Theology, the Person & Neuroscience
STPS 5950 – Fall 2005

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Location: Mudd 204 (PSR)
Time: Tuesdays, 12:40-3:30
Prerequisite: Either familiarity with systematic and philosophical theology (science or psychology background helpful, but not required) or Strong, relevant science background with highly motivated interest in theological analysis.

Course Description

This advanced MA/PhD seminar focuses on our growing understanding of the relationship between theological anthropology, cognitive science, and neuroscience. It provides the student a background in neuroscience; a mediating framework based on cognitive science to explore the connections between theology and neuroscience; and opportunities to participate in new scholarship in the relation between theology and neuroscience.

Recent advances in the study of the brain provide key insights into human nature that impact contemporary theology. As the organ responsible for a person’s mental, emotional, volitional, and social characteristics, the brain plays a central role in the human aspects of religious experience. Theology provides systematic descriptions and critical reflection of the cognitive content of religious experience, spirituality, theological anthropology, neuroethics, imago Dei, and moral decision-making, some of which neuroscience and psychology are beginning to address.

The course explores the relationship between theology and neuroscience using the tools of cognitive science—the inter-disciplinary study of mind drawing upon psychology, computer science, neuroscience, philosophy, linguistics, and anthropology. Each area of cognitive science may provide paths between neuroscience and a theological perspective on the person. In particular, topics examined in the course may include narrative and contemplative psychology; artificial intelligence and systems modeling; pragmatism and philosophy of mind; concepts and metaphor in language; and consciousness and emergence.

The primary text for the course is from the CTNS/Vatican Observatory series, *Neuroscience and the Person: Scientific Perspectives on Divine Action*. Additional readings come from neuroscience texts and articles. One of the goals of the class is to provide sufficient background in neuroscience for the student to understand the science used in the primary text and other books and articles in theology and neuroscience. In
addition, the course will provide sufficient neuroscience to enable the student to begin drawing directly from scientists and basic scientific texts to explore new interactions. A claim of the course is that cognitive science provides a framework for understanding human nature in dialogue between theology and other cognitive disciplines including psychology, philosophy and neuroscience, and the course introduces several areas of cognitive science to illustrate the framework.

As theology and neuroscience only recently began dialoging, many areas of fruitful interaction remain unexplored. The seminar provides students an opportunity to begin work in that area for possible use on other projects and to receive feedback from the instructors and other classmates as desired. To that aim, time within each class session will be available for student-led theological reflection on a relevant area of neuroscience or cognitive science.

Course Goals

- To introduce sufficient background in neuroscience for the student to understand and begin writing articles in theology and neuroscience.
- To enable constructive interaction between theology and neuroscience by providing a mediating framework based on cognitive science to bridge the two disciplines.
- To encourage students to engage in critical theological reflection on human nature informed by neuroscience.

Course Requirements

1. **Readings and class participation.** Attendance at all class sessions and demonstration of reading and reflection through active class participation is expected. Please notify one of the instructors if a class must be missed.

2. **Theological Reflection.** During the semester, students will be responsible for presenting a theological reflection and leading its discussion relevant to that week’s topic. Reflection may draw upon additional theologians, and students are strongly encouraged to coordinate the topic with the instructors to meet the student’s interest, prior background, and other research needs. (Alternate requirements may be arranged for UCB or advanced MDiv students.)

3. **Research paper.** A research paper is due by 5pm on Tuesday, Dec 13. The paper should be 6-8,000 words in length not including references or footnotes or endnotes (approximately 25 pages in *Turabian* or *Chicago Manual of Style*). Students are encouraged to discuss their topic with an instructor prior to Nov 15. Doctoral students should note that Dr. Russell is willing, if desired, to assess the research paper for the purpose of completing the *Research Readiness Review*.

If you have any unique learning needs, please consult with one of the instructors, and we will make every reasonable effort to accommodate you.
Class Schedule

I. Broad Overview
1. Sept 6
   • Introduction to Course
   • Overview of Cognitive Science
2. Sept 13
   • Religious Experience
   • Neurobiology
3. Sept 20
   • Neuroanatomy
   • Philosophy of Mind
4. Sept 27
   • Experimental Methods in Neuroscience
   • Neuroethics
II. In-depth Analysis
5. Oct 4 – Cognitive Neuroscience
6. Oct 11 – Cognitive Linguistics
7. Oct 18 – Affective & Social Neuroscience
8. Oct 25 – No Class – Reading Week
III. Consonance & Conflict
9. Nov 1
   • Emergence
   • Transcendence & Atheism
10. Nov 8
    • Neurobiology of Addiction (Guest)
    • Sin, Freedom & Healing
11. Nov 15
    • Pragmatism
    • Habit, Virtue & Tendencies
IV. Interaction
12. Nov 22 – AAR Conference (Guest)
    • Evolutionary & Developmental Perspectives on Experience
    • Evolutionary Psychology
13. Nov 29 – Psychology (Guest)
    • Buddhist Psychology
14. Dec 6 – Computational Approaches & Imago Dei
    • Artificial Intelligence, Computational Modeling & Systems Theory
    • Imago Dei
15. Dec 13 – No Class – Papers Due
**Texts**

**Theology & Science Text:**


**One of the following Neuroscience texts:**

Banich, Marie T. *Cognitive Neuroscience and Neuropsychology*. Boston: Houghton Mifflin Co., 2004. (For students with some science or psychology background)

LeDoux, Joseph E. *Synaptic Self : How Our Brains Become Who We Are*. New York: Viking, 2002. (For students with no science background. Also recommended for other students.)

**Cognitive Science Texts:**


**Reader:**
All readings not in one of the texts are available in one or two supplemental readers. The *required* readings are in a printed reader available at Vick’s copy center at 1879 Euclid at Hearst. Almost all the additional readings (including background and recommended readings) are available in electronic form in Adobe Acrobat format (pdf) on a CD. On the reading list, the items available on the printed reader are noted with a “ одно ” symbol, and those available as pdfs on a CD are noted with a “☺”.
Readings

Readings are divided into Background, Required, and Recommended readings. The Background readings contain additional material to assist in understanding the Required readings, should that topic be unfamiliar. The Recommended readings provide additional depth or context.

Readings may change depending upon student interests.

I. Broad Overview
Sept 6
Science & Religion
Background

Sept 13
Religious Experience
Background

Required
Newberg, Andrew B., Eugene G. D’Aquili, and Vince Rause. 2001. Why god won’t go away: Brain science and the biology of belief. New York: Ballantine Books, p. 27-32, chap 6 (pp. 96-127) and/or 7 (pp. 128-141).

Recommended
Russell, pp. 403-408, Wildman/Brothers, section 7.3.

Neurobiology
One of
LeDoux, chap 3.
Banich, chap 2.
Gazzaniga, chap 2.
Sept 20

Neuroanatomy

**Background**

Brown, Murphy & Maloney, chap 4, Jeeves, “Brain, Mind, and Behavior”.

**One of**

Banich, chap 1. ☒

Gazzaniga, chap 3.

Philosophy of Mind

**Background**


LeDoux, chap 1.


Brown, Murphy & Maloney, chap 1, Murphy, “Human Nature”.


**Required**


(http://www.ccel.org/a/aquinas/summa/FP/FP078.html) ☒


Varela, pp. 59-81, chap 4, especially pp 59-72. ☒

**Recommended**


Russell, pp. 23-40, Kerr.


Sept 27

Experimental Methods

**Required**

Neuroethics

Background

Required

Recommended
Kung, pp. 540-53, remainder of D.II “Being Human and Being Christian”.

II. In-depth Analysis

Oct 4 – Cognitive Neuroscience

Background
Brown, Murphy & Maloney, chap 5, Brown, “Cognitive Contributions to the Soul”.

Required
LeDoux, chap 5.

One of
LeDoux, chap 7, 9.
Banich, chap 11.
Gazzaniga, chap 12.

Recommended
Libet, chap 2.
Libet, chap 4.

Oct 11 – Cognitive Linguistics

Background

Required
Varela, pp. 147-84, Chap 8.
Lakoff and Johnson, pp. 267-89, chap 13, Self.
Lakoff and Johnson, pp. 551-68, chap 25.


**Recommended**

Lakoff and Johnson, pp. 74-93, remainder of chap 6.


**Oct 18 – Affective & Social Neuroscience**

**Emotions**

*Background*


*Required*


*One of*

LeDoux, chap 8, pp. 200-34, “The emotional brain revisited”. (Also recommended for everyone.)

Banich, chap 12.

Gazzaniga, chap 13.

*Recommended*


**Social Neuroscience**

*Background*


*Required*

Russell, pp. 67-74, Brothers, “A Neuroscientific Perspective on Human Sociality”.

Russell, pp. 119-28, Jeannerod (II), “Are there Limits to the Naturalization of Mental States?”.

*Recommended*


**Oct 25 – No Class – Reading Week**
III. Consonance & Conflict

Nov 1 – Emerging Self

Emergence

Background
Gregory, *The oxford companion to the mind*, entry on “emergence and reduction in explanations”.
Brown, Murphy & Maloney, chap 6, Murphy, “Nonreductive Physicalism: Philosophical Issues”.

Required
Russell, pp. 181-214, Clayton, “Neuroscience, the Person, and God: An Emergentist Account”.

Recommended

Transcendence

Background
Rahner, pp. 24-43, chap 1.

Required
Rahner, pp. 116-37, chap 4.

Atheism

Recommended

Nov 8 – Addiction & Freedom

Background
Brown, Murphy & Maloney, chap 9, Post, “A Moral Case for Nonreductive Physicalism”.

One of
LeDoux, chap 6.
Banich, chap 10.
Gazzaniga, chap 8.

Required

**Recommended**


**Nov 15 – Pragmatism & Habits**

**Background**


**Required**


**Recommended**


**IV. Interaction**

**Nov 22 – Development & Evolution**

Evolutionary & Developmental Perspectives on Experience

**Recommended**

Varela, pp. 185-214, chap 9.

One of
Banich, chap 13.
Gazzaniga, chap 14,15.

**Evolutionary Psychology**

*Recommended*

Gregory, *The oxford companion to the mind*, entry on evolutionary psychology.

**Nov 29 – Psychology**

*Required*


LeDoux, chap 11.

**Dec 6 – Computational Approaches & Imago Dei**

*Background*

Gregory, *The oxford companion to the mind*, entry on artificial intelligence.


*Required*

Russell, pp. 249-80, Barbour.


Niebuhr, *The nature and destiny of man; a christian interpretation*, chap 6, “Man as Image of God and as Creature”.

*Recommended*


