



ENST 298L: Introduction to Scientific Diving

Units: 2

Spring 2019, F 2:00-4:50 pm

Location: WPH 201

Course Instructor:

Dr. David Ginsburg

Associate Professor (Teaching)

Office: CAS 116C

Office Hours: Wed 11am to noon and by 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.

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, as well as aquatic and marine organisms
- Gain in depth knowledge about preventing scuba diving accidents, as well as administering oxygen for scuba-related injuries
- Learning objectives in this course are aligned with those of the Environmental Studies Program: <https://dornsife.usc.edu/environmental-studies/learning-objectives/>

Required preparation

Basic Scuba Certification from internationally recognized recreational scuba training organization; Successful completion of USC-AAUS Medical Forms; \$175 USC equipment fee.

Required Readings and Supplementary Materials

- USC Dive Manual, (available online: https://dornsife.usc.edu/assets/sites/218/docs/wmsc/DiveSafetyManual-USC_2014-08.pdf)
- 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
- Blue buddy dive recorder

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):

- Saturday, Jan 19: Confined water session in USC PED Pool
- Saturday, February 2: Skin diving and advanced water skills (1 training dive)
- Saturday, February 9: Charter boat dive, depart (~3 training dives)
- Saturday, March 23: Charter boat dive, depart (~3 training dives)
- Friday, April 19 to Sunday, April 22: Weekend at WMSC on Catalina Island (6+ training dives)

Course Grading

Students will be evaluated based on their:

- Performance on exams and quizzes related to diving physics, physiology, safety, and experiment design
- 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 ONE week after a 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.
- Field notebook will be submitted at the midpoint and end of semester for grading

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 (see schedule, below) 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

Course Schedule

Activities and schedule of topics may be adjusted throughout the semester depending on class progress.

Date	Day	Location	Topic
Jan 11	Friday	WPH 201	Introduction to Scientific Diving; AAUS Regulations and History; Coordination with other Agencies
Jan 18	Friday	WPH 201	Decompression Theory, Dive Tables, Computers
Jan 25	Friday	WPH 201	Navigation & Compass Review; Transect Survey in Alumni Park
Jan 26 tentative	Saturday	PED POOL	Swim Tests & Confined Water Dive Skills
Feb 1	Friday	WPH 201	Mapping: Field Methods & Applications
Feb 2 tentative	Saturday	TBA	Skin Diving & Advanced Water Skills: Rescues, Navigation
Feb 8	Friday	WPH 201	Guest Speaker TBA
Feb 9 tentative	Saturday	TBA	Charter Boat Dive 1: Transects and Benthic Species ID
Feb 15	Friday	WPH 201	Guest Speaker TBA
Feb 22	Friday	WPH 201	Underwater Surveys: Field Methods and Applications
Mar 1	Friday	WPH 201	Guest Speaker TBA
Mar 8	Friday	WPH 201	-- No Lecture --
Mar 10-17 SPRING BREAK NO CLASS			
Mar 22	Friday	WPH 201	Benthic Fauna Surveys: Field Methods and Applications
Mar 23 tentative	Saturday	TBA	Charter Boat Dive 2: Transects and Mobile Species ID
Mar 29	Friday	WPH 201	Protections of UW resources: endangered species & conservation; MPAs
Apr 5	Friday	WPH 201	Guest Speaker TBA
Apr 12	Friday	WPH 201	Mobile Fauna Surveys: Field Methods & Applications; Nitrox and Mixed Gas Use
Apr 19	Friday	WMSC	WMSC DIVE; BENTHIC SPECIES SURVEYS
Apr 20	Saturday	WMSC	WMSC DIVE; LIFT BAGS & NIGHT DIVE
Apr 21	Sunday	WMSC	WMSC DIVE; MOBILE SPECIES SURVEYS
Apr 26	Friday	WPH 201	
May 6	Monday	WPH 201	FINAL EXAM, 2:00-4:00pm, WPH 201 (can reschedule on individual basis if final conflicts with another course)

Statement on Academic Conduct and Support Systems

Academic Conduct:

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>.

Support Systems:

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