Course Guide

PHIL10134 The Computational Mind

Course Organiser: Dr Mark Sprevak (mark.sprevak@ed.ac.uk)

- Office Location: Dugald Stewart Building room 5.12
- Office hours: Book a slot to see me by clicking here: https://calendly.com/sprevak/office-hours-meeting
- If you cannot find a time that suits, email me to set up another time
1. Course Aims and Objectives

Computational theories of mind are our best theories of how the mind works. In this course, we will be looking at those computational theories from a philosophical point of view. We will ask foundational questions about the aim, nature, and prospects of these theories. We will ask such questions as:

1. What is a computation?
2. If the mind is a computer, what kind is it?
3. Is computation a real feature of brain, or a projection of our interests?
4. Can consciousness be explained by computation?
5. Are cognitive computations in the brain or do they spill into the environment?

We will gain a lively appreciation of how some of these issues play out using examples of computational models from psychology and cognitive neuroscience.

2. Seminar Content & Readings

For each week, readings are listed below. Readings include core and secondary readings. The core readings for each week are starred (*).

Core readings are the material that it is your responsibility to read before each class.

Core readings are also the material on which your weekly online discussions will be based (see below). Please do delve into the further reading too; these should be your first port of call when writing your essay. The core readings and as many as possible of the secondary readings are posted as PDFs on Learn.

Some hints: Read the core readings carefully. You may find an article challenging or difficult—persist! If you do not understand something, read it again, think about it, try to make sense of it in your own words. If after multiple attempts to make sense of a passage, you still cannot, then there is a good chance that you have identified a real problem in the article—a perfect point to raise in your discussion forum, in the class, or to form the basis of an excellent essay! Jim Pryor has some wonderful tips for reading philosophy (as he says, 'you should expect to read a philosophy article more than once')

Background reading

The more background you know the better. A good starting point is to read one of the books listed below. Even if you already have a strong background in this topic already, I would encourage you to read one of these books during the semester to consolidate your knowledge.

Week 1: Introduction to CTM


Week 2: Classical models and mentalese


**Week 3: Connectionist models**


**Week 4: Marr’s levels of explanation**


**Week 5: Computational implementation**


Week 6: Chalmers on implementation


Week 7: Essay writing workshop

* Readings for this week are the past essays of students posted on Learn.

Week 8: Computational theories of consciousness


Week 9: Internalism vs externalism


**Week 10: Mechanistic accounts**


**Week 11: Hypercomputation**


**Autonomous Learning Groups (ALGs)**

**Here are 3 things that you might like to do in an ALG for this course:**

1. Watch Christof Koch’s YouTube lecture on computation and the brain: https://www.youtube.com/watch?v=dwOGh6qPzG4. Some questions to think about:
   a. Why is it useful to think of the brain as computing?
   b. Which bits of the brain compute?
   c. What assumptions are being made by this approach to brain function that could later be proven wrong? What kinds of empirical evidence could count against it?

   a. What is the difference between a computation and a mechanism?
   b. What might mechanisms do that computations cannot?
   c. What consequences does this have for CTM?

   a. What is RTM and CTM? Why is the CTM so good, in Fodor’s view?
   b. What is the New Synthesis?
c. What are syntactic properties, according to Fodor?