

EDUC 5364: Epistemology and Neuroscience  
Spring 2012- Syllabus

**Instructors:**

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| <b>Dr. Marc Schwartz</b>                               | <b>Dr. Ken Williford</b>                                 |
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| <b>Office hours: By appointment</b>                    | <b>Office hours: By appointment</b>                      |

**Class meets in Life Science 424:** <http://www.uta.edu/maps/map?id=LS>

### **Course Description**

This course explores issues at the intersection of neuroscience, the theory of knowledge, and education. We look at the basic strategies we use to acquire knowledge (e.g., deductive and inductive reasoning, perceptual observation, theory generation and testing) and consider how the brain supports these processes. Among other topics, we explore the complex relationship between emotion and reasoning, the role of the frontal cortex in decision making and data interpretation, the use of evolutionary considerations in neuroscience and the theory of knowledge, the nature of scientific theories, and the basic concepts of mind, consciousness, and representation.

### **Overview**

- The course meets on Mondays from 5:20 to 8:10
- Each class will include some balance of lecture, discussion, and activities. A major focus of the course is for students to commit themselves to the discussions and activities to challenge and support their own understanding.
- **Position Papers:** Students will write three two-page (500 words) *Position Papers* that focus on the readings and class discussions. The instructors will provide further instructions on how to balance the focus in each paper between defining and defending your position, and summarizing relevant terms, tools, and assumptions in the articles you reference.
- **Group Presentations:** Students will work in teams of two or three to prepare a one-hour activity/discussion session involving a class reading. Each team will meet with the instructor the week prior to their presentation to discuss their lesson plan.
- **Student Presentations:** Students will organize 20 min presentations in the second half of the semester that identify and address the epistemological challenges embedded in the studies they conducted or designed last semester. Dr. Malaia will be part of your extended support system to help

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you better understand these challenges and identify ways to address them. Should you decide to build on this work as a *program project*, then you will have strategies to improve your work.

- **Quizzes:** Two take-home quizzes will focus on the understanding basic concepts and the assessment of elementary examples of deductive, inductive, and fallacious reasoning.
- **Final Paper:** A well-referenced final paper that analyzes a relevant public document, show, presentation, website, etc. in terms of the quality of its epistemological arguments.

### Course Grade

The course grade will be determined as follows:

- 5%- The percentage of 14 classes attended. One excused absence is permitted during the semester. Two missed classes in which one is excused = 13 out 14 classes= 93%. Three late arrivals (anything after 10 minutes) count as one missed class.
- 30%- **Position Papers:** The three *position papers* are graded using a rubric introduced with the first paper
- 15%- **Group Presentations:** Successful organization and facilitation of a guided discussion.
- 10%- **Student Presentation:** A rubric will be used to evaluate the student's ability to clearly critique their own work ,offer solutions, and solicit comments from classmates
- 20%- **Quizzes:** Combined results of two quizzes
- 20%- **Final Paper:** (Expect a rubric)

### Course Books

- Kahneman, Daniel (2012). Thinking Fast and Slow. Farrar, Straus and Giroux. New York
- Gazzaniga, M.S. Ivry R.B., Mangun, G.R., & Steven M.S. (2009). *Cognitive neuroscience: The biology of the mind. neuropsychology.* (3<sup>rd</sup> ed.) New York: W.W. Norton & Company.

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**Course Sessions**

There are 14 course sessions highlighted below. The schedule is tentative to accommodate the participation of faculty participating in the course

Monday Jan 23<sup>rd</sup> 2012

Week 1: Basic Notions of Epistemology 1

Monday Jan 30<sup>th</sup> 2012

Week 2: Basic Notions of Epistemology 2

- Position Paper 1 (assigned- due week 3)
- Dr. Malaia- Presentation

Monday Feb 6<sup>th</sup> 2012

Week 3: Basic Notions of The Philosophy of Mind 1

- Dr. Parsons- Presentation

Monday Feb 13<sup>th</sup> 2012

Week 4: Basic Notions of The Philosophy of Mind 2

- Position Paper 2 (assigned- due week 5)

Monday Feb 20<sup>th</sup> 2012 (MS gone)

Week 5: Week 1-4 Review AND Inference 1: Deduction

Monday Feb 27<sup>th</sup> 2012

Week 6: Inference 2: Induction

- Position Paper 3 (assigned- due week 7)

Monday Mar 5<sup>th</sup> 2012

Week 7: Inference 3: Fallacies and Impediments to Cogent Reasoning

- Take home Quiz I- Basic Notions & Inference 1&2 (assigned- due week 8)

**Spring Break March 12-16**

Monday Mar 19<sup>th</sup> 2012

Week 8: Emotion and Reasoning

- Take home Quiz II: Fallacies (assigned- due week 9)

Monday Mar 26<sup>th</sup> 2012

Week 9: Evolution, Epistemology and Neuroscience

- Bruce Gregory

Monday Apr 2<sup>nd</sup> 2012

Week 10: Nature of Science & Epistemological Concerns I

- Group Presentation 1: Focus on Kahneman

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Monday Apr 9<sup>th</sup> 2012 (KW gone)

Week 11: Nature of Science & Epistemological Concerns II

- Group Presentation 2: Focus on Kahneman

Monday Apr 16<sup>th</sup> 2012

Week 12: Group and Student Presentations

- Group Presentation 3: Focus on Kahneman
- Group Presentation 4: Focus on Kahneman

Monday Apr 23<sup>rd</sup> 2012 (MS Gone)

Week 13: Group and Student Presentations

- Group Presentation 5: Focus on Kahneman
- Group Presentation 6: Focus on Kahneman

Monday Apr 30<sup>th</sup> 2012

Week 14: Group and Student Presentations

**A few broader issues:**

**Academic Integrity:**

At UT Arlington, academic dishonesty is completely unacceptable and will not be tolerated in any form, including (but not limited to) “cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts” (UT System Regents’ Rule 50101, §2.2). Suspected violations of academic integrity standards will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University.

**Student Support Services:**

UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may contact the Maverick Resource Hotline by calling 817-272-6107, sending a message to [resources@uta.edu](mailto:resources@uta.edu), or visiting [www.uta.edu/resources](http://www.uta.edu/resources).