

PHIL 464 Philosophy of Biology Winter Term 2 2021-22 Syllabus

Class meetings: Tuesdays: 2 – 4:45 p.m. in BIOL 1012

Instructor: Chris Stephens

Office Hours: Mondays and Wednesdays from 1-2 p.m., but I'm available at other times. Email: chris.stephens@ubc.ca

Acknowledgment: UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the xwməθkwəyəm (Musqueam) people. The land it is situated on has always been a place of learning for the Musqueam people, who for millennia have passed on in their culture, history, and traditions from one generation to the next on this site.

Course Description

Although philosophical issues arise in a number of areas of biology, this course focuses primarily on evolutionary theory. We will begin with the debate between creationism and evolutionism both in its historical and contemporary context. The central philosophical questions in this part of the course will be: what makes a theory or hypothesis scientific? How does evidence confirm or disconfirm a scientific theory? How did Darwin and Wallace argue for their theory?

In the second part of the course, we'll look at a number of conceptual and methodological debates within contemporary evolutionary theory. Biologists have been engaged in sometimes heated debates over questions such as: what is a species? How powerful a force is natural selection? At what level (or levels) – gene, individual or group – does natural selection act? We will read essays by both biologists and philosophers who attempt to shed light on these questions.

In the third part of the course, we'll examine attempts to apply evolutionary theory to psychology and moral philosophy. One of the central issues here is what the implications of evolutionary theory are for understanding whether or in what sense there might be such a thing as human nature.

Note: This is *not* a course in bio-medical ethics, environmental ethics or ethics in science more generally. For those interested in such a course, PHIL 332, PHIL 333 or PHIL 337 would be more appropriate.

Prerequisites: The course is designed to be approachable to both biology and philosophy students. As such, it does not presuppose extensive familiarity with either evolutionary theory or philosophy of science, though of course background in either of these areas will be useful. Students without much prior exposure to evolutionary biology, philosophy of science or probability and statistics will find the course more difficult than those with such background, but I will only assume a willingness to learn the relevant material. If you have any questions or concerns about this, please ask.

Texts – The main text for the course is Elliott Sober's *Philosophy of Biology* (Westview Press). Additional course readings will be available on line (via Canvas)

Course Requirements

- (1) 2 short (approx. 500 words) reaction papers (5% each; 10% total)
- (2) Participation in class discussion (10%)
- (3) Presentation and Presentation Paper (15%)
- (4) Term Paper: A 2,000 – 2,500 word term paper (35%)
- (5) Final exam (30%)

Each of these requirements is explained in more detail below.

Short Reaction Papers

Each class meeting you will have the opportunity to submit a short (approximately 500 words) paper on one of the readings for that day. These papers should raise an objection to some claim or argument in one of the readings for that day *that we have not yet discussed in class*. Ultimately, you do not have to disagree with the author's conclusions; however, your paper should exhibit the *critical spirit*. You may write on the material from any two weeks, except that *you must submit at least one reaction paper by week 7, and you cannot write more than one reaction paper in the same week*.

Class Discussion

Attendance is expected. You should regularly ask and answer questions in class. You should come prepared having done the readings for any given day, and you are encouraged to ask questions about the other students' presentations. Given the interdisciplinary nature of our topic and readings, you should have questions about all of the readings. Nothing would please me more than to come into class each day and discover that each one of you has several questions to ask.

Presentation and Presentation Paper

Each student in the course is required to give one (at least) 10 to 15-minute presentation about some part of one of the readings. The paper and presentation should *not* be purely expository; it should also develop an objection or criticism (though you may argue that the objection can be met by the author you're discussing). You should also raise one or more questions for the class about one of the readings for that week. The presentation should be accompanied by a 1,200-word paper that is due the day of your presentation. At the same time, you should not simply read your presentation paper – you should “talk through” the paper, using a handout or slides. I will pass around a sign-up sheet for the presentations on the first day.

Term Paper

Students should submit an approximately 2,000 – 2,500-word essay (double-spaced) that is due on or before **Tuesday March 29th** (submitted to Canvas). I will pass around some suggested topics. The paper may be a development of one of your short papers or of your presentation paper. In any event, you should check with me to get final approval for your topic by **Tuesday, March 8th**.

If you are not familiar with philosophy papers, you might find James Pryor's Guidelines on how to write one helpful:

<http://www.jimpryor.net/teaching/guidelines/writing.html>

Final Exam

Students in PHIL 464 are required to take the final exam, which will take place at the scheduled exam time between April 12th and 27th. The final exam will consist of a combination of short answer and essay questions. I will pass out a review sheet a couple weeks before the end of the term.

Note: The Centre for Accessibility (<https://students.ubc.ca/about-student-services/centre-for-accessibility>) provides resources for students who need academic accommodation. Please contact me personally as soon as possible so we can discuss accommodations necessary to ensure full participation and to facilitate your educational opportunities.

Finally, please note that cheating and plagiarism are serious offenses. If you have any questions about what constitutes academic misconduct, please check with me or the University guidelines. See:

<http://www.calendar.ubc.ca/Vancouver/index.cfm?tree=3,54,111,959>

Schedule of Readings and Assignments (All readings except for the Sober textbook are available on the course Canvas site.)

Week/Dates	Topic	Readings
1 Jan 11 th	Introduction to Phil Bio History of Evolutionary Theory Darwin & natural selection	Sober, <i>Philosophy of Biology</i> , ch. 1 Paley <i>Natural Theology</i> (excerpts ch. 1-3) Darwin's <i>Origin</i> (excerpts ch. I-IV)
2 Jan 18 th	Common Ancestry Creationism & Intelligent Design Falsifiability & Testability	Darwin's <i>Origin</i> (excerpts, ch.XIV) Gould "The Panda's Thumb" Sober, <i>Philosophy of Biology</i> , ch. 2 Behe <i>Darwin's Black Box</i> (excerpts) Sober "The Design Argument"
3 Jan 25 th	Probability and Fitness	Sober, <i>Philosophy of Biology</i> , ch. 3; Mills & Beatty "The Propensity Interpretation of Fitness" Sober, "Trait Fitness is not a Propensity, but Fitness Variation is"
4 Feb 1 st	Laws & Contingency in Evolution	Beatty "The Evolutionary Contingency Thesis" Gould excerpts from <i>Wonderful Life</i> Losos <i>Improbable Destinies</i> excerpt Beatty "Replaying Life's Tape"
5 Feb 8 th	Population Thinking Human Nature What are organisms/individuals?	Sober "Evolution, Population Thinking & Essentialism" Hull "On Human Nature" Machery "A Plea for Human Nature" Gilbert, Sapp and Tauber "A Symbiotic View of Life: we have never been individuals"
6 Feb 15 th	Units of Selection/Altruism Gene-cultural group selection	Sober, <i>Philosophy of Biology</i> , ch. 4 Sober and Wilson <i>Unto Others</i> , excerpt. Boyd and Richerson "Culture and the Evolution of Human Cooperation"
No class Feb 22nd (Spring Break week)		
7 March 1 st	Adaptationism (At least one short paper due by March 1st)	Sober, <i>Philosophy of Biology</i> , ch. 5 Gould & Lewontin "The Spandrels of San Marco and the Panglossian Paradigm" Mitchell and Valone "The Optimization Research Program – Studying Adaptations by their functions"
8 March 8 th	Species (Term paper topic approval by March 8th)	Baum "Individuality and the existence of species through time" Velasco "Species concepts should not conflict with evolutionary history, but often do"
9 March 15 th	Human Genetic Diversity & Race	Barbujani & Colonna "Human genome diversity: frequently asked questions" Appiah "Why there are no races" Haslanger "Gender and Race: (What) are they (What) do we want them to be?" Spencer "Philosophy of race meets population genetics"
10 March 22 nd	Nature-Nurture Evolutionary Psychology	Sober "Separating Nature and Nurture" Buss "Sex Differences in Human Mate Preferences" Schulz "It takes two: sexual strategies and game theory"
11 March 29 th	Evolution & COVID (Term Paper Due March 29th)	Sober "Infectious Diseases and the Evolution of Virulence" Seitz et al "The pandemic exposes human nature: 10 evolutionary insights" Hausman "The medicalized life" https://aeon.co/essays/what-explains-the-enduring-grip-of-medical-skepticism
12 April 5 th	Evolution & Moral Psychology	Skyrms "Commitment" (ch. 2 of <i>Evolution of the Social Contract</i>) Henrich et al "In search of <i>homo economicus</i> : Behavioral experiments in 15 small scale societies" Santos "The evolution of irrationality: insights from non-human primates"

Final Exam (at UBC scheduled time and day between April 12th and April 22nd)