

# PHIL 481: Philosophy of Biology

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**Pronouns:** she/her

**Class time:** MW 10:30-12:20  
**Class location:** SAV 130  
**Office hours:** Th 1:00-3:00

## 1. Course description

In this course, we will consider philosophical issues surrounding some of the core concepts in biology, starting with perhaps the most fundamental: **LIFE** itself. Biology is the science of life, but what is life? Are viruses alive? What about sufficiently complex computers? What would it mean to discover life on other planets? From there, we will consider issues touching on other central biological concepts. What is an **ORGANISM**? Is a lichen, which involves symbiotic interactions between two or more species, one organism or two? What is a **SPECIES**, anyway, and what is the **TREE OF LIFE**, which record historical evolutionary relationships between species? Evolution occurs via natural selection, but what is **NATURAL SELECTION**? Can it operate on social groups, or only on individual organisms (or even only genes)? Does the theory of evolution by natural selection show that biology is a teleological science, or does it rather banish the notion of **FUNCTION** from biology altogether? Lastly, we will consider the nature of **BIOLOGY** itself. Do biologists discover universal laws of nature? Or do they merely record contingent facts about evolutionary history? Are those the only two options?

## 2. Course texts

As an upper-division course, we will not be using a textbook. Instead, we will be reading primary sources, including both classic papers and more recent work. All readings will be provided through the course Canvas page.

If you would like some background reading, the best introductory text for philosophy of biology is [\*Sex and Death\*](#) by Kim Sterelny and Paul Griffiths, though it is older (1999) and focuses primarily on evolutionary theory. More recent introductory texts include: [\*Godfrey-Smith\*](#) (2014) and [\*Rosenberg and McShea\*](#) (2007).

## 3. Grading system

**Grading system.** In this course, *you will grade yourselves*. At the end of the term, you will assign yourself a final grade (subject to my approval), drawing on feedback I have given you throughout the term. You will also complete three interim self-assessments during the term, so that you will have a sense of where you stand. You will assign grades on the 0-4.0 scale, with 0.7 as the cutoff for passing the class.

There are a few purposes of self-grading: (1) It encourages you to reflect on your own learning and performance (which in fact improves that performance); (2) it requires you to reflect seriously on my feedback, rather than focusing on any numerical scores I give you.

This policy applies only to undergraduate students.

#### 4. Assignments (undergraduate)

**Short papers.** Each week (weeks 2-9), there will be a short paper assignment, asking you to evaluate a position and argument discussed that week (topics and guidelines will be provided). These will demonstrate both (a) your understanding of the authors' central views and (b) your ability to evaluate those views for yourself. These will be due on *Fridays*. You will be required to complete FIVE total of these papers, as follows:

- **Short papers 1-3 (11 points each):** complete TWO
- **Short papers 4-6 (14 points each):** complete TWO
- **Short papers 7-8 (16 points each):** complete ONE

**Final paper.** Instead of a final exam, you will write a single long ( $\approx 2000$  words) paper. In these papers, you will defend a position on one of the topics we have discussed over the course of the term, supplementing course readings with original research. Further instructions will be provided later.

**Final paper outline.** On June 1, you will turn in a final paper outline. Detailed instructions will be provided; the assignment will be graded for completion.

#### 5. Assignments (graduate)

**Term paper.** Graduate students in this course will be required to write a final paper (4500-5500 words) on a topic of their choosing. This paper must be argumentative (i.e., not merely a lit review). This will be their only assignment.

#### 6. Further grading-related policies

**Disability and accommodation policy.** It is my intention that this course be made accessible to all students. This means, minimally, that I will grant any accommodations required by the Disability Resources Center. However, some of you may need accommodations not formally certified by that office. If any aspect of the class poses a hardship for you, please talk to me, and we can work together to develop a plan for you to fulfill the course requirements.

**Extension policy.** I grant all extension requests, no questions asked. If you need one, just ask. I only request that you let me know *before* the assignment is due. There are no late penalties in this course.

## 7. Reading Schedule

Date	Topic	Required Readings <i>due on date listed</i>	Assignments <i>due on Fridays</i>	Optional Readings
Week 1 March 28	Introduction	<i>No reading</i>	<i>No assignments</i>	<i>No readings</i>
Week 1 March 30	What is life?	Mariscal & Doolittle, "Life and life only..."	<i>No assignments</i>	Boden, "Is metabolism necessary?"
Week 2 April 04		Cleland, "Epistemological issues in the study of microbial life..."	<i>No assignments</i>	Cleland, "Life without definitions" Diéguez, "Life as a homeostatic property..."
Week 2 April 06		Parke, "Dimensions of Life Definitions"	<b>Short paper #1</b> (must do 2 of first 3)	Malaterre & Chartiere, "Beyond categorical definitions..."
Week 3 April 11	What is an organism?	Clarke, "The multiple realizability of biological individuals"	<i>No assignments</i>	Godfrey-Smith, <i>Darwinian Populations...</i> ch. 5 Love and Brigandt, "Philosophical dimensions of individuality"
Week 3 April 13		Pradeu, "What is an organism?..."	<b>Short paper #2</b> (must do 2 of first 3)	Molter, "On Mushroom Individuality" Skillings, "Holobionts and the ecology..."
Week 4 April 18	What is a species?	Hull, "Are species really individuals"	<i>No assignments</i>	Brigandt, "Species pluralism does not imply..." Hazelwood, "The species category as a scientific..."
Week 4 April 20		Ereshefsky, "Eliminative pluralism"	<b>Short paper #3</b> (must do 2 of first 3)	Hey, "On the failure of modern species..." Reydon, "On the nature of the species problem..."
Week 5 April 25	What is the tree of life?	Rieppel, "The series, the network, and the tree..."	<i>No assignments</i>	Blais and Archibald, "The past, present, and future..." Dagan and Martin, "The tree of one percent"
Week 5 April 27		Franklin-Hall, "Trashing life's tree"	<b>Short paper #4</b> (must do 2 of second 3)	Doolittle, "The attempt on the life..."

<b>Date</b>	<b>Topic</b>	<b>Required Readings</b> <i>due on date listed</i>	<b>Assignments</b> <i>due on Fridays</i>	<b>Optional Readings</b>
Week 6 May 02	What is natural selection?	Sober, "The tautology problem"	<i>No assignments</i>	Campbell & Robert, "The Structure of Evolution..."
Week 6 May 04		Sterelny & Kitcher, "The return of the gene"	<b>Short paper #5</b> (must do 2 of second 3)	Haug, "Of mice and metaphysics" Inkpen and Doolittle, "Processes and patterns..."
Week 7 May 09		Lloyd, "Why the gene will not return"	<i>No assignments</i>	Matthen et al. "Four pillars of statisticalism" Millstein et al. "(Mis)interpreting mathematical models..."
Week 7 May 11		Zilber-Rosenberg & Rosenberg, "Role of microorganisms..."	<b>Short paper #6</b> (must do 2 of second 3)	Roughgarden et al., "Holobionts as units..."
Week 8 May 16	What is a function; or, is biology teleological?	Lennox, "Darwin <i>was</i> a teleologist..."	<i>No assignments</i>	Amundson & Lauder, "Function w/o purpose" Griffiths, "Function, homology..."
Week 8 May 18		Garson, "A generalized selected effects..."	<b>Short paper #7</b> (must do 1 of last 2)	Rosenberg & Neander, "Are homologies..." Schulte, "No functions for rocks..."
Week 9 May 23	What is biology; or, are there biological laws of nature?	Beatty, "The evolutionary contingency thesis"	<i>No assignments</i>	Mitchell, " <i>Ceteris paribus</i> ..." Raerinne, "Evolutionary contingency..."
Week 9 May 25		Mitchell, "Dimensions of Scientific Laws"	<b>Short paper #8</b> (must do 1 of last 2)	Sober, "Two outbreaks of lawlessness..."
Week 10 May 30	<b>NO CLASS - UNIVERSITY HOLIDAY</b>			
Week 10 June 01	Final wrap-up Paper discussion	Jabr, " <a href="#">Why life does not really exist</a> "	<b>Paper outline</b>	<i>No reading</i>
Week 11 EXAMS	<i>NO FINAL EXAM</i>		<b>FINAL PAPER DUE WED, JUNE 08</b>	

## 8. Further course policies

**In-class etiquette.** Philosophy is a social endeavor. People engaged in philosophy do not simply think in solitude, but rather engage in discussion with others. That will be true in this class as well: you will be encouraged to discuss the topics we cover with your fellow students. You are even encouraged to disagree with them. It is therefore imperative that you understand how to do so respectfully. We will discuss this early on in the semester and collectively agree on standards for discussion to which we will hold ourselves. Here are some ground rules:

- Think of those with whom you disagree not as opponents but as fellow seekers of the truth. Even if you disagree, you are *collaborating*.
- Acknowledge the person you are responding to, by name if possible.
- Address your comments to the arguments that have been offered. Never attack the intelligence or character of the person who argued for them.
- On some issues, you may have strongly held opinions. That is ok, but it is important to recognize that people who disagree with you are doing so in *good faith*. Before getting angry with or dismissive of another person, try to understand why they think the way they do.

**Group work.** Group work is permitted for all assignments in this course, so long as *the final product you turn in is your own work*. In other words, you may discuss assignments with your peers, you may compare your work and give each other feedback, and so forth. However, you must write up the final assignment yourself; failure to do so is one form of plagiarism.

**Plagiarism.** In this course, you are expected to turn in work reflective of your own effort. I encourage you to discuss assignments with other students, but what you turn in must ultimately be your own work. You must also cite any sources that inform your work. We will talk more about expectations for this in class, and I will work with students to correct minor violations. Major violations (such as purchasing essays online) will be reported to the school's university office.

**Religious accommodation.** Students are entitled to reasonable accommodation for religious holidays. Accommodation requests must be made through the Office of the University Registrar Religious Accommodations [request process](#) within the *first two weeks* of the term.

**UW face covering policy.** As of March 28, the UW mask policy is that masks are optional indoors, but strongly recommended for the first two weeks of term (due to the large number of people returning from travel). We will follow this policy as a class: *you are strongly encouraged to wear your mask for the first two weeks of the term*. You can read the full policy here: <https://www.ehs.washington.edu/covid-19-prevention-and-response/face-covering-requirements>