LMU Munich, Department Psychology, Unit of General and Experimental Psychology

M.Sc. in Neuro-Cognitive Psychology

Module Descriptions

2017

M.Sc. in Neuro-Cognitive Psychology; Department Psychology, LMU Munich; Leopoldstr. 13, 80802 Munich, Germany; tel: +49-89-218072537 email: ncp@psy.lmu.de

M.Sc. in Neuro-cognitive Psychology

The aim of the four-semester study program “M.Sc. in Neuro-cognitive Psychology” (NCP) is to educate a selected population of about 12-14 students per annum (recruited world-wide) both methodologically and conceptually in this brain science-oriented discipline of psychology, providing an education that is competitive with the best international programs. The aim of the first two semesters is to transfer, in an optimally structured, broad curriculum, state-of-the-art basic-science knowledge. Subsequently, the second part of the program provides students with the opportunity to specialize and deepen their knowledge in particular “focus” areas, including the ability to choose their own courses. Each course (module) is assessed by a written examination (or equivalent); in the fourth semester students write a supervised M.Sc. Thesis. All courses are open to all students, including those from the fast track in Neurosciences and Ph.D. in Systemic Neurosciences.

Winter semester

NCP Semester	Course	Course title	Responsible lecturer
1	A	Basic Neuro-cognitive psychology 1 (module 1)	Heiner Deubel
1	B	Basic Neurosciences 1 (module 3)	Laura Busse
1	C	Classical psychological methods 1 (module 4)	Zhuanghua Shi
1	D	Neuro-cognitive methods 1 (module 5)	Thomas Töllner
1	RP1	Research project 1 (module 6)	Markus Conci
3	K	Basic neuro-cognitive research (module 13)	Markus Conci
3	L	Clinical neuro-cognitive research (module 12)	Paul Taylor
3	M	Applied neuro-cognitive research (module 14)	Kathrin Finke
3	N	Neuro-cognitive methods 3 (module 16)	Virginia Flanagin
3	Z	Scientific debating club 2	Thomas Geyer
1 & 3	Y	Colloquium (module 2, 16)	Hermann Müller

Summer semester

NCP Semester	Course	Course title	Responsible lecturer
2	F	Basic neuro-cognitive psychology 2 (module 7)	Thomas Geyer
2	G	Basic neurosciences 2 (module 8)	Heiner Deubel
2	H	Classical psychological methods 2	Markus Paulus
2	I	Neuro-cognitive methods 2 (module 9)	Julia Neitzel
2	Z	Scientific Debating club 1 (module 2)	Thomas Geyer
2	RP2	Research Project 2 (module 11)	Markus Conci
2 & 4	Y	Colloquium (module 2)	Hermann Müller

Summer courses

Course F: Basic neuro-cognitive psychology 2 (module 7) – second semester

Course aims and contents

The course teaches current notions concerning attention, perception, learning and memory, as well as executive and motor control from an integrated experimental-psychological, neuropsychological, neurobiological and neuro-computational perspective at an advanced level

Part 1 (weeks 1 – 3, and 12): Advanced neuro-cognitive psychology of perception and motor control
Part 2 (weeks 4, 5): Advanced neuro-cognitive psychology of executive control
Part 3 (weeks 6, 8): Advanced neuro-cognitive psychology of learning and memory
Part 4 (weeks 9 – 11): Advanced neuro-cognitive psychology of attention.

Lecturers

Prof. Dr. Heiner Deubel
Prof. Dr. Paul Sauseng
Prof. Dr. Simone Schütz-Bosbach
PD Dr. Thomas Töllner

Tutors

M. Sc. Marian Sauter

Timetable

Lecture: Tue 10:15-11:45, Leopoldstr. 13, room 1.407
Tutorial: Tue 12:15-13:45, Leopoldstr. 13, room 1.302

Week	Date	Topic
1	25.04.17	Part: Perception
2	02.05.17	
3	09.05.17	
4	16.05.17	Part: Learning & Memory
5	23.05.17	
6	30.05.17	Part: Executive control
7	06.06.17	No course
8	13.06.17	Part: Executive control
9	20.06.17	Part: Attention
10	27.06.17	
11	04.07.17	
12	11.07.17	Part: Motor control
13	18.07.17	Written examination
14	25.07.17	

Requirements for course credit points

Lecture: written examination at the end of the semester (week 13, 18th of July)
Tutorial: oral presentation

Reading list

Gazzaniga, M.S., Ivry, R.B., & Mangun, G.R. (2002). Cognitive Neuroscience. New York, NY: W.W. Norton. Chapters 7, 8, and 12.

Purves, D., et al. (2012). Principles of Cognitive Neuroscience (2nd Edition). Palgrave Macmillan (Ch. 9: "Declarative Memory") (Two exemplars of this book can be found in the institute's library under: "CP 4000 2013 POC").

Monsell, S., & Driver, J. (2000). Attention and Performance XVIII: Control of Cognitive Processes. Cambridge, MA: Bradford Book. Chapter 7.

Roberts, A.C., Robbins, T.W., & Weiskrantz, L. (1998). The prefrontal cortex. New York, NY: Oxford University Press. Chapters 7, 8.

Course G: Basic neurosciences 2 (module 8) – second semester

Course aims and contents

Part 1: General introduction into neuropsychiatry; understanding of theoretical and practical implications of neuropsychiatric disorders.
Part 2: General introduction into computational neuroscience as a framework which provides an approach for integrating different levels of investigation of brain function, and for understanding the relations between them.
Part 3: General introduction into neurophilosophy; understanding some of the main philosophical questions connected with the cognitive neurosciences and general strategies of how to deal with these

Lecturers

Prof. Dr. Heiner Deubel
Prof. Dr. Hans Förstl
Dr. Christian Sorg
Dr. Simon Jacob
Prof. Dr. Stephan Sellmaier

Tutors

Dr. René Liesefeld
Dr. Christian Sorg
Dr. Simon Jacob

Timetable

Lecture: Wed 08:30-10:00, Leopoldstr. 44, room 501
Tutorial (Part 1 & 2): Wed 10:15-11:45, Leopoldstr. 44, room 511 (part 1), Leopoldstr. 44, room 501 (part 2)

Week	Date	Topic
1	26.04.17	Part 1: Computational modelling
2	03.05.17	
3	10.05.17	
4	17.05.17	
5	24.05.17	No course
6	31.05.17	Written examination part 1
7	07.06.17	No course
8	14.06.17	Part 2: Neuropsychiatry
9	21.06.17	
10	28.06.17	
11	05.07.17	
12	12.07.17	Part 3: Neurophilosophy
13	19.07.17	
14	26.07.17	Written examination part 2

Requirements for course credit points

Lecture: written examination during (part 1, week 6) and at the end of the semester (part 2, week 14) and essay (part 3).
Tutorial: oral presentation

Reading list

R.C. O'Reilly and Y. Munakata (2000). Computational Explorations in Cognitive Neuroscience. Cambridge: MIT Press *(part 1)*

O'Connor, T., & Robb, D. (2003). Philosophy of Mind: Contemporary Readings. London: Routledge. (Please read the introduction to the intentionality section, the Churchland and the Dennett texts. Read as well the introduction to the consciousness section, the Jackson and the Lewis texts.) *(part 3)*

Course H: classical psychological methods 2 – second semester

Part H1. Developmental neuroscience

Course aims and contents

The course aims to introduce students to current questions, research paradigms and findings of developmental cognitive science. The focus will be on traditional and recent methods employed in the study of cognitive and social-cognitive development.

Lecturers

Dr. Claudia Thoermer

Timetable

Lecture: Tue 14:15-15:45, Leopoldstr. 13, room 1.302

Requirements for course credit points

Reading assignments and presentations (oral and written form) will be required of all participants. Examination at the end of the semester (date tba).

Suggested readings

Goswami, U. (2008). Cognitive development. The learning brain. Hove, UK: Psychology Press.

Johnson, M.H. & deHaan, M. (2015). Developmental cognitive neuroscience. An introduction Hoboken, NJ: Wiley.

Mareschal, D., Butterworth, B., & Tolmie, A. (eds.). (2013). Educational Neuroscience. Hoboken, NJ: Wiley Blackwell.

Part H2. Neuro-cognitive ergonomics

Course aims and contents

A general introduction to the field of “human-system-integration” is given (e.g. workload, distraction, situational awareness, fatigue, driver impairment).

Lecturers

Prof. Dr. Klaus Bengler
Dr. Antonia Conti

Timetable

Lecture: Mon, 24.4. & Wed, 26.4. 14:00-16:00, TUM, Bolzmannstr. 15 (Garching); Foyer (3rd floor)
Practical: Fri, 28.4., 09:00-18:00, TUM, Bolzmannstr. 15 (Garching); Foyer (3rd floor)
Exam: Mon, 8.5., 14:00-16:00, TUM, Bolzmannstr. 15 (Garching); Foyer (3rd floor)

Requirements for course credit points

Attendance to and active participation in the lecture. In the practical session, students are separated in smaller groups and develop, conduct, analyse, and present a real, ergonomic experiment.

Reading list

Merat, N., & Jamson, A. H. (2008). The Effect of Stimulus Modality on Signal Detection: Implications for Assessing the Safety of In-Vehicle Technology. Human Factors, 50(1), 145-158.

Engström, J., Åberg, N., Johansson, E., & Hammarbäck, J. (2005). Comparison between visual and tactile signal detection tasks applied to the safety assessment of in-vehicle information systems. Third International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design (pp. 232-239).

Ogden, G. D., Levine, J. M., & Eisner, E. J. (1979). Measurement of workload by secondary tasks. Human Factors, 21, 529–548.

Wickens, C. D., & Hollands, J. (2000). Engineering Psychology and Human Performance, 3rd edn. (Upper Saddle River, NJ: Prentice Hall).

Course I: neurocognitive methods 2 (module 9) – second semester

Course aims and contents

Introduction into the underlying concepts, theories and assessment procedures used in neuropsychology, covering disorders of attention, memory and emotion regulation among others. Learn how to apply neuropsychological assessment and interpret test results.

Lecturers

M. Sc. Julia Neitzel
Dr. Satja Mulej Bratec
Dr. Felix Brandl
M. Sc. Mario Archila Melendez

Tutor

M. Sc. Marleen Haupt

Timetable

Lecture: Thu 14:15-15:45, Leopoldstr. 13, room 1.202

Tutorial: Mon 10:15-11:45, Leopoldstr. 44, room 501

Requirements for course credit points

Lecture: written examination at the end of the semester (27th of July)
Tutorial: oral presentation

Reading list

Gazzaniga, M.S. (2008). Cognitive Neuroscience: The Biology of the Mind. New York, NY: Norton & Company.

Lezak, M.D., Howieson D.B., & Loring, D.W. (2012). Neuropsychological Assessment. New York, NY: Oxford University Press.

Strauss, E. (2006). A Compendium of Neuropsychological Tests: Administration, Norms, and Commentary. New York, NY: Oxford University Press.

Mitrushina, M.N., Boone, K.B., & Razani, J. (2005). Handbook of Normative Data for Neuropsychological Assessment. New York, NY: Oxford University Press.

Course Z: Scientific debating club seminar 1 (module 2) – second semester

Course aims

The aim of this course is to read and critically evaluate ("review") recent published research articles in the field of neurocognitive psychology. We will discuss the articles in terms of: the issue under investigation, the conceptual developmental, the methodology used to investigate it, the data analysis and presentation, and the discussion of the results and their theoretical implications.

Course contents

Topics will be provided in the first session (May 3rd 16:15, Leopoldstr. 44, room 501).

Lecturers

Prof. Dr. Thomas Geyer
Prof. Dr. Simone Schütz-Bosbach

Timetable

Group 1: Wed. 14:15 – 15:45, Leopoldstr. 13, room 1.407 (T. Geyer)
Group 2: Wed. 16:15 – 17:45, Leopoldstr. 44, room 501 (S. Schütz-Bosbach)

Requirements for course credit points

- Each student has to present an article (the presenter is the main proponent of the work and presents and defends the paper convincingly as if it was his/her own work).
- All students are required to read all articles and to actively participate in the discussions by bringing up critical issues that may limit the value of the study.

Reading list

Journal articles will be provided in the first session (May 3rd, 16:15, Leopoldstr. 44, room 501).

Course Y: Colloquium (module 2) – second & fourth semester

Course aims

The aim of the colloquium is to (learn to) listen to and discuss other scientists' presentations of their latest, frequently as yet unpublished, research within the field of neuro-cognitive psychology. Invited national and international guest speakers will talk about and discuss their latest findings and theories. The colloquium is traditionally followed by a 'post-colloquium' in a restaurant where the discussion can be continued in an informal atmosphere. All attendees of the colloquium are invited to join the post-colloquium.

Lecturers

Invited guest speaks
Organizer: Prof. Dr. Hermann Müller

Timetable

Wed 18:00-20:00, Leopoldstr. 13, room 3.232

Requirements for course credit points

Regular participation (documented by attendance lists)
A written report of 3 to 5 pages on one colloquium talk with reference to the issue under investigation, the methodology used, the conclusions that were drawn etc. (due date: 11th August).

Program

tba

Optional block seminar: Spatial Composition in Art: An introduction to principles, their application and their relations to the aesthetic – second semester

Course aims & contents

Lecture (Thursday 1st June) ‘Composition: Balance and Shape, Form and Space'

Appealing to Gestalt principles and with direct reference to Rudolf Arnheim's seminal work this lecture will introduce 4 basic principles of composition in visual art. By using examples, the lecture aims to encourage interpretation of works of art by virtue of an understanding of compositional principles.

Reference: Arnheim, R. (1974). Art and Visual Perception: A Psychology of the Creative Eye. Los Angeles: UC Press Chapters I, II, III and IV.

Seminar/Class work (Friday 2nd June) ‘ Beyond the Creative Eye’: group discussions on works of art, their compositional 'valency' and what these compositions 'mean'.

Lecturer

Mark A. Elliott PhD
Professor, Faculty of Design Kyushu University, Fukuoka, Japan and the National University of Ireland, Galway, Ireland

Timetable

Thursday June 1st 10:15h-13:45h and Friday June 2nd 12:15h-14:45h Leopoldstr. 44, room 501

Requirements for course credit points

Voluntary participation.

Important note

Please register by email until May 15th (mark.elliott@nuigalway.ie)

Optional course R1: Master Thesis Seminar – fourth semester

Course aims & contents

This course is designed to provide ongoing support to NCP students working on their Master Thesis. Each student should introduce his/her Master Thesis by matters of: the issue under investigation, the experimental approach, the (available) data, the discussion, and/or future experiments. The seminar aims at providing feedback ('input') to the M.Sc. project and to improve students' ability ('soft skills') to give a concise and comprehensible overview of their Master Thesis and to defeat its topic.

Lecturer

Prof. Dr. Thomas Geyer

Timetable

Mon 14:15-15:45, Leopoldstr. 44, room 501 (first course sitting: May 8th at 15:00h)

Requirements for course credit points

Voluntary participation.

Important note

Please register by email until April 28th (geyer@lmu.de)