Phil 301h: Emergence and Reduction
Fall 2010 Syllabus

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Course Info: T 6:00-8:45 L1 209

Course Description

Borrowing from the Wikipedia, "Reductionism can either mean (a) an approach to understand the nature of complex things by reducing them to the interactions of their parts, or to simpler or more fundamental things or (b) a philosophical position that a complex system is nothing but the sum of its parts, and that an account of it can be reduced to accounts of individual constituents." Both definitions cover a range of phenomena over several disciplines, and both will be addressed in this course. In the natural sciences, for instance, reductionism entails the notion that all science can ultimately be fully comprehended by understanding the behavior of atoms, or, perhaps, smaller particles. In other words, there really is only one science, physics, and the other sciences are mere "heuristics," or short cuts, to save physicists from rather long explanations of natural phenomena. In neuroscience and cognitive science, it entails the notion that consciousness will ultimately be understood solely in terms of the physical actions of neurons and glial cells, and in psychology it entails the notion that human behavior can be explained primarily (if not solely) in terms of the chemical reactions involved in controlling brain states. Recent advances in complexity theory and agent-based modeling, however, are posing challenges to reductionism. "Emergence" here has several competing and subtly different definitions. But generally, it holds that the interactions of parts (whether they be atoms, neurons or people) give rise to new composites (molecules, cells, brains, bodies and societies) that have properties that do not belong to their parts and that, therefore, cannot be explained solely by understanding the properties of these parts. On this view, new things can and do emerge from their "base properties," and a variety of academic disciplines are necessary to explain them fully. The question of whether emergence or reduction is correct is wholly philosophical, and how it is settled has major implications for (almost) all disciplines including physics, chemistry, biology, psychology, sociology, anthropology, political science, economics, archaeology, history, philosophy and religion. This course will address the reduction/emergence debate in detail, looking especially at some issues from physics, biology, anthropology, neuroscience, cognitive science, and religion. Additional articles will be selected to suit the individual interests of students in the course.

Required Texts


Assignments

Each student will be required to come to class prepared, where "prepared" means having read the reading assignment for the day and attempted to achieve a genuine understanding of it. Additionally, each student will be required to write eight, three-page critical papers, according to the guidelines below, and be prepared to present them in class.

Grading

80% - Papers (10% each)
20% - Course Participation
Seminar Format

This class meets one night a week for three hours. Each session will be divided into two parts with a short break in the middle. During the first part, I will make preliminary comments on the reading in light of student observations. In some cases, I may present a formal exposition of segments of the material that may be particularly difficult. During the second part, a student (or more) will read a paper to set the tone for a discussion to follow.

To ensure that we always have student papers at the seminar, you must let me know one week in advance that you are not going to write a paper for the coming week. You can opt out of five of the thirteen possibilities, but no more than five students will be permitted to opt out per class period.

Paper Requirements and Evaluation

The topic for your papers must be targeted at the reading assignment for the day. Your paper should be longer than three pages and no longer than four. It must be in Times New Roman, 12 point font and formatted according to the MLA style as indicated in the MLA Handbook for Writers of Research Papers, 6th Edition. (Copies are available in the library, bookstore and at Barnes & Noble.) Be sure to include a title. Staple the paper in the top, left corner. Late papers will not be accepted!

Your papers will be evaluated according to the following qualities, though they will not be graded according to an average based on an individual assessment of each area. (In other words, I will consider the paper as a whole looking at the following for guidance.)

• **Focus** – Does the paper stick to its topic, addressing necessary details while avoiding extraneous ones?

• **Organization** – Is the paper well-organized with respect to the order and presentation of ideas? Are ideas properly subordinated throughout the paper?

• **Clarity** – Is the paper generally clear and the prose readable? Is the thesis and argument explicit?

• **Argument** – Is the paper well-reasoned on the basis of sound and cogent argument? Is evidence interpreted adequately?

• **Factuality** – Are the factual assertions advanced in the paper true? Are they adequately supported by documentation as needed?

• **Documentation** – Is the selection and use of sources appropriate for the topic? Is the paper properly documented with citations to your sources?

• **Format** – Does the paper adhere to the formatting guidelines of the 6th edition of the MLA style manual?

• **Grammar** – Is language used according to the rules of grammar? Is it properly academic?

When it comes to help with academic writing, I have found no book better than Joseph M. Williams, *Style: Toward Clarity and Grace*. Chicago: The University of Chicago Press, 1990. This book is not a writing manual for beginning students, but a carefully prepared handbook for those who already know how to write in general and wish to address academic audiences. If you wish to work in academia, regardless of field, this book is a must read.
Resources Relating to Course Content

1) *Noesis: Philosophical Research Online* indexes a fair amount of philosophy relating to the many issues surrounding the text. See [http://noesis.evansville.edu](http://noesis.evansville.edu).

2) For detailed background of key philosophical concepts relating to the course, see the *Stanford Encyclopedia of Philosophy*, available at [http://plato.stanford.edu](http://plato.stanford.edu).

Academic Honesty

All work submitted in this course must be prepared by the student expressly for this course. A student who submits work that is plagiarized, bought, borrowed from the archives of a fraternity, copied from another student, etc., *will fail the course*. (If you don’t believe me, ask around.) I fully support the University's Academic Honor Code. To avoid confusion, students should keep in mind that plagiarism occurs not only when someone copies an author word for word, but also when someone uses another's ideas without giving credit, even if the ideas are paraphrased. Always document your sources!

Attendance

For a seminar such as this, my attendance policy differs from my regular lecture courses. It is quite simple: don’t miss!

Course Participation

Course participation grades are not automatic. They are based on oral contributions to the collective learning experience of the class as a whole in terms of asking pertinent questions, answering questions correctly or, at least, provocatively, making insightful observations, and offering other meaningful expressions of interest in the material that help encourage learning. I begin by assuming a C for each student’s course participation grade and move from there. Students should realize that it is possible to talk a lot in class and receive a low grade for course participation. Absences are also grounds for a low participation grade.

Electronic Technology in the Classroom (Cell Phones, Laptops, Etc.)

The use of laptops, cell phones, gaming devices and other electronic contraptions is not permitted in class. Students caught using them will be asked to leave. (You can wear a watch, if you must, but please don’t sit staring at it during my lectures.)

Email

I do not read my UE email at home and, as a consequence, I will only answer email from that account during my scheduled office hours. Even then, I am not apt to sustain long, academic dialogues in this forum. For extended discussion, please come visit me in person. Office hours are posted above.

Food in the Classroom

No eating in class.
1. **Keep in mind two main goals:**
   a. To *think deeply* about a philosophical issue (preferably an issue that you find interesting, important, and puzzling), *reaching a (tentative) conclusion* that leaves you to a large degree satisfied.
   - Philosophy is not sophistry: you should only defend conclusions in which you believe. You should be open, however, to the possibility that your views will change while you are thinking or writing about an issue: you may start with the intention of defending a particular conclusion and end up defending an opposite conclusion.
   - Even if philosophical questions have no unique right answer, they do have better and worse answers; if you believe that anything goes, then you are not in a proper frame of mind for writing a philosophy paper.
   b. To *write down your thoughts* in a clear, precise, concise, and organized way.
2. **How to choose a paper topic**
   a. Choose a topic that you find important and exciting: it’s better if working on the paper feels worthwhile and fun.
   b. Choose a topic on which you have something new to say: if you agree with everything the readings or your instructor said on a particular issue, then you have no paper topic (related to that issue).
   c. Especially for short papers, choose a very narrow topic and examine it in detail: *depth* is much more important than *breadth*. (E.g., don’t try to defend—or attack—relativism in general; choose a specific version of relativism.)
3. **The content of a philosophy paper**
   a. When writing about an issue, start with what other people have said about the issue: don’t reinvent the wheel.
   b. But other people’s views should be only a starting point: the bulk of the paper should consist of your own views, not of exposition.
   c. And your own views should be not just stated, but should be supported by arguments.
   d. Rather than passing over in silence objections to your views, you should consider the most plausible objections you can think of, you should reply to these objections, you should consider plausible rejoinders to your replies, and you should respond to these rejoinders. It’s like a dialogue; the longer it gets, the better, provided that the participants keep making new points rather than repeating themselves. (Note that one might object to an argument in three ways: by objecting to the argument’s *premises*, to its *reasoning*, or to its *conclusion*.)

1. **FIRST STEP: PREPARATION**

1. Start working as *early* as possible. Don’t expect to produce a decent paper if you start on the eve of the due date.
2. Consulting extra sources is often helpful but is *not* necessary: it’s far more important to study carefully the required readings and to *think* deeply about your topic.
3. Before you start writing the paper, make an *outline* that lists in an organized way the points you want to make.

2. **SECOND STEP: WRITING**

1. **Organization**
   a. The paper should have a concise and informative *title*. (‘First paper’ is *not* an acceptable title.) The title should make clear the *topic* of the paper (e.g.: ‘The death penalty’) or, even better, the *thesis* you are going to defend (e.g.: ‘Against the death penalty’). Avoid ‘journalistic’ or ‘literary’ ti-
6. Originality consists in producing new ideas. A minimal degree of originality, which consists in going beyond the readings, is required; originality exceeding this minimal degree is highly desirable.

5. Clarity is probably the most important virtue that philosophical writing must have.
   a. Don’t presuppose that your reader is familiar with the texts to which you are referring: your intended audience should not be the instructor, but should rather be an intelligent philosopher possibly unfamiliar with the texts.
   b. If your instructor doesn’t understand what you want to say by a sentence, then the sentence is probably not sufficiently clear. To see if your instructor finds your writing sufficiently clear, give to your instructor a draft of the paper.
   c. It’s not OK to write first an obscure sentence and then to explain what you meant.
   d. To promote clarity: (i) use short sentences; (ii) prefer active to passive voice and affirmative to negative constructions; (iii) avoid pretentious words and jargon; (iv) define the technical terms that you use.
   e. It is very important for clarity to use transition phrases indicating (i) that you are moving to a new step in the reasoning (e.g., to a new objection, or from an objection to a reply to that objection) and (ii) whether what you are saying is supposed to support your view or the view of an opponent. Examples: ‘I turn now to my argument for the second premise’; ‘One might object to the first premise that ...’; ‘My reply to this objection is ...’; ‘One might rejoind that ...’; ‘I reply ...’.

6. Conciseness consists in saying many things in few words.
   a. Think of the maximum length of the paper as a limit within which you are trying to cram as much thought as you can (not as a number of pages you have to fill by multiplying the number of words you use to make your points). But don’t let the quest for conciseness result in obscurity: clarity is paramount.
   b. To promote conciseness, avoid: (a) wordiness; (b) digressions; (c) banalities; (d) too long quotations; (e) unnecessary repetitions. (It is not unnecessary repetition to summarize at the end of a section what you have done in the section.)
7. **Precision** is almost as important as clarity. General rule: be *meticulous*, even nit-picking, in saying *exactly* what you mean and in avoiding ambiguity. Achieving precision requires thinking about every single word.
   a. **Avoid ambiguous pronouns** (like ‘this’, ‘that’, ‘it’, ‘he’, ‘his’): repeat nouns. ‘John used Bill’s gun to kill his dog’ should be ‘John used Bill’s gun to kill John’s dog’ or ‘John killed his dog by using Bill’s gun’.
   b. **Avoid extreme words** (like ‘completely’, ‘absolutely’, ‘always’). Replace ‘It is always wrong to X’ with ‘It is usually wrong to X’ or ‘It is almost always wrong to X’ (except if you show in the paper that it’s really *always* wrong to X).
   c. **Avoid immodest expressions**. ‘In this paper I will prove conclusively that X’ should be something like ‘In this paper I will argue that X’ or ‘In this paper I will give reason to believe that X’. Avoid words like ‘proof’ or ‘demonstration’.
   d. **Avoid category mistakes**. Incorrect: ‘the likelihood of this situation is quite improbable’. A likelihood is a number and thus can be high or low but not probable or improbable; it’s a situation that can be probable or improbable. Correct: ‘the likelihood of this situation is quite low’; or: ‘this situation is quite improbable’.
   e. **Avoid unnecessary variation** (which is encouraged in literature papers). If you are making three points, don’t say ‘The first argument … The second remark … The third point’; choose the most accurate word and repeat it.
   f. **Give names to theses (arguments, etc)** for ease of reference. It’s much easier and clearer to refer to a thesis as ‘conclusion C3’ rather than as ‘the conclusion of the first argument in this section’.

8. **Language**
   a. A philosophy paper differs from a literature paper. The style should be factual: avoid excessive use of metaphors. *It’s OK to use ‘I’; it’s even advisable*, because it facilitates the use of the active voice.
   b. The style need not be excessively formal, but the paper should not be a transcript of how you talk: avoid slang.
   c. Plural of ‘phenomenon’: ‘phenomena’. Similarly: criterion/criteria; thesis/theses; hypothesis/hypotheses. Avoid confusing: then/than; their/there; principal/principle; adapt/adopt; affect/effect; complementary/complimentary; its/it’s.

9. **Other matters**
   a. Don’t spend too much time on the concluding paragraph: it can be as short as a single sentence that repeats your thesis. On the other hand, the concluding paragraph is a good place at which to mention possible extensions of your argument or problems that you were unable to address.
   b. The format of the paper (e.g., font size and type, margins, single- vs double-spaced, title page or not, footnotes vs endnotes, references in footnotes or in a list of references) does not matter except if your instructor indicates otherwise. But it’s a good idea to *number the pages* so that the instructor’s comments can refer to specific page numbers.
   c. There is no minimum length requirement, but keep close to the *maximum* length unless you write very concisely.

### 3. THIRD STEP: REVISIING

1. Write the paper in (at least) two drafts. After writing the first draft, set it aside for a while, then read it through and make handwritten changes and corrections before typing the second draft.
2. It’s a very good idea to give a draft to your instructor for comments. The more complete your draft is, the more you should benefit from this process. But *don’t expect your instructor to catch every problem*.
3. Spell-check the final draft and *proofread* it carefully for spelling, grammar, punctuation, and coherence of argument. Check also that you in fact do in the paper what you promise in the introductory paragraph that you will do.
### Course Calendar

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<td>Introduction to Emergence, Agent-based Modeling and a Video, “How the Earth Was Made”</td>
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<td>10/5</td>
<td>Kim, J. “Being Realistic about Emergence,” p.189. Guest Lecturer: Derek Jones (Indiana University)</td>
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<td>11/16</td>
<td>Chalmers, D. “Strong and Weak Emergence,” p. 244.</td>
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