

Philosophy 315
Seminar in the Philosophy of Science: Topics in the Philosophy of
Biology

Spring 2006

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Office Hours: MW 11:00-12:00 and by appointment

After a couple of weeks of introductory/refresher material, we will examine three areas of current interest among philosophers of biology, historians of biology and philosophically and historically inclined biologists: the nature and extent of explanation by mechanisms in the biological sciences; the relations between evolution and development (so-called 'evo-devo'); and the status of intelligent design as a scientific and philosophical program.

Course requirements:

- 1) Seminar paper and presentation on the paper.
Your research topic should be focused but sufficiently open ended to warrant further discussion and analysis; the topic will be designed with my help.
In the paper, you should construct and develop a strand of argument. Also, you should anticipate and articulate some of the objections that could be made to the argument and develop a response to them as much as you are able. Finally, your paper should make effective use of scholarly philosophical sources and have all the appropriate scholarly apparatus (footnotes/endnotes as needed, bibliography, etc.)
You should have your topic selected before spring break. A draft of the paper is due the week of Apr. 3-7.
- 2) A one page summary of one of the articles is due each week in class. As much as possible, we'll divide the articles among the class members so that, ideally, each article is summarized by at least one person.
- 3) Give an oral presentation on issues raised by the essays that are the topic for the class discussion. You should identify some nexus of issues that interests you. The presentation should last 15-20 minutes.
- 4) Be a discussion leader once. No later than Tuesday at 5 pm before class on Thursday, you are to submit 2-4 discussion questions to the class via email. You will lead discussion on those questions for approximately 15-20 minutes.

Grading:

- 1) Seminar paper – 40%
- 2) Presentation grade (for both presentation of the paper and the weekly presentation)– 20%
- 3) Article summaries – 20%
- 4) Discussion – 20%

Texts:

At the bookstore

E. Sober, Philosophy of Biology, 2nd edition.

R. Pennock, Intelligent Design Creationism and its Critics

On Blackboard:

Lots of stuff in the External Links section. Anything there is denoted by a BB on the reading schedule.

On Reserve: at Neilson Library

Schedule of Readings

Feb. 2 Intro to the course

9 Getting Oriented in Philosophy of Biology: Sober

(no student presentation; no article summary; submit 2-3 questions to Jeff by Tuesday, 5 pm)

16 Getting Oriented in Philosophical Issues of Explanation:

Everyone read:

--Woody 2004a (BB: Explanation)

--Koertge 1992 (BB: Explanation)

*In addition, read **one** of the following:*

--Balashov and Rosenberg, Part II (on reserve in Neilson)

--Boyd, Gasper and Trout, Section II (on reserve)

--“Four Decades of Scientific Explanation” by Salmon in *Scientific Explanation*, P. Kitcher and W. Salmon (eds), pp. 3-196 (on reserve)

--Brody and Grandy, Part II (on reserve)

23 Mechanisms I

MDC 2000; Glennan 1996, 2002; Tabery 2004; Bechtel and Abrahamsen 2005; Craver 2002 or 2003 (all on BB: Mechanisms)

Mar 2 Mechanisms II

Bogen 2005; Machamer 2004; Skipper and Millstein 2005; von Eckardt and Poland 2004; Woodward 2002 (All on BB: Mechanisms)

9 Mechanisms III

Bechtel (reserve) – skim this; Allen 2005; Baker 2005; Craver 2005; Darden 2005; DesChene 2005; Glennan 2005; Ruse 2005 (all except Bechtel on BB: Mechanisms)

Mar 16 Evo Devo I

Everyone read: Gilbert 2003 (BB: Evo-Devo)

*In addition, read **one** of the following:*

Carroll (reserve), Chs. 1-5, 11 and skim at least one Ch. of 6-10.

Arthur (reserve), Chs. 1, 4-7, 12. Skim Chs. 2-3

Raff (reserve), Chs. 6-10

23 Spring Break

30 Evo Devo II

Schaffner 1998, Griffiths and Knight 1998, Gilbert and Jorgensen 1998,
Wimsatt 1998, Schaffner 1998b (all in BB: Evo-Devo)

Apr. 6 Evo Devo III

Sterelny 2000, Robert 2002, Sarkar and Robert 2003, Hall 2003, Vergara-Silva 2003, Love 2003, Gilbert 2003b (all in BB: Evo-Devo)

13 Intelligent Design I

Pennock, Sections II, III and IV

20 Intelligent Design II

Pennock, Sections, VI, VII, VIII

27 Presentation of Seminar projects I

May 4 Presentation of Seminar projects II