

**THE UNIVERSITY OF WESTERN ONTARIO
DEPARTMENT OF PHILOSOPHY
Graduate Course Outline 2017 Winter**

Philosophy 9750B: Philosophy and Biology

Time and Location TBD	Instructors:	Prof. Gillian Barker Stevenson Hall 2136 519 661-2111 x87747 gbarker5@uwo.ca
		Prof. Brent Sinclair Biological & Geological Sciences 2078 (519) 661-2111 x 83138 bsincla7@uwo.ca

Course Description:

We aim to have an interaction between biologists and philosophers to better understand how we ask and answer questions in biology – in essence, this will be an opportunity for biologists to learn more about how to critically evaluate their activities, and for philosophers to do fieldwork to find out what biology looks like ‘in the wild,’ and what happens to traditional questions in philosophy of science and philosophy of biology in this context. Although our focus on the biology side will be on ectotherm thermal biology, the concepts and skills you will learn are applicable to any branch of biology.

(For a sense of what thermal biology is, see Tattersall, G.J. et al. 2012. Coping with thermal challenges: Physiological adaptations to environmental temperatures. Comprehensive Physiology 2: 2151-2202, available for download here: <https://www.dropbox.com/s/h1yidqse4i8u3m1/Tattersall%20et%20al%202012%20Comprehensive%20Physiology.pdf?dl=0>)

Specifically, we’ll be asking the following questions:

- What is an hypothesis? (How is it related to theory? Evidence? Prediction?)
- Is statistical hypothesis testing the same as scientific hypothesis testing? (What are null hypotheses?)
- Can I do science without hypotheses? Why might I want to?

And -

- Is there a ‘theory’ of ectotherm thermal biology?

Along the way, we’ll touch on some important philosophical concepts associated with Biology: What is adaptation? Function? Regulation? Are there ‘laws’ in Biology? How do biologists address important philosophical issues in evidence, explanation, prediction, pluralism, objectivity?

Readings:

Required readings will include classic and recent work in philosophy of science and philosophy of biology, and recent papers in biology. Readings (or links to readings available via institutional subscriptions) will be made available on OWL.

Requirements:

Your active and informed participation in the seminar discussions throughout the semester is essential. In addition, each student will be responsible for contributing to a group presentation, for three individual written assignments (a summary of

their presentation contribution, a short reflection piece, and an analysis and evaluation of a scientific paper) and for research and written contributions to a collaborative project involving the entire class and both instructors (with the aim of producing a publishable review article.) Regular attendance throughout the semester is (obviously!) expected.

Evaluation breakdown:

In-class presentation and handout	30% (group mark)
Written summary of in-class presentation topic	20% (individual)
Written evaluation/analysis of a scientific paper	10%
(Short) Reflection piece	10%
Contributions to collaborative class project	30%