

Summer 2020 Course at the Friday Harbor Laboratories

Marine Animal Bioacoustics



When? ***June 15-July 17, 2020*** (5 weeks)

Where? ***Friday Harbor Laboratories*** (FHL, University of Washington)
in the beautiful San Juan Islands, WA



Marine Animal Bioacoustics – FHL 585 (9 credits)

This course will provide students with a broad understanding of the acoustic tools and techniques required for investigating fundamental questions of animal bioacoustics, behavior and communication with special emphasis on local marine mammals and fishes found near the San Juan islands, WA .

Enrollment limited to 15 students [*applications will be reviewed after March 1, 2020*]

The course will involve a combination of lectures and discussions, extensive hands-on laboratory training, lab exercises and student-led projects, and one-on-one interactions with course faculty from diverse research perspectives of biology (Dr. Tricas), psychology (Dr. Sisneros) and physics (Dr. Seeley).

Course Instructors:

Dr. Joseph Sisneros, University of Washington, Department of Psychology
email: sisneros@uw.edu; website: <http://faculty.washington.edu/sisneros/sisneros.htm>

Dr. Timothy Tricas, University of Hawaii, Department of Biology
email: tricas@hawaii.edu; website: <http://www.hawaii.edu/fishlab/>

Dr. Lane Seeley, Seattle Pacific University, Department of Physics
email: seelel@spu.edu; Website: <http://spu.edu/academics/college-of-arts-sciences/physics/faculty-staff/seeley-lane>

Marine Animal Bioacoustics is a five-week course designed to provide graduate and advanced undergraduate students with a broad understanding of the acoustic tools and techniques necessary for investigating the bioacoustics (sound production and reception), communication and behavior of marine animals, especially with the marine mammals and fishes found locally in the waters of the San Juan islands, WA.



Students will investigate the acoustic world of marine animals in relation to their biology of sound production and hearing, natural behavior, and ecology.

- We will use a ‘hands-on’ approach in the lab to learn about the construction of simple acoustic transducers and digital recording of marine sounds. ***Each student (with the help of the instructors) will build their own hydrophone for use in student projects and exercises.***
- Students will be introduced to both foundational and contemporary theories of underwater acoustics (including the theory and application of pressure and particle motion in acoustical waves, and Fourier Analysis). They will become familiar with modern techniques in bioacoustic recordings and analysis that include tank-based and field-based acoustical measurements.
- Students will learn basic auditory physiology techniques used in hearing studies, such as auditory evoked potential recordings. They will also learn to use LabView software for the fully automated production, recording and analysis of acoustical signals.
- A significant portion of the course will involve independent research projects where students apply the scientific method to address problems in marine animal bioacoustic behavior.

This course offers the unique opportunity to receive intensive training in the concepts and methodology of marine animal bioacoustics. The techniques learned in this course can be applied broadly and used by students in their own research. The instructors will take advantage of the rich resources available at the Friday Harbor Labs that include “wet” teaching laboratories with running sea water and aquaria to house fish for student led projects, research library, the research vessel “Centennial”, access to many local animal species including marine invertebrates and fishes that produce sound, and the opportunity for observe and passively record/analyze sounds of local marine mammals.

For more information about FHL and this summer course please see:

Friday Harbor Laboratories - <https://fhl.uw.edu/>

Estimated student costs - <https://fhl.uw.edu/courses/student-costs/>

Student applications – <https://fhl.uw.edu/courses/applying-for-an-fhl-course/>

Financial Aid & Scholarships - <https://fhl.uw.edu/courses/fellowships-scholarships/#OtherFinancialAid>