

University of Central Florida
PHI 5340: Research Methods in the Cognitive Sciences
Spring 2017, Syllabus



Course Information

- Title: Research Methods in the Cognitive Sciences
- Course number: PHI 5340
- Credit hours: 3.0
- Term: Spring semester 2017
- Mode: Face-to-face
- Day and times: Wednesday; 6:00 pm – 8:50 pm
- Location: Psychology Building, Room 228B

Instructor Information

- Name: Luis Favela, Ph.D.
- Email: luis.favela@ucf.edu
- Website: <http://philosophy.cah.ucf.edu/staff.php?id=1017>
- Office location: PSY0245
- Office hours: Wednesday, 3:00 – 5:00 pm

Course Description

- Catalogue description: Interdisciplinary research methods in the cognitive sciences.
- Detailed description: The purpose of this course is to provide a broad introduction to the research methods utilized in the cognitive sciences. As an interdisciplinary field, the cognitive sciences incorporate theories and methods from various disciplines such as computer science, linguistics, neuroscience, philosophy, and psychology. The primary goal of this course is to strengthen students' understanding of the investigative frameworks, methods, and theories underlying the cognitive sciences. To achieve this goal, students will first be provided with a foundation for research in the cognitive sciences. First, they will learn the general nature of scientific explanations, methods, and theories. Second, students will evaluate the target of investigation in the cognitive sciences by discussing responses to the question, "What is cognition?" Third, students will learn some of the historical foundations and experimental methods in the cognitive sciences. With these fundamentals in place, students will then learn and assess a variety of specific disciplinary approaches to the investigation and understanding of cognition that have contributed to the cognitive sciences, for example, those from neuroscience, philosophy, and psychology.

Student Learning Outcomes

- Students will be able to *explain* the general nature of scientific explanations, methods, and theories.
- Students will be able to *assess* various responses and *justify* their own answers to the question, "What is cognition?"
- Students will be able to *identify* and *recall* the historical foundations and experimental methods in the cognitive sciences.

- Students will be able to *describe* and *appraise* the theories and methods utilized by various disciplines that contribute to the investigation and understanding of cognition within the cognitive sciences.

Course Materials

- All readings and materials are provided in Webcourses as PDFs or links.

Course Requirements

□ Required Academic Activity

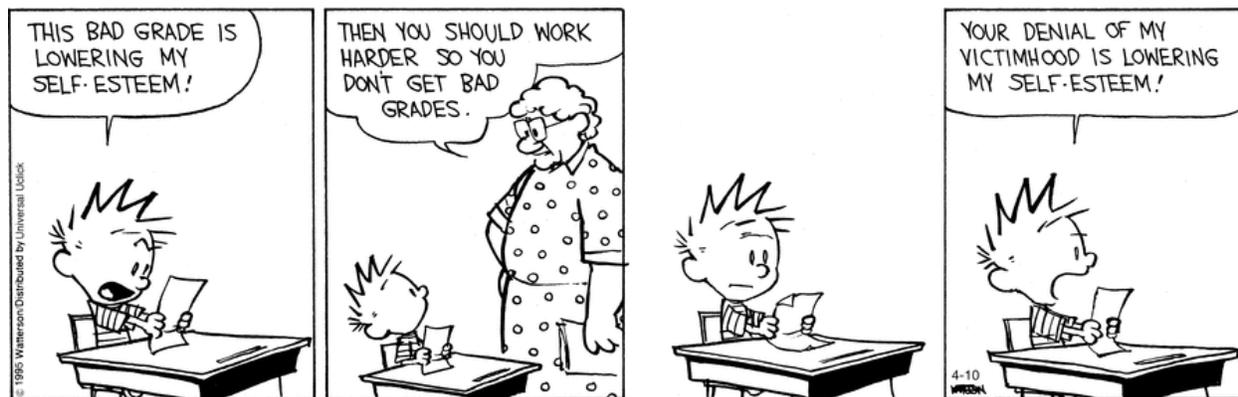
- All instructors are required to document students' academic activity at the beginning of each course. In order to document that you began this course, please complete the following academic activity by the end of the first week of class or as soon as possible after adding the course. Failure to do so may result in a delay in the disbursement of your financial aid.
- Activity: Signed syllabus:
 - After you read the syllabus, sign and submit the last page as an indicator that you understand the expectations and policies of this course.
 - Options for signing and submitting page—it is your responsibility to figure out which option works best for you:
 - Bring in a signed hard copy to the first class (or your first class if you start late).
 - Sign and email as an attachment
 - Available 8:00 am EST, Monday, January 9.
 - Due 4:00 pm EST, Friday, January 13.

□ Graded assignments

- *Class participation and article discussion responses*: As a graduate seminar, a substantial part of the learning comes not from the instructor or material, but from student-lead discussion. As such, it is crucial that you come to each class prepared. To facilitate preparation, you will be required to submit brief write-ups for each class meetings' readings before class begins.
- *Discussion lead presentations*: In addition to regular class participation, students will be responsible for leading two discussions on the weekly readings.
- *Interview project*: In order to facilitate appreciation and understanding of the various theories and methods utilized in the investigation of cognition, students will be required to interview one faculty or researcher who claims to investigate “cognition” and/or related phenomena (e.g., decision making, neural networks, vision, etc.). Students will present summaries of their interview to the class.
- *Paper*: For the paper, you will choose a topic within the cognitive sciences, present a review of how it has been previously investigated, defend a framework you think is best for understanding it (i.e., defend what you claim is the best theory and method), and critique other frameworks you claim are inadequate.

- Note: You are responsible for all reading assignments. Unless stated otherwise (e.g., “optional” readings), anything assigned to you is potential quiz, exam, or paper material.

Grading



- Class participation and article discussion responses: 200 points
- Discussion lead presentations: 200 points
- Interview project: 300 points
- Paper: 300 points
- Total
 - 1000 points
 - 900 – 1000 = A
 - 800 – 899 = B
 - 700 – 799 = C
 - 600 – 699 = D
 - 000 – 599 = F
 - The following example demonstrates how +/- are assigned:
 - B- = 80, 81, 82%
 - B = 83, 84, 85, 86%
 - B+ = 87, 88, 89%
 - Percentages are not rounded, for example, an 80.2% is a B-, an 82.6% is a B-, an 89.8% is a B+, etc.
 - There are no A+ or F+ grades.
- Grade distributions: The final grades will not be curved.
- Extra credit: There is no extra credit.
- Incomplete grades: The current university policy concerning incomplete grades will be followed in this course. Incomplete grades are given only in situations where unexpected emergencies prevent a student from completing the course and the remaining work can be completed the next semester. As the instructor for this course, I am the final authority on whether you qualify for an incomplete. Incomplete work must be finished by the end of the subsequent semester or the “I” will automatically be recorded as an “F” on your transcript.
- Extensions and late assignments
 - In general, no extensions will be allowed or late assignments accepted. (Really.)
 - However, extensions and late assignments will be considered for exceptional circumstances (e.g., family or medical emergencies) if appropriate documentation can be provided (e.g., doctor’s note, funeral program, etc.).

- If an assignment is accepted late, then it will be deducted 5% of the total possible point value of the assignment for every 12-hour block of time, including weekends. For example, if an assignment is due Monday at 11:59 pm and it is submitted on Tuesday at 12:01 am, then that assignment will lose 5%; if it is turned in on Tuesday at 1:00 pm, then it will lose 10%; and so on.
- Grade dissemination: You can access your scores at any time using the Grade Book function of Webcourses. If you need help accessing myUCF Grades, see the online tutorial: <https://myucfgrades.ucf.edu/help/>.

Course Policies

- Contact procedures
 - In-person contact: If you have questions related to the course, then see me during my office hours. We can attempt to schedule another time if you are unable to meet then.
 - Email and professionalism: I strongly believe that the university is a professional environment and that you and I are in a professional relationship. As such, be professional when you message me—for example, begin your message with “Hello Dr. Favela” and not “Hey you, can I have...” In addition, write complete sentences, be clear and concise, and reread messages before sending them. I will give one warning and then stop responding to your messages if they are unprofessional and/or discourteous. Allow 24 hours for a response during the week, and possibly more during the weekend and holidays.
 - Skype: If an issue comes up such that you prefer to talk instead of exchanging emails and you are unable to attend office hours or schedule an alternate in-person meeting time, then contact me and we can arrange to meet via Skype <dr.luis.favela>.
 - Webcourses: **Do not contact me via Webcourses.** I do not check it and will not reply.
- Academic integrity and plagiarism
 - As reflected in the UCF creed (<http://creed.ucf.edu>), integrity and scholarship are core values that should guide our conduct and decisions as members of the UCF community. Plagiarism and cheating contradict these values, and so are very serious academic offenses. Penalties can include a failing grade in an assignment or in the course, or suspension or expulsion from the university. Students are expected to familiarize themselves with and follow the University’s Rules of Conduct (see www.osc.sdes.ucf.edu).
 - Plagiarism: Many incidents of plagiarism result from students’ lack of understanding about what constitutes plagiarism. However, you are expected to familiarize yourself with UCF’s policy on plagiarism. All work you submit must be your own scholarly and creative efforts. UCF’s Golden Rule defines plagiarism as follows: “whereby another’s work is used or appropriated without any indication of the source, thereby attempting to convey the impression that such work is the student’s own.”
 - Plagiarism-detection service: In this course we will utilize [turnitin.com](http://www.turnitin.com), an automated system which I use to quickly and easily compare each student's assignment with billions of web sites, as well as an enormous database of student papers that grows with each submission. Accordingly, you will be expected to submit all assignments to both [turnitin.com](http://www.turnitin.com) and me. After the assignment is processed, I receive a report from [turnitin.com](http://www.turnitin.com) that states if and how another author’s work was used in the assignment. For a more detailed look at this process visit <http://www.turnitin.com>.

- Course accessibility: It is my goal that this class be an accessible and welcoming experience for all students, including those with disabilities that may impact learning in this class. If anyone believes the design of this course poses barriers to effectively participating and/or demonstrating learning in this course, please meet with me (with or without a Student Accessibility Services (SAS) accommodation letter) to discuss reasonable options or adjustments. During our discussion, I may suggest the possibility/necessity of your contacting SAS (Ferrell Commons 185; 407-823-2371; sas@ucf.edu) to talk about academic accommodations. You are welcome to talk to me at any point in the semester about course design concerns, but it is always best if we can talk at least one week prior to the need for any modifications.
- Syllabus adjustments: The instructor reserves the right to make adjustments to all parts of the syllabus during the course. If any adjustments are made, the instructor will inform students of such changes.
- **Copyright:** Unless otherwise stated, I reserve all rights for all course materials I create (e.g., syllabus, lecture materials, quizzes, etc.). Thus, this material may not be displayed, distributed, modified, or reproduced without prior written permission of the copyright holder: Luis H. Favela, Ph.D. Consequently, it would be illegal for you to post course materials on websites such as, but not limited to, Course Hero, Course Notes, etc.

Important Dates < <http://calendar.ucf.edu/2017/spring>>

- Classes begin: January 9
- Last day to drop and request full refund: January 12
- Add deadline: January 13
- No class: March 8; March 13-18
- Withdrawal deadline: March 22
- Classes end: April 24
- Study day: April 25
- Finals: April 26 – May 2
- Grades available: May 8

Topics and Readings Schedule

Week	Dates	Topic	Readings
1	Jan 11	Introduction / Research Methods and Design	1 - 3
2	Jan 18	What is Cognition?	4 - 7
3	Jan 25	Foundations and Experimental Methods in the Cognitive Sciences	8 - 9
4	Feb 1	Research Ethics (Dr. Jonathan Beever, UCF Philosophy and Texts & Technology)	10 - 11
5	Feb 8	Ecological Psychology	12 - 15
6	Feb 15	Neuroscience: Understanding in Neuroscience	16 - 19
7	Feb 22	Psychological Constructs (Dr. Daniel McConnell, UCF Psychology)	TBA
8	Mar 1	Neuroscience: Multiscale Explanations	20 - 22
9	Mar 8	No Class	
10	Mar 15	Spring Break	
11	Mar 22	Complex and Dynamical Systems	23 - 25
12	Mar 29	Anthropology	26 - 28
13	Apr 5	Philosophy	29 - 31
14	Apr 12	Interview Project Presentations	
15	Apr 19	Interview Project Presentations	
16	Apr 26 - May 2	Finals Week	

Readings

1. Syllabus
2. Bordens & Abbott (2014) Research Design Methods
3. Sutherland et al (2013) Twenty tips interpreting scientific claims
4. Adams & Garrison (2013) Mark Cognitive
5. Aizawa (2015) Cognition Behavior
6. Shapiro (2013) Dynamics Cognition
7. Favela & Martin (2016) Cognition Dynamical Cognitive Science
8. Simon & Kaplan (1989) Foundations Cognitive Science
9. Bower & Clapper (1989) Experimental Methods Cognitive Science
10. Steneck (2004) Introduction Responsible Conduct Research
11. Rollin (1992) Animal Rights Human Morality
12. Michaels & Carello (1981) Direct Perception [Read Chapter 1, pp. 1-18]
13. Chemero (2003) An Outline Theory Affordances
14. Warren & Whang (1987) Visual Guidance Walking Through Apertures
15. Oudejans et al (1996) Relevance Action Perceiving Affordances Catchableness Fly Balls
16. Carandini (2012) From circuits behavior bridge too far
17. Eliasmith & Trujillo (2014) Use abuse large-scale brain models
18. Forstmann & Wagenmakers (2015) Model-Based Cognitive Neuroscience Conceptual Introduction
19. Jonas & Kording (2017) Could Neuroscientist Understand Microprocessor
20. Beer & Izquierdo (2016) Whole Worm Brain-Body-Environment Models C Elegans
21. Eliasmith et al (2012) Large Scale Model Functioning Brain

22. Kelso et al (2013) Outline General Theory Behavior Brain Coordination
23. Riley & Holden (2012) Dynamics cognition
24. Van Orden et al (2012) Blue-collar brain
25. Wagenmakers et al (2012) Abstract Concepts Require Concrete Models
26. Beller et al (2012) Should Anthropology Part Cognitive Science
27. Hutchins (2008) Role Cultural Practices Emergence Modern Human Intelligence
28. Giere (2006) Role Agency Distributed Cognitive Systems
29. Brook (2009) Philosophy in of Cognitive Science
30. Bechtel (2009) Constructing Philosophy Science Cognitive Science
31. Stepp et al (2011) Philosophy Rest Cognitive Science

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Please fill out and sign this sheet once you have read the syllabus, detach this page, and turn it in to the professor during the first week of class—or, if you transferred in late, by the end of that week.

I have read the syllabus. I understand and agree to follow all course policies in the syllabus.

Name: _____

Student ID #: _____

Signed: _____ Date: _____