by showcasing the research in way that is engaging and accessible to the entire USC community. We cover a broad range of the sciences, including the life sciences, physical sciences, behavioral sciences, public health, and engineering.

**USCience Review**
www-scf.usc.edu/~uscience
An online undergraduate-run science magazine that features student-written articles about a variety of scientific topics. The magazine was founded to teach readers about advances from recent studies and to elucidate the scientific processes that play a role in a broad spectrum of scientific fields, including biological sciences, medicine, and others. The magazine's news stories highlight science-related events taking place at USC, and the Mini Insight segments describe the scientific phenomena that we encounter in our daily lives.

**Vision4Vision**
usc.vision4vision.org
Organization dedicated to spreading glaucoma awareness and prevention using early testing. Activities include holding presentations on glaucoma at various locations and making videos for glaucoma awareness.
Career Planning & Placement Center
careers.usc.edu – (213) 740-9111 – Student Union 110

The CPPC provides career services to all members of the Trojan Family. Their array of programs includes career counseling, workshops, company profile events, career panels, internships, job listings & searches, Trojan Network and Career Fairs.

Center for Academic Support
sait.usc.edu/academicsupport – (213) 740-0776 – Student Union 301

The Center for Academic Support offers learning assistance and tutoring in various subjects for USC students at selected locations on campus, including residential sites. The Center also offers academic success seminars and workshops throughout the year in areas such as time management, power reading, memory enhancement, exam-taking strategies, writing papers, and note-taking. CAS offers services including: free tutoring and learning assistance, Kortschak Center for Learning and Creativity, New Student Academic Intervention Program, student support groups, and Disability Services & Programs.

Dornsife College Hub
dornsife.usc.edu/hub

Daily updates with news, events, and opportunities such as jobs and internships, research, scholarships, student organizations, study abroad, summer, free food and more!

Pre-Health Advisement
dornsife.usc.edu/pre-health – (213) 740-4844 – Hedco Neurosciences Building 120

The Office of Pre-Health Advisement exists to serve all current students, alumni, and post-baccalaureates interested in pursuing careers in the health professions. Our pre-health advisors provide an array of student-centered advisement services and support tools tailored to meet the individual needs, interests, and goals of pre-health students.

Student Counseling Services
usc.edu/student-affairs/Health_Center/cs.index – (213) 740-7711 – Engemann Student Health Center, 3rd floor

The professional staff of the Student Counseling Services offer individual, couple and group counseling, as well as emergency services, in order to help students to successfully cope with the variety of concerns common during their college experiences. All personal information is kept confidential. The staff also provides workshops and consultation on stress management, assertiveness, communication skills, and conflict resolution techniques. Services are covered by the Student Health and Counseling Services Fee. To initiate counseling, please call or stop by the office. Initial appointments are 50 minutes.

Supplemental Instruction (SI)
dornsife.usc.edu/supplemental-instruction

The SI program targets traditionally difficult courses and provides regularly scheduled, peer-led study sessions. These sessions are available to all students enrolled in the class at no cost. Work in small, collaborative groups with your classmates; review lecture material, course reading, and homework; and go over exam strategies with SI leaders who know the courses and professors. SI session schedules online at dornsife.usc.edu/session-schedules