

STS.066 Brains and Culture: Love, Lies & Neurotransmitters

Course Description

Subject examines the brain as a cultural object in contemporary media, science, and society. Explores cultural assumptions about neuroscience by drawing on anthropology, history, semiotics, and the cognitive sciences. Topics include historical views of the brain; digital images of the brain; psychopharmacology; mental illness; neurotransmitters; and the culture of brain science. Class assignments include three brief analytical papers and one oral presentation.

Requirements - 3 papers plus participation

Papers are due on the first day of the week – there will be a grade reduction for lateness

- **Analysis paper** (5-7 pages)
Of scientific or popular science article

- **Term paper** (in middle, using concepts)
 - Mapping a subfield in neuroscience/psychiatry etc.
 - Journals, Players, Concepts.
 - Interview and/or fieldwork.

- **Analysis Paper 2** (5-7 pages)
Comparing popular and academic papers or create teaching tool (webpages or applet, etc.)

Participation

Questions everyday from readings

A sentence from each text that inspired you – be prepared to discuss

Two questions from different readings

- be prepared to describe context in the text, author's argument
- be prepared to provide your answer (as to why a smart person would have done it)
- be prepared to answer another person's question

Attendance – You must attend all classes and sections – each class is an entire week

Class #1: Introduction

Welcome to Brains & Culture

Brains, Selves, Facts, Lives

Class #2: Personhood & Kinds

Nelkin, Dorothy, and Laurence Tancredi. *Dangerous Diagnostics: The Social Power of Biological Information*. Preface and Chap. 1.
Foucault, Michael. "Dangerous Individuals."
Hacking, Ian. "Making up People." Pp. 161-171
"Why they kill." *Newsweek*.
Taylor, Charles. (from *Category of the Person*)
Mauss, Marcel. (recommended)

Remember to send me your essay on brains in your life latest by 5 days after this class. And also if you are interested in specific topics for your projects or mine, let me know those. I am hoping that many of these projects can be shared, but if you have a topic that want to work on but not share publicly, that is fine as well.

If you do extracurricular surfing related to the readings, you can bring those to my attention and (if you wish) present them in class -- this could be, for instance, visiting Daniel Amen's website (whose work is referenced in the Newsweek article) and talking about what you found there.

Suggestions for the website are welcome -- it is completely generic at the moment.

Class #3: Some Brain Kinds

LeVay, Simon, and Fauston-Sterling, Gail Vines
Kopytoff – Biography of things
Nelkin, Dorothy, and Laurence Tancredi. *Dangerous Diagnostics...* Chap. 2 and 3.
Appadurai – Social Life of Objects (rec)

Mental Illness

Class #4: ADHD & Self-Help

Diller, Lawerance. "Running on Ritalin."
Kramer, Peter. *Listening to Prozac*. Chap.1, 3-6, 9.
Nelkin, Dorothy, and Laurence Tancredi. "Schools." Chap.6 in *Dangerous Diagnostics...*
Self-Help sites.

For this class, please read the Diller article, "Running on Ritalin", plus Kramer's *Listening to Prozac* (at least the introduction, chapter 1, 3-6, 9 and the afterward).

Both of these are written by psychiatrists who are also quite reflexive about what their profession is doing and how drugs and diagnoses are changing social notions of personhood. Please read both of these in two ways: first as theorists akin to Foucault or Hacking who tell us how to analyze the changes going on around us and in history, and second as scientists akin to LeVay whom we want to see how they construct claims to persuade us that their facts are correct and correctly interpreted. By writing both ways at the same time, Kramer and Diller effectively short-circuit our ability to read each of these ways. So every now and then, reread something with the other view in mind.

Finally, take some time to look at various self-help sites on the web -- do they use neuro-discourse to talk about self-improvement and motivation? What sorts of persons and what views of human nature do they conjure up?

Class #5: Psychiatry - Pharma - Political Economy

Healy, David. "Democracy." In *The Creation of Psychopharmacology*.

Alasdair, Donald. "McDonaldization of Psychiatry."

Cohen, Lawrence. *No Aging in India* (excerpts)

Class #6: Assignment 1 due

Class #7: Fighting for the Brain

Fausto-Sterling, Anne. "Making us Crazy." *Sexing the Body: Gender Politics and the Construction of Sexuality*.

Grove - Testing

Martin, Emily – PMS.

Activism online

Melucci

Nelkin, Dorothy, and Laurence Tancredi. "Control." Chap. 8 in *Dangerous Diagnostics...*

Please read:

Article by Dumit, Joseph, "When Explanations Rest."

Martin, Emily. "Premenstrual Syndrome, Work Discipline and Anger"

Dangerous Diagnostics..., Chap. 8

Please have two questions from different readings ready.

And then, I would like you to go online and locate different online communities around illnesses such as chronic fatigue syndrome, attention deficit disorder, depression and so on. You should spend some time thinking about what these communities offer you if you were suffering from one of these illnesses, or if someone close to you was. You should also attend to how the communities are organized, how they are supported, and what aspects of living are discussed online and what aspects aren't.

If possible, it would be really helpful if you could email me at least a paragraph or two of your thoughts on one or two sites (along with the links). This would be a great stimulus to class discussion and bring out the specific aspects of different communities.

Cultures of Studying the Brain

Class #8: How do We Study the Brain/Person

Ramachandran, V. S. *Phantoms in the Brain: Probing the Mysteries of the Human Mind*.

Star, Susan Leigh. *Regions of Mind: Brain Research and the Quest for Scientific Certainty*.

Harrington

Danziger, Kurt. *Constructing the Subject: Historical Origins of Psychological Research*.

Gergen. "Metaphor, Metatheory, and the Social World."

Pribram, "Models and Metaphors."

Please read the preface and chapters 1-3 of Ramachandran's Phantoms in the Brain.

Class #9: Cognitive Science

Here are the readings for the next class.

Please read the three short articles from *States of Mind*.

Kagan, Jerome. "Born to be Shy."

McEwen, Bruce. "Stress and the Brain."

LeDoux, Joseph. "Power of Emotions."

Also:

Roediger, H. L. "Memory Metaphors in Cognitive Psychology." *Memory and Cognition*, 8 (1980): 231-246.

From the book, *Conversations in the Cognitive Neurosciences*. Chap. 3, 5 and 6.

Interviews with Posner, Gallistel, and Tulving (on Attention and Memory)

Finally, "Capgras Syndrome." Chap. 8 in *Phantoms in the Brain*. (the case seen in the video)

Each of these texts deals with the intersection of memory, attention, social recognition, as well as cognitive science and the brain.

Please look them all over and be able to state:

1) What is the main thesis or theory of the author/interviewee? How is it framed? With what metaphors?

Please pick at least four of these texts to concentrate on in detail (including at least one from *States of Mind* and one from *Conversations*). For these,

2) Specifically, how are computers, modules, and correlations used to create images or models of both mind and brain?

3) For their specific topic (shyness, stress, emotions, memory, attention) -- how do you normally use these terms? What is your basic theory/model of these? Write it out in a couple of sentences.

4) Now discuss how the author defines the term -- is his definition primarily in terms of his method of inquiry (the kinds of experiments he is able to conduct) or in terms of a specific metaphor/model? How is it different than your definition?

5) What is a serious question you have regarding the topic? Can it be answered using the approach of the author? What would it take to answer it?

6) How do the authors define their field -- who are their friends, and who are their enemies (in these sense of people who stand in the way of the kind of the work that they wish were being done)? What image does each convey about the progress of neuroscience and collaboration?

Please bring some form of your notes to class.

Class #10: Civilizations of the Brain

[video: Ramachandran?]

Kuriyama. *The Expressiveness of the Body*. Preface and Chap.1.

Ramachandran. V. S. *Phantoms in the Brain: Probing the Mysteries of the Human Mind*. Chap. 9

Turner, Victor. "Body, Brain, Culture."

The readings for this class are given. I've kept them (readings) short because of the project you are currently working on.

In Ramachandran, read chapter 9, "God and the Limbic System"

Read the Victor Turner's "Body, Brain & Culture."

and please read the Preface and Chap. 1 of Kuriyama's *Expressiveness of the Body*.

(If you are inspired by the book, Chap. 5 "Blood and Life," should be read next.)

I was happy with our discussion of texts last week. Please read these three texts and answer the following questions.

For Turner and Ramachandran:

1) What is the main thesis or theory of the author? How is it framed? With what metaphors?

2) Would you say the author uses "culture" to help explain brain findings, or brain findings to help explain "culture"? Or both? In any case, please write out the author's definition of culture as best you can make it out. Be prepared to cite a sentence or paragraph that backs up your claim.

3) What is another area where you think culture or civilization matters for the brain or brain science? What kind of experiment would you be interested in seeing carried out? Why?

For Kuriyama:

- 1) What is his definition of "culture"? Does he use it in a very different way than Turner or Ramachandran?
- 2) He doesn't write directly about the brain. Imagine he did: what sorts of questions would he raise? Write down one specific one and sketch out how one might go about investigating it.

Class #11: Thinking through the "brain"

Neural Geographies

Freud

McCulloch

For this class, please read Chapter 7 of Ramachandran,

What does Ramachandran think is happening in Mrs. Dodds that accounts for her experience and behavior?
Does he make a meaningful distinction between her person and her brain (and brain parts)?
How would you diagram his theory?
Come up with at least one alternative hypothesis of what is happening.

Read through the two McCulloch articles. They are technical, but pose questions about neurons that are not typically asked.

What would it be like to be a frog as the authors describe it?
What do "newness" and "sameness" neurons do?

Recommended: Look at the Elizabeth Wilson chapters, especially the second one (pp. 103-132).

Does Wilson think the Turing Test is a good test?
According to Wilson, what does the Turing Test test?

Visualizing the Brain

Class #12: Assignment 2 due

Class #13: Brain Imaging

How to Lie with MRI

Web Examples.

Applets.

Visual Rhetoric papers

For this week, please read the book, *Images of Mind*, chapters 1, 3, 8, & 9. 1 and 3 are introductions to imaging the brain and to PET scanning in particular. Pay attention to 8 & 9 for how theories of the normal and ill selves are made, and the use of diagrams and images to buttress them. How do they persuade you?

For a critical look, also definitely visit the "How to lie with fMRI" website:
http://defiant.ssc.uwo.ca/Jody_web/fMRI4Dummies/how2liewithfMRIstats.htm

You can follow the link there to "fMRI for dummies."

Contrast these two approaches (the book and how to lie): what different kinds of knowledge do they provide you with?

Class #14: Film

Class #15: Assignment 3 due

Class #16: Flow Charts in the Brain

Shallice
Selections
Star & Gerson

For this class, we will be talking about 'Flowcharts and the Brain.'

Please spend an hour researching online, in texts, or via interviews some part of the following set of questions:

1. The history of flowcharts (when were they developed? for what? who used them? how has their use changed?)
2. Flowcharts in the Brain (when was the brain first thought of as having flowcharts in it? when did flowcharts really take off in mapping the brain? how are flowcharts used today in neuroscience?)
3. Varieties of flowcharts (what are some of the kinds of flowcharts used to talk about the brain? how much do these differences matter to the work of neuroscience? Are there some very outrageous examples?)

I'll present my work in progress on this. See if you can surprise me with some of your findings. Please bring something to class to hand in (some comments, not necessarily on all of the above topics).

Class #17: Wrap-up

Assignments

Assignment 1: Representing Human Nature and the Brain

Due: Class #6

You may either critically analyze a news item or scientific article. The purpose of this assignment is to practice critically discussing the way in which assumptions are embedded in presentations of facts. There is no right answer to the assignment, but there are better and worse ways of analyzing.

You are to search for an article that discusses the brain and some aspect of personhood (a disease, mental illness, intelligence, emotions, violence, etc.). Your task is to discuss the assumptions made regarding human nature in the text, and to respond to these assumptions: are they necessary? If so, why? If not, what else could have been looked at and discussed?

Discuss the point of view of the article. Who is it written by? Who for? Who benefits by these assumptions?

If the article is not enough in itself or if you would like more information to contrast it with, feel free to draw upon any of the readings we have done, other articles you find, and/or books. You may compare and analyze up to three sources.

The point is to get as specific as possible about how the assumptions are used, the advantages and limitations of them, and your own evaluations of this.

Length

Limit is 1200 words (approx. 5 pages). You are not to quote more than a phrase or short sentence at a time and no summaries.

Grading

A: Excellent writing, defended argument (anticipation of responses), critical use of concepts from class with citation, use of secondary or contextual literature (other articles)

B: Good writing, flow of paragraphs, Argument with evidence, use of concepts from class

C: Good grammar, Good analysis of assumptions and rhetoric

Brains & Culture: Project 2

Due: Class #12

Pick a subfield or specific brain-related research topic in neuroscience or neurology or psychiatry. Write an account of it as a field using the artifact model. The paper should address all of the following areas:

* What are the key research questions and debates? How have these evolved over time? Is the field fractured across irreconcilable lines, or is it growing (or declining)? What keywords allow you to find relevant articles about this field (in what databases)? What fields is this one opposed to or put in a series with?

* Who are the key people and institutions? What is their history? How international is the field -- what countries, with what circulation through the US? Are there significant non-central institutions? Are there 'renegade' researchers? Are there key companies involved in this field? What relations do they have with the academic institutions and people?

How are new people in this field trained? Where, with what backgrounds? What other fields or industries does this field exchange people with? What are the key textbooks or portions of general textbooks devoted to this field? Who is featured in these and how does it differ from the current organization of the field?

* What kinds of labs do work in this field? What sorts of equipment are used? How has this evolved? Who works in the labs -- how big are they, are there significant numbers of undergrads, of technicians, of visitors, of industry reps? How has the personell changed over the years? What actually do people do in the labs? How much of the work is automated, and who has to take care of the equipment? How much work is

done completely in front of a computer? How has this changed over the years?

Where does this field establish its facts? What conferences and journals are key vehicles? Who controls these? What counts as a key or career-making publication (*Nature*, *Nature-Neuroscience*, *Science*)?

* What is the political-economy of the field? How is it funded? What government agencies provide grants (what kinds)? What kinds of industry sponsored research are there -- are entire labs supported, with what sorts of intellectual property agreements? Does the field engage in lobbying?

* What about the social and popular context -- how does the field circulate outside the labs? Are there activist groups concerned with this field? What sorts of relationships are there? Have these groups funded research? Do they participate in research?

What popular vehicles are there for information on this field? Is it covered in pop-science magazines (Sci.Am, Discover, Science News) -- who writes these articles (the same journalist, or many)? Is it covered in newspapers and general magazine? Is it written about online?

Are there popularizers within the field -- scientist-authors? Do they write articles or books, appear on talk shows, play other prominent roles?

NOTE: In answering questions about how something has changed over the years, you need to pay critical attention to how 'periods of time' are created. Do different people tell different stories about the evolution of a field or its practices? What might account for that?

NOTE 2: This project will require research including defining your field (and probably refining and redefining it a couple of times if it is too big or too small). Then you will need to search databases, online, and journals to produce a map. Please document all of your sources (your bibliography will also serve as a map online and off to further information about the field). You will also have to talk with a few people in the field. You do not need to formally interview them, but rather have them help you understand the field and its dynamics. You may also want to spend some time in a lab observing the sorts of behavior that takes place there and talking with undergrads, grads and techs in addition to senior and junior researchers.

Length

3000-3500 words or more, proofread, plus bibliography and footnotes.

Assignment 3 - Drugs and Culture - Popularizing Brains

Due: Class #15

Here is the third and final project for the class. It is basically the same as the first assignment but you must find a scientific article and a popular account of it. You cannot do the same article from your first assignment. Again, it is easier to take a popular account and search for the scientific article(s).

Also, you must use some concepts from class and cite them (the authors of the books or articles that we discussed). Failure to do so will result in a C.

As discussed, you may substitute either a paper related directly to your mapping project, or a multimedia presentation that works with images, but you must clear these two alternatives with me beforehand.

Your task is to trace a scientific article concerning the brain into popular culture. Ideally this will be related to your field mapping project. This may be done by finding an article in a newspaper or magazine and working backward to the scientific article upon which it was based. You may look at a set of popular articles based on one article, or you may choose a magazine article (such as the Newsweek one on violent boys, and look at a small set of scientific articles). The purpose of this assignment is to critically analyze the translation of facts across genres (in this case between articles written by scientists for scientists and those written by science journalists for popular consumption).

Examine how the experimental text was transformed into news. How is the meaning of the experiment changed in the translation to a popular media? What limitations of the experimental setup and qualifications on the results are deleted? What assumptions are added? How are the different forms of uncertainty (S.L.

Star) dealt with? What assumptions remain through the research and the popularization?

In particular, pay attention to assumptions made regarding human nature in the text (Foucault, Hacking): how might these be shaped by the different audiences? And respond to these assumptions: are they necessary? If so, why? If not, what else could have been looked at and discussed?

For each text, make sure that you cover: Who is it written by? Who for? Who benefits by these assumptions? Where is the information? Who has access to it? How easy is the access (who doesn't have access to it)?

Discuss the point of view of the article. Who is it written by? Who for? Who benefits by these assumptions?

If the article is not enough in itself or if you would like more information to contrast it with, feel free to draw upon any of the readings we have done, other articles you find, and/or books. You may compare and analyze up to three sources.

The point is to get as specific as possible about how the assumptions are used, the advantages and limitations of them, and your own evaluations of this.

Length

Limit is 1600 words (approx 5-6 pages). You are not to quote more than a phrase or short sentence at a time and no summaries.

Grading:

A: Excellent writing, defended argument (anticipation of responses), critical use of concepts from class with citation, use of secondary or contextual literature (other articles)

B: Good writing, flow of paragraphs, argument with evidence, use of concepts from class

C: Good grammar, good analysis of assumptions and rhetoric

Reading List

- Alvarez, Sonia and Evelina Dagnino, Arturo Escobar eds., Cultures of Politics/Politics of Culture: Re-Visioning Latin American Social Movements, Boulder, Colo.: Westview Press, 1998.
- Carrithers, Michael, Steven Collins, Steven Lukes eds., The Category of the Person: Anthropology, Philosophy, History, Cambridge [Cambridgeshire]; New York: Cambridge University Press, 1985.
- Canguilhem, Georges, The Normal and the Pathological, New York: Zone Books, 1989.
- Cohen, Laurence, No Aging in India: Alzheimer's, The Bad Family, and Other Modern Things, Berkeley: University of California Press, 1998.
- Danziger, Kurt, Constructing the Subject: Historical Origins of Psychological Research, Cambridge [England]; New York: Cambridge University Press, 1990.
- Derrida, Jacques, Negotiations: Interventions and Interviews, 1971-2001, Stanford, Calif.: Stanford University Press, 2002.
- Diller, Lawrence, Running on Ritalin: A Physician Reflects on Children, Society, and Performance in a Pill, New York, N.Y.: Bantam Books, 1998.
- Donald, Alstair, The Wal-Marting of American Psychiatry: An Ethnography of Psychiatric Practice in the Late 20th Century *Culture, Medicine and Psychiatry* 25(4): 427-439; Dec 2001.
- Dumit, Joseph, "Corridor Talk", in Gary Lee Downey and Joseph Dumit, *Cyborgs & Citadels: Anthropological Interventions in Science, Technology & Medicine*, SAR Press, 1995.
- Fausto-Sterling, Anne, Sexing the Body: Gender Politics and the Construction of Sexuality, New York, NY: Basic Books, 2000.
- Foucault, Michael, Power, edited by James D. Faubion, New York: New Press, 2000.
- Floyd-Davis, Robbie and Joseph Dumit., Cyborg Babies: From Techno-Sex to Techno-Tots, New York: Routledge, 1998.
- Fukuyama, Francis, Our Posthuman Future: Consequences of the Biotechnology Revolution, New York: Farrar Straus & Giroux, 2002.
- Gergen, "Metaphor, Metatheory, and the Social World"
- Hacking, Ian. "Making Up People." In *Reconstructing Individualism*. Edited by Thomas C. Heller, Morton Sosna, and David E. Wellby. Stanford, CA: Stanford University Press. 1986, pp. 161-171.
- Healy, David, M. R. C. Psych., The Creation of Psychopharmacology, Cambridge, MA: Harvard University Press, 2002, pp. 334-390.
- Keck, Margaret and Kathryn Sikkink, Activists Beyond Borders: Advocacy Networks in International Politics, Ithaca, N.Y.: Cornell University Press, 1998.
- Kramer, Peter, Listening to Prozac, New York, N.Y., U.S.A.: Viking, 1993.
- Kuriyama, Shigehisa, The Expressiveness of the Body and the Divergence of Greek and Chinese Medicine, New York: London: Zone, 2002.
- LeVay, Simon, Queer Science: The Use and Abuse of Research into Homosexuality, Cambridge, Mass.: MIT Press, 1996.
- Marshall, "Science, LeVay: Conflict of Passion."
- Melucci, Alberto, Challenging Codes: Collective Action in the Information Age, Cambridge [England] ;

New York: Cambridge University Press, 1996.

Miami Theory Collective eds., Community at Loose Ends, Minneapolis, MN: University of Minnesota Press, 1991.

Morris, Aldon and Carol McClurg Mueller, Frontiers in Social Movement Theory, Yale University Press, 1992.

Morley, David and Kuan-Hsing Chen, Stuart Hall: Critical Dialogues in Cultural Studies, Chap. 6 – “On Postmodernism and Articulation: Interview with Stuart Hall”, Routledge, 1996.

Nelkin, Dorothy and Laurence Tancredi, Dangerous Diagnostics: The Social Power of Biological Information, Chicago: University of Chicago Press, 1994.

Pribram, “Models and Metaphors.”

Ramachandran, V. S. and Sandra Blakeslee, Phantoms in the Brain: Probing the Mysteries of the Human Mind, New York: William Morrow, 1998.

Star, Susan Leigh, Regions of the Mind: Brain Research and the Quest for Scientific Certainty, Stanford, Calif.: Stanford University Press, 1989.

Serres, Michel with Bruno Latour, Conversations on Science, Culture, and Time, Ann Arbor: University of Michigan Press, 1995.

Turner, “Body, Brain, Culture.”

Vines, Gail, Raging hormones: Do They Rule Our Lives?, Berkeley: University of California, 1994.

Weinberg, Bennett Alan, The World of Caffeine: The Science and Culture of the World's Most Popular Drug, New York: Routledge, 2001. pp. 181-233.