

# **Minds, Brains, & Programs:**

## **The Philosophic Foundations of Cognitive Science**

Philosophy 490B – Spring Term 2008 – Purdue University

Professor Daniel Kelly

### 1. Course Description

Over the last 50 years, an exciting new interdisciplinary field has arisen at the intersection of psychology, philosophy, linguistics, logic and computer science. As these cognitive sciences, as they have come to be known, slowly converged on the same types of questions from different angles, a loose cluster of methodological assumptions, experimental paradigms, and theoretical goals began to emerge. Together, the elements of this cluster have served as an enormously productive framework for constructing theories and guiding ongoing research about the mind.

This course will survey a number of the more interesting theoretical debates that have arisen in the course of the (still ongoing!) maturation of cognitive science. We will look at some candidate answers to questions concerning the extent to which the mind can be understood as a computer, the character and relevance of mental representations and mental content, the prospects for different Artificial Intelligence research programs, the idea that the mind is structured in highly specialized "modules", how the notions of innateness and innate mental faculties are best understood, how evolution might have shaped the human mind, and what (if anything) recent work in cognitive science suggests about human rationality and the limits of human understanding.

### 2. Class Meetings

Class meets Tuesday/Thursday, 1:30-2:45pm, in Room 1268 of Beering Hall.

### 3. Office Hours and Contact Information

Office: 7126 Beering Hall

Office phone: 765-494-4290 (4-4290)

Email: [drkelly@purdue.edu](mailto:drkelly@purdue.edu)

Homepage: <http://web.ics.purdue.edu/~drkelly/>

Fall Term Office Hours: Wednesday 1:00-4:00pm, or by appointment.

### 4. Course Requirements, Policies, and Grading

Grades on papers and exams will be given on the standard 0-100 point grading scale:

100-90: A  
89-87: B+  
86-80: B  
79-77: C+  
76-70: C  
69-60: D  
59-0: F

Final Grades will be determined thus:

Weeklies	20%
Short Papers	25% each
Class Participation	5%

Weeklies: There will be a 1 page writing assignment drawn from the readings each week. These are designed to:

- Encourage class attendance.
- Promote philosophical reading and reflection.
- Develop philosophical writing, with an emphasis on being succinct.
- Give students a fairly constant source of feedback on their progress and how they are understanding the material.

Topics will be posted over the weekend on the class website. Your weekly should be typed, double-spaced, with adequate margins, and should be no less than 1 page and no more than 2 pages. Unless otherwise noted, your weekly should be roughly 50% exposition and 50% evaluation.

The weekly is due at the beginning of class each Tuesday. They will be given a  $\checkmark$ ,  $\checkmark+$ , or  $\checkmark-$ . You may miss up to 4 weeklies without being penalized.

Short Papers: Students will write 3 papers, 4-6 pages each, over the course of the semester. Paper topics will be given out 2 weeks before the papers are due.

Once students get their papers back, with initial grades and comments, they have until Monday April 28<sup>th</sup> to revise and resubmit them if they so desire. Resubmitted papers can only improve student's grades.

Class participation: While participation in class discussion almost always helps in learning philosophy and I highly encourage it, I do not penalize students for not speaking up – I realize that not everyone is equally outgoing or talkative in class. However, a consistent record of participation and attendance will always help a student's final grade if it is on the borderline at the end of the semester. On the other hand, while I do not penalize for lack of participation, students who have not been present and engaged throughout the semester are much less likely to get the benefit of the doubt in similar borderline cases.

EMAILED AND ELECTRONICALLY SUBMITTED PAPERS WILL NOT BE ACCEPTED. Papers not given to me by the end of class the day they are due are LATE. For each day late, 7 points will be deducted.

There will be zero tolerance for plagiarism in this course. Plagiarized papers will receive a 0, the student will automatically fail the course, and their name will be handed given to the university authorities. For more on the Purdue University policy on plagiarism, see the following website:

[http://www.purdue.edu/univregs/pages/stu\\_conduct/stu\\_regulations.html](http://www.purdue.edu/univregs/pages/stu_conduct/stu_regulations.html)

Classes will be a mix of lecture and discussion focused on the topics raised by the readings. Students are encouraged to ask questions – this is usually the best way to understand philosophy. There is no mandatory attendance policy for this class, but you will be responsible for the material presented during class.

## 5. Texts

There are two required texts:

*Mindware: An Introduction to the Philosophy of Cognitive Science* by Andy Clark  
*The Modularity of Mind* by Jerry Fodor

Both (or should be) available at the bookstore, and can be easily bought online at a number of places, including amazon.com, though some sites are probably cheaper than others. Any additional required readings will be distributed via email or the course website.

A word on using external (i.e. not required) sources in your papers: that is fine, as long as they are to the point, and are properly cited. When in doubt, ***cite your sources!*** It is the best way to avoid being accused of plagiarism.

Wikipedia can occasionally be useful for getting a very broad grasp of positions and debates, but when it gets into details, especially on philosophic topics, it is very often horrible – sketchy, convoluted, misinformed, and often simply wrong. If you wish to consult online resources, I suggest you use some of the other, much better sites. Most prominent is the Stanford Encyclopedia of Philosophy, but others are useful as well:

Stanford Encyclopedia of Philosophy <http://plato.stanford.edu/>  
The Internet Encyclopedia of Philosophy <http://www.iep.utm.edu/>  
Episteme Links <http://www.epistemelinks.com/Main/MainEncy.aspx>

## 6. Course Website

Information about and readings for the course will often be posted at:

<http://web.ics.purdue.edu/~drkelly/KellyPhilCogSci.html>

## 7. Topics and Readings

Here is a very loose syllabus. I will be open to feedback as we go, so if something strikes the class as boring or dreary, we can move through it quickly. Likewise, if something catches our interest or imagination, we will spend as much time as we need on it.

Star (\*) indicates that the reading will be available on the course website. All others have accompanying websites or can be found in one of the two textbooks.

Week 1: Jan 7<sup>th</sup>

Introduction and Overview

- Consciousness and the Mind/Body Problem
  - Clark Appendices I & II
  - Lycan, 'The Mind/Body Problem'

Week 2: Jan 14<sup>th</sup>

- Functionalism and Computation
  - Clark Chapter 1

Week 3: Jan 21<sup>st</sup>

- Classical Computation: Symbol Systems
  - Clark Chapter 2

Week 4: Jan 28<sup>th</sup>

- Common Sense Psychology and Intentionality
  - Clark Chapter 3

Week 5: Feb 4<sup>th</sup>

- Connectionism
    - Clark Chapter 4
- **First Paper Due Thursday Feb 7<sup>th</sup>**

Week 6: Feb 11<sup>th</sup>

- Implementation and Levels of Explanation
  - Clark Chapter 5

Week 7: Feb 18<sup>st</sup>

- Emergence: Artificial Life, Artificial Minds
  - Clark Chapter 6

Week 8: Feb 25<sup>th</sup>

- Cognitive Incrementalism
  - Clark Chapter 7

Week 9: March 3<sup>th</sup>

- Cognitive Technology: The Very Idea of a Cyborg
  - Clark Chapter 8

**Spring Break:** No Class March 10-14

Week 10: March 17<sup>th</sup>

- Shifting Gears: Modules and Innateness
    - Mason, Sripada Stich, 'The Philosophy of Psychology' pages 1-23
- **Second Paper Due Thursday March 20<sup>th</sup>**

Week 11: March 24<sup>th</sup>

- Modularity of Mind, Part 1
  - Fodor, 1-47

Week 12: March 31<sup>st</sup>

- Modularity of Mind, Part 11
  - Fodor, 47-101

Week 13: April 7<sup>th</sup>

- Modularity of Mind, Part 111
  - Fodor, 101-129

Week 14: April 14<sup>th</sup>

- Massive Modularity & Evolutionary Psychology
  - Cosmides and Tooby, 'Evolutionary Psychology: A Primer'
  - Tooby and Cosmides, 'Evolutionary Psychology: Conceptual Foundations'

Week 15: April 21<sup>s</sup>

- Modularity and Rationality
  - Mason, Sripada, Stich, 'The Philosophy of Psychology' pages 23-31
  - Stich, 'Is Man a Rational Animal?'
    - **Third Paper Due Tuesday April 22<sup>th</sup>**
    - **Weeklies due on Thursday this week**