

## OEB 112: Arthropod biology: Arachnids and myriapods, their biology and evolution

This course aims to introduce the evolutionary history and biology of arachnids, myriapods and related groups via a combination of learning their fossils, taxonomy, anatomy as well as their role as model organisms to understand phenomena such as segmentation or appendage specification. We aim to then use the knowledge acquired to study aspects related to web evolution, sociality, parental care, use of defensive secretions, and other behaviors that have made arthropods the most successful group of terrestrial organisms.

Are you familiar with the animals from the images below? You have probably encountered some of these before but didn't know much about them, their development, their evolution, their behavior? This is what we are set to learn in this class, through a combination of short lectures and active learning including a weekly lab, internet resources and a small dose of local field work plus a course-based project in iNaturalist.





Mon Jan 24th: Intro to OEB112. Intro to Panarthropoda.

Wed Jan 26th: Intro to Arthropoda. Presentation of Projects for first half of the semester.

+ Section meeting to discuss code of conduct, statement of values and semester projects (date and time TBD)

Fri Jan 28th (time TBD): Visit to the MCZ Invertebrate Zoology Collection

Mon Jan 31st: The Cambrian Explosion.

Wed Feb 2nd: The study of fossil arthropods.

Fri Feb 4th (time TBD): Fossils, onychophorans and tardigrades + iNaturalist session

Mon Feb 7th: The arthropod cuticle, segmentation and tagmosis.

Wed Feb 9th: The arthropod appendages.

Fri Feb 11th (time TBD): Lab session: appendage evolution.

Mon Feb 14th: Intro to myriapods and chelicerates.

Wed Feb 16th: Pycnogonida and Xiphosura.

Fri Feb 18th (time TBD): Lab session: Pycnogonida and Xiphosura. + Discussion of team projects.

Mon Feb 23rd: Scorpiones and intro to Tetrapulmonata

Fri Feb 25th (time TBD): Scorpiones.

Mon Feb 28th: Araneae.

Wed Mar 2nd: Amblypygi, Uropygi, Schizomida

Fri Mar 4th (time TBD): Tetrapulmonata + Discussion of iNaturalist arachnid projects.

Mon Mar 7th: Opiliones.

Wed Mar 9th: Research symposium I: **Class presentations & evaluation.**

Mon Mar 21st: Pseudoscorpiones, Solifugae and Palpigradi.

Wed Mar 23rd: Ricinulei and the “acarine” groups and additional arachnid fossils.

Fri Mar 25th (time TBD): The apulmonate arachnids + Discussion of new team projects.

Mo Mar 28th: Chilopoda: Scutigermorpha and Lithobiomorpha

Wed Mar 30th: Scolopendromorpha, Geophilomorpha and Craterostigmomorpha.

Fri Apr 1<sup>st</sup>: Chilopoda + Review session and iNaturalist myriapod project progress.

Mon Apr 4th: Symphyla, Pauropoda and related fossils.

Wed Apr 6th: Diplopoda: Penicillata, Pentazonia

Fri Apr 8th (time TBD): Diplopoda + Review session.

Mon Apr 11th: Helminthomorpha

Wed Apr 13th: Reproduction and reproductive behavior

Fri Apr 15th (time TBD): Discussion of field work and related activities; risks and responsibilities.

Mon Apr 18th: Development and growth.

Wed Apr 20th: Feeding, predation and defense

Sat – Sun (April 23<sup>rd</sup> & 24<sup>th</sup>): Field work in MA (to be announced, depending on COVID-19 regulations)

Mon Apr 25th: Chelicerates and myriapods as models to study chemical biology, biomechanics, biomaterials, and cultural aspects.

Wed Apr 27th: Research symposium II: Class presentations & evaluation.