Course Guide

PHIL10134: The Computational Mind

2013-14

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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:

- What is the purpose of computational explanation of the mind?
- Are there limits to computational explanation?
- If the mind is a computer, what type of computer is it?
- How do computational explanations fit with other forms of explanation in science?
- What does it mean to say that a physical system (like the brain) implements a computation?
- Are computations intrinsic to the brain (internalism) or do they spill outside the brain to include elements in the environment (externalism)?
- What is the relationship between computation and representation?
- Is computation a real feature of the world, or just a projection of our interests?

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. Intended Learning Outcomes

By the end of the course, students should:

- Have a grasp of the core philosophical issues involved in, and challenges faced by, computational theories of mind
- Gain familiarity with some examples of computational models
- Understand the philosophical and scientific methodologies in computational modelling
- Be able to express their arguments clearly and concisely in a 2,500 word essay.
- Gain transferable skills in research, analysis and argumentation.

3. Seminar Times and Locations

- Tuesdays 4.10pm – 6pm. Dugald Stewart Building room 1.20.

4. Seminar Content

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 Section 7). By all means also delve into the further reading too; these should be your first port of call when writing your essay. The core readings and nearly all 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 in the reading for Week 1. Background reading is particularly important if you are new to philosophy of mind or cognitive science. Even if you already have a strong background, I would encourage you to read one of these books during the semester to consolidate your knowledge.

Week 1: Introduction to the computational theory of mind


Week 2: Marr's levels of computational explanation


**Week 3: Classical versus connectionist models**


**Week 4: Is computational explanation trivial?**


**Week 5: Godfrey-Smith’s triviality argument against CTM**


**Week 6: Chalmers’ theory of implementation**


[Also, other articles and Chalmers’ response in 3 special issues of Journal of Cognitive Science]

**Week 7: Computational theories of consciousness**


**Week 8: Externalism vs. internalism about CTM**


**Week 9: Computation and representation**


**Week 10: Hypercomputation**


**Week 11: Neural computational models**


**5. PPLS Undergraduate Student Handbook**

The PPLS Undergraduate Student Handbook has more information on Student Support and academic guidance; late coursework and plagiarism; illness and disability adjustments, and useful sources of advice.

The Handbook can be found here:


**6. Readings**

See above.

**7. Assessment Information**

7.1 Honours Students (PHIL10134)

1. End of semester essay — 2,500 words (worth 80%), due Thursday 24th of April 2014, by 4pm

2. Online weekly web discussion participation (worth 20%).
Essay

A list of example questions for the end of semester essay will be posted on Learn during the semester. Please see the section below for advice for essay writing. I am happy to spend time in class talking about how to write a good essay.

Participation grade

For the participation grade, the course has a web-forum. Students are divided into small discussion groups before the first class. Students earn their participation grade by posting a comment on each week’s reading in the forum. The comment can be in the form of a question about the reading, a request for clarification (with an explanation of why you are confused), or responding to a comment from another student. In addition, each member of the group will take it in turns to lead their discussion group by posting a brief (around 500 words) summary of the main points they got out of the reading for that week.

Note that it is perfectly possible to put up a post saying that you don’t understand something in the reading, and, provided this is done in a constructive manner this will count as an high quality contribution. Learn will contain examples of good and bad web-discussions, and guidelines for writing a strong post.

A student’s grade for this component is based on the quality of their posts across the semester assessed using the Common Marking Scheme and Philosophy’s grade-related marking criteria. A student’s participation grade is calculated as the average of their grade for their contribution each week, provided they posted for that week. If a student failed to post for a week, they may incur a penalty (see below) that results in a fixed deduction from their overall participation grade.

The deadline for posting is 9am on the morning of the class, after which it will count as missing the week.

Penalties for failing to post

Students must post from weeks 3 to 10 inclusive in order to earn a full participation grade. That said, a student may miss 1 week during this period without penalty. If a student fails to post for 2 or more weeks in the period, they incur a penalty. A student will be deducted 5% from their overall participation grade (i.e. 1% from their total grade for this course) for each week they miss posting. So missing 1 week in weeks 3 to 10 inclusive incurs no penalty, missing 2 weeks incurs a penalty of 5%, missing 3 weeks incurs a penalty of 10%, and so on—i.e. penalties of 1%, 2%, 3%, ..., to their total grade for the course. If a student has a good reason why they have been unable to post to the forum (e.g. illness), they can contact their Personal Tutor to apply for Special Circumstances.

7.2 MSc Students (PHIL11115)

Assessment is by a 2,500 word essay (a list of example questions will be posted on Learn during the semester), which should be handed in on by 4pm on 8th April 2013 to the PPLS Postgraduate Office (Room 1.06, Dugald Stewart Building).
An advanced reading group for this course, dedicated to MSc students, will be run. More information will be given in class.

7.3 How to Write a Good Essay

Good philosophical writing is not easy. It takes practice. You also have to have a clear idea of what you should be aiming at. Your writing should be clear. It should identify a claim, and have an argument for that claim.

All of this is hard to achieve. It takes hard work to write clearly and to identify a claim that is big enough to be interesting and yet small enough that it can be defended within an essay. Finally, it requires effort to construct a rigorous and clear argument to defend your claim.

Please read the advice below, and try to implement it to achieve the best possible results.

1. **What is an argument?** — Jim Pryor's guide is essential reading and contains a useful lexicon of philosophical terms and taxonomy of good and bad arguments.

2. **Be concise, but explain yourself fully** — Jim Pryor again, this time with an excellent and easy-to-follow 3-step method for writing excellent philosophy.

3. **Style is the feather in the arrow, not the feather in the cap** — Peter Lipton’s writing tips: wonderful and concise.

4. **Read your work aloud. ... Be firm: take your prose to the gym, and keep working at it until the bones and sinews show through!** — Peter Smith’s advice, he was previously editor of the journal Analysis and has with some fantastic tips writing short pieces of philosophy (essays!)

5. **A dissertation in philosophy is a story ... like all good stories, it only includes what is essential to the story** — Robert Paul Wolff’s astute advice applies not only to dissertations, but also to essays, and indeed any piece of philosophical writing.

I am happy to talk in class about how to write a good essay. You can come to see me in my office hours for feedback on your outlines or drafts, or send them to me via email.

7.4 Course Organiser Contact Details

- My email address is mark.sprevak@ed.ac.uk
- My office hours are 10am–12pm on Mondays
- My office is 5.12 in the Dugald Stewart Building

7.5 Word Count Penalties

Essays must not exceed the word limit, which includes footnotes but excludes bibliography. The precise word count must be written on the coversheet. Overlong essays will be penalised according to the following rule: 5% will be deducted for every 100 words, or part thereof, over the word limit. So, 1-100 words over lose 5%; 101-200 words over lose 10%; 201-300 words over lose 15%; and so on.
7.6 Penalties for Late Submission of Essays

Unless an extension has been granted, essays must be submitted by the dates shown in the table of Submission Dates below. Essays submitted late without an extension may not be marked, but, if marked, will incur a penalty (in accordance with section 3.8 of the University Undergraduate Assessment Regulations at:

http://www.ed.ac.uk/schools-departments/academic-services/policies-regulations/regulations/assessment

For each working day that the work is late there will be a reduction of the mark by 5% of the maximum obtainable mark (e.g. a mark of 65% on the common marking scale would be reduced to 60% up to 24 hours later). This penalty applies for up to five working days, after which a mark of zero will be given.

Plagiarism

Essays will be checked for plagiarism using Turnitin.

The University treats plagiarism by honours students as a disciplinary offence, and anyone caught plagiarizing will be referred to the College’s Academic Misconduct Officer. If you are unsure what constitutes plagiarism or need further guidance, you should consult the University’s guidelines:

http://www.ed.ac.uk/schools-departments/academic-services/students/undergraduate/discipline/plagiarism

Students can read more about plagiarism and proper referencing practices, and use Turnitin on a trial copy of their essays, in the Philosophy Tools course on LEARN.

Extensions

Students are expected to monitor their workload, be aware of all deadlines, and organise themselves accordingly.

Extension requests should be submitted before the submission deadline. They must be submitted to the Teaching Office for approval, and must include details of the assessment(s) affected and the length of extension requested, together with supporting evidence if required.

Other than in exceptional circumstances, extensions will only be granted in cases of illness or family emergency. If students are seeking extensions for more than one week, they must provide medical evidence and/or discuss the request with the Student Support Officer.

Extension requests due to time mismanagement, personal computing/printing problems or ignorance of deadline will not be accepted.

The Teaching Office will email the student to tell them whether the extension has been granted. The decision conveyed in this email is final; if students feel that they have been unfairly denied an extension they should make a case to the special circumstances committee for the removal of late submission penalties at the examination board.
**Retrospective extensions will not be granted.**
However, late submission penalties may be waived if a student requests an extension on the day of the deadline but cannot get medical evidence until some days later.

**Students with Adjustment Schedules.**
Extension requests from students with adjustment schedules that allow ‘short notice extensions’ will be treated sympathetically where possible. Students should however be prepared to give a reason for the extension request; simply citing an adjustment schedule is not an adequate reason. If students are seeking extensions for more than one week, they must provide medical evidence and/or discuss the request with the Student Support Officer.

**Special Circumstances.**
Students may apply for consideration of special circumstances if they feel that events out with their control have resulted in poor exam performance in comparison to their previous coursework record or even missing an exam. These circumstances most commonly include illness or bereavement but can be submitted for a variety of issues. It is the student’s responsibility to complete a Special Circumstances form giving as much detail as possible and providing supporting evidence. All submissions must be accompanied by medical or other documentation.

**Please note - Regulation 14 Assessment deadlines: Student responsibilities**
It is a student’s responsibility to ascertain and meet his or her assessment deadlines, including examination times and locations.

**8. Learn**

This year the majority of courses will use electronic submissions for Honours coursework. For essay submission instructions please see the instructions on LEARN. Please note you should not include your name or matriculation number on coursework, only your exam number.

**9. Autonomous Learning Groups**

One of the best ways to learn, and get feedback, is from talking to each other. In order to facilitate this, each of your Honours courses now has dedicated Autonomous Learning Groups. In week 2, you will receive an email from our Student Support Officer (Tamsin Welch, tamsin.welch@ed.ac.uk) asking if you would like to be part of an Autonomous Learning Group (ALG) for each of your Honours courses. If you agree, Tamsin will form the ALGs for you and email you with details of which group you are in, and the email addresses of the other members of the group.

**It is up to you, the members of the ALG, to organise the meetings.** You decide how often to meet and what to do in your ALG. ALGs are designed to help you learn and get to know your classmates; they are not a formal requirement of the course. It is important to note that assessment in your courses is non-competitive: you are not competing
against your classmates, only against the general grade criteria. It is in your interests to help each other.

As a rough guide, we suggest your ALG meets every 2-3 weeks. You could use the meetings to:

- Read and discuss the papers together
- Discuss essay-writing and time-management techniques
- Constructively critique each other's draft essays or plans
- Read some of the further readings or related papers
- Work on presentations or discussion posts that the class may involve
- Share tips on career advice

Tamsin will be able to help you with room booking (you can also do this yourself through MyEd). Please email the CO of the course if you feel that it would be useful for the group if she or he joined one of your sessions.

Please contact Tamsin if you find it necessary during the semester to transfer into a different group.

ALGs are a new initiative by Philosophy and we appreciate your thoughts. If you feedback on how to make ALGs even better, please email Tamsin Welch (tamsin.welch@ed.ac.uk) or the Director of Undergraduate Teaching, Dr. Mark Sprevak (mark.sprevak@ed.ac.uk).

### 10. Feedback

You will get many feedback or feedforward opportunities in your courses. Feedback could be in the form of an essay, a draft write-up, self-generated or peer feedback, small group discussions or quizzes within lectures etc. Feedforward might include a discussion of how to write an essay, or prepare for an exam.

Feedback is essential to learning and it takes many forms. We strongly encourage you to use all forms of feedback, including:

- Asking and answering questions in lectures or classes
- Asking questions of your Course Organiser or lecturer in their office hours
- Discussing your work with lecturers and examiners on Philosophy's dedicated Feedback Days (Honours students)
- Actively participating in your tutorials (pre-Honours students)
- Actively participating in Autonomous Learning Groups (Honours students)
- Talking about your ideas outside class with fellow Philosophy students
- Taking your essay to PhilSoc essay surgeries
- Participating in PhilSoc discussion groups and study-skills events
- Participating in PhilSoc debates and talks: http://euphilsoc.weebly.com/
- Participating in the British Undergraduate Philosophy Society, including undergraduate conferences: http://www.bups.org
If you have any suggestions on how to improve feedback further, please contact either:

- Your Tutor (pre-Honours students)
- Your Course Organiser
- Your Personal Tutor
- Tamsin Welch, PPLS Student Support Officer (tamsin.welch@ed.ac.uk)
- Dr Mark Sprevak, Director of Undergraduate Teaching (mark.sprevak@ed.ac.uk)

11. Useful Information

WEEK 6 INNOVATIVE LEARNING WEEK (17 - 21 February 2014). Normal teaching slots will be suspended and in their place will be a range of other activities such as master classes, a research day, a science fair, and guest lectures. More information will follow nearer the time so please check the School website where details will be available on the PPLS Events page.

12. Common Marking Scheme

http://www.ed.ac.uk/schools-departments/registry/exams/regulations/common-marking-scheme

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<tr>
<th>Grade</th>
<th>Range</th>
<th>Description</th>
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| A1    | 90-100 | Excellent<br>
*Outstanding in every respect, the work is well beyond the level expected of a competent student at their level of study.* |
| A2    | 80-89  | Excellent<br>
*Outstanding in some respects, the work is often beyond what is expected of a competent student at their level of study.* |
| A3    | 70-79  | Excellent<br>
*Very good or excellent in most respects, the work is what might be expected of a very competent student.* |
| B     | 60-69  | Very Good<br>
*Good or very good in most respects, the work displays thorough mastery of the relevant learning outcomes.* |
| C     | 50-59  | Good<br>
*The work clearly meets requirements for demonstrating the relevant learning outcomes.* |
| D     | 40-49  | Pass<br>
*The work meets minimum requirements for demonstrating the relevant learning outcomes.* |
| E     | 30-39  | Marginal fail<br>
*The work fails to meet minimum requirements for demonstrating the
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<thead>
<tr>
<th>Grade</th>
<th>Mark Range</th>
<th>Description</th>
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<tbody>
<tr>
<td>F</td>
<td>20-29</td>
<td>Clear fail</td>
</tr>
<tr>
<td>G</td>
<td>10-19</td>
<td>Bad fail</td>
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<tr>
<td>H</td>
<td>0-9</td>
<td>Bad fail</td>
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**Grade-related Marking Guidelines**

**Explaining the function of these guidelines:**

1. These are only guidelines; marking still requires discretion and judgment.

2. The guidelines are “bottom up” — each band presupposes that the student has at least satisfied the criteria laid down under the lower bands. So to get a first, it is assumed that you at least satisfy all the criteria for a 2-1, etc.

3. Each set of guidelines should be understood not as providing necessary and sufficient conditions for a mark in the band specified. Rather, the guidelines under each band provide a kind of “cluster” which defines a paradigm of a piece of work falling within the band in question. A piece of work might deviate from the paradigm in certain respects but still fall within the band. It might help to explain the idea of a paradigm being invoked here. By way of comparison, an ornamental chair (as one might find in a museum, and that is not fit for sitting on) is a less paradigmatic instance of a piece of furniture than an ordinary sofa, but plausibly an ornamental chair still counts as a piece of furniture all the same. This is because it satisfies enough of the criteria in the cluster of concepts associated with being a piece of furniture, though it satisfies fewer of those criteria than an ordinary sofa. Similarly, a piece of work might be a less than fully paradigmatic instance of a 2-1 but still count as a 2-1 all the same.

4. Although they are written in a way that might naturally suggest a binary reading, the guidelines are generally scalar – satisfying each of them comes in degrees, and is not all or nothing. This is important, and relevant to the “paradigm” point above, in that doing better with respect to one criteria under a given band could offset doing slightly less well with regards to another. Also, precisely where within the band a piece of work is assessed will typically reflect how well the work does in terms of each of these criteria.

5. The guidelines apply most clearly for essays. In the case of exam questions, part of the exercise will be for the student to work out the extent to which the question calls for something going beyond pure exegesis.

6. For history of philosophy classes, where the instructor explicitly indicates this is the case, the contrast between exegesis and original argument may be less
clear. In these cases, the original argumentation may be an original argument for an interpretation or reading of a text, for example. Individual instructors have some discretion in explaining how the specific details of their course mean these guidelines should be interpreted. As mere guidelines, they provide only a sort of “default setting” rather than a one size fits all set of prescriptions, amenable to only one canonical interpretation.

General Guidelines

- **Clarity:**
  - Is the writing clear?
  - Is the grammar and spelling correct?
  - Is the language used appropriate?
- **Structure:**
  - Is a clear thesis or position stated?
  - Is an argument, or arguments, offered in support of the thesis?
  - Does each part of the essay/exam have a clearly indicated purpose?
- **Understanding:**
  - Is a sound understanding of relevant issues demonstrated?
  - Is the exposition of others’ views accurate?
  - Are technical terms adequately defined?
- **Originality:**
  - Is there evidence of independent thought?
  - Is there critical engagement with the material?
- **Argument:**
  - Is the argument convincing?
  - Are the inferences valid?
  - Are obvious objections anticipated?

Grade Bands

**Fail (less than 40)**

**Third Class (40–49):**

- Writing is generally unclear. Frequent spelling or grammar mistakes, incorrect language, and/or excessively convoluted sentence structure.
- Neglects clearly to state a thesis or position and/or fails to support this with arguments. Contains irrelevant material, or material whose relevance is not adequately explained.
- Demonstrates a barely adequate understanding of central issues. Contains several errors in exposition or in explanation of concepts.
- No evidence of independent thought or critical engagement. Merely rehashes arguments from readings or lectures.
- Where arguments are given, these are weak, depend on invalid inferences or implausible premises. Fails to anticipate obvious objections.
Lower Second Class (50–59):

- Writing is generally clear, but there are occasional spelling/grammar infelicities and/or poorly constructed sentences.
- A thesis/position is indicated but not clearly defined. Some arguments given, but their structure often unclear.
- Demonstrates a basic grasp of key concepts, but occasional inaccuracies in exposition/explanation.
- Little evidence of independent thought. Some suggestion of original ideas, but these are under-developed and/or expressed unclearly.
- Arguments generally weak or unconvincing.

Upper Second Class (60–69):

- Writing is generally clear, marred only by the rare spelling/grammar infelicity or poorly constructed sentence.
- A thesis/position is indicated and clearly defined. Arguments are given with relatively clear structure. It is generally clear what is going on in each section, why one section follows on from the previous one, and how the essay as a whole hangs together.
- Demonstrates a solid understanding of the key concepts, and the exposition is generally accurate and thorough.
- Substantial evidence of original thought – either an original argument of some kind for a familiar position or an original argument for a novel position. In either case, the argument should be reasonably well developed.
- The author’s original arguments are interesting and promising, but fairly central or glaring problems with the argument are not discussed or addressed in any way, or are given only a highly cursory treatment.

Low First Class (70–79):

- Writing is very clear and engaging throughout. Where examples are used they are both relevant and memorable. The writing will also be concise.
- The essay’s structure is not only clear and well defined; it also provides a satisfying narrative arc.
- Demonstrates a deep understanding of the key concepts. Explains other philosopher’s ideas in the author’s own terms, clearly presenting those ideas in a way that indicates that the author has “made them his/her own." Where technical terms are used they are always carefully defined.
- Highly original thought, with well developed arguments. The exegesis will generally be sufficiently concise as to allow the author to develop his or her own arguments in considerable detail.
- The author very carefully considers the most central and obvious problems with his/her original argument(s) and has interesting things to say about them.

Mid-First Class (80–89):

- Writing is crystal clear and highly engaging throughout. Memorable examples are used to underscore key points. The writing is concise without coming across as
terse or stilted.

- The essay’s structure is clear and well defined, with a highly satisfying narrative arc.
- Demonstrates a deep understanding of key concepts. Not only explains the ideas of other philosophers in a way that shows he/she has “made them his/her own,” but that actually casts new light on how we might charitably understand the ideas of those philosophers.
- Very original thought, above and beyond what we would normally expect from an undergraduate. These original ideas will be developed in great detail.
- The author very carefully considers the most central and obvious problems with his/her original argument(s) and has prima facie convincing rejoinders. Author may also consider more subtle objections to his/her argument(s)/view(s).

High First Class (90–100):

- Writing is extremely clear, concise, and engaging — of a publishable quality.
- The essay’s structure is extremely clear and well-defined, with a highly satisfying narrative arc.
- Demonstrates a deep understanding of key concepts. Not only explains the ideas of other philosophers in a way that shows he/she has “made them his/her own,” but that actually casts new light on how we might charitably understand the ideas of those philosophers.
- A highly original and well developed line of argument and/or novel view, such that the essay is publishable, at least in an undergraduate or postgraduate journal, perhaps bordering on being publishable in a mainstream professional journal.
- The author considers the most important objections to his/her arguments/views. The replies are generally convincing and subtle. If space allows, less obvious objections may also be discussed in interesting ways.