

Acoustic Monitoring as a Marine Conservation Tool (C003924)

Due to Covid 19, the education and assessment methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course size *(nominal values; actual values may depend on programme)*
Credits 5.0 **Study time 125 h** **Contact hrs** 39.0h

Course offerings in academic year 2021-2022

A (semester 1) English Gent

Lecturers in academic year 2021-2022

O'Brien, Jill GALWAY02 lecturer-in-charge

Offered in the following programmes in 2021-2022

	crdts	offering
International Master of Science in Marine Biological Resources(main subject Applied Marine Ecology and Conservation)	5	A
International Master of Science in Marine Biological Resources	5	A

Teaching languages

English

Keywords

Bioacoustics, marine mammals, passive acoustics, static acoustics.

Position of the course

Contents

Underwater acoustics is the study of sound propagation through water. As sound travels much more efficiently through water cetaceans have evolved to use this mechanism for navigating, finding food and communicating. This ability allows cetaceans to carry out their normal functions irrespective of sight which would be greatly influenced by turbidity, depth and darkness. Through the study of underwater acoustics we can get an insight into cetacean occurrence and behaviour when visual observations are not possible such as during hours of darkness and during adverse weather conditions. This module will train students in the different acoustic monitoring technologies available and how to analyse and interpret acoustic datasets.

Syllabus to include:

- Introduction to underwater acoustics and bioacoustics
- How animals (marine mammals) produce sound
- Acoustic recording equipment
- Recording and analysis of underwater sound
- Interpretation of acoustic data for conservation purposes

Initial competences

Final competences

- 1 Discuss the role of acoustics in conservation.
- 2 Design acoustic surveys as components of marine conservation initiatives.
- 3 Identify appropriate equipment to meet survey objectives within environmental constraints.
- 4 Retrieve, analyse and interpret acoustic data.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Seminar

Extra information on the teaching methods

This module utilises a case study approach, seminal research papers are evaluated and discussed by the learners. This module also uses a role play component where learners must adopt a viewpoint supported by available evidence in debate with their peers tasked with holding opposite viewpoints.

Learning materials and price

none

References

- Au, W.W.L. (1993) The sonar of dolphins. Springer-Verlag New York.
- Au, W. W. L. (1997) Echolocation in dolphins with a dolphin-bat comparison. *Bioacoustics* 8, 1-2, 137-162.
- Au, W.W.L. (2000) Echolocation in dolphins, in *Hearing by Whales and Dolphins*, edited by W.W.L. Au, A.N. Popper, and R.R. Fay (Springer New York), 364-408.
- Richardson, W.J.; Greene, C.R; Malme, C.I. and Thomson, D.H. (1995) *Marine Mammals Noise*. Academic Press, San Diego.
- Zimmer, W. 2011 *Passive Acoustic Monitoring of Cetaceans*. Cambridge University Press. Online ISBN: 9780511977107, Hardback ISBN: 9780521193429
- Journals and other module material will be placed on moodle by the module co-ordinator

Course content-related study coaching

Students experiencing difficulties should engage with course staff, or academic support units within GMIT.

Assessment moments

continuous assessment

Examination methods in case of periodic assessment during the first examination period

Examination methods in case of periodic assessment during the second examination period

Examination methods in case of permanent assessment

Oral examination, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Extra information on the examination methods

All assessments are formative and summative, they contribute to the module grade. The module is 100% continuous assessment and there is no terminal examination. The module is assessed using a combination of theoretical and practical exercises including presentations, data analysis and reporting.

Calculation of the examination mark

- Theory assessment: Continuous Assessment; 40 %
- Practical assignment: Continuous Assessment; 30 %
- Presentation Presentation: Continuous Assessment; 30 %