

# The History & Philosophy of Neuroscience

PHIL 4388-001 Topics in the History of Philosophy

PHIL 5392-002 Topics in the History of Philosophy

HIST 4388-010 Selected Topics in History

PSYC 4361-001 Readings in Psychology



From the Kaibo Zonshinzu Anatomy  
Scrolls by Yasukazu Minagaki (1784-1825)

**Fall 2014**

**Instructor: K. Williford**

Meeting Time: MW 4:00PM-5:20PM

Meeting Place: Pickard Hall (PKH) 107

Office Hours:

MW 2:00-3:30PM & by appointment

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<http://www.uta.edu/philosophy/>

**Course Description:** This course is an advanced introduction to the history and philosophy of neuroscience. In (roughly) the first half of the course will cover the historical development of the brain sciences (including functional neuroanatomy, neurophysiology, neurology, neuropsychology, and neuropharmacology) from antiquity to the present, with special attention to the philosophical and cultural ideas that sometimes helped and sometimes hindered scientific progress, and with occasional attention to more recent, related developments in these sciences as well as to relevant perennial philosophical issues. In (roughly) the second half of the course we will focus on the impact neuroscience (and especially neuropharmacology) is currently having on our self-conception, and on the relation of the brain sciences to long-standing philosophical issues (including the nature of moral judgment, the nature of the emotions, the nature of the self and personal identity, the nature of consciousness and subjectivity, the nature of happiness, and the “meaning of life”). We will conclude by considering one neurobiological theory of consciousness (and self) in some detail (Antonio Damasio’s) and by reflecting on the ethical issues that may arise from future (possibly utopian or dystopian) technologies that could enable us to modify mood, enhance cognition, control minds, and create different types of conscious mental states as we see fit.

**Student Learning Outcomes:** Successful students will acquire a general understanding of the historical development of the brain sciences from antiquity to the present (know the major dates and figures, know the general chronology and lines of historical influence). They will acquire an understanding of the cultural and philosophical ideas that have sometimes helped and sometimes hindered progress in the brain sciences and be able to describe these ideas and explain the ways in which they helped or hindered. They will acquire an understanding of the nature of philosophical and historical inquiry into the sciences and be able to articulate the differences, similarities, and relationships holding between these different disciplines (especially, philosophy of mind, philosophy of science, epistemology, ethics, history of science and technology, and, of course, the brain sciences themselves). They will learn how to conduct historical and philosophical research responsibly (know how to find good scholarly resources, know how to organize the results of their research into a well-written and well-argued paper). History and science students will acquire and be able to communicate an understanding of the wide applicability and intellectual importance of philosophical thinking and questioning (philosophy is far more applicable and relevant to these areas of inquiry than it might appear at first); and philosophy students will acquire and be able to communicate an understanding of the intellectual importance of historical and scientific thinking and facts (science and history without philosophy

are bland; philosophy without science and history is impoverished). All students will be able to articulate the following philosophical problems, explain their relationship to contemporary neuroscience, and describe the main proposed solutions to them: the mind-body problem, the problem of personal identity, the problem of relationship between the phenomenology of consciousness and consciousness conceived of as a brain process, the problem of introspective self-knowledge, the problems of free will and moral responsibility. All students should acquire and be able to communicate a general picture of the basic facts of functional neuroanatomy, neuropharmacology, neurophysiology, and clinical neurology.

**Prerequisites:** None

**Required Texts:**

*Minds behind the Brain: A History of the Pioneers and Their Discoveries*, by Stanley Finger

*Origins of Neuroscience: A History of Explorations into Brain Function*, by Stanley Finger

*Drugged: The Science and Culture Behind Psychotropic Drugs*, by Richard J. Miller

*Self Comes to Mind: Constructing the Conscious Brain*, by Antonio Damasio

*The Ego Tunnel: The Science of the Mind and the Myth of the Self*, by Thomas Metzinger

These texts should be available at the UTA Bookstore.

**Evaluation:**

There will be multiple, small in-class “pop” quizzes over the reading material, one take-home mid-term exam and a final research paper. Attendance and participation will also figure into the final grade.

*Attendance:* If you have three unexcused absences, you cannot get a higher grade than a B in this class. If you have four unexcused absences, a C is the highest possible grade. If you have five, a D. If you have six, you cannot pass. In order for an absence to be excused you must provide me with documentation demonstrating that your absence was for a legitimate reason.

*Quizzes:* Your quiz average will constitute 30% of your final grade.

*Exam:* There will be a take-home midterm exam. The exam will count for 30% of your final grade.  
(**NB:** There is no final exam in this class.)

*Research Paper:* There will be a 15-20 page research paper due at the end of exam week. The paper will count for 30% of your final grade. Due dates for the topic, abstract, outline, tentative bibliography, rough draft, and peer criticism can be found in the tentative schedule below. A handout explaining my expectations for your papers and providing some guidelines for your research and writing will be posted on Blackboard and discussed in class. The philosophy subject librarian, Stephanie Noell, will also provide a course guide for the class.

*Attendance and Participation:* A&P will count for the remaining 10% of your final grade.

**IMPORTANT POLICIES OF MINE**

**Blackboard:** I will be using Blackboard in this class to post the syllabus, handouts, announcements, links, supplementary readings, slides, class notes, and class recordings. Be sure to check it regularly.  
(<https://elearn.uta.edu/>)

**Late Work:** All late work will be docked a full letter grade for every day that it is late.

**Laptops and Phones:** In my class I do not allow students to use laptops, smartphones, or other electronic devices without special permission. Any note taking must be done the old fashioned way. If I see laptops or smart phones out during class, I will ask you to put them up. If you won't put your device away, I will ask you to leave class.

**Homework for Other Courses:** Students are not allowed to read for or do homework for other courses while in my class.

**Incompletes:** I will not give a student a grade of Incomplete (I), unless he or she has a compelling, and documented, reason (e.g., a medical emergency).

**Plagiarism:** No student should have any doubt about what counts as plagiarism. I will assume that every student in this class has seen this tutorial provided by the UTA library and have taken the quiz embedded in it: <http://library.uta.edu/plagiarism/index.php>. All cases of plagiarism will be turned over to the Office of Student Conduct.

## UNIVERSITY POLICIES

**Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/aao/fao/>).

**Americans with Disabilities Act:** The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

**Title IX:** The University of Texas at Arlington is committed to upholding U.S. Federal Law "Title IX" such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit [www.uta.edu/titleIX](http://www.uta.edu/titleIX).

**Academic Integrity:** Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to

incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) 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.

**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

**Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

**Final Review Week:** A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Emergency Exit Procedures:** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located [insert a description of the nearest exit/emergency exit]. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

**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 visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to [resources@uta.edu](mailto:resources@uta.edu), or view the information at [www.uta.edu/resources](http://www.uta.edu/resources).

**Writing Center:** The Writing Center, 411 Central Library, offers individual 40 minute sessions to review assignments, *Quick Hits* (5-10 minute quick answers to questions), and workshops on grammar and specific writing projects. Visit <https://uta.mywconline.com/> to register and make appointments. For hours, information about the writing workshops we offer, scheduling a classroom visit, and descriptions of the services we offer undergraduates, graduate students, and faculty members, please visit our website at [www.uta.edu/owl/](http://www.uta.edu/owl/).

**Subject Librarians to Contact:** <http://www.uta.edu/library>

Philosophy Stephanie Noell 817-272-7047 [noell@uta.edu](mailto:noell@uta.edu)

<http://libguides.uta.edu/philosophy>

Psychology Suzanne Beckett 817-272-0923 [sbeckett@uta.edu](mailto:sbeckett@uta.edu)  
Chris McDougal 817-272-5329 [cmcdougal@uta.edu](mailto:cmcdougal@uta.edu)

<http://libguides.uta.edu/c.php?g=26956>

History Ben Huseman 817-272-0633 [huseman@uta.edu](mailto:huseman@uta.edu)  
Leslie Wagner 817-272-6209 [leslie.wagner@uta.edu](mailto:leslie.wagner@uta.edu)

<http://libguides.uta.edu/history>

### Tentative Schedule

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. –Kenneth Williford

Abbreviations:

ON: *Origins of Neuroscience* by S. Finger

MBB: *Minds behind the Brain* by S. Finger

D: *Drugged* by R. Miller

ET: *The Ego Tunnel* by T. Metzinger

SCM: *Self Comes to Mind* by A. Damasio

#### **Week 1**

M8/25 Intro 1: Neuroscience, Philosophy of Science & History of Science

W8/27 Intro 2: Philosophy of Mind & the Brain Sciences, ET, Introduction, Chs. 1-2 and Ch. 2's Appendix; SCM, Chs. 1

#### **Week 2**

M9/1 Labor Day, No Class

W9/3 Topic: The Brain in Antiquity. ON, Introduction & Ch. 1; MBB, Preface & Chs. 1-4

#### **Week 3**

M9/8 Topic: Conceptions of Brain Function from the Middle Ages to the 19<sup>th</sup> Century. ON, Ch. 2; MBB, Chs. 5-7

W9/10 Topic: The Era of Cortical Localization and the Neuron Doctrine. ON, Ch. 3; MBB, Chs. 9, 11, 13, 14

#### **Week 4**

M9/15 Topic: Holism and Critics of Cortical Localization. ON, Ch. 4

W9/17 Topic: Vision from Antiquity to the 19<sup>th</sup> Century. ON, Chs. 5-7

#### **Week 5**

M9/22 Topic: Audition from Antiquity to the 20<sup>th</sup> Century. ON, Chs. 8-9 (**Paper topic proposals due.**)

W9/24 Topics: Cutaneous Sensation and Pain—Real and Phantom; the Body Image. ON, Chs. 10-11; ET, Ch. 3; SCM, Chs. 3-4.

#### **Week 6**

M9/29 Topic: Gustation & Olfaction. ON, Chs. 12-13

W10/1 Topics: The Motor Cortex, the Cerebellum, and the Corpus Striatum; Voluntary Movement and the Sense of Agency. ON, Chs. 14-15; ET, Ch. 4.

**Week 7**

M10/6 Topic: Some Movement Disorders. ON, Ch. 16; MBB, Ch. 12 **(Take-home Midterm assigned.)**

W10/8 Topics: Sleeping and Dreaming—and Lucid Dreaming. ON, Chs. 17-18; ET, Ch. 5, and Ch. 5's Appendix.

**Week 8**

M10/13 Topic: Emotion. ON Chs. 19-20; SCM, Chs. 2, 5 **(Take-home Midterm due.)**

W10/15 Topic: Intellect and the Frontal Lobes. ON, Chs. 21-22.

**Week 9**

M10/20 Topic: Memory. ON, Chs. 23, 24; SCM Ch. 6.

W10/22 Topic: Speech and Cerebral Dominance. ON, Chs. 25-27; MBB, Chs. 10, 17

**Week 10**

M10/27 Topic: Treatments and Therapies. ON, Chs. 27-29, Epilogue; MBB, Ch. 8, 18

W10/29 Topic: The Beginnings of Psychopharmacology and Neuropharmacology. MBB, Ch. 16; D, Preface & Ch. 1 **(Paper abstract, outline and tentative bibliography due.)**

**W10/29 Last Day to Drop****Week 11**

M11/3 Topic: Hallucinogens, Mystical and Religious Experience, and "Consciousness Ethics". D, Ch. 2; ET, Ch. 9.

W11/5 Topic: Antipsychotics and Antidepressants. D, Chs. 3-4

**Important Dates**

9/1 Labor Day, No Class

9/22 Paper Topic Proposals Due

10/13 Take-home Midterm Due

10/29 Last Day to Drop, Paper Abstract, Outline & Tentative Bibliography Due

11/19 Paper Rough Drafts Due to me and Peers

11/26 Paper Feedback Due to me and Peers

11/27&28 Thanksgiving Holidays

12/12 (by 5:00PM) Hard Copy of Final Paper Due in my Office

**Emergency Phone Numbers:** In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911.

**Week 12**

M11/10 Topics: Opiates, Downers and THC. D, Chs. 5-6

W11/12 Topics: Stimulants and Neuroinflammation. D, Chs. 8-9

**Week 13**

M11/17 Topic: The Problems of Consciousness. SCM, Ch. 7

W11/19 Topic: Consciousness and the Core Self. SCM, Ch. 8 **(Paper rough drafts due to me and peers.)**

**Week 14**

M11/24 Topic: The Autobiographical Self and Others. SCM, Ch. 9; ET, Ch. 6 and Ch. 6's Appendix

W11/26 Topic: Damasio's Model of Consciousness. SCM, Ch. 10 **(Feedback on papers due to me and peers.)**

**TH&F 11/27&28 T-Giving Holidays****Week 15**

M12/1 Topic: Is the Self Real? SCM, Ch. 11

W12/3 Topic: Artificial Egos and Consciousness Technologies. ET, Chs. 7-8

**Exam Week**

**F12/12 by 5:00PM, Hard Copy of Final Paper Due in my Office**