



ENST 298L: Introduction to Scientific Diving

Units: 2

Spring 2022, F 2:00-4:50 pm

Location: WPH 201

Course Instructor:

Dr. David Ginsburg

Associate Professor (Teaching)

Office: CAS 116C

Office Hours: use [link](#) to make appt.

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Phone: 213-740-8576 (office)

Course Description

This course provides Extensive academic preparation in the physics, physiology, safety, and methodology for in-water scientific diving. Certification as an [American Academy of Underwater Sciences \(AAUS\)](#) Scientific Diver is required to participate in scientific diving activities at most universities and research institutes, including USC, and at all AAUS member organizations throughout the United States and beyond.

ENST 298L is designed to provide an introduction to research diving and to satisfy the 100 hours of training for scientific divers as outlined by the AAUS, including, at a minimum, 12 training dives. Course content is consistent with the guidelines outlined by the AAUS and [USC Dive Manual](#), which were approved by the USC Dive Control Board and USC Risk Management. [Learning objectives](#) presented here are aligned with those of the ENST Program, as a whole.

Classroom ground rules

- Share responsibility for including all voices in a conversation
- Listen respectfully to your classmate's and your instructor's viewpoints
- Be open to changing your perspectives based on what you learn from others
- Understand that we are bound to make mistakes in this space
- Understand that your words have effects on others
- Take group work during class and outside of lecture seriously
- Understand that your classmates may have different experiences from your own
- Make an effort to get to know your classmates

Learning Objectives

- Explore the design and implementation of underwater field methods for monitoring and surveying aquatic environments
- Learn how to use specific survey methods for evaluating substrate and marine organisms
- Gain in depth knowledge about preventing scuba diving accidents, as well as administering oxygen for scuba-related injuries

In-person instruction

All members of the USC community (faculty, students, staff) must comply with Trojan Check, which includes fulfilling the university's vaccination policy, as well as completion of the university's recently relaunched Hygiene Health and Safety Training in order to access campus. As such, masks must be worn at all times (as per USC policy) inside (e.g., classrooms, offices, etc.). **Students are expected to comply with all aspects of USC's COVID-19 policy.** Failure to do so may result in removal from the class and referral to Student Judicial Affairs and Community Standards.

Required preparation

Basic Scuba Certification from internationally recognized recreational scuba training organization;
Successful completion of USC-AAUS Medical Forms

Student Costs (Payable via Student Fee Bill)

- \$175: USC Gear Use Fee (**Payable ENST**)
- \$40: Custom dive slate (includes hardware, tubing and pencil) (**Payable ENST**)
- \$75: DAN membership and insurance (**Payable DAN**)
- \$20: ASHI CPR, MEDIC First Aid & DAN O2 provider certifications (**Payable ENST**)
- \$70: SDI Nitrox online scuba materials (**Payable ENST**)
- \$35 AAUS Scientific Diver certification card (**Payable ENST**)

Required Readings and Supplementary Materials

- [USC Dive Manual](#)
- Scuba Diving International (SDI) academic materials for Computer Nitrox certification (materials issued and discussed during class)
- CPR, First Aid, and O2 (materials issued and discussed during class)

Course Equipment

Personal dive gear

Students are REQUIRED to provide their own personal diving gear, which includes the following:

- Dive wetsuit (7+ mm recommended), hood, booties
- Mask, snorkel, fins
- Cutting tool (e.g., knife, EMT shears)
- Dive slate (materials purchased from ENST and will be discussed during class)
- UW light (optional)

Scuba gear

The scuba equipment listed below will be provided to students, as needed. If you lose or fail to return these items prior to the end of the course, your student account will be charged a replacement fee. Students with their own scuba equipment must provide documentation that these items have been serviced by a dive industry professional within the past year.

- Buoyancy compensator, regulator and octopus
- Gauges, dive computer and compass
- Weight belt and weights

Class Format

The course will meet once a week on Friday's from 2:00-4:50 pm in WPH 201. Classroom sessions will be comprised of lectures, demonstrations and problem solving exercises. In addition, we will complete the confined and open water dive course requirements the following days (*Dates and Locations TENTATIVE*):

- Friday, Jan 28: Swim tests and confined water session USC PED Pool (2:00 pm to 4:30 pm)
- Sunday, February 6: Skin diving and water skills Redondo Beach (9:00 am to 12:30 pm)
- Friday, February 11: Sampling methods and AAUS skills USC PED Pool (2:00 pm to 4:30 pm)
- Sunday, Feb 13: Open water scuba transects and surveys (2-3 dives, Site TBD; all day)
- Friday, Feb 25: Advanced AAUS skills USC PED Pool (2:00 pm to 4:30 pm)
- Sunday, Mar 27: Open water scuba transects, surveys and species ID (2-3 dives, Site TBD; all day)
- Sunday, Apr 24: Open water scuba Nitrox and advanced skills (2-3 dives, Site TBD; all day)

Course Grading

Students will be evaluated based on their:

- Participation during class and scheduled dive training activities
- Completion of AAUS, CPR/FA/O2, and SDI academic materials before the required deadlines
- Logging of all training dives within 1-week after given activity on the USC Online Dive Log System
- Students are required to maintain a field notebook to record training dives, their progress in the class, as well as observations and reference materials for successful completion of assignments
- Oral presentation on specific underwater field method
- Performance on exams and quizzes related to course material and species IDs

Additional Policies

Routine attendance and active participation are an important part of each class session. For the best learning experience, you are expected to have read the course materials by the date it is discussed in class. Roll will be taken periodically in the form of thought exercises, reading assignments, and in-class questions. You are responsible for information, announcements, date changes, and any other course material presented, regardless of your participation in the classroom.

Only approved excuses such as medical absences, family emergencies, recognized holidays, or official USC travel will be accepted, and in these cases, students will need to take the initiative and responsibility to contact the instructors to develop an alternative schedule for meeting course requirements. Excessive absences could make it difficult to complete the necessary training that is required for AAUS Scientific Diver certification. In some cases, make-ups may not be possible given the availability of the faculty, staff, and campus facilities.

Note that AAUS certification is not automatically given as a result of completing this course. In order to be certified as an AAUS-USC Scientific Diver, students must:

- Participate in and successfully complete at least 12 training dives (as noted above)
- Attend all required lecture modules
- Demonstrate mastery of course materials to the satisfaction of course instructor and USC Dive Safety Officer

ENST 298 Spring 2022 Course Schedule

Activities and schedule of topics may be adjusted throughout the semester depending on class progress. Pool sessions and open water scuba days in bold text.

Date	Day	Location	Topic
Jan 14	Friday	WPH 201	Intro to scientific diving; AAUS regulations & History
Jan 21	Friday	WPH 201	Dive tables, computers; navigation & compass review; Alumni Park surveys
Jan 28	Friday	PED POOL	Swim tests & confined water skills
Feb 4	Friday	WPH 201	Mapping: field methods & applications, Alumni Park surveys
Feb 6	Sunday	Skin Dive: Redondo	Skin diving & advanced water skills; (1 dive)
Feb 11	Friday	PED POOL	Sampling methods and other AAUS skills
Feb 13	Sunday	Open Water Scuba Day 1: TBA	Transects and Species ID; (2-3 dives)
Feb 18	Friday	WPH 201	Benthic ecology

Feb 25	Friday	PED POOL	Advanced, high intensity skills
Mar 4	Friday	WPH 201	Underwater sampling; Alumni Park surveys
Mar 11	Friday		<i>No Class: Spring Recess</i>
Mar 18	Friday		<i>No Class: Spring Recess</i>
Mar 25	Friday	WPH 201	Observing benthic & mobile fauna; Alumni Park surveys
Mar 27	Sunday	Open Water Scuba Day 2: TBA	Underwater surveys and Species ID; (2-3 dives)
Apr 1	Friday	WPH 201	DAN CPR, FA, O2
Apr 8	Friday	WPH 201	Nitrox/Enriched Air
Apr 15	Friday	WPH 201	<i>No Class</i>
Apr 22	Friday	WPH 201	Dive computers, hyperbaric medicine, and dive physiology
Apr 24	Sunday	Open Water Scuba Day 3: TBA	Nitrox dive and advanced skills; (2-3 dives)
Apr 29	Friday	WPH 201	Final Exam

Statement on Academic Conduct and Support Systems

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Computer Support: Zoom or general IT USC Support: Phone: 24/7 on call: 213-740-5555; Email: consult@usc.edu. **Blackboard Support:** Phone: 213-740-5555 (option 2, 24/7 on call); Email: blackboard@usc.edu

Academic Conduct: Plagiarism is an academic offense with serious consequences. Familiarize yourself with its definition in [SCampus](#). Other forms of academic dishonesty are equally unacceptable. See additional information in [SCampus and university policies](#) on scientific misconduct.

Counseling and Mental Health: (213) 740-9355; 24/7 on call. Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops and crisis intervention. See [link](#) for details.

National Suicide Prevention Lifeline: (800) 273-8255; 24/7 on call. Free and confidential emotional support to people in suicidal crisis or emotional distress. See [link](#) for details.

Relationship and Sexual Violence Prevention Services: (213) 740-9355; 24/7 on call. Free and confidential therapy services, workshops, and training for situations related to gender-based harm. See [link](#) for details.

Office of Equity and Diversity: (213) 740-5086; Title IX: (213) 821-8298. Information on how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors and applicants. See [link](#) for details.

Reporting Incidents of Bias or Harassment: (213) 740-5086 or (213) 821-8298. Report incidents of bias, hate crimes and microaggressions to the Office of Equity and Diversity, Title IX for appropriate investigation, supportive measures and response. See [link](#) for details.

Office of Student Accessibility Services: (213) 740-0776. 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. See [link](#) for details.

USC Campus Support and Intervention: (213) 821-4710. Assists students and families in resolving complex personal, financial and academic issues adversely affecting their success as a student. See [link](#) for details.

Diversity at USC: (213) 740-2101. The Provost's Diversity and Inclusion Council provides information on events, programs and training resources students at each academic school. See [link](#) for details.

USC Emergency: UPC: (213) 740-4321; HSC: (323) 442-1000; 24/7 on call. Emergency assistance and means 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. See [DPS link](#) and [Emergency link](#) for details.

USC Department of Public Safety: UPC: (213) 740-6000; HSC: (323) 442-120; 24/7 on call. Non-emergency assistance or information. See [link](#) for details.