

DRAFT COURSE OUTLINE – SUBJECT TO CHANGE
PHILOSOP 9230B / PSYCHOL 9230B / PHILOSOP 4310G
Issues in Philosophy, Psychology & Neuroscience
M 2:30-5:30, STVH 1145

Professor Michael Anderson
WIRB 7174
mande54@uwo.ca
x85271

Professor Stefan Köhler
WIRB 5138
stefank@uwo.ca
x86364

This course explores areas of common interest between philosophy, psychology and neuroscience, including: consciousness, computation, representation, modularity, and embodiment, from both scientific and philosophical perspectives. We will also explore methodological issues, including the power and limitations of fMRI and other brain imaging technologies, and the structure of scientific inference.

Course Requirements

1. Readings as assigned
2. Attendance and participation in class discussion
3. Lead class discussion on one or more topics/articles
4. End-of term paper (< 5,000 words), or two shorter papers (<3,000 words each), or an experimental design proposal (see below)

I take it that the first three requirements need little explanation (although we will talk in class about tips for leading a good discussion). I am loath to put very prescriptive requirements on the term paper(s), because good philosophical writing comes in many forms, and at many lengths (and the variety may be even greater for interdisciplinary projects). The ideal paper will engage both philosophical and empirical literature.

I will distribute a couple of guides to good academic writing in general, but the appropriate format, structure, and length of your term paper will ultimately be driven by its specific aims. We will have ample time to discuss individual projects as the term progresses. Meanwhile, I'll offer this: start developing a sense of who *you* think are the best writers, and what you think are the best articles, in your particular area of interest, and seek to emulate those examples.

Experimental design proposal

Finally, you have the option to research a topic of your choosing in cognitive psychology/cognitive neuroscience, and propose a study to address some open question in the area of your research. The proposal should be about 8-10 pages, in APA format.

The final proposal will include an **Introduction** containing a review of the primary literature to provide background information pertinent to your research proposal, as well as a statement of your hypothesis or research question; a **Methods** section outlining the design of an experiment that would help answer the research question; an **Expected Results** section in which you describe the possible outcomes of your study that would, and those that would not, support your hypothesis; and a brief **Discussion** section in which you discuss the broader implications and potential impacts of your study.

The topic can be anything, and it is most important that it be of interest to you. In researching and refining the topic you should look for two sorts of opportunities: ongoing research projects where a next step in research is fairly obvious, and topics on which there is disagreement, where a new study might shed light on the disagreement. The ideal proposal will be one that uses empirical methods to make progress on a shared topic of interest across philosophy and psychology.

When writing your proposal, imagine using it to convince the head of a lab to let you run the experiment. Be sure to address the questions the lab head might have, such as: what will we learn from this experiment? Why is it important to know that—that is, what are the possible broader implications? Ideally, the design should be such that you would be able to actually run the experiment. In practice, most studies require substantial refinement after their first formulation, and that will surely be the case here, but use the ideal as a goal to shoot for.

There will be a number of stages for the assignment, as follows. I'll assign specific due dates prior to the beginning of the term.

1 page proposal for a topic, including at least three preliminary citations from the primary literature.

2-3 page refined proposal, including *at least* five appropriate citations. This revision should start to look a lot more like an introduction.

1-2 pages describing a **specific** research question/hypothesis, and outlining a preliminary experimental approach to exploring the question.

~8-10 page final research paper/proposal due, including: a review of the primary literature; a statement of your hypothesis or research question; the design of an experiment that might help answer the research question; a section on the expected results if your hypothesis is correct, and what you might see if it is not; and a brief discussion of the broader implications of the study.

Some advice

One important thing about this course: there is a vast literature on every one of the topics we will dip into here. The object of the selection is not to be comprehensive, but to choose readings that will spark the philosophical and psychological imagination, lead to fruitful discussion, and ultimately inspire you to dive into one of the subjects in much greater depth. They also have the function, for those interested in taking advantage of the Rotman/BMI partnership, of helping you develop the cross-disciplinary vocabulary that will help you be successful as a philosopher among scientists, and a successful scientist among philosophers.

Grading

2-paper option: Paper 1 40% of grade; paper 2 60% of grade

1-paper option/experimental design proposal: 100% of grade

Course Schedule (NB: Readings subject to change given sufficient notice)

Jan 6: Course Introduction

Readings: Thagard 2009; Stanford Encyclopedia "Philosophy of Neuroscience"
<https://plato.stanford.edu/entries/neuroscience/>

Jan 13: Embodiment (1)

Readings: Fodor 1981; Newell & Simon 1975; Shapiro 2011, Ch 1-2; Anderson 2013

Jan 20: Embodiment (2)

Readings: Anderson 2014 Ch 5; Wilson & Golonka 2013; Kaufer & Chemero 2015 Ch 5; Ch 9

Jan 27: Perception

Readings: Milner & Goodale 2006, 1-24; 43-66; Clark 2001; Akins 1996

Feb 3: Consciousness (1)

Readings: Chalmers 1995; Dennett 1988; 2001

Feb 10: Consciousness (2)

Readings: Owen 2006; Shea & Bayne 2010; Milner & Goodale 2006, 120-144; Bayne et. al 2016a; Fazekas & Overgaard 2016; Bayne et. al 2016b

<Reading Week>

Feb 24: Brain imaging (1)

Readings: Posner et al 1988; Anderson 2015; Coltheart 2006; Roskies 2009

DUE: Paper 1 (for those choosing a 2-paper option)

Mar 2: Brain imaging (2)

Readings: Poldrack 2010; Kriegeskorte & Kievit 2013; Richie et al 2017

Mar 9: Memory (1)

Readings: De Brigard 2014; Robins 2016; 2019

Mar 16: Memory (2)

Readings: Bussey & Saksida 2007; Hassan et al 2015; Cowell et al 2019

Mar 23: Modularity & Evolution

Readings: Fodor 1985; 2008; Prinz 2006; Barrett & Kurzban 2006; Anderson & Finlay 2014

Mar 30: Two or three or four views of brain function

Readings: Wiese & Metzinger 2016; Raja 2018; Deco et al 2011; Bolt et al 2017.

Apr 17: Final paper due

Bibliography

Akins, K. (1996). Of sensory systems and the aboutness of mental states. *The Journal of Philosophy*, 93(7), 337-72.

Anderson, M. L. (2015). Mining the brain for a new taxonomy of the mind. *Philosophy Compass*, 10(1), 68-77.

Anderson, M. L. (2014). *After Phrenology: Neural Reuse and the Interactive Brain*. MIT Press.

Anderson, M.L. (2013). Review of Beyond the Brain and Embodied Cognition. *Journal of Consciousness Studies*, 20(5-6): 219-32.

Anderson, M. L., & Finlay, B. L. (2014). Allocating structure to function: the strong links between neuroplasticity and natural selection. *Frontiers in Human Neuroscience*, 7, 918.

Anderson, M.L. & Chemero, A. (in press). The world well gained: On the epistemic consequences of ecological information. *Andy Clark & His Critics*. Columbo, Irvine & Stapleton eds. Oxford: Oxford University Press.

Barrett, H. C., & Kurzban, R. (2006). Modularity in cognition: framing the debate. *Psychological review*, 113(3), 628.

Bayne, T., Hohwy, J., & Owen, A. M. (2016a). Are there levels of consciousness? *Trends in Cognitive Science*, 20(6), 405-413. doi: <http://dx.doi.org/10.1016/j.tics.2016.03.009>

Bayne, T., Hohwy, J., & Owen, A. M. (2016b) Response to Fazekas & Overgaard *Trends in Cognitive Sciences*, 20(10), 716-717.

Bussey, T. J., & Saksida, L. M. (2007). Memory, perception, and the ventral visual-perirhinal-hippocampal stream: thinking outside of the boxes. *Hippocampus*, 17(9), 898-908.

Chalmers, D. J. (1995). Facing up to the problem of consciousness. *Journal of consciousness studies*, 2(3), 200-219.

Clark, A. (2016). How to knit your own Markov blanket. In *Philosophy and Predictive Processing*. MIND Group, Frankfurt am Main.

Clark, A. (2002). Is seeing all it seems? Action, reason and the grand illusion. *Journal of Consciousness Studies*, 9(5-6), 181-202.

- Clark, A. (2001). Visual experience and motor action: Are the bonds too tight?. *Philosophical review*, 110(4), 495-519.
- Cowell, R. A., Barense, M. D., & Sadil, P. S. (2019). A roadmap for understanding memory: Decomposing cognitive processes into operations and representations. *eNeuro*, ENEURO-0122.
- De Brigard, F. (2014). Is memory for remembering? Recollection as a form of episodic hypothetical thinking. *Synthese*, 191(2), 155-185.
- Dennett, D. (2001). Are we explaining consciousness yet?. *Cognition*, 79(1), 221-237.
- Dennett, D. C. (1988). Quining qualia. In *Consciousness in modern science*. Oxford University Press.
- Fazekas, P. & Overgaard, M. (2016) Multidimensional Models of Degrees and Levels of Consciousness *Trends in Cognitive Sciences*, 20 (10), 715-716
- Fodor, J. A. (1981). The mind-body problem. *Scientific American* 244, 114 – 123.
- Fodor, J.A. (1985). *Precis of The Modularity of Mind. Behavioral and Brain Sciences* 8; 1-5. (Full article with commentary also available)
- Fodor, J.A. (2008). Modularity of mind: An essay in faculty psychology. In: J.E. Adler & L J Rips, (eds). *Reasoning: Studies of human inference and its foundations*. Cambridge: Cambridge University Press. pp. 878-914.
- Hasson, U., Chen, J., & Honey, C. J. (2015). Hierarchical process memory: memory as an integral component of information processing. *Trends in cognitive sciences*, 19(6), 304-313.
- Hohwy, J. (2016). How to entrain your evil demon. In *Philosophy and Predictive Processing*. MIND Group, Frankfurt am Main.
- Horst, S. (2016). *Cognitive pluralism*. MIT Press.
- Kaufer, S., & Chemero, A. (2015). *Phenomenology: an introduction*. Polity Press.
- Klein, C. (2010). Images are not the evidence in neuroimaging. *The British Journal for the Philosophy of Science*, 61(2), 265-278.
- Kriegeskorte, N., & Kievit, R. A. (2013). Representational geometry: integrating cognition, computation, and the brain. *Trends in cognitive sciences*, 17(8), 401-412.
- Milner, D., & Goodale, M. (2006). *The visual brain in action*. Oxford University Press.
- Newell, A., & Simon, H. A. (1975). *Computer science as empirical inquiry: Symbols and Search. Communications of the ACM*, 19(3), 113-126.
- Orlandi, N. (2014). *Orlandi 2014 The Innocent Eye: Why Vision is not a Cognitive Process*. Oxford: Oxford University Press.
- Orlandi, M. & Lee, G. (in press). How radical is predictive processing? *Andy Clark & His Critics*. Columbo, Irvine & Stapleton eds. Oxford: Oxford University Press.

Poldrack, R. A. (2010). Mapping mental function to brain structure: how can cognitive neuroimaging succeed? *Perspectives on Psychological Science*, 5(6), 753-761.

Posner, M. I., Petersen, S., Fox, P., & Raichle, M. (1988). Localization of cognitive operations in the human brain. *Science*, 240(4859), 1627-1631.

Prinz, J. (2006). Is the mind really modular? *Contemporary debates in cognitive science*, ed. RJ Stainton, 22-36.

Ritchie, J. B., Kaplan, D. M., & Klein, C. (2017). Decoding the brain: Neural representation and the limits of multivariate pattern analysis in cognitive neuroscience. *The British journal for the philosophy of science*, 70(2), 581-607.

Roskies, A. L. (2009). Brain-mind and structure-function relationships: A methodological response to Coltheart. *Philosophy of Science*, 76(5), 927-939.

Roskies, A. L. (2007). Are neuroimages like photographs of the brain?. *Philosophy of Science*, 74(5), 860-872.

Sarter, M., Berntson, G. G., & Cacioppo, J. T. (1996). Brain imaging and cognitive neuroscience: Toward strong inference in attributing function to structure. *American psychologist*, 51(1), 13.

Shapiro, L. (2019). *Embodied Cognition*. Routledge.

Shea, N., & Bayne, T. (2010). The vegetative state and the science of consciousness. *The British journal for the philosophy of science*, 61(3), 459-484.

Thagard, P. (2009). Why cognitive science needs philosophy and vice versa. *Topics in Cognitive Science*, 1(2), 237-254.

Wiese, W., & Metzinger, T. (2017). Vanilla PP for philosophers: A primer on predictive processing. In *Philosophy and Predictive Processing*. MIND Group, Frankfurt am Main.

AUDIT

Students wishing to audit the course should consult with the instructor prior to or during the first week of classes.

DEPARTMENT OF PHILOSOPHY POLICIES

The **Department of Philosophy Policies** which govern the conduct, standards, and expectations for student participation in Philosophy courses is available in the Undergraduate section of the Department of Philosophy website at <http://uwo.ca/philosophy/undergraduate/policies.html>.

It is your responsibility to understand the policies set out by the Senate and the Department of Philosophy, and thus ignorance of these policies cannot be used as grounds of appeal.

ACCOMMODATION

Students seeking academic accommodation on medical grounds for any missed tests, exams, participation components and/or assignments worth 10% or more of their final grade must apply to the Academic Counselling office of their home Faculty and provide documentation. Academic accommodation cannot be granted by the instructor or department. Documentation shall be submitted, as soon as possible, to the Office of the Dean of the student's Faculty of registration, together with a request for relief specifying the nature of the accommodation being requested. The UWO Policy on Accommodation for Medical Illness and further information regarding this policy can be found at http://uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

SELF- REPORTED ABSENCE FORM

Students who experience an unexpected illness or injury or an extenuating circumstance (48 hours or less) that is sufficiently severe to temporarily render them unable to meet academic requirements (e.g., attending lectures or labs, writing tests or midterm exams, completing and submitting assignments, participating in presentations) should self-declare using the online Self-Reported Absence portal. This option should be used in situations where the student expects to resume academic responsibilities within 48 hours or less.

The following conditions are in place for self-reporting of medical or extenuating circumstances:

http://westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectCalendar=Live&ArchiveID=#SubHeading_322

EVALUATION OF ACADEMIC PERFORMANCE

At least three days prior to the deadline for withdrawal from a course without academic penalty, students will receive assessment of work accounting for at least 15% of their final grade. For 3000- or 4000-level courses in which such a graded assessment is impracticable, the instructor(s) must obtain an exemption from this policy from the Dean and this exemption must be noted on the corresponding course syllabus. In rare instances and at the Dean's discretion, other courses could receive a similar exemption, which also must be noted in the course syllabus.

COURSE ASSIGNMENT

The last day of scheduled classes in any course will be the last day on which course assignments will be accepted for credit in a course. Instructors will be required to return assignments to students as promptly as possible with reasonable explanations of the instructor's assessment of the assignment.

ACADEMIC OFFENCES

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

PLAGIARISM CHECKING

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com <http://www.turnitin.com>.

SUPPORT SERVICES

Registrarial Services <http://www.registrar.uwo.ca>

Student Support Services <https://student.uwo.ca/psp/heprdweb/?cmd=login>

Services provided by the USC <http://westernusc.ca/services/>

Student Development Centre <http://www.sdc.uwo.ca/>

Students who are in emotional/mental distress should refer to Mental Health@Western <http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help. Immediate help in the event of a crisis can be had by phoning 519.661.3030 (during class hours) or 519.433.2023 after class hours and on weekends.