Neurokemi med Molekylär Neurobiologi
(Neurochemistry with Molecular Neurobiology)
31/8 – 30/10, 2026
KN7001

Teachers:

ALS	Anna-Lena Ström
AF	Anna Forsby
CB	Christian Broberger
HN	Henrietta Nielsen
ISK	Iskra Pollak Dorocic
MB	Marek Bartosovic
RH	Rebecca Howard
LA	Liselotte Antonsson

Teaching assistants (TAs):

IB	Ikaro Beraldo
LBW	Jose Barcenas Walls
MS	Maja Sjödahl
MT	Maaike Tierie
RA	Rosaline Awoga
YL	Yiquan Lu

Rooms:
K438: KÖL lecture room
K447-K441: KÖL lecture room
Magnelisalen: KÖL lecture room
K341, KÖL computer lab
K232-K242: KÖL Lab
M414: Conference room DBB
C458: Seminar room DBB

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Day	Date	Time	Activity	Teacher	Place
W1					
Mon	31/8	9.15-12.00	Roll call and presentation of the course and course participants (obligatory for all)	ALS	K438
		13.00-17.00	Introduction for students on the master's programme in neurochemistry	ALS	K438
Tue	1/9	9.15-12.00	Lecture 1: Neurons and glia cells	ALS	K438
		13.00-17.00	Introduction to labs and exercises (obligatory for all)	ALS/LA	K438
			Start of Neuroanatomy LAB; introduction and handout of assignment (obligatory for all)	ALS	
Wed	2/9	9.15-12.00	Lecture 2: Organization of the nervous system	ALS	K438
		12.00-12.30	iGEM information for NNEUO and NBBKO students	ALS/Jan-Willem	K438
		13.30-17.00	Neuroanatomy LAB independent work with part I, all groups		Optional
Thu	3/9	9.00-12.00	Neuroanatomy LAB part II, groups 2-3 (obligatory for groups 2-3)	ALS/MS	K438
		9.00-12.00	Neuroanatomy LAB independent work with part I, groups 1, 4-5		Optional
		13.00-16.00	Neuroanatomy LAB part II, groups 4-5 (obligatory for groups 4-5)	ALS/MS	K438
		13.00-16.00	Neuroanatomy LAB independent work with part I, groups 1-3		Optional
Fri	4/9	9.15-12.00	Lecture 3: Electrical properties of neurons I	ALS	K438
		13.00-16.00	Neuroanatomy LAB part II, group	MS	K438

			1 (obligatory for group 1)		
		13.00-16.00	Neuroanatomy LAB independent work with part I, groups 2-5		Optional
		23.59	Deadline for passing Neuroanatomy LAB part I quiz (obligatory for all)		Canvas
W2					
Mon	7/9	9.15-12.00	Lecture 4: Electrical properties of neurons II	ALS	K438
		13.00-14.00	MetaNeuron LAB; introduction (obligatory for all, bring laptop)	ALS/LM/ MT	K341
		14.00-17.00	MetaNeuron LAB; independent work with assignment (obligatory for all)	LM/MT	
Tue	8/9	9.15-12.00	Lecture 5: Ion channels I –Sodium channels	ALS	K438
		13.00-17.00	MetaNeuron LAB; independent work with assignment (obligatory for all)		Optional
Wed	9/9	9.15-12.00	Lecture 6: Ion channels II – Potassium channels	ALS	K438
		13.00-17.00	MetaNeuron LAB; independent work with assignment (obligatory for all)		Optional
		23.59	Deadline to submit individual word document with answers to the Metaneuron lab compendium questions (obligatory for all)		Canvas
Thu	10/9	9.15-12.00	Lecture 7: Ion channels III – Calcium and cation channels	ALS	Magneli
		13.00-17.00	MetaNeuron LAB; lab group discussion and each group should prepare a power point presentation together (Obligatory for all)		Optional
		23.59	Deadline to submit group ppt for MetaNeuron LAB		Canvas

Fri	11/9	9.00-12.00	MetaNeuron LAB; group 1 presentation (obligatory for group 1)	ALS/MT	K433
		9.00-12.00	MetaNeuron LAB; group 2 presentation (obligatory for group 2)	LM	K439
		9.00-12.00	MetaNeuron LAB; group 3 presentation (obligatory for group 3)	AF	K441
		13.00-16.00	MetaNeuron LAB; group 4 presentation (obligatory for group 4)	MT	M414
		13.00-16.00	MetaNeuron LAB; group 5 presentation (obligatory for group 5)	LM	C458
W3					
Mon	14/9	9.00-14.00	Study for short test (L1-7)		
		14.00-16.00	Short test	TAs	K438
Tue	15/9	9.15-12.00	Lecture 8: Release of neurotransmitters	HN	K438
		12.00-12.30	Introduction to data visualization and statistical analysis LAB (obligatory for all)	ALS/HN	K438
		13.30-17.00	Data visualization and statistical analysis LAB, independent work, watch movie and reflect on questions independently (obligatory for all)		Optional
Wed	16/9	9.15-12.00	Lecture 9: Glutamate and Glutamate receptors	ALS	K438
		13.00-15.30	Lecture 10: GABA and GABA receptors	RH	K438
Thu	17/9	9.15-11.00	Data visualization and statistical analysis LAB, independent work, watch movie and reflect on questions independently (obligatory for all)		Optional

		11.00 13.00-17.00	Deadline submit individual reflection for data visualization and statistical analysis LAB Data visualization and statistical analysis LAB, group discussions, groups 1-5 (obligatory for all) Introduction to R/R studio and help with installation (obligatory for all)	 ALS/HN MB/JBW/ YL	 K438 K438
Fri	18/9	9.15-12.00 13.00-17.00	Lecture 11: Acetylcholine and Acetylcholine receptors Data visualization and statistical analysis LAB; groups 1-3 (obligatory for groups 1-3)	ALS MB/JBW/ YL	K438 K341
W4					
Mon	21/9	9.15-12.00 13.00-17.00	Lecture 12: GPCRs and G-proteins Data visualization and statistical analysis LAB; groups 1-3 (obligatory for groups 1-3)	HN MB/JBW/ YL	K438 K341
Tue	22/9	9.15-12.00 13.00-17.00	Lecture 13: Key GPCR signaling pathways to regulate neuronal activity Data visualization and statistical analysis LAB, groups 4-5 (obligatory for groups 4-5)	HN MB/JBW/ YL	K438 K341
Wed	23/9	9.15-12.00 13.00-17.00	Lecture 14: Long-term plasticity Data visualization and statistical analysis LAB, groups 4-5 (obligatory for groups 4-5)	ALS JBW/MB/ YL	K438 K341
Thu	24/9	9.15-12.00 13.00-14.00 14.00-17.00	Lecture 15: Catecholamines and their receptors Calcium LAB, all groups, introduction and hand-out of assignments, (obligatory) Calcium LAB; independent work with assignment (obligatory for all)	CB ALS/AF/ MS/IB	K438 K438

Fri	25/9	9.15-17.00 23.59	Calcium LAB; independent work with assignment (obligatory) Deadline to submit individual word document with answers to the Calcium LAB compendium questions		Optional Canvas
W5					
Mon	28/9	9.00-17.00 17.00	Calcium LAB; work with assignment with your group (obligatory for all) Deadline to submit group ppt for Calcium LAB		Optional Canvas
Tue	29/9	9.00-12.00 9.00-12.00 9.00-12.00 13.00-16.00 13.00-16.00	Calcium LAB; Group 1 (obligatory), Discussion of assignment results Calcium LAB; Group 2 (obligatory), Discussion of assignment results Calcium LAB; Group 3 (obligatory), Discussion of assignment results Calcium LAB; Group 4 (obligatory), Discussion of assignment results Calcium LAB; Group 5 (obligatory), Discussion of assignment results	MS ALS/IB AF MS IB	Magneli K441 K447 K441 K447
Wed Sista dag period A	30/9	9.15-12.00 13.00-17.00	Lecture 16: Receptor kinetics, affinity and efficacy Read lab manual for rec bind lab (obligatory for all)	ALS	Magneli
Thu Start period B	1/10	9.15-12.00 13.00-17.00	Lecture 17: Serotonin and serotonin receptors Start of Receptor binding LAB, all groups (obligatory for all)	IPD RA/MS/MT	K438 K438

		23.59	Make calculations for the lab and do the preparatory quiz in Canvas Deadline to pass preparatory quiz for the receptor binding LAB		
Fri	2/10	9.00-17.00	Receptor binding LAB part I; Group 1-2 (obligatory for groups 1-2)	RA/MS/MT	K232-K242
W6					
Mon	5/10	9.00-17.00	Receptor binding LAB part I; Group 3-4 (obligatory for groups 3-4)	RA/MS/MT	K232-K242
Tue	6/10	9.00-17.00	Receptor binding LAB part I; Group 5 (obligatory for group 5) Deadline to do and pass Calcium lab quiz	RA/MS/MT	K232-K242 Canvas
Wed	7/10	9.15-12.00 13.00-16.00	Receptor binding LAB part II; groups 1-2 (obligatory for group 1-2, bring laptop) Hand out of raw data, subgroups exchange data and go through of analysis setup. Receptor binding LAB part II; groups 3-5 (obligatory for group 3-5, bring laptop) Hand out of raw data, subgroups exchange data and go through of analysis setup.	RA/MS/MT RA/MS/MT	K433-K439 K433-K439
Thu	8/10	9.15-17.00 17.00	Receptor binding LAB part II; Individual work with data analysis. TAs are available in K343 for guidance. Deadline to hand in individual document for Receptor binding LAB analysis	RA/MS/MT	K341 Canvas

Fri	9/10	9.15-12.00 13.00-17.00	Lecture 18: GPCRs and regulation of the electrical properties of neurons summary Receptor binding LAB part II; lab group discussion and each group should prepare a power point presentation together (Obligatory for all)	ALS	K433-K439 Optional
W7					
Mon	12/10	9.15-12.00 13.00-17.00 17.00	Lecture 19; Neurochemical aspects of pain Receptor binding LAB part II; lab group discussion and each group should prepare a power point presentation together (Obligatory for all) Deadline submit group ppt for receptor binding lab	ALS	Magneli Optional Canvas
Tue	13/10	9.15-12.00 13.00-16.00	Lecture 20: Neuropharmacology and pathology I – intro and AD/PD Receptor binding LAB; Group 1 (obligatory), Discussion of assignment results Receptor binding LAB; Group 2 (obligatory), Discussion of assignment results Receptor binding LAB; Group 3 (obligatory), Discussion of assignment results	ALS RA MS ALS/MT	Magneli K433 K439 K441
Wed	14/10	9.15-12.00 16.00	Receptor binding LAB; Group 4 (obligatory), Discussion of assignment results Receptor binding LAB; Group 5 (obligatory), Discussion of assignment results Deadline to hand-in group /team evaluation	RA MS/MT	K433 K439 Canvas
Thu	15/10	9.15-12.00	Lecture 21: Neuropharmacology	IPD	Magneli

			and pathology II – MDD and Anxiety		
		13.00-13.30	Team evaluation discussion, group 5 (obligatory for group 5)	ALS	K441-K447
		13.30-14.00	Team evaluation discussion, group 4 (obligatory for group 4)	ALS	K441-K447
		14.00-14.30	Team evaluation discussion, group 3 (obligatory for group 3)	ALS	K441-K447
		14.30-15.00	Team evaluation discussion, group 2 (obligatory for group 2)	ALS	K441-K447
		15.00-15.30	Team evaluation discussion, group 1 (obligatory for group 1)	ALS	K441-K447
Fri	16/10		Study for exam		
W8					
Mon	19/10		Study for exam		
Tue	20/10		Study for exam		
Wed	21/10		Study for exam		
Thu	22/10	9.30-11.00	Q and A for the exam	ALS	Zoom
Fri	23/10	9.30-14.00	Written exam	TAs	K438
W9					
Mon	26/10	9.30-12.00	Written exam go through (obligatory for all)	ALS	K438
		13.00-17.00	Prepare for literature seminar		Optional
Tue	27/10	9.30-17.00	Prepare for literature seminar		Optional
		17.00	Deadline to submit Abstract to Athena latest 17.00 (obligatory for all)		Canvas
Wed	28/10	9.30-16.00	Literature seminar preparation		Optional
Thu	29/10	9.00-17.00	Literature seminars (all day obligatory for all)	ALS	Magneli

Fri	30/10	9.00-17.00	Literature seminars (all day obligatory for all)	ALS	C458
Wed	1-19 /12		Re-exam	TAs	TBA