

Course Schedule for PSY 594MG, Winter 2013

Interdisciplinary Approaches to Brain and Behavior

Instructors: Michael Gazzaniga, Director, Sage Center for the Study of the Mind
 Dani Bassett, Adrian Jaeggi, Corina Logan, Fabián Soto, Sage Junior Fellows

Sage Center Distinguished Lectures are Mondays or Wednesdays, 3-4:15 p.m. in Bren 4016
 Seminar meetings are Thursdays 1:30-3:20 p.m. in Psych 1314 (Sage Center Conference Room)

WEEK	DATE AND LOCATION	EVENT	PRESENTER
1	Monday, January 7	Sage Center Distinguished Lecture <i>From Equivalent Circuits to Dynamical Systems: The Mechanistic Norms of Explanation in Neuroscience</i>	Carl Craver, Sage Center Distinguished Fellow
	Thursday, January 10	Seminar Discussion	Dani Bassett
2	Monday, January 14	Sage Center Distinguished Lecture <i>Levels, Reduction, and Emergence in Sciences of the Mind-Brain: Some Mechanistic Ground-Rules</i>	Carl Craver
	Thursday, January 17	Seminar Discussion	Fabián Soto
3	Wednesday, January 23	Sage Center Distinguished Lecture <i>Memory and the Space of Reasons: Toward a Clinical Moral Psychology</i>	Carl Craver
	Thursday, January 24	Seminar Discussion	Adrian Jaeggi
4	Monday, January 28	Sage Center Distinguished Lecture <i>The Translational Brain Comes of Age? Optogenetics, Neuroprosthesis, and Maker's Knowledge</i>	Carl Craver
	Thursday, January 31	Seminar Discussion	Corina Logan
5	Monday, February 4	Sage Center Distinguished Lecture <i>Rational and Intuitive Conflicts in Judgment and Choice</i>	Thomas Gilovich, Sage Center Distinguished Fellow
	Thursday, February 7	Seminar Discussion	Fabián Soto
6	Monday, February 11	Sage Center Distinguished Lecture <i>Getting the Most for Your Money: The Hedonic Return on Experiential and Material Purchases</i>	Thomas Gilovich
	Thursday, February 14	Seminar Discussion	Corina Logan
7	Wednesday, February 20	Sage Center Distinguished Lecture <i>The Pursuit of Happiness: Upping Our (and Our Kids') Odds</i>	Thomas Gilovich
	Thursday, February 21	Seminar Discussion	Adrian Jaeggi
8	Monday, February 25	Sage Center Distinguished Lecture <i>Where the Mind Goes: A Window on Judgment and Choice</i>	Thomas Gilovich
	Thursday, February 28	Seminar Discussion	Dani Bassett
9	Thursday, March 4	Student Presentations	
10	Thursday, March 11	Student Presentations	

Modeler's and Maker's Knowledge in Practice through Biomimicry

Psych 594 Seminar led by Corina Logan on 31 January 2013

Junior Research Fellow, corina.logan@psych.ucsb.edu

Based on Carl Craver's January 28th lecture titled: *The translational brain comes of age? Optogenetics, neuroprosthesis, and maker's knowledge*. Craver's Abstract: The biological sciences, like other mechanistic sciences, comprise both a modeler's and a maker's tradition. The aim of the modeler in biology, in the narrow sense intended here, is to describe correctly the causal structures, the mechanisms, that produce, underlie, maintain, or modulate a given phenomenon or effect. Such models are expected to save the phenomenon tolerably well (that is, to make accurate predictions about it) and, in many cases, to correctly represent the components and causal relationships composing the mechanism for that phenomenon. The aim of a maker, in contrast, is to build machines that produce, underlie, maintain, or modulate effects we desire. Such maker's knowledge might be deployed in the service of modeler's knowledge, as when engineering triumphs become the next generation of experimental intervention and detection, or it might be deployed for good or ill to serve our needs. In this final talk, I discuss the curiously complex relationship between modelers knowledge of the brain and maker's knowledge of the brain. I frame the talk by considering recent advances in optogenetics and brain-machine interface.

Seminar

Craver discusses two roles in biology: that of the modeler who *describes* the natural world, and that of the maker who *builds* things. Makers need descriptions to build things, and modelers can refine their knowledge about how the natural world might work by trying to build it themselves, thus the roles of modeler and maker are intertwined.

In this seminar, we will discuss the biomimetic approach to solving human design challenges. Biomimicry is a field that uses a modelers knowledge to mimic a form, function, or system found in nature and then it plays the maker to apply the technology in a similar or new way to the field of human design. Biomimicry is based on the idea that the technology we want to create usually exists in nature and has been refined through billions of years of evolution, which is more efficient and effective than trying to design from scratch (i.e., not basing designs on what already works in the natural world - think of photosynthesis vs. solar cells; Reap et al. 2005). We will discuss the application of biomimicry to our fields and consider its implications for sustainability.

Assigned Reading:

Reap J, Baumeister D, Bras B. 2005. Holism, Biomimicry and Sustainable Engineering. ASME International Mechanical Engineering Conference and Exposition. Orlando, FL, USA. Available online at: https://dspace.ist.utl.pt/bitstream/2295/390326/1/Support_10_Reap_2005.pdf

*Check out Janine Benyus' TED Talk for a great overview of Biomimicry: <http://www.youtube.com/watch?v=n77BfxnVlyc>

Homework Assignments:

By Tuesday evening (29 January 2013), send me an email with a question regarding Reap et al. 2005, and bring a question regarding Craver's talk to the seminar.

Why does friendship enhance our experiences?
Psych 594 Seminar led by Corina Logan on 11 February 2013
Junior Research Fellow, corina.logan@psych.ucsb.edu

To accompany Thomas Gilovich's February 11th lecture titled:
Getting the most for your money: the hedonic return on experiential and material purchases.

Gilovich's Abstract

To live in the developed world is to live in a consumerist society. Although the broader forces that brought us this society have led to unprecedented material abundance, scholars have maintained that these benefits have come at a significant psychological cost. One question that arises is how these psychological costs can be minimized. With that aim in mind, I will describe research that: (1) shows that people derive more enduring satisfaction from experiential purchases than material purchases; and (2) explores the psychological mechanisms that underlies this difference. Experiential purchases are evaluated more on their own terms and evoke fewer comparisons than material purchases; experiential purchases enhance social relations more readily and effectively than material goods; and material purchases are more readily integrated into a person's self-concept and life narrative. Among the questions raised by this research is how social policy might be altered to take advantage of the greater hedonic return offered by experiential investments and thus encourage greater well-being.

Seminar

Gilovich states that not only are experiential purchases more satisfying, they also enhance social relationships more than material purchases because experiences are often shared with others, which, in turn, strengthens social bonds.

Why do friendships enhance our experiences? What benefits can be gained from having friends? The formation of friendships is not unique to the human species. Indeed, many species of mammals and birds form strong social bonds. Friendships can increase reproductive success, increase longevity, and reduce stress and disease (Seyfarth & Cheney 2012, pp. 168-170). Friends can form coalitions to acquire the resources they need (Seyfarth & Cheney 2012, p. 170), and social contact can release feel-good neuropeptides, creating a positive feedback loop for maintaining such contact (Seyfarth & Cheney 2012, p. 169). We will explore the evolutionary origins of human friendship by reading and discussing Seyfarth and Cheney's (2012) paper on this topic.

Assigned Reading:

Seyfarth RM, Cheney DL. 2012. The evolutionary origins of friendship. Annual Reviews of Psychology 63:153-177. <http://www.psych.upenn.edu/~seyfarth/Publications/annurev-psych-%20Friendship.pdf>

*Not required, but may be of interest: Seyfarth discusses the paper <http://www.youtube.com/watch?v=cPLc2avkEyw>

Homework Assignments:

1. By Sunday evening (10 February), send me an email with a question regarding Seyfarth & Cheney (2012).
2. Bring a question regarding Gilovich's talk to the seminar on 11 February.

How many leaders does it take?

Psych 594 Seminar led by Corina Logan on 25 February 2013

Junior Research Fellow, corina.logan@psych.ucsb.edu

To accompany Thomas Gilovich's February 25th lecture titled:

Where the Mind Goes: A Window on Judgment and Choice

Gilovich's Abstract

Whenever we confront a stimulus, consider a prospect, or entertain a question, the mind automatically goes somewhere. And where it goes has consequences; even if it goes there only briefly, it tends to leave some tracks, which influence judgment and behavior. In this talk, I will examine various ways in which a consideration of the computations the mind automatically performs in response to particular stimuli or questions allows one to predict the occurrence of some common biases of judgment and some curious elements of everyday behavior.

Seminar

We will discuss judgement and decision-making involved in moving groups of animals based on our reading of Couzin et al. (2005). Their work shows that humans behave like fish: the larger the group, the fewer leaders necessary to move the group in specific directions.

Assigned Reading:

Couzin ID, Krause J, Franks NR, Levin SA. 2005. Effective leadership and decision-making in animal groups on the move. *Nature* 433:513-516.

We will watch human groups in action at <http://www.youtube.com/watch?v=YzvTMwBD0ZA> (27:33)

Homework Assignment:

By Sunday evening (24 February), send me an email with a question regarding Couzin et al. (2005).

Burning Questions

Psych 594 Seminar led by Corina Logan on 11 March 2013

Junior Research Fellow, corina.logan@psych.ucsb.edu

We will discuss the last four lectures we have attended (Gilovich's lectures 3 and 4, Bowles' talk, and Foer's talk) by addressing your burning questions from these talks. There is no reading assignment. Afterward, we walk to Goleta Beach to have dinner at the Beachside Cafe (<http://beachside-barcafe.com/index.php>). Please RSVP to let me know if you are going to the dinner.

Abstracts

Gilovich's talk 20 Feb - *The Pursuit of Happiness: Upping Our (and Our Kids') Odds*

Illustrating that everyone is a student of happiness, Albert Schweitzer asserted that happiness is "nothing more than health and a poor memory." In recent times, this sort of arm-chair philosophizing has been supplanted by an explosion of empirical research on happiness. What has that research discovered? Many a claim has been made in books that appear on Amazon's self-help list about the implications of this research for how we should live our lives. Which of these claims rest on solid evidence and which on shakier ground—on hopes, dreams, and personal biases? This talk will review the empirical evidence on happiness and derive four principles to live by in order to increase our own (and our kids') chances of being happy.

Gilovich's talk 25 Feb - *Where the Mind Goes: A Window on Judgment and Choice*

Whenever we confront a stimulus, consider a prospect, or entertain a question, the mind automatically goes somewhere. And where it goes has consequences; even if it goes there only briefly, it tends to leave some tracks, which influence judgment and behavior. In this talk, I will examine various ways in which a consideration of the computations the mind automatically performs in response to particular stimuli or questions allows one to predict the occurrence of some common biases of judgment and some curious elements of everyday behavior.

Sam Bowles talk 21 Feb - *A Cooperative Species: Evolutionary Models and the Pleistocene Human Condition*

Drawing on my book (with Herbert Gintis) and more recent work, I will provide an empirically based explanation of the emergence and proliferation of distinctly human forms of cooperation. There are many models of this process, all of which "work" from a mathematical standpoint; the question I will address is which ones provide a convincing account of the evolution of social behaviors under the conditions that humans experienced during the Late Pleistocene. If (as both experiments and natural observations suggest) many humans are genuinely altruistic, the puzzle is not the one addressed by many economic and biological models, namely why self-regarding individuals would act as if they were unselfish when they really are not. Rather it is to explain how the species evolved so that a substantial fraction of its members would act altruistically, meaning that they undertake actions that confer benefits on others which if abandoned would raise their payoffs (either material or genetic).

Joshua Foer's talk 4 Mar at 8pm in Campbell Hall about his book: *Moonwalking with Einstein*

Homework Assignment:

- By Sunday evening (10 March), send me an email with your burning questions left over from the above lectures. Put your favorite question at the top of the list and we will address these first. If there is time, we will also address the other questions.