

# Unit 1 - What are arthropods? What is systematics?

Open Entomology Project

23 August 2016

## Introduction

In this module we will discuss systematics as a field of research, and we'll touch on the importance of specimens as data, references, and vouchers (Turney *et al.*, 2015). Read the course syllabus and familiarize yourself with the grading policy, dates of exams and due dates for assignments, *etc.* We'll also discuss some ethical issues regarding the collection of organisms, and we'll get started on the collection exercise—Discover your inner Darwin.

## Test yourself

In each unit handout you will find questions, typically prefaced with the unit number ("4-1" and "4-2", for the first two questions in unit 4, for example). You should answer these in your lab notebook, which will be checked weekly. Your lab notebook grade is based on your effort in answering these questions, as well as how neat and organized the notes are, rather than whether your answer was correct.

**Question 1-1:** Could you explain the following terms to one of your peers?

1. Arthropoda
2. classification
3. Hexapoda
4. Insecta
5. nomenclature
6. phylogenetics

**Question 1-2:** Can you draw a phylogeny and interpret its meaning? Why are these diagrams important? Baum and Offner (2008) provide a helpful guide.

**Question 1-3:** Could you explain to a friend how this class is graded?

**Question 1-4:** Can you describe three ethical issues we need to consider when collecting organisms? If you were to edit the Insect Collector's Oath (Trietsch and Deans, 2016) how would you change it?

## Epilogue

This handout is part of an open curriculum. Original files are available free for anyone to download, copy, modify, and improve at the Open Entomology GitHub repository (Open Entomology Project, 2016), which also provides a mechanism for reporting problems and other feedback:  
<https://github.com/OpenEntomology/InsectBiodiversityEvolution/issues>

## References

- Baum, D. A. and Offner, S. Phylogenetics & tree-thinking. *The American Biology Teacher*, 70(4):222–229, 2008. doi: 10.1662/0002-7685(2008)70[222:PT]2.0.CO;2.
- Open Entomology Project. Insect biodiversity and evolution. <https://github.com/OpenEntomology/InsectBiodiversityEvolution>, 2016. Accessed 19 August 2016.
- Trietsch, C. and Deans, A. R. Insect collector's oath. <https://github.com/OpenEntomology/InsectBiodiversityEvolution/tree/master/insect-collectors-oath>, 2016. Accessed 11 August 2016.
- Turney, S., Cameron, E. R., Cloutier, C. A., and Buddle, C. M. Non-repeatable science: assessing the frequency of voucher specimen deposition reveals that most arthropod research cannot be verified. *PeerJ*, 3:e1168, 2015. doi: 10.7717/peerj.1168.