

Nautical Science Program- Naut. 001B Advanced Seamanship and Navigation Level 2

Academic Units: 2

Spring and Fall Semester

Class day: Wednesday's 6:00PM – 7:50PM

Contact Hours:

Campus Lectures – 28 hours

Laboratories – One 8-hour Day/Night Navigation Sail

Four 5-hour 2 person boats "Handling & Racing classes"

28 hrs Total

Additional sea time available –

Teaching assistant /1st mate sails- 32 hrs each

Location:

<http://priceschool.usc.edu/naut/>

USC Campus for weekly lectures.

Off campus laboratories- San Pedro, Long Beach and Port of Los Angeles.

Instructors:

Captain. Lars Harding, Program Administrator & Staff

Office: Physical Education Building - PED 104

Office Hours:

Capt. Harding Monday, Wednesday's 5:15 PM-5:45PM

Contact Info:

Captain Harding - (562) 230-5277, Lharding@usc.edu

Phone and email messages will be returned within 48 hrs or sooner.

Note: When engaged in offshore voyages with students there may be a delayed response.

USCG Accreditation:

This course is certificated by the United States Coast Guard for license track students pursuing a "Merchant Mariners Masters Credential" (USCG Certificate UNIVSC-155).

Course Description:

This advanced nautical science class is taught in the classroom and aboard ship. Using the introductory skills acquired in NAUT 001A, students learn advanced navigation and charting skills required for night time sailing and piloting. Other lectures include: ship construction, nomenclature, geometry, hydrodynamics, stability, buoyancy, aerodynamics of sail and the physics of hull construction. Meteorology, marine weather forecasting, oceanography as pertinent to charting and astronomy as related to navigation are also part of this course.

Students then apply these course skills in an experiential setting aboard a working sailing vessel at sea. Utilizing modern shipboard marine electronics and advanced charting techniques, students must navigate their vessel at night through busy commercial shipping ports and coastal waterways. Students become familiar and ready to apply coastal piloting laws and admiralty laws as applicable to ship navigation.

Students also learn to operate small 2 person sailing craft. This on the water laboratory consists of four separate 5-hour sailing classes, encompassing advanced sail handling, vessel maneuverability and racing skills.

Learning Objectives:

Students gain knowledge and an introductory understanding of:

- Advanced hull nomenclature, design, and measurements
- Maritime architecture, vessel stability, buoyancy, hydrodynamics of hulls, aerodynamics of sail
- Marine meteorology, atmospheric conditions, forecasting
- Maritime history and important historic sailing vessels
- Advanced United States Coast Guard "Piloting Rules of the Sea Ways" and basics of admiralty law as applied to navigation of ships at sea.
- Required safety gear and vessel equipment and their application
- Vessel piloting, seamanship and vessel maneuvering under power and sail.
- Advanced navigation and nighttime navigation using charts and marine electronics.

Prerequisite(s): Nautical Science 001A

Co-Requisite(s): None

Concurrent Enrollment: Concurrent enrollment in Nautical Science 001A and 001B is allowed.

Special dispensations for concurrent enrollment may be discussed in person and is based upon experience.

Course Notes:

Course enrollment is for Letter Grade, Pass/Not Pass, and Audit. Four 5-hour small boat sailing laboratories and an 8-hour day/night sailing voyage are required. Dates for these components of the course will be arranged during the first three weeks of lecture. Copies of lecture slides, instructional videos, and other class information will be posted on Blackboard. **License track students are required to take this course for a letter grade in order to be granted USCG exponential sea time and completion certificate.**

Required Readings and Supplementary Materials

The following are available at the USC Book Store:

Text: The Annapolis Book of Seamanship, J. Rousmaniere (required)

Charts: 1210TR Martha's Vineyard to Block Island (Provided)
18751 Los Angeles Harbor (Provided)

Description and Assessment of Assignments:

A mid-term examination will be given during the 7th- 9th week of classes. Attendance is mandatory to all Off-campus laboratories. The final examination will require significant demonstration of charting, navigation and seamanship skills acquired during off-campus events.

Grading Breakdown:

5%	Lecture attendance. Note that attendance is required to participate in the off-campus laboratories
15%	Midterm Examination
20%	“FJ Dinghy Sailing Labs” and “ Day/Night Navigation Voyage”
60%	Final Exam

Grading of Final Examination

(Due to the challenging nature of this exam and historical results the following curve is used)

A	95-100
A-	80-94
B+	77-79
B	66-76
B-	60-65
C+	57-59
C	53-56
C-	50-52
D+	47-49
D	43-46
D-	40-42
F	39 and below

Course Grading Scale

≥ 90% = A ≥ 80% = B ≥ 70% = C ≥ 60% = D, Failing Work < 45% or missing assignments or attendance

Assignment Submission Policy

Mid-term examination must be taken during the scheduled lecture. Participation in both the Day/Night Voyage and all 5 “FJ Dinghy Sailing Labs” are mandatory. Off-campus activities will be scheduled during the first three weeks of class. Changes to scheduled at-sea voyages can only be made with advanced notice and in person with legitimate compelling conflict or documented illness.

Grading Timeline

Final grades will be submitted per university schedule and policies.

Additional Policies

Due to safety considerations students will not be permitted to participate in the sailing laboratories without having participated in the on-campus lectures.

Course Schedule: A Weekly Breakdown

	Topics / Daily Activities	Learning Objectives	Readings and Homework	Deliverable/ Due Dates
Week 1	Course & syllabus overview, laboratory schedule, beginning crew positions	Seamanship skills as applied to running a ship at sea	Blackboard slides, vessel sign up sheets	In Class
Week 2	Seamanship theory, hull design, hull measurements, theoretical hull speed, hull stability, Plimsol lines	Advanced hull nomenclature, design, and measurements maritime architectures, vessel stability, and advanced physics, hydrodynamics, aerodynamics and performance	Blackboard slides and hull design videos	" "
Week 3	Vessel construction, sails and sail plans, roller furling	Advanced nomenclature and design, maritime architecture	Blackboard slides and hull design videos	" "
Week 4	Rig types (review), historical sailing ships	Maritime history and important historic sailing vessels	Blackboard slides and hull design videos	All laboratory voyage sign ups complete
Weeks 5-6	Marlinspike seamanship, knots, and vessel rigging	Seamanship skills	Blackboard slides	
Week 7	Weather, lee helm, reefing, safety at sea Physics of hulls and sails	Marine weather, atmospheric conditions, forecasting and impacts on sailing, required safety gear and vessel equipment and their application	Blackboard slides and "Sailing in Heavy Weather" and "Emergencies Afloat" videos	
Week 8	Advanced helmsmanship, line handling and associated dangers	Seamanship skills	Blackboard slides	
Week 9	Charts and maps, tools of the trade, antique charts and instruments, chart symbols and datum, tides and currents, Chart projections and scales, lateral aids to navigation	Advanced navigation and nighttime navigation using charts and electronics	Blackboard slides and "Basic Navigation" video	
Week 10	Advanced chart navigation	Navigation using charts	Blackboard slides and "Aids to Navigation" video	
Week 11	USCG Publications and continued chart navigation	Navigation using charts, United States Coast Guard "Piloting Rules of the Seaways" and admiralty law, Required safety gear and vessel equipment and their application	Blackboard slides, "Recreational Boater Requirements" and "Rules of the Road" videos	

Week 12-14	Marine Weather	Marine weather, atmospheric conditions, forecasting and impacts on sailing	Handouts and reading provided in advance	
Weeks 5-15 Laboratories	Small boat sailing, day/night navigation, and crew sailing	Advanced United States Coast Guard "Piloting Rules of the Seaways", required safety gear and vessel equipment, vessel piloting and seamanship skills under power and sail, advanced navigation and nighttime navigation using charts and electronics	Various handouts and information provided in advance.	Dates to be determined during lecture weeks 1-3
Week 15	Final Review Session	- Full review of practical navigation and sailing theory learned in course.		Last day of regularly scheduled class for each section
Exams	Final Examination			Date: Consult the USC <i>Schedule of Classes</i> at classes.usc.edu/ .

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

USC Support and Advocacy (USCSA) – (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