

# PHILOSOPHY OF THE LIFE SCIENCES

Fall 2018

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<b>Instructor:</b>	Corey Dethier	<b>Time:</b>	TR 2:00 - 3:15PM
<b>Email:</b>	cdethier@nd.edu	<b>Location:</b>	O'Shaughnessy 206
<b>Office hours:</b> M 13:00-14:00, W 11:00-12:00 Malloy Hall 1 <sup>st</sup> floor lounge			

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**Course description:** This course serves as an introduction to the philosophy of the life sciences, with a specific focus on contemporary issues relating to genes and genetics. The class begins with a discussion of evolution and its conceptual foundations, paying particular attention to different views on the role of natural selection within evolutionary biology. We'll then turn our attention to a number of more specific philosophical issues, such as the implications of evolutionary biology for human nature, individuals, and society. We'll end by considering some contemporary ethical issues raised by the life sciences.

## Course Aims:

- To develop the ability to critically engage with science and scientific results.
- To develop familiarity with the type of questions asked by philosophers of science and the methods used to answer these questions.
- To develop an appreciation for the prospects and difficulties of science as a knowledge-producing activity.
- To develop an appreciation for the place of science within a broader social and ethical context.

**Texts:** All readings will be uploaded as PDFs to the Sakai website for the course.

**Grades:** The grading scale will be as follows: A (94+), A- (90-93), B+ (87-89), B (84-86), B- (80-83), C+ (77-79), C (74-76), C- (70-73), D (60-69), F (59-)

Final grades in the class will be divided into the following categories (a more thorough discussion of these assignments can be found on pages 3-4):

- 30% In-class participation. Students will be expected to regularly attend class and contribute to the discussion in ways that respectfully engage with their fellow classmates.
- 30% Reading responses. I will provide study questions to help students guide their reading. Students will be expected to turn in responses to these questions every other Thursday before class.
- 40% Final research paper. Approximately midway through the semester, students will be asked to formulate a research question. This proposal, outlining the research question, its interest, and a research plan will be worth 10% of the final grade. The final paper itself will be worth the other 30%.

**Course policies:** In addition to the honor code (<http://firstyear.nd.edu/current-students/honor-code/>), which students are expected to learn and follow, I will expect students to (a) be respectful of their fellow students, (b) turn their assignments in on time, and (c) behave ethically both in class and in fulfilling their assignments.

## Schedule:

Date	Reading	Due
Evolution, natural selection, and adaptation		
T Aug. 21	Keller - selection from <i>Making Sense of Life</i>	
R Aug. 23	Darwin - selections from <i>Origins</i>	
T Aug. 28	Sober - “Evolutionary Theory as a Theory of Forces,” §§1.0 – 1.4	
R Aug. 30	Godfrey-Smith - “Evolution and Natural Selection”	R1
T Sep. 4	Gould & Lewontin - “Spandrels of San Marco”	
R Sep. 6	Dennett - “Searching for Quality”	
T Sep. 11	Potochnik - “Optimality Modeling in a Suboptimal World”	
R Sep. 13	Lloyd - “Adaptationism and the Logic of Research Questions”	R2
The nature and role of the gene		
T Sep. 18	Burian - “On Conceptual Change in Biology: The Case of the Gene”	
R Sep. 20	Lloyd - “Units and Levels of Selection”	
T Sep. 25	Sarkar - <i>Genetics and Reductionism</i> , §§1.0 – 1.2, 7.0 – 7.3	
R Sep. 27	Stotz & Griffiths - “Outside the Genome”	R3
Biology and human nature		
T Oct. 2	Hull - “On Human Nature”; Machery - “A Plea for Human Nature”	
R Oct. 4	Campbell & McMahan - “Animalism and the Varieties of Conjoined Twinning”	
T Oct. 9	Akins - “What is it like to be Boring and Myopic?”	
R Oct. 11	Gruen - “The Natural and the Normative”	R4
—	T Oct. 16 & R Oct. 18 - No class: Fall Break	
Case study: race and biology		
T Oct. 23	Bolnick - “Individual Ancestry Inference”	
R Oct. 25	Spencer - “Racial Realism II - Are Folk Races Real?”	Proposal
T Oct. 30	Perez-Rodriguez & de la Fuente - “Now is the Time”	
—	R Nov. 1 - No class: Professor away	
Ethics and the life sciences		
T Nov. 6	Plutynski - “Safe or Sorry? Cancer Screening and Inductive Risk”	R5
R Nov. 8	Bluhm - “Inductive Risk and the Role of Values in Clinical Trials”	
T Nov. 13	Palmer - “Harm to Species”	
R Nov. 15	Cyngell & Savulescu - “Promoting Biodiversity”	R6
T Nov. 20	Douglas - “The Moral Terrain of Science”	
—	R Nov. 22 - No class: Thanksgiving	
Genetic “enhancement”		
T Nov. 27	Baylis & Robert - “The Inevitability of Genetic Enhancement”	
R Nov. 29	Powell - “In Genes We Trust”	
T Dec. 4	Rosoff - “I’ll be a Monkey’s Uncle”	
R Dec. 6	*no reading*	Final paper

## Assignments:

### Reading responses:

What: responses to one to two questions on the each of the readings for the prior two weeks. The primary goal of these responses is to demonstrate reading comprehension, but you will also be asked to evaluate arguments and stake out positions.

Length: approximately 1-2 paragraphs per question.

When: every other Thursday.

### Research proposal:

What: a proposal for the final research project. The proposal should clearly identify (a) the proposed topic, (b) its importance or relevance, and (c) some relevant literature not on the syllabus. It should also provide (d) a brief summary of the issues involved (though not necessarily what position the final paper will take on them).

Length: approximately 1-2 pages.

When: Thursday, Oct. 25.

### Rubric:

	0-1	2-3	4-5
(a)	No topic area.	Topic area is overly broad or too vague for a research paper (e.g., topic is “ethics and biology”).	Clear statement of a focused topic area.
(b)	No discussion of importance or relevance of topic.	General or vague discussion; nothing is said that distinguishes this topic from others.	Discussion of importance makes it clear why this research area in particular is interesting or worthy of further investigation.
(c)	No sources are identified.	Some sources are identified, but all of them are either secondary sources or already on the syllabus.	Multiple primary sources not on the syllabus are identified.
(d)	No summary of the issues.	A summary is given, but is either too general or lacks consideration of major issues.	A detailed summary of all of the major issues is given.

## Research paper:

What: a final research project. This paper should provide an extended treatment of a question or topic related to those covered in this class. Beyond the restriction that the paper topic have *something* to do with the philosophy of biology, however, students should feel free to choose their own topics: at least in principle, not just philosophy, but any philosophically-interesting historical, legal, or conceptual question related to biology is fair game. I'd especially encourage students to write on topics or questions relevant to their own area of expertise. Investigating the philosophical implications of your own work—or the implications of biology for your work—fits perfectly within the aims of the class.

Note: I will read and comment on drafts if they are emailed to me by Thursday, Nov. 15.

Length: approximately 15-20 pages.

When: Thursday, Dec. 6.

Rubric:

	0-1	2-3	4-5
Thesis	No thesis.	Thesis is vague or underdeveloped.	Clear and precise thesis statement.
Writing	Paper struggles to communicate major points or positions.	Major points or positions are stated clearly, but some less important elements of the argument remain unclear, underdeveloped, or imprecise.	Both major and minor elements of the argument are effectively communicated.
Sources	Excluding those on the syllabus, no academic sources are employed.	Some sources are appealed to, but appeals are cursory and / or the implications or relevance of the sources is not adequately explained.	Multiple sources are discussed and their implications / relevance fully explained.
Originality	No arguments, examples, or positions are developed other than those discussed in class.	Paper employs examples other than those discussed in class, but no new arguments or positions are developed.	Positions and / or arguments, as well as examples, not discussed in class are considered.
Argument	There are major gaps in argumentation / reasoning.	Minor gaps in reasoning are apparent, but they don't substantially affect the overall course of the argument.	The argument of the paper leaves few holes and none of import.