



4th LJUBLJANA DOCTORAL SUMMER SCHOOL 3 - 21 July 2017

3 - 7 July 2017, from 9.00 to 13.00*

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Course title:

NEUROECONOMICS AND MANAGEMENT

ECTS credits: 4

Lecturer: Professor Frank Hartmann, Erasmus University, Rotterdam School of Management, The Netherlands and guest lecture contributions

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AIMS OF THE COURSE:

Over the last decades, we have witnessed an invasion of the social sciences by insights from research on the human brain. Neuroscience is the field that stimulates this development. Neuroscience is the field of science that studies the (human) nervous system, often focusing on the human brain. Traditionally neuroscience has been a branch of biology, but it has developed into an interdisciplinary field connects such divers disciplines as genetics, physics, linguistics and medicine. Despite being a rather recent field of academic work, neuroscience has started to have a fundamental influence on economics and management. Neuroeconomics has already become a household name within the larger social sciences. It integrates and blends insights from neuroscience, psychology and economics to provide more accurate predictions and explanations of human agents. In the field of management, which traditionally relies heavily on both psychology and economics, the impact of social, cognitive neuroscience is increasing as well. In this course, we aim to provide an introductory overview of this impact.

While traditionally economics and psychology dominate our academic understanding of management, we will explore what neuroscience has to offer to improve our understanding and design of management and decision making in the business disciplines. The label ‘social’ and ‘cognitive’ constitute a focus within neuroscience on social relations and cognitive processes that humans engage in. Besides these theoretical considerations, there is an empirical side to neuroscience that we will explore. Due to rapid technological advancement, we are now able to record physiological processes in the brain in a relatively straightforward way, which enables us to quickly learning more about their relation to human perceptions, behaviors and experiences.

Based on this course and the course material, students will understand both the actual and potential contributions that social cognitive neuroscience makes to the social sciences.



COURSE SYLLABUS:

Session	Theme & activities	Literature
Session 1 Monday 9:00-12:00	Introduction Lecture: An Short Intro into Neuroscience Team-work <i>Discussion & Wrap-up</i>	Camerer et al. (2005) Gross (2012)
Session 2 Tuesday 9:00-12:00	Neuroeconomics & accounting Lecture: Controllership Paper presentations by students <i>Discussion & Wrap-up</i>	Rizzolatti & Fabbri-Destro (2010) Hickok (2009) Hartmann & Maas (2010) Eskenazi et al. (2016)
Session 3 Tuesday 13:00-16:00	Neuroeconomics & finance Lecture: Searching for system 1 & 2 Paper presentations by students <i>Discussion & Wrap-up</i>	Barton et al. (2014). Kuhnen and Knutson (2011) Lo, Repin and Steenbarger (2005)
	Neuroeconomics & marketing Lecture: Consumer Choice Paper presentations by students <i>Discussion & Wrap-up</i>	Perrachione & Perrachione (2008) Couwenberg et al. (2016) Stanton et al. (2016) Trimble et al. (2016)
Session 4 Tuesday 9:00-12:00	Neuroeconomics & management Lecture: Decision making Paper presentations by students <i>Discussion & Wrap-up</i>	Ashkanasy et al. (2014) Aarts et al. (2014) Schonberg et al. (2011) Waldman et al. (2011)
Session 5 Wednesday 13:00-16:00	EEG lab visit Neurology, Clinic Address: Zaloška cesta 7 (meet at building 7a), Dr. Jurij Drešo (provisional)	
Session 6 Wednesday 9:00-12:00	fMRI lab visit Neurology, Clinic Address: Zaloška cesta 7 (meet at building 7a), Dr. Grega Repovš (provisional)	
Session 7 Thursday 13:00-16:00	Wrap-up Lecture: Some Conclusions Presentation of draft research proposal	Ross (2008) Waymire (2014) Konolvalov & Krajbich (2016)

*Important note: The lectures are formally planned from 9:00-13:00, but please take into account that there might be some changes due to unforeseen circumstances, class room dynamics, and the availability of the lab. Therefore, please allow for slack in your schedules around these times.



LIST OF READINGS:

We will use a following relatively short, easy to read, but splendid little text on the brain as a starting point:

- . Al-Chalabi, Turner & Delamont (2008) The Brain, A Beginner's Guide, Oneworld Publications (ISBN: 978-1-85168-594-3).

In addition, we will read one to three academic papers per session, from the following list:

- . Aarts, E., Wallace, D. L., Dang, L. C., Jagust, W. J., Cools, R., & D'Esposito, M. (2014). Dopamine and the cognitive downside of a promised bonus. *Psychological science*, 25(4), 1003–1009.
- . Aue, T., Lavelle, L., & Cacioppo, J. (2009). Great expectations: what can fMRI research tell us about psychological phenomena? *International Journal of Psychophysiology*, 73, 10-16.
- . Ashkanasy, N. M., Becker, W. J., & Waldman, D. A. (2014). Neuroscience and organizational behavior: Avoiding both neuro-euphoria and neuro-phobia. *Journal of Organizational Behavior*, 35(7), 909-919.
- . Barton, J., Berns, G. S., & Brooks, A. M. (2014). The neuroscience behind the stock market's reaction to corporate earnings news. *The Accounting Review*, 89(6), 1945-1977.
- . Camerer, C., Loewenstein, G., & Prelec, D. (2005). Neuroeconomics: How neuroscience can inform economics. *Journal of Economic Literature*, 43(1), 9-64.
- . Couwenberg, L. E., Boksem, M. A., Dietvorst, R. C., Worm, L., Verbeke, W. J., & Smidts, A. (2016). Neural responses to functional and experiential ad appeals: Explaining ad effectiveness. *International Journal of Research in Marketing*.
- . Eskenazi, P.I., Rietdijk, W. and Hartmann, F.GH. (2016), Why Controllers Compromise on their Fiduciary Duties: EEG Evidence on the Role of the Human Mirror Neuron System. *Accounting, Organizations & Society*, forthcoming.
- . Gross, C. (2012). Some revolutions in neuroscience. *Journal of Cognitive Neuroscience*, 25(1), 4-13.
- . Hartmann, F. G., & Maas, V. S. (2010). Why business unit controllers create budget slack: involvement in management, social pressure, and Machiavellianism. *Behavioral Research in Accounting*, 22(2), 27-49.
- . Hickok, G. (2009). Eight problems for the mirror neuron theory of action understanding in monkeys and humans. *Journal of Cognitive Neuroscience*, 21(7), 1229-1243.
- . Konovalov, A., & Krajbich, I. (2016). Over a Decade of Neuroeconomics What Have We Learned?. *Organizational Research Methods*, 1094428116644502.
- . Kuhnen, C.M., & Knutson, B. (2011). The influence of affect on beliefs, preferences and financial decisions. *Journal of Financial and Quantitative Analysis*, 46, (3), 605-26.
- . Lo, A.W., Repin, D.V., & Steenbarger, B.N. (2005). Fear and greed in financial markets: a clinical study of day-traders. *Cognitive Neuroscientific Foundations of Behavior*, 95 (2), 352-9.
- . Perrachione, T. K., & Perrachione, J. R. (2008). Brains and brands: Developing mutually informative research in neuroscience and marketing. *Journal of Consumer Behaviour*, 7(4-5), 303-318.

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- Rizzolatti, G., & Fabbri-Destro, M. (2010). Mirror neurons: From discovery to autism. *Experimental Brain Research*, 200, 223-237.
- Ross, D. (2008). Two styles of neuroeconomics. *Economics and Philosophy*, 24(3), 473.
- Trimble, E., Wang, Y., & Kennon, R. (2016). Analysis of consumer behavior by fusing EEG and eye-tracking data. *WIT Transactions on Engineering Sciences*, 113, 389-395.
- Schonberg, T., Fox, C. R., & Poldrack, R. A. (2011). Mind the gap: bridging economic and naturalistic risk-taking with cognitive neuroscience. *Trends in Cognitive Sciences*, 15(1), 11-19.
- Stanton, S. J., Sinnott-Armstrong, W., & Huettel, S. A. (2016). Neuromarketing: Ethical implications of its use and potential misuse. *Journal of Business Ethics*, 1-13.
- Waldman, D. A., Balthazard, P. A., & Peterson, S. J. (2011). Leadership and neuroscience: Can we revolutionize the way that inspirational leaders are identified and developed?. *The Academy of Management Perspectives*, 25(1), 60-74.
- Waymire, G. B. (2014). Neuroscience and ultimate causation in accounting research. *The Accounting Review*, 89(6), 2011-2019.

BACKGROUND READINGS:

In addition, there are many papers that are relevant to this course, from the accounting, management and neuroscience literature. Some of the papers that have specifically informed course design are listed here:

- Amabile, T. M., Goldfarb, P., & Brackfield, S. C. (1990). Social influences on creativity: Evaluation, coaction, and surveillance. *Creativity Research Journal*, 3(1), 6-21.
- Birnberg, J. G., & Ganguly, A. R. (2012). Is neuroaccounting waiting in the wings? An essay. *Accounting, Organizations and Society*, 37, 1-13.
- Dickhaut, J., Basu, S., McCabe, K., & Waymire, G. (2010). Neuroaccounting: Consilience between the biologically evolved brain and culturally evolved accounting principles. *Accounting Horizons*, 24(2), 221-255.
- Chang, L. J., & Sanfey, A. G. (2013). Great expectations: Neural computations underlying the use of social norms in decision-making. *Social Cognitive Affective Neuroscience* 8, 277-284.
- Evans, J. (2008). Dual-processing accounts of reasoning, judgment, and social cognition. *Annual Review of Psychology*, 59, 255-278.
- Farrell, A.M., Goh, J.O. and White, B.J. (2014) The Effect of Performance-Based Incentive Contracts on System 1 and System 2 Processing in Affective Decision Contexts: fMRI and Behavioral Evidence, *The Accounting Review*, 89:6, 1979-2010
- Fuster, J. M. (2001). The prefrontal cortex-an update: Time is of the essence. *Neuron* 30, 319-333.
- Gonzalez, C., Dana J., Koshino, H., & Just, M. (2005). The framing effect and risky decisions: Examining cognitive functions with fMRI. *Journal of Economic Psychology*, 26, 1-20.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263-291.

- . Lerner, J. S., & Tetlock, P. E. (1999). Accounting for the effects of accountability. *Psychological Bulletin, 125*, 255-275.
- . Passingham, R. E., Rowe, J. B., & Sakai, K. (2013). Has brain imaging discovered anything new about how the brain works? *NeuroImage, 66*, 142–150.
- . Rilling, J. K., King-Casas, B., & Sanfey, A. G. (2008). The neurobiology of social decision-making. *Current Opinion in Neurobiology, 18*, 159-165.
- . Ross, D. (2014). Psychological versus economic models of bounded rationality. *Journal of Economic Methodology, 1*-17.
- . Santosuosso, A., & Bottalico, B. (2009). Neuroscience, accountability and individual boundaries. *Frontiers in Human Neuroscience, 3*, 45.
- . Shalley, C. E. (1995). Effects of coaction, expected evaluation, and goal setting on creativity and productivity. *Academy of Management Journal, 38*(2), 483-503.
- . Tetlock, P. E. (1983). Accountability and complexity of thought. *Journal of Personality and Social Psychology, 45*, 74-83.

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TEACHING METHODS:

The course consists of a mix of lectures, student presentations and break-out assignments. The lectures and student presentations are based on the reading material. EEG and fMRI-lab visits are conditionally planned.

PREREQUISITES:

The course requires background knowledge in the field of financial management at the bachelor level. No prior knowledge on social cognitive neuroscience is supposed.

EXAMINATION METHODS:

The exam consists of a written essay that contains a short research proposal in financial management that uses theory and/or method from social cognitive neuroscience. Your evaluation is also based on class participation.

1. Research proposal (70%)
2. Class participation (30%)

Ad 1. Research proposal

Students will write a research proposal individually or with a fellow student. This assignment will be extensively introduced during Session 1. In short however, the assignment is as follows. The document should detail a plan for researching behaviour relevant for accounting by means of neuroscientific methods. The emphasis in this assignment is on research design.

The following components are required:

- Introduction (1-2 pages)
- Theory and hypothesis development (2-4 pages)
- Research design (1-2 pages)

Teams will present their draft proposals to the group in Session 6. The final research proposal is due 18 July 23.59pm.

Ad 2. Participation

Participation is a mix of attendance, preparedness, contribution and presentation.



Lecturer's Biographical Note

Frank Hartmann is full-time professor of Management Accounting & Management Control at the Rotterdam School of Management, Erasmus University. He is Dean of Executive Education in this school, besides which his main activities involve research and teaching on managerial decision making, and financial management and control. His research is published nationally and internationally in both academic and practitioner, and he teaches in the Dutch certified controller (MSc) program at Erasmus University, and in various MBA and executive programs at RSM and internationally. Frank is co-author of several national and international textbooks on management control, amongst which a recent standard textbook on Management Control Systems. He received his PhD at Maastricht University in 1997, after which he was appointed full professor at the University of Amsterdam in 1998. Here, he was founding director of the business school of that university before joining the Rotterdam School of Management, Erasmus University in 2005. Frank's current work is in the neuroscience of financial decision making and performance evaluation. Frank is visiting scholar at various universities in Europe and abroad.

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