

PHIL 344: PHILOSOPHY OF BIOLOGY

Fall 2020

Class schedule: TR 9:30-10:50am
Class Instructor: Katherine Valde
Office: DB 206

Class Location: DB 218
E-mail: valdekg@wofford.edu
Office Hours: bookable online

Philosophy, though unable to tell us with certainty what is the true answer to the doubts it raises, is able to suggest many possibilities which enlarge our thoughts and free them from the tyranny of custom. Thus, while diminishing our feeling of certainty as to what things are, it greatly increases our knowledge as to what they may be; it removes the somewhat arrogant dogmatism of those who have never traveled into the region of liberating doubt, and it keeps alive our sense of wonder by showing familiar things in an unfamiliar aspect.

-Bertrand Russell

Course Description:

This course will explore conceptual and methodological problems in biological science. Students will learn to reflect critically on scientific practice and the place of science in a broader context. We will examine questions such as: What do common ancestry and natural selection mean and how can hypotheses about each be tested? What is the nature of species and what role does the concept of species play in biological theory? What are the implications of evolutionary explanations of morality for ethical theory? Topics will include the nature of species, the concepts of function and adaptation in biology, the relationship between evolution and morality, among others.

Course Objectives:

This course is designed to both provide an introduction to some questions in philosophy of biology and to inspire your curiosity for such questions. You will learn to:

- Understand evolutionary theory and its place in biological science
- Identify and understand arguments from evolution and about evolution
- Drawings connections between arguments genetics, molecular biology, and the social sciences
- Evaluate the relative strength of different positions on particular issues
- Construct original responses to issues in the philosophy of biology

Along the way, this course will help you to develop and articulate your own perspective on these issues and inspire an excitement for creativity in approaching problems in the philosophy of biology. It is the ultimate goal of this course to help you become a thoughtful consumer of science and more fully appreciate the beauty and complexity of the living world.

Required Text:

Philosophy of Biology: An Anthology Edited by Alex Rosenberg and Robert Arp (2014)
All other readings will be provided on Moodle.

Class Expectations:

Do the readings. *Think* about the readings. Our class will not be engaging for you if you do not come prepared. Treat each other and the professor with respect. Be prepared to be challenged. Growth (intellectual and personal) comes from moving beyond our comfort zones!

GRADING:

ENGAGEMENT – 20%

Engagement comes in many forms, and it is not the same as attendance. Merely showing up (having no more than two absences), listening respectfully (that is NOT engaging in any negative behaviors described below), and passing at least 6 reading response assignments, will result in a 70 in engagement.

If you're interested in earning an A in engagement, the following will count towards earning a higher grade:

- Asking questions about course content in and out of class
- Participating in class by making connections between ideas from our readings or ideas from your peers
- Answering questions asked by your peers or your professor in class
- Reading each of our readings before class and submitting a short reflection on that reading before class.

In-class time is crucial to earning your engagement grade. Engagement isn't about knowing the answers but about giving class time and the content of our course your attention and effort.

You can submit written reading responses before each class. These responses are to be no more than 500 words and will be graded only as pass/fail. To pass, responses need to clearly demonstrate having read the entire assigned reading. There will be 16 opportunities to make these submissions.

- Passing at least 12 will raise your base grade to an 85
- Passing at least 10 will raise your base grade to a 80
- Passing at least 8 will raise your base grade to an 75

The following behaviors will lower your engagement grade:

- Being disrespectful to anyone in our class community at any time
- Passing fewer than 6 reading response assignments
- Using your phone at any time during class
- Failing to listen to your instructor or your peers. This includes engaging in side conversations even if they are on the course topic.
- Using your computer to search the internet, online shop, message friends, do homework for other classes, etc.
- Repeatedly showing up late to class – arriving late to class 3 times will be counted as an absence in calculation of your total engagement grade.
- Missing more than 2 classes

We are only together for 80 minutes at a time and avoiding distractions for that period is key to engaging in our course. Even if you're performing all or many of the positive behaviors to earn a higher engagement grade, these behaviors will result in a lower total overall grade.

TAKE-HOME MIDTERM EXAMS – 50% (25% EACH)

These comprehensive take-home midterms will consist of short answer and long answer questions designed to check students comprehension of key ideas from this course.

FINAL PAPER PROJECT – 30%

For this paper you will answer a question of your own design relating to some topic from class. These projects will include proposing and presenting an abstract (5%), getting project approval in a one-on-one meeting with your professor (10%), completing a review (10% of a complete drafts of your paper (5%), and a submitting a final paper (70%). Final papers should be approximately 1750 words.

COURSE SCHEDULE:

PERSPECTIVES ON EVOLUTION (WEEKS 1-5):

Thursday 8/31	Welcome to PhilBio ☺
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Week 1– Evolution by Natural Selection

Tuesday 9/5	<i>General Introduction: A Short History of Philosophy of Biology</i> by Alex Rosenberg and Robert Arp
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Thursday 9/7	No Class Meeting
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Week 2 – Evolution and Chance in Biology

Tuesday 9/12	<i>Ch. 2. Evolution</i> by Eugenie C. Scott
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Thursday 9/14	<i>Ch. 3: Beyond the Reach of Chance</i> by Michael Denton <i>Ch. 4 Accumulating Small Change</i> by Richard Dawkins
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Week 3 –Chance in Biology (continued)

Tuesday 9/19	<i>Ch. 5 Chance and Natural Selection</i> by John Beatty
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Thursday 9/21	<i>Ch. 6 The Principle of Drift: Biology's First Law</i> by Robert N. Brandon
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Week 4 – Adaptationism and its Critics

Tuesday 9/26	<i>Adaptation and Environment</i> by Robert Brandon (PDF available on Moodle)
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Thursday 9/28	<i>Ch. 9 The Spandrels of San Marco and the Panglossian Paradigm</i> by Stephen Jay Gould and Richard C. Lewontin
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Week 5 – EXAM 1

Tuesday 10/3	In-Class Review
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Thursday 10/5	Exam 1 due by 11am
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KEY BIOLOGICAL CONCEPTS (WEEKS 6-8):

Week 6 – Biological Functions and Teleology

Tuesday 10/10	<i>Ch. 12 Neo-Teleology</i> by Robert Cummins
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Thursday 10/12	<i>In Defense of Proper Functions</i> by Ruth Garrett Millikan (PDF available on Moodle)
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Week 7– Species Concepts

Tuesday 10/17	<i>Ch. 19 Speciation: A Catalogue and Critique of Species Concepts</i> by Jerry A. Coyne and H. Allen Orr
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Thursday 10/19	NO CLASS (FALL BREAK!)
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Week 8– Species & Individuals

Tuesday 10/24	<i>A Radical Solution to the Species Problem</i> by Michael Ghiselin (PDF available on Moodle)
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Thursday 10/26	<i>Life is not Easily Bounded</i> by Derek Skillings
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Week 9– Units or Levels of Selection

Tuesday 10/31	<i>Ch.21 The Return of the Gene</i> by Kim Sterelny and Philip Kitcher
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Thursday 11/2	<i>It's The Song, Not The Singer</i> by Ford Doolittle and Austin Booth (PDF available on Moodle)
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Week 10 – Cultural Evolution and Sociobiology

Tuesday 11/7	<i>Cultural Evolution</i> by Macie Chudek, Michael Muthukrishna, and Joseph Henrich
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Thursday 11/9	<i>Ch. 23 Sociobiology: The New Synthesis</i> by Edward O. Wilson
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Week 11 –

Tuesday 11/14	In-Class Review
Thursday 11/16	Exam 2 due at 11am

THANKSGIVING BREAK (NO CLASS 11/20-11/24)

FINAL PAPER PROJECTS (WEEKS 12-14):

Week 12 – Mandatory Individual Meetings with Dr. Valde

Tuesday 11/28	Abstracts due by 9am on Moodle – In-Class Topic Pitches!
Thursday 11/30	No Class – Individual meetings with Dr. Valde

Week 13 – Final Paper Projects (no in-person classes)

Tuesday 12/5	Paper-writing workshop Drafts due by 9am
Thursday 12/7	Completed review due by 9am

Week 14

Monday 12/11	FINAL PAPERS DUE @ NOON
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