Philosophy of Biology
University of Rochester
Fall 2009

Overview
This class is an introduction to philosophy of biology focussing on issues connected with the nature and scope of biological explanations. We begin by contrasting evolutionary and design explanations. We then examine a set of foundational questions concerning the nature and scope of the explanations provided by natural selection. We conclude by examining the explanatory role of genes in development. No prior philosophy of science or biology will be assumed.

Course Details

Codes
PHL 251, PHL 251W, PHL 451

Location
Lattimore Hall 413

Dates
2 September to 9 December.

Times
Mondays and Wednesdays, 12:30pm to 1:45pm.

Final Paper Due
Wednesday 9 December.

URI
http://mail.rochester.edu/~bweslake/teaching/2009/biology/

Note: This syllabus is provisional. The latest schedule and any announcements will always be available at this location.

Instructor
Brad Weslake
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Office Hours: Tuesdays 10am–12pm, or by appointment.

Note: Cancellations will always be announced on my website.
Assessment

Requirements:

• Ten 1-2 page weekly reading summaries. You should pick at least one of the readings for the class in question and summarise, as clearly and concisely as you can, the main argument. Please also indicate whether there were parts of the reading that you found unclear or confusing.
• A 10-15 minute presentation, followed by discussion.
• An in class exam, consisting of multiple choice and short answer questions.
• A second 10-12 page research paper, questions to be provided.

The final grade will be determined as follows:

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<tr>
<th>Component</th>
<th>Percentage</th>
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<tr>
<td>Reading Summaries</td>
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<td>Presentation</td>
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<td>Exam</td>
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<td>Paper</td>
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Assessment dates:

- **Exam**: Wednesday 21 October.
- **Paper**: Wednesday 10 December.
- **Reading Summaries**: At each associated class.

*Note*: Late summaries will not be accepted.

*Note*: Graduate students or students enrolled for upper level writing credit will be required to write longer essays. Graduate students will also be required to read all optional readings and to submit more detailed writing summaries.

Textbooks

Our textbook is Sober (2000a).

*Optional Background Reading*

For those without any background in evolutionary biology, Carroll (2006) and Coyne (2009) are good recent popular introductions to the evidence for evolution, and Ridley (2004) and Futuyma (2009) are the definitive textbooks.
Books on Reserve
The following books have been placed on 2-hour reserve in Rush Rhees Library—Sober (1984), Lewontin (2001), Pigliucci and Kaplan (2006), Sober (2006), Sober (2008a), Sarkar and Plutynski (2008), Ruse (2008). In addition, Hull and Ruse (1998) is available online through the library website.

Schedule

Wednesday 2 September  Introduction
Monday 7 September  No Class

Section I: Evolutionary Theory and Design Arguments

Evolutionary Theory
Wednesday 9 September  Introductory  Sober (2000a, Chapter 1).
Primary  Kitcher (1985).

Design Arguments
Monday 14 September  Introductory  Sober (2000a, Chapter 2).
Primary  Sober (2008c, §§2.1–2.15).
Wednesday 16 September  Primary  Sober (2008c, §§2.16–2.22).

Section II: Natural Selection
Overview Stephens (2007).

What Does Selection Explain?

Fitness
Wednesday 23 September  Introductory  Rosenberg and Bouchard (2009).
Primary  Sober (2000a, Chapter 3).
Wednesday 30 September  No Class
Monday 5 October  No Class
Dynamical and Statistical Theories

Wednesday 7 October   Primary Matthen and Ariew (2002).

Monday 12 October      Primary Reisman and Forber (2005).
                       Matthen and Ariew (forthcoming).

Selection Of and Selection For

Wednesday 14 October   Introductory Fodor (2007).
                       Primary Fodor (2008a).
                       Secondary Dennett (2008), Godfrey-Smith (2008),

Biological Function

Monday 19 October      Introductory Lewens (2007).
                       Primary Godfrey-Smith (1993).
                       Secondary Kitcher (1993a), Amundson and Lauder

Wednesday 21 October   Exam

Levels of Selection

                       Primary Sober (2000a, Chapter 4).

Wednesday 28 October   Primary Sterelny and Kitcher (1988).
                       Secondary Sober (1990), Kitcher, Sterelny, and Waters

Adaptationism

Monday 2 November      Introductory Sober (1996), Godfrey-Smith and Wilkins
                       (2008).
                       Primary Sober (2000a, Chapter 5).
                       Secondary Cain (1964), Smith (1978), Mayr (1983),

Section III: Genetics and Development

Overview Waters (2007b).

Reductionism

Wednesday 11 November  Primary  Waters (1990).

Heredity
Primary  Sober (2000a, Chapter 7).

Developmental Systems Theory
Wednesday 18 November  Introductory  Godfrey-Smith (2000a).
Primary  Griffiths and Gray (1994).

Monday 23 November  Primary  Kitcher (2000).

Genetic Causation

Genetic Information
Primary  Griffiths (2001).

References


Lange, Marc. 2006. *Philosophy of Science: An Anthology*, Blackwell, Malden MA.


