

## DEVELOPMENTAL NEUROBIOLOGY:

Research focuses on development and evolution of vertebrate nervous and sensory systems. In particular, we use amphibian embryos to study early embryonic development of cranial sense organs.

## MAMMAL ECOLOGY:

A variety of terrestrial habitats are studied. Recent work has investigated rodent populations, bats, seals, urban mammals, otter diet, fox distribution and conservation projects on native red squirrel.



## DEVELOPMENTAL BIOLOGY:



Developmental biologists ask important questions such as how can a complex adult animal be made from a fertilized egg, and what is the function of a stem cell? What makes vertebrates and arthropods segmented?



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# ZOOLOGY



Zoology is the scientific study of animals. The subject is broad, spanning all groups of animals (vertebrates, arthropods, molluscs and many others), all major

habitat types (marine, freshwater and terrestrial) and all levels of organization (from molecular to ecological). Zoology is concerned both with general principles that apply across most or all of the animal kingdom, but also with the variation among animal groups that is encapsulated in the concept of biodiversity. Zoologists ask how animals function, how they are created in the short term by embryogenesis and the longer term by evolution, and how they interact with each other in ecological communities.



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Zoology is available to **Science, Marine Science, Environmental Science** and **Earth & Ocean Science** students.

- **1st YEAR:** Students take a biology course, of which Zoology is a major component. It is a pre-requisite to studying Zoology in subsequent years.
- **2nd YEAR:** The biology and systematics of the major groups of animals. Aspects of animal function. Introduction to biological techniques - both molecular and biometric.
- **3rd YEAR:** Developmental biology, evolution & ecology, including aspects of parasitology & developmental neurobiology.
- **4th YEAR:** Evolutionary biology, animal physiology, biogeography, historical and philosophical aspects of Zoology, mammalian ecology and fisheries. A major component of the fourth-year Zoology course is a research project, which is undertaken in collaboration with a member of staff. Projects are chosen from a list of offered topics, although it is sometimes possible to arrange for a project that suits the particular interests of the students.



## EMPLOYMENT IN ZOOLOGY

Jobs in zoology are as diverse as the subject itself, and are obviously dependent on the research interests and experience of the student. Zoologists typically find employment as research scientists, lecturers, fisheries biologists, wildlife officers and technicians. Other more diverse options such as a career in the media or environmental consultancy are also available to zoologists. Some zoologists take careers in Ireland or Britain, whereas others end up working further afield, such as in the tropics or arctic regions.

## RESEARCH AREAS IN THE ZOOLOGY DEPARTMENT

**EVOLUTIONARY BIOLOGY:** Evolutionary research in Zoology includes studies of how certain aspects of the development of animals evolve. Centipedes serve as a 'model system' to examine this question. Current studies involve molecular, developmental and ecological aspects of animals groups. Research also focuses on molecular evolution of animal viruses and micro and macroevolutionary processes in animals generally.



**MARINE BENTHIC ECOLOGY:** The ecology of animals that live on or near the seafloor and intertidal area. Current research includes population and community level studies e.g. in relation to climate change, as well as systematics and biodiscovery.



**MARINE FISH:** Filling gaps in our knowledge about the biology of by-catch species and continuing long-term studies on the ecology and distribution of fish and fish larvae.

**FRESHWATER BIOLOGY:** The ecology of Ireland's rivers and lakes. Work in this area focuses on the River Shannon catchment and eutrophication of western lakes such as Lough Corrib. Other aspects include fish ecology and parasitology of species such as European eel, brown trout, and arctic charr.