

Program of the

ONWAR course for Cognitive Neuroscience

Monday 3rd October – Friday 7th October 2011

Course organizers:

Dr. Matthew Self and Dr. Francesco Battaglia

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Course secretary:

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Course location:

All lectures will be held at:

The Colloquium Room

3rd Floor

Netherlands Institute for Neuroscience

Meibergdreef 47

1105BA Amsterdam.

Practicals will also be held at the NIN.

Introduction to the course

Aim

Cognitive neuroscience is a relatively new field which bridges the gap between the study of complex behaviors (psychology) and the study of low-level neural processes (neurosciences). Cognitive neuroscientists aim to understand the underlying neural responses that lead to perception and behavior. This course is intended as a theoretical and practical introduction to some of the most important themes and methodologies in cognitive neuroscience. Students will learn how modern neuroscientific techniques can be applied to study cognition.

Contents

The course is organized into 6 theoretical sessions, and 2 practical sessions. Each of the theoretical sessions will cover one topic within cognitive neuroscience and will include lectures from experts in the field.

The topics will include:

- Visual perception
- Attention
- Learning and memory
- Sleep and effects on memory and cognition
- Cognitive disorders
- Emotion
- Language

The presentations will try to combine results from research on animal and human subjects spanning a variety of techniques, for example, psychophysics, functional imaging, EEG, electrophysiology. In addition, there will be two invited lectures, by Jan Born (Lübeck) and John Assad (Harvard.)

The course also has an afternoon of practical sessions; as most students will have already visited many labs in Amsterdam as part of the ONWAR program we focus here more on some (light-hearted) demonstrations!

Monday 3rd October 2011

All lectures take place on the 3rd floor of the NIN.

THEME: Visual Perception

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|--------------------|---|
| 13:00 | Introduction to the course, Coffee <i>Matthew Self and Francesco Battaglia</i> |
| 13:30-14:30 | Cognitive vision. <i>Dr. Matthew Self</i> |
| 14:30-15:30 | Perceptual priming and cognitive control. <i>Dr. Raymond van Ee</i> |
| 15:30 | Coffee |
| 15:45-16:45 | Studying visual perception in the mouse. <i>Dr. Alexander Heimel</i> |

Tuesday 4th October 2011

All lectures take place on the 3rd floor of the NIN.

THEME: Attention

- 09:30-10:30** Attention: the battle for control of visual selection
Dr. Artem Belopolsky
- 10:30-11:30** Studying attention in awake-behaving monkeys
Dr. Jeannette Lorteije
- 11:30-11:45** **Coffee**
- 11:45-12:45** Studying attention with fMRI
Dr. Matthew Self
- 12.45-13.30** **Lunch (provided)**

Afternoon Practical Sessions (NIN):

Group practical:

13:30-14:30 How to train your dragon monkey.

Two separate groups:

14:30-16:30 Optical Illusions
TMS and EEG practical

Wednesday 5th October 2011

All lectures take place on the 3rd floor of the NIN.

THEME: Learning and Memory

- 09:00-10:00** Sleep, cognition and brain function in old age, dementia and insomnia
Dr. Eus van Someren
- 10:00-11:00** Learning, forgetting and consolidation
Dr. Jaap Murre
- 11.00-11.15** **Coffee**
- 11.15-12.15** Memory consolidation and the brain networks involved.
Dr. Atsuko Takashima
- 12.15-12:45** **Lunch (provided)**

THEME: Sleep

- 12:45-13:45** Spatial representation in the Hippocampal Formation
Dr. Francesco Battaglia
- 13:45-14:45** Transcranial Magnetic Stimulation: research and clinical applications
Dr. Ysbrand van der Werf
- 14:45-15:45** Memory replay during sleep
Dr. Francesco Battaglia
- 15:45-16:00** **Coffee**
- 16:00-17:00** **Special Lecture: Jan Born**
Sleep's contribution to memory
This lecture is open to the public

Thursday 6th October 2011

All lectures take place on the 3rd floor of the NIN.

THEME: Emotion

10:00-11:00 Stress and cognition
Dr. Marian Joels

11:00-12:00 Title TBA
Dr. Christian Keysers

12:00-12:30 **Lunch**

THEME: Language

12.30-13.30 The quest for unifying models of cognition
Dr. Rens Bod

13:30-14:30 Brain and language
Dr. Roel Willems

14:30 **Coffee**

THEME: Cognitive Control

14:45-15:45 Fronto-striatal networks underlying the control over
impulsive actions
Dr. Richard Ridderinkhof

15:45-16:45 Midfrontal theta-band oscillations and cognitive control
Dr. Mike Cohen

Friday 7th October 2011

All lectures take place on the 3rd floor of the NIN.

THEME: Cognitive Disorders

- 12:30-13:30** Cognitive deficits in schizophrenia: a lack of context?
Dr. Lucia Talamini
- 13:30-14:30** Deconstructing fear memory: extinction
and Reconsolidation.
Dr. Merel Kindt
- 14:30-15:30** TBC
Dr. Damiaan Denys
- 15:30-16:00** **Coffee and self-assessment forms.**
- 16:00-17:00** Special Lecture: Moving the mind's eye.
John Assad
This lecture is open to the public
- 17.00** **Drinks, close of course**