PHILOSOPHY OF NEUROSCIENCE
PSY 450.007 Spring, 2020
Wednesdays, 1:00-3:30 Logan 125
Course Syllabus

Instructors:	David Witherington	Benjamin Clark
Office:	Logan Hall #112	Logan Hall #174
Office Hours:	Mondays, 12 to 2	By appointment
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Textbooks (Copies of textbook chapters are provided on UNM learn):

Bennett, M. R., & Hacker, P. M. S. (2003). *Philosophical foundations of neuroscience*. Malden, MA: Blackwell.

Bennett, M. R., Dennett, D., Hacker, P. M. S., Searle, J. (2007). *Neuroscience & Philosophy: Brain, Mind, & Language*. New York, NY: Columbia University Press.

Additional Reading Material (Article copies are provided on UNM Learn):

Epstein, R. (2016). The empty brain. *Aeon*. https://aeon.co/essays/your-brain-does-not-process-information-and-it-is-not-a-computer

Richards, B. (2018). Yes, the brain is a computer…no, it's not a metaphor. *The Spike*. https://medium.com/the-spike/yes-the-brain-is-a-computer-11f630cad736

Marshal, P.J. (2016). Embodiment and human development. *Child Development Perspectives*, *10*, 245-250.

McGann, M., De Jaegher, H., Di Paolo, E. (2013). Enaction and psychology. *Review of General Psychology*, *17*, 203-209.

Wheeler M (2014) Revolution, Reform, or Business as Usual? The Future Prospects for Embodied Cognition. In L. Shapiro (Ed.), *The Routledge Handbook of Embodied Cognition. Routledge Handbooks in Philosophy* (pp. 374-383). London: Routledge.

Course Description:
Philosophical analysis plays a vital—but all too often overlooked—role in the organization and functioning of any scientific discipline. The meanings that we attach to every theoretical concept employed in science draw from a broader set of philosophical assumptions that we (as humans in general and as scientists in particular) make concerning the nature of reality (ontology) and how we come to know reality (epistemology). This course is designed to critically examine a set of philosophical assumptions about mind and brain that are foundational to the field of cognitive neuroscience but that promote longstanding conceptual errors and confusions in our understanding of psychological and neurophysiological phenomena.

Student Learning Outcomes:

- Students should be able to differentiate and integrate the kinds of explanation involved in philosophical analysis and in scientific/empirical analysis.
- Students should be able to historically trace and distinguish various conceptualizations of mind and its relation to brain and body—from early Aristotelian notions to Descartes' dualistic approach and to subsequent, modern-day instantiations of such dualism (i.e., brain-body dualism).
- Students should be able to articulate the characteristic mode of explanation popular in contemporary cognitive neuroscience and to identify the conceptual confusions that it entails, i.e., the mereological fallacy.
- Students should be able to elaborate the conceptual confusions that permeate how psychologists and cognitive neuroscientists think about the following psychological categories of functioning/experience:
  a) Sensation
  b) Perception
  c) Knowledge
  d) Memory
  e) Belief
  f) Thought
  g) Imagination
  h) Emotion
- Students should develop an appreciation for the limits and drawbacks of reductionism in science.

Course Structure and Requirements:

*Weekly Short Answer Assignments = 26% of the final grade***.** For each week of readings, we will assign you a set of questions to answer in advance of discussion of those readings. The aim of these assigned questions is to facilitate your focused reading of the material, but also to guide your deeper conceptual understanding of the material. You will be expected to complete and e-mail (send to dcwither@unm.edu) your short answers to each of these assigned questions by 9 pm on the Tuesday immediately prior to class discussion of the readings. Assignment grading is based on the timeliness of submission and the use of concepts and terms from weekly readings. Each assignment is worth 2 points.

Participation = 30% of final grade. In this course, we will adopt a seminar format, meaning that class discussion is central to each class period. It is essential that you read all assigned material prior to each week's class and prepare to actively discuss it. In each class, you will be divided into small groups to discuss the week's assigned questions and reading material.

Term paper = 40% of final grade. Students will submit a term paper based on a recently published article in the field of neuroscience. The general aim of this term paper will be to identify, in a modern article in neuroscience, the conceptual errors relating the mind, brain and behavior, and to discuss alternative conceptualizations that could potentially

alleviate such errors. The term paper should be no longer than 10 pages in length (double-spaced) and submitted in class on May 6th.

Attendance = 4% of final grade. Since this is a seminar class and class discussion is central to your grade, attendance is required. For perfect attendance, you will get 4 points. If you miss one class, you will only get 2 points. Missing more than one class will result in lowering of your final grade by an additional 2 points per each class missed. Instructor drops based on non-attendance are possible.

Grading:
Weekly Assignments = 26% (26 points), Participation = 30% (30 points), Term Paper = 40% (40 points), Attendance = 4% (4 points).

The grading scale used for this course is as follows: A+ (97+), A (91-96), A- (90-91), B+ (87-89), B (81-86), B- (80-81), C+ (77-79), C (71-76), C- (70-71), D+ (67-69), D (61-66), D- (60-61), F (<59)

Accommodation Statement:
Accessibility Services (Mesa Vista Hall 2021, 277-3506) provides academic support to students who have disabilities. If you think you need alternative accessible formats for undertaking and completing coursework, you should contact this service right away to assure your needs are met in a timely manner. If you need local assistance in contacting Accessibility Services, see the Bachelor and Graduate Programs office.

Academic Integrity:
The University of New Mexico believes that academic honesty is a foundation principle for personal and academic development. All University policies regarding academic honesty apply to this course. Academic dishonesty includes, but is not limited to, cheating or copying, plagiarism (claiming credit for the words or works of another from any type of source such as print, Internet or electronic database, or failing to cite the source), fabricating information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. The University's full statement on academic honesty and the consequences for failure to comply are available in the college catalog and in the *Pathfinder*.

Cell Phones and Technology:
As a matter of courtesy, please turn off cell phones, pagers, and other communication and entertainment devices prior to the beginning of class. Notify us in advance if you are monitoring an emergency, for which cell phone ringers should be switched to vibrate.

Library and Tutorial Services:
UNM-Main campus provides many library services and some tutorial services for distance students. For library services, go to http://www.unm.edu/libraries/ to link to a

specific library or to contact a librarian. For tutorial services, go to http://caps.unm.edu/online to explore UNM's online services.

Please Note:
In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education (see p. 15 - http://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see: https://policy.unm.edu/university-policies/2000/2740.html

COURSE SCHEDULE: This schedule of activities is subject to change. Minor changes will be announced in class, major ones provided in writing.

Week 1, January 22nd

- **Overview of class and syllabus**

Week 2, January 29th

- **Chapter 1: The Early Growth of Neuroscientific Knowledge: The Integrative Action of the Nervous System**
- **Chapter 2: The Cortex and the Mind in the Work of Sherrington and his Proteges**

Week 3, February 5th

- **Chapter 3: The Mereological Fallacy in Neuroscience**

Week 4, February 12th

- **Chapter 3: The Mereological Fallacy in Neuroscience**

Week 5, February 19th

- **Epstein article**
- **Richards article**

Week 6, February 26th

- **Preliminaries**
- **Chapter 4: Sensation and Perception**

Week 7, March 4th

- **Chapter 4: Sensation and Perception**

Week 8, March 11th

- **Chapter 5: The Cognitive Powers**

Week 9, March 18th

- **NO CLASS: SPRING BREAK**

Week 10, March 25th

- **Chapter 6: The Cogitative Powers**

Week 11, April 1st

- **Chapter 7: Emotion**

Week 12, April 8th

- **Chapter 13: Reductionism**

Week 13, April 15th

- **Rebuttal from Dennett & Searle**

Week 14, April 22nd

- **Response to Dennett & Searle**

Week 15, April 29th

- **Marshal 2016**
- **McGann et al 2013**
- **Wheeler 2014**

Week 16, May 6th

- **Term Paper Due**