

UNIVERSITY OF SOUTHERN CALIFORNIA
Environmental Studies Program
Spring 2016

ENST 298aL: Introduction to Scientific Diving (2 Units)
Fridays 2:00-4:50 pm, WPH 101

Instructor of Record:

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Environmental Studies Program

Contact Info:

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Overview: This course provides academic preparation in the physics, physiology, safety, and methodology for in-water scientific diving. Scientific divers should understand a broad range of specialized, interdisciplinary topics before they can safely or effectively design or perform scientific measurements in the water. Where appropriate, topics covered include gas properties (chemistry, physics, gas laws, etc.), decompression theory, compressed gas physiology (narcosis, oxygen toxicity, decompression sickness, etc.), and dive planning including no-decompression scheduling and gas consumption calculations. Students will be introduced to the design of measurement protocols for monitoring underwater environments including transect and quadrant methods for evaluating substrate, fish populations, invertebrate organisms, and algal cover. Dive safety training will include oxygen administration for diving injuries and basic life support. All content is consistent with the guidelines outlined by the American Academy of Underwater Sciences (AAUS) and the USC Dive Manual approved by the USC Dive Control Board and USC Risk Management. The academic content of this course, especially with respect to gas physics, decompression theory, physiology, and accident management, exceeds the minimum standards for scientific diver certification.

Required Texts:

- USC Dive Manual, <http://dornsife.usc.edu/assets/sites/218/docs/wmsc/DiveManualUSC-2012.pdf>
- SDI academic materials (issued and discussed on first day of class)
- DAN First Aid, CPR, and O₂ academic materials (discussed on first day of class)

Format: The course will meet once a week on Friday's from 2:00-4:50 pm in WPH 101. Classroom sessions will be a mixture of lectures, demonstrations and problem solving exercises. In addition, we will meet on the following days to complete the confined and open water dive requirements of the course:

- Two confined water sessions at PED Pool on Saturday, January 30 and Saturday, February 13
- Two open water training dive weekends at the USC Wrigley Marine Science Center on Catalina Island, which are scheduled for March 4-6, April 8-10.

Grading: Each student will be evaluated based on their performance on two written examinations directly related to diving physics, physiology, safety, and experiment design (90%). Participation during class and scheduled dive training activities, the completion of AAUS, DAN, and SDI academic materials before the required deadlines, and the regular logging of training dives with the DSO is worth an additional 10% of the final course grade. Note: Additional exams will be administered by the DSO/ADSO (and/or his

designee) as part of the dive certification process (e.g., SDI OW, Nitrox, AAUS Sci Diver, DAN, etc.), but these will not be included in the computation of course grades.

Below is a list of the graded assignments and their point values:

Midterm Exam	March 11	100 pts	45%
Final Exam	May 9	100 pts	45%
Course Participation	Rolling	22 pts	10%
TOTAL		222 pts	100%

Classroom & Laboratory Sessions: All classroom and laboratory (i.e., confined and/or open water training) sessions are mandatory. ENST will provide transportation from campus to and from Catalina Island. Only approved excuses such as medical absences, family emergencies, recognized holidays, or official USC travel will be accepted and if these become excessive they could make it difficult for you to complete the necessary training to become an AAUS Scientific Diver. In some cases, make-ups may not be possible given the availability of the faculty, staff, and campus facilities.

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 Section 11, Behavior Violating University Standards <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct at <http://policy.usc.edu/scientific-misconduct/>. Neither discrimination, sexual assault, nor harassment is tolerated by the university. You are encouraged to report any incidents to the Office of Equity and Diversity at <http://equity.usc.edu/> or to the Department of Public Safety at <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety of the whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. The Center for Women and Men at <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential-support, and the sexual assault resource center webpage at sarc@usc.edu describes reporting options and other resources. Students may not record lectures without written permission from the course instructor.

Support Systems: A number of USC’s schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the American Language Institute at <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students.

The Office of Disability Services and Programs at http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, USC Emergency Information at <http://emergency.usc.edu/> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

Statement on Religious Observation Accommodations: USC policy grants students excused absences from class for observance of religious activities. Students may be given an opportunity to make up work missed because of religious observance. We are responsive to requests for an excused absence when made in advance. Please note that this applies only to religious activities that necessitate a student’s absence from class and/or a conflict with a specific aspect of the course.

Course Schedule: For the best learning experience, you are expected to have read the assigned material by the date it is discussed in class. Readings, topics, and deadlines may be adjusted throughout the semester depending on the progress of the class.

Lectures

Date	Day	Location	Topic
Jan 15	Friday	WPH 101	Introduction, Student Forms, Gear Overview (DG, EC, TC)
Jan 22	Friday	WPH 101	PED Pool – See Schedule Below
Jan 29	Friday	WPH 101	OW Review, Dive Planning I, Physics I & Ecology I (DG)
Feb 5	Friday	WPH 101	Dive Planning II, Physics II & Ecology II (DG)
Feb 12	Friday	WPH 101	DAN CPR AED, FA, O ₂ Part I (TC)
Feb 19	Friday	WPH 101	DAN CPR AED, FA, O ₂ Part II (TC)
Feb 26	Friday	WPH 101	Navigation, Compass Use, Computers, OW Skills (DG, TC)
Mar 4	Friday	WMSC	Nitrox (EC)
Mar 5	Saturday	WMSC	AAUS and Sci Diving (EC)
Mar 6	Sunday	WMSC	
Mar 11	Friday	WPH 101	MIDTERM EXAM
Mar 14-18 SPRING BREAK NO CLASS			
Mar 25	Friday	WPH 101	Accident Management (GB)
Apr 1	Friday	WPH 101	Underwater Methods & Protocols (DG)
Apr 8	Friday	WMSC	Dive Accident Investigation (DC); Boat Diving (EC)
Apr 9	Saturday	WMSC	Dive Physiology, Decompression, Computers (KH)
Apr 10	Sunday	WMSC	
Apr 15	Friday	WPH 101	Rebreathers (Bozanic)
Apr 22	Friday	WPH 101	Underwater Methods & Protocols II (DG & AO)
Apr 29	Friday	WPH 101	Sci Diving Overview and Next Steps (DG, KH)
May 9	Monday	WPH 101	FINAL EXAM, 2:00-4:00pm

Confined and Open Water Sessions

Date	Day	Location	Topic
Jan 22	Friday	PED Pool	Swim Test
Jan 30	Saturday	PED Pool	SDI CW Session 1 & 2; <i>SDI OW eLearning completion deadline Jan 29</i>
Feb 13	Saturday	PED Pool	SDI CW Session 3 & 4
			<i>DAN materials completed before Feb 19 classroom session</i>
Mar 4	Friday	WMSC	SDI OW Scuba Dives 1 & 2; <i>SDI Nitrox eLearning completion deadline Mar 4</i>
Mar 5	Saturday	WMSC	SDI OW Scuba Dives 3, 4 & 5
Mar 6	Sunday	WMSC	AAUS Sci Dive 1; <i>Dive logs submitted to DSO Mar 6</i>
Mar 14-18 SPRING BREAK NO CLASS			
Apr 8	Friday	WMSC	AAUS Sci Dives 2 & 3
Apr 9	Saturday	WMSC	AAUS Sci Dives 4, 5 & 6
Apr 10	Sunday	WMSC	AAUS Sci Dives 7; <i>Dive logs submitted to DSO Apr 10</i>
			Completion of AAUS Sci Dives 8-31 TBA