INTRODUCTION TO BRAIN SCIENCE FOR BUSINESS
MKTG 237/737, Spring 2021 Q3
The Wharton School, University of Pennsylvania

COURSE SYLLABUS

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Office hours: by appointment

Overview
Can brain science help business? At first blush, this might seem like a bridge too far. After all, the efficiencies of the market virtually guarantee accurate asset pricing, marketing research and focus groups can test the efficacy of advertising, effective leadership can stimulate innovation and productivity, and sophisticated analytics can leverage big data to improve organizational structure to maximize return on investment. A deeper look, however, provokes the idea that brain science has enormous potential to inform business. We now know the basic architecture of the decision process in the human brain, from identification of choice options, to the calculation of their utility, to selecting one for consumption, and learning from this experience. We are also beginning to understand how fundamental economic principles like risk, ambiguity, and volatility shape these processes, and why these factors seem to influence different people in different ways and in different choice contexts. Importantly, neuroscience provides a powerful tool for understanding the private reasons, such as emotional responses or the influence of others, people make the choices they do- reasons they themselves may not be aware of or even understand. Brain science offers the potential to unlock the mechanisms underlying what many people consider to be the keys to the future of business, including creativity and innovation, empathy and connecting with others, social awareness and the common good, how people use information to guide decision making, and the experience and impact of online vs. live interaction and pedagogy. New developments, including biometrics, implantable and wearable brain interfaces, genomics, proteomics, metabolomics, and the human microbiome, offer the opportunity for enhanced precision not only in marketing and finance, but also in the talent identification and the development of full human potential.

Goals:
This course will provide an overview of contemporary brain science and its applications to business. Students will be introduced to the basic anatomy and physiology of the brain and become familiar with important techniques for measuring and manipulating brain function. The course will then survey major findings in neuroscience with applications to business, including selective attention and advertising; valuation and marketing; decision making and the tyranny of choice; learning, innovation and creativity; learning and performance; and social influence, team-building, and leadership. The course will end with a discussion of the future of brain science in business, and a final session where teams will pitch new neuroscience applications for business.

Format:
The course will meet twice weekly. Generally, the first 2/3 of each class will be an interactive lecture, followed by team-based work to develop a business application based on the material presented in class. Students will be randomly assigned to teams and those teams will be endowed with 20 PLATTBucks. Teams will then "wager" for the opportunity to **avoid** presenting their idea to the class. All teams will be required to present once during the course. We will also have invited speakers from industry who will talk about their experience working at the intersection of neuroscience and business.

Requirements:
Class participation	10%
"Meme" Assignment 1	10%
"Meme" Assignment 2	10%
Team-based in-class pitch	15%
Take-home quiz	25%
Team-based final pitch	30%

Readings:
There are two required books for the course: "*The Leader's Brain*" (henceforth LB) by Michael L. Platt (yours truly) and published by Wharton School Press. There is both an ebook ($12.99) and a paperback ($18.99) version available. The second required book is Unit V *Neuroscience* (henceforth NS) by Purves et al. eds. (including yours truly), published by Oxford University Press. There are also a number of additional readings, including primary scientific articles and popular media, which will be posted on Canvas.

Academic Integrity:
Please re-familiarize yourself with the students' guide to Academic Integrity at Penn (http://www.upenn.edu/academicintegrity/index.html) and the Code of Academic Integrity: (http://www.upenn.edu/academicintegrity/ai_codeofacademicintegrity.html).

You may and are encouraged to discuss class topics with other students in the class. However, your individual and group assignments, responses, and contributions to class are to be your own original work and must truthfully represent the time and effort you apply.

Consult with the instructor if you have any questions about academic integrity expectations for this class. If you are unsure whether your work constitutes a violation of the Code of Academic Integrity, it is your responsibility to clarify any ambiguities.

Policies:
Accommodations: The University of Pennsylvania provides reasonable accommodations to students with disabilities who have self-identified and been approved by the office of Student Disabilities Services (SDS). If you have not yet contacted SDS, and would like to request accommodations or have questions, you can make an appointment by calling SDS 215-573-9235. The office is located in the Weingarten Learning Resources Center at Stouffer Commons 3702 Spruce Street, Suite 300. All services are confidential.

Course Schedule (1/21/19 - 3/9/19)

Thursday	Tuesday
Introduction to the Course 1/21/21	**How Brains Work, How to Measure Brain Activity, and How to Manipulate It** 1/26/21
TOPICS: Dr. Platt will introduce himself and his journey, as well as the goals and structure of the course. TAs will also introduce themselves, office hours procedures, etc. **HOMEWORK: Read LB, Introduction**	**TOPICS:** Introduction to the fundamentals of neurons and brains, as well as tools and technologies. Live demos. **HOMEWORK: Read NS, Chapter 1 & 27**
Decision-Making: The Five-Step Process and How to Get It Right 1/28/21	**Attention and Decision Making** 2/2/21
TOPICS: Evidence accumulation, value scaling, divisive normalization, and the physiological basis of choice overload and decoy effects; implications for business decisions **HOMEWORK: Read LB, Chapter 5; Chapter NS, Chapter 32**	**TOPICS:** The visual system, salience, attention, and eye movements; effects of attention on evidence accumulation; applications to financial decisions, ad development, product design, and user experience **HOMEWORK: Read LB, Chapters 5 & 6; NS Chapter 29**
Driving Performance through Learning: Small Surprises Make It Stick 2/4/21	**Harnessing the Brain's Innovation Engine: How to Drive Creative Thinking** 2/9/21
TOPICS: Reinforcement learning, reward prediction errors, dopamine, the equation for happiness, why we buy more on sunny days, why you should treat the weekend like a vacation **HOMEWORK: Read NS, Chapter 6; NS, Chapter 31**	**TOPICS:** The brain's innovation engine—the default mode network; norepinephrine, exploration, and creativity; promoting innovation in the brain; variation in innovative potential; implications for organizational structure **HOMEWORK: Read LB, Chapter 4** **"MEME" ASSIGNMENT 1 DUE @ 11:59PM**
Building Connections with the Social Brain 2/11/21	**Brains the Fire Together Wire Together: The Secrets of Team Chemistry** 2/16/21
TOPICS: The social brain, social networks, social hierarchy, plasticity, perspective-taking, social chemicals; harnessing the social brain to manage organizational change **HOMEWORK: Read LB, Chapter 1**	**TOPICS:** Team chemistry and physiological synchrony; building synchrony through eye contact, mirroring, and social touch; applications in sports and management **HOMEWORK: Read LB, Chapter 2**

Communication and the Science of Persuasion 2/18/21	Mobile Technology and Mental Health *Guest Chris Molaro CEO, Neuroflow* 2/23/21
TOPICS: Communication as a social act; brain synchrony and effective communication; getting on the same page; why you need to keep it simple; use big picture thinking to make messages more powerful **HOMEWORK:** Read LB, Chapter 3; NS, Chapter 32	**TOPICS:** Chris's journey from the Army to mHealth. Opportunity to ask questions and network. **HOMEWORK:** None. **"MEME" ASSIGNMENT 2 DUE @ 11:59PM**
Neuromarketing and Brand Strategy 2/25/21	The Future of Neuroscience in Business 3/2/21
TOPICS: Using neuroscientific tools to A|B test ads; forecasting market level impact of ads; using neuroscience tools to build brand loyalty and brand equity. **HOMEWORK:** Watch/listen to Platt podcasts on Neuromarketing (https://postal.io/lp/b2b-growth-podcast-neuromarketing/; https://www.marketingtodaypodcast.com/139-professor-michael-platt-connects-neuroscience-with-brand-choice-and-loyalty/)	**TOPICS:** Ethical, legal, and societal implications of neuroscience applications to business; wearables, implantables and brain-machine interface; individual variation and human capital; artificial intelligence; personality and targeted advertising **HOMEWORK:** Read LB, Chapter 7 **TAKE HOME QUIZ DUE @ 11:59PM**
Group Poster Pitch Preparation 3/4/21	Brain-to-Business Pitch Session 3/9/21
TOPICS: Student teams will have this time to work together to finalize their presentations. Professor Platt and the TAs will be on-hand for online consultation. **HOMEWORK: Read LB, Conclusion**	**TOPICS:** A festive online pitch session will conclude the course. Student teams will pitch their idea for a brain-to-business application. Prizes will be awarded. **HOMEWORK: None**