

Preliminary Program

Erasmus Summer School in Neurosciences 2010

(Entry course for Master of Neuroscience Program)

Date: August 9 – August 27 , 2010

Location: Dept. of Neuroscience, Erasmus MC, Rotterdam

Coordinator Summer School: Prof. Dr. Chris I. de Zeeuw

For information and registration:

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Appendix (articles)

Genetic approaches to molecular and cellular cognition:

A focus on LTP and learning and memory

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Matynia A, Kushner SA, Silva AJ.

Targeted whole-cell recordings in the mammalian brain in vivo

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Phantom limbs and neural plasticity

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Temporally graded retrograde amnesia of contextual fear after hippocampal damage in rats: within-subjects examination

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Frahm J, Fransson P and Krüger G.

Floccular complex spike response to transparent retinal slip

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Frens MA, Mathoera AL, van der Steen

Mouse models as a tool for understanding neurodegenerative diseases

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Ahmad-Annur A, Tabrizi SJ, Fisher EM.

Introduction

Modern neuroscience represents a merger of five disciplines including micro- and macroscopic neuroanatomy, cell physiology, molecular neurobiology, systems neurophysiology, and development and aging. All these disciplines are necessary to understand the brain from the (sub)cellular up to the cognitive and clinical level. In this Summer School we will introduce the basics of the five disciplines both in terms of content (first week) and relevant technologies (second week). In the third week the students will pick based on their interest a particular topic and research question in one of the five disciplines and make under the supervision of a tutor a short research proposal elaborating on a recently published important paper in that area. On the final day of the third week the students will defend this proposal orally. If the average score of the written proposal and that of the oral presentation and defense is a 6 or higher, the students will be allowed to enter the Master course of Neuroscience.

It is the goal of the Erasmus Neuroscience Summer School 1) to encourage young students to enter the field of Neuroscience; 2) to bring them to a basic level to enter the full 2-year Master Course; and 3) to select the best students that will be allowed to do so.

From the beginning on the students should follow the Summer School with the intention to discover the scientific questions and technologies that they themselves find most interesting.

Apart from the scientific activities the students are invited to join four social events including three “Borrels” on each Monday late afternoon and a final dinner on Friday night August 27, 2010.

All participants will use the book by Kandel, Schwartz and Jessell (4th edition), which they can borrow during the 3 weeks Summer School. It will be handed out on Monday August 9 and recollected Friday August 27. In addition, they will use this Syllabus, which contains the schedule of the programme, abstracts of the lectures, self-study material, workshop information, and related articles.

Programme overview

Week 1 - Theory and selfstudies

Monday, August 9, 2010 Micro- and macroscopic neuro-anatomy

Literature: Kandel, Schwartz and Jessell, 4th edition, pp. 67-88 and pp. 317-337.

(Dr. T.J.H. Ruigrok (coordinator) and Dr. J.C. Holstege)

- 09.30 - 10.00 General introduction by Prof. Dr. C.I. de Zeeuw
- 10.00 - 12.00 Lectures
- 12.00 - 13.00 *Lunch*
- 13.00 - 16.00 Self study and group discussion
- 16.00 - 16.30 Presentation Proposals? (first year)
- 16.30 - 18.00 *Drinks*

Tuesday, August 10, 2010 .Molecular neurobiology and neurogenetics

Literature: Kandel, Schwartz and Jessell, 4th edition, pp. 5-36.

(Dr. Y. Elgersma (coordinator))

- 10.00 - 12.00 Lectures
- 12.00 - 13.00 *Lunch*
- 13.00 - 16.00 Self study and group discussion

Wednesday, August 11, 2010 Cell physiology

Literature: Kandel, Schwartz and Jessell, 4th edition, pp. 125-140 and pp. 175-187.

(Prof. Dr. J.G.G. Borst (coordinator))

- 10.00 - 12.00 Lectures
- 12.00 - 13.00 *Lunch*
- 13.00 - 16.00 Self study and group discussion

Thursday, August 12, 2010 Systems physiology

Literature: Kandel, Schwartz and Jessell, 4th edition, pp. 337-349 and pp. 782-791.

(Dr. M. Frens (coordinator) and Dr. J. van der Steen)

- 10.00 - 12.00 Lectures
- 12.00 - 13.00 *Lunch*
- 13.00 - 16.00 Self study and group discussion

Friday, August 13, 2010 Neurodevelopment and aging

Literature: Kandel, Schwartz and Jessell, 4th edition, pp. 1019-1052.

(Dr. D. Jaarsma (coordinator) and Dr. E. de Graaff)

- 10.00 - 12.00 Lectures
- 12.00 - 13.00 *Lunch*
- 13.00 - 16.00 Self study and group discussion
- 16.00.- 17.30 *Drinks*

Programme overview

Week 2 - Theory and workshops

Monday, August 16, 2010

Technical aspects of micro- and macroscopic neuro-anatomy

(Dr. T.J.H. Ruigrok (coordinator) and Dr. J.C. Holstege)

- 09.30 - 10.00 Introduction to second week by Prof.dr. C.I. de Zeeuw
- 10.00 - 12.00 Lectures
- 12.00 - 13.00 *Lunch*
- 13.00 - 16.00 Workshop
- 16.00 - 16.30 Group discussion

Tuesday, August 17, 2010

Technical aspects of molecular neurobiology and neurogenetics

(Dr. C.C. Hoogenraad (coordinator))

- 10.00 - 12.00 Lectures
- 12.00 - 13.00 *Lunch*
- 13.00 - 16.00 Workshop
- 16.00 - 16.30 Group discussion

Wednesday, August 18, 2010

Technical aspects of cell physiology

(Prof. Dr. J.G.G. Borst (coordinator))

- 10.00 - 12.00 Lectures
- 12.00 - 13.00 *Lunch*
- 13.00 - 16.00 Workshop
- 16.00 - 16.30 Group discussion

Thursday, August 19, 2010

Technical aspects of systems physiology

(Dr. M. Frens (coordinator) and Dr. J. van der Steen)

- 10.00 - 12.00 Lectures
- 12.00 - 13.00 *Lunch*
- 13.00 - 16.00 Workshop
- 16.00 - 16.30 Group discussion/ Hand in of top 3 priority score of research field and topic to Prof. Dr. C.I. de Zeeuw

Friday, August 20, 2010

Technical aspects of neurodevelopment and aging (Dr. D. Jaarsma (coordinator))

- 10.00 - 12.00 Lectures
- 12.00 - 13.00 *Lunch*
- 13.00 - 16.00 Workshop
- 16.00 - 16.30 Group discussion
- 16.30 - 17.00 Written exam
- 17.00 - 18.30 *drinks*

Programme overview

Week 3 - Proposal and defence

Monday, August 23, 2010

- 09.30 - 10.00 Explanation of selection of fields, topics and tutors by Prof.dr. C.I. de Zeeuw
- 10.00 - 12.00 Creating research question(s) under guidance of tutor
- 12.00 - 13.00 *Lunch*
- 13.00 - 16.00 Creating research question(s) under guidance of tutor
- 16.00 – 17.00 Graduation Ceremony 2nd year Masters
- 17.00 – 18.00 Reception

Tuesday, August 24, 2010

- 10.00 - 12.00 Design of new experiments to address question(s) under guidance of tutor
- 12.00 - 13.00 *Lunch*
- 13.00 - 16.00 Design of new experiments to address question(s) under guidance of tutor

Wednesday, August 25, 2010

- 10.00 - 12.00 Writing research proposal under guidance of tutor
- 12.00 - 13.00 *Lunch*
- 13.00 - 16.00 Writing research proposal under guidance of tutor

Thursday, August 26, 2010

- 10.00 - 12.00 Preparing oral presentation and defence under guidance of tutor and handing in written proposal to Loes Nijs
- 12.00 - 13.00 *Lunch*
- 13.00 - 16.00 Preparing oral presentation and defence under guidance of tutor

Friday, August 27, 2010

- 09.00 - 12.00 Oral presentations and defences
- 12.00 - 13.00 *Lunch*
- 13.00 - 16.30 Oral presentations and defences
15 min. presentation and 10 min defence
- 16.30 - 16.45 Filling out anonymous evaluation forms by students
- 16.45 - 17.30 Handing out scores and diploma's
- 17.30 - 18.15 *Drinks*
- 18.30 - 22.30 *Dinner on the boat*