

General topics	Lectures	Accordinging Chapter in Luo	Reader	Total number of lectures offered	53	
1. An Invitation to Neurobiology						
Introduction to the modul	<i>Introduction to the module</i>		Riemensperger	Oct 11	11:00-11:45	! Online !
Organization of the Nervous system	<i>The cells of the nervous system: Neurons and glial cells – cytology</i>	Chapter 1: How is the Nervous System Organized 1.4 - 1.7	Ito	Oct 13	08:15-09:00	! Online !
	<i>Organization of the CNS: Functional Neuroanatomy - Invertebrates/Vertebrates</i>	Chapter 1: How is the Nervous System Organized 1.8 - 1.12	Ito	Oct 18	11:00-11:45	! Online !
2. Signaling within Neurons						
Electrical properties of neurons	<i>Ion Channels I</i>	Chapter 2: Signaling within Neuron 2.1 - 2.16	Kloppenburg	Oct 20	08:15-09:00	! Online !
	<i>Ion Channels II</i>				09:00-09:45	
	<i>Membrane potential and passive electrical properties</i>	Chapter 2: Signaling within Neuron 2.1 - 2.16 / Chapter 3.1: Signalling	Kloppenburg	Oct 25	11:00-11:45	Lecture hall 4th Fl. CoMB (Genetics building)
	<i>The action potential</i>				11:45-12:30	
3. Computational Approaches to Neuronal Signaling						
Computational Neuroscience	<i>Introduction to Computational Neuroscience I</i>	! FURTHER READING !	Nawrot	Oct 27	08:15-09:00	Room 0.016 (Kursaal I) Biocenter Groundfloor
	<i>Introduction to Computational Neuroscience II</i>				09:00-09:45	
*** ALL SAINTS ***						
4. Signaling across Synapses						
Synaptic transmission	<i>Synaptic transmission I</i>	Chapter 3: Signalling across Synapses 3.2 - 3.11	Fenselau	Nov 03	08:15-09:00	Room 0.016 (Kursaal I) Biocenter Groundfloor
	<i>Synaptic transmission II</i>	Chapter 3: Signalling across Synapses 3.11 - 3.25			09:00-09:45	
5. Imaging neuronal activity / Techniques						
Ways of Exploring	<i>Brain imaging - Vertebrates</i>	Chapter 13: Ways of Exploring 13.2 A20:G35	Endepols	Nov 08	11:00-11:45	Lecture hall 4th Fl. CoMB (Genetics building)
	<i>How brains generate emotions</i>	! FURTHER READING !			11:45-12:30	
6. Brain disorders						
Brain disorders	<i>Parkinson/Alzheimers</i>	Chapter 11: Brain Disorders 11.1 - 11.14	Endepols	Nov 10	08:15-09:00	Room 0.016 (Kursaal I) Biocenter Groundfloor
	<i>Brain disorders</i>				09:00-09:45	
7. Senses						
Senses	<i>How do rods and cones detect light signals?</i>	Chapter 4: Vision 4.1 - 4.13	Riemensperger	Nov 15	11:00-11:45	Lecture hall 4th Fl. CoMB (Genetics building)
	<i>How are signals from rods and cones analyzed in the retina?</i>	Chapter 4: Vision 4.14 - 4.20			11:45-12:30	
	<i>How is information processes in the visual cortex</i>	Chapter 4: Vision 4.21 - 4.29	Riemensperger	Nov 17	08:15-09:00	Room 0.016 (Kursaal I) Biocenter Groundfloor
	<i>Senses (gustation, vision, olfaction)</i>	Chapter 6: Olfaction / Taste: 6.1 - 6.21	Riemensperger	Nov 22	11:00-11:45	Lecture hall 4th Fl. CoMB (Genetics building)
	<i>Senses (audition)</i>	Chapter 6: Audition: 6.22 - 6.28	Ito	Nov 24	08:15-09:00	Room 0.016 (Kursaal I) Biocenter Groundfloor
	<i>Mechanosensation and circuits</i>	Chapter 6: Somatosensation: 6.29 - 6.35	Ito	Nov 29	11:00-11:45	Lecture hall 4th Fl. CoMB (Genetics building)
					11:45-12:30	
8. Motor and regulatory systems						
Motor systems	<i>Muscles and Motor Neurons</i>	Chapter 8: Motor and Regulatory Systems 8.1 - 8.2	Büschges	Dec 01	08:15-09:00	Room 0.016 (Kursaal I) Biocenter Groundfloor
	<i>Sensory motor interaction: Reflexes and local control of leg movements for locomotion</i>	Chapter 8: Motor and Regulatory Systems 8.3			09:00-09:45	
	<i>Central Pattern Generators: Local control of movements, not only for locomotion</i>	Chapter 8: Motor and Regulatory Systems 8.4 - 8.6	Büschges	Dec 06	11:00-11:45	Lecture hall 4th Fl. CoMB (Genetics building)
	<i>Intersegmental control of locomotion: Coordination of leg movements and body segments in swimming</i>				11:45-12:30	
	<i>Important concepts and mechanisms: command neurons</i>	Chapter 8: Motor and Regulatory Systems 8.8 - 10	Büschges	Dec 08	08:15-09:00	Room 0.016 (Kursaal I) Biocenter Groundfloor
	<i>Selection and control of motor behaviors I</i>				09:00-09:45	
Neural control of innate behaviors, incl. sexual behavior	<i>Regulation of food intake I</i>	Chapter 8: Motor and Regulatory Systems 8.15 - 8.18	Fenselau	Dec 13	11:00-11:45	Lecture hall 4th Fl. CoMB (Genetics building)
	<i>Regulation of food intake II</i>				11:45-12:30	
9. Learning and Memory						
Learning and memory	<i>Learning and Memory I</i>	Chapter 10: Learning and Memory 10.1 - 10.25	Scholz	Dec 15	08:15-09:00	Room 0.016 (Kursaal I) Biocenter Groundfloor
	<i>Learning and Memory II</i>				09:00-09:45	
	<i>Learning and Memory III</i>		Scholz	Dec 20	11:00-11:45	Lecture hall 4th Fl. CoMB (Genetics building)
	<i>Learning and Memory IV</i>				11:45-12:30	
10. Computational Approaches to Learning and Memory						
Computational Neuroscience	<i>Introduction to Computational Neuroscience I</i>	! FURTHER READING !	Nawrot	Dec 22	08:15-09:00	Room 0.016 (Kursaal I) Biocenter Groundfloor
	<i>Introduction to Computational Neuroscience II</i>				09:00-09:45	

***** CHRISTMAS BREAK *****

11. Innate Behaviour

Neural control of innate behaviors, incl. sexual behavior	Circadian rhythms	Chapter 8: Motor and Regulatory Systems 8.19 - 8.24	Korotkova	Jan 10	11:00-11:45	Lecture hall 4th Fl. CoMB (Genetics building)
	Neural control of social and sexual behaviors	Chapter 9: Sexual Behavior 9.1-9.24			11:45-12:30	

12. Computational Neuroscience

Computational Neuroscience	Introduction to the Simulation of Biological Neural Networks I	! FURTHER READING !	van Albada	Jan 12	08:15-09:00	Room 0.016 (Kurssaal I) Biocenter Groundfloor
	Introduction to the Simulation of Biological Neural Networks II				09:00-09:45	
	Bringing Anatomical Information into Neuronal Network Models II		van Albada	Jan 17	11:00-11:45	Lecture hall 4th Fl. CoMB (Genetics building)
	Bringing Anatomical Information into Neuronal Network Models I				11:45-12:30	
	Machine Learning I		Rostami	Jan 19	08:15-09:00	Room 0.016 (Kurssaal I) Biocenter Groundfloor
	Machine Learning II				09:00-09:45	

13. Machine Learning

Machine Learning	Deep Learning I	! NO FURTHER READING ! Exam Preparation!	van Albada	Jan 24	11:00-11:45	Lecture hall 4th Fl. CoMB (Genetics building)
	Deep Learning II				11:45-12:30	

14. Excursion

Excursion	! NO FURTHER READING ! Exam Preparation!		Endepols	Jan 26	08:15-09:00 09:00-09:45	Room 0.016 (Kurssaal I) Biocenter Groundfloor
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Feb 07

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