CARL VON OSSIETZKY universität OLDENBURG
FAKULTÄT VI
MEDIZIN UND GESUNDHEITSWISSENSCHAFTEN

MASTER PROGRAM NEUROSCIENCE
UNIVERSITY OF OLDENBURG

Dear prospective Neuroscience student,

Congratulations! The Master Neuroscience admission committee admitted you to our Master's program at University of Oldenburg.

To help you with your decision whether to enroll into our program, we (the Student Body Neuroscience and me as the head of the program) would like to give you some information on:

- The **neuroscience orientation week** for Master Neuroscience first semester students, organized by the Student Body Neuroscience from Monday 7th to Friday 11th of October 2019. During this week, the mandatory introductory meetings for the winter semester modules will take place.

- The **curriculum** – general structure, list of modules and planned course times for winter term (October 14th 2019 – January 31st 2020 + 'semester break' February 3rd – April 13th 2020) and summer term (April 14th – July 17th 2020).

- Specific information for **international students**, including the international orientation week for international students of all programs from Monday 30th of September to Friday 4th of October 2019, organized by the international student office (ISO).

Please note that **August 1st, 2019** is the deadline for your decision. Until this date, **German applicants** have to **enroll** into the program, while international students have to **send a message** indicating if you plan to enroll into our program to the admission office (admission.master@uni-oldenburg.de). After that date, empty places will be filled by students on the waiting list.

In case you have any questions, please feel free to contact the Student Body (fachschaft.neuroscience@uni-oldenburg.de) or me (jutta.kretzberg@uni-oldenburg.de).

We are looking forward to meeting you in October and welcome you to our highly international and interdisciplinary group of students!

Best wishes for your Master's studies,

Jutta Kretzberg

Prof. Dr. Jutta Kretzberg
Master student's advisory service

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OLDENBURG, 17th of June 2019

ems
european medical school
oldenburg-groningen

Neuroscience Student Body
University of Oldenburg

4th of June 2019

Dear prospect fellow student,

We are very happy to welcome you to our master's program **Neuroscience**! The large variety of academic and cultural backgrounds is what makes this program so special. As the Student Body, we support you and want you to have a great time studying in Oldenburg.

To ensure you will have an awesome start, we organized an **orientation week** for all new Neuroscience students from **October 7th to 11th**. You will find the preliminary timetable attached. Please also keep in mind that additionally there will be an international orientation week organized by the International Student Office (ISO) the week before.

If you have any further questions or concerns, please do not hesitate to contact us via email or Facebook at any time.

Otherwise, we are looking forward to meeting you in October!

Your Student Body Neuroscience

✉ Email: fachschaft.neuroscience@uol.de
Facebook: https://www.facebook.com/fsneuroscience/
Website: http://www.uni-oldenburg.de/en/student-body-neuroscience/

Orientation Week

Winter Semester 2019/20

Preliminary timetable - check for updates on our website

MONDAY 07.10.2019	TUESDAY 08.10.2019	WEDNESDAY 09.10.2019	THURSDAY 10.10.2019	FRIDAY 11.10.2019
13:00 - 14:00 **Welcome & Program overview** W4-01-162 14:00 - 14:50 **Campus tour** W04 „Ringebene“ 15:00 - 17:00 **Introduction of Research Projects** W04-01-162 17:00 **Welcome reception** W04 „Ringebene“	9:00 - 13:00 **Module Introductions** W04-01-162 17:00 **City tour & Bar**	13:00 - 17:00 **Module Introductions** W04-01-162	9:00 - 13:00 **Module Introductions** W04-01-162 13:15 - 14:00 **Lab safety instructions** W03-01-161	10:30 - 14:00 **Breakfast & Planning your curriculum** W03-01-152 17:00 - 22:00 **Gaming night** W03-01-152

The Department of Neuroscience and the Institute of Biology and Environmental Sciences are looking forward to the third year of the new Masters' program Neuroscience and to welcome you here. We wish you all the best for your studies!

Invitation

Orientation and Welcome Reception

Neuroscience & Biology Master Students

This year, the semester will start with a joint afternoon for all students of the Master programs Neuroscience and Biology on **Monday, 07.10.2019** at Campus Wechloy:

13:00 in W4-1-162 Welcome
*For **new** MSc Neuroscience students:*
Curriculum overview, tips for module selection, information on studying abroad etc. by the student body and the head of the program

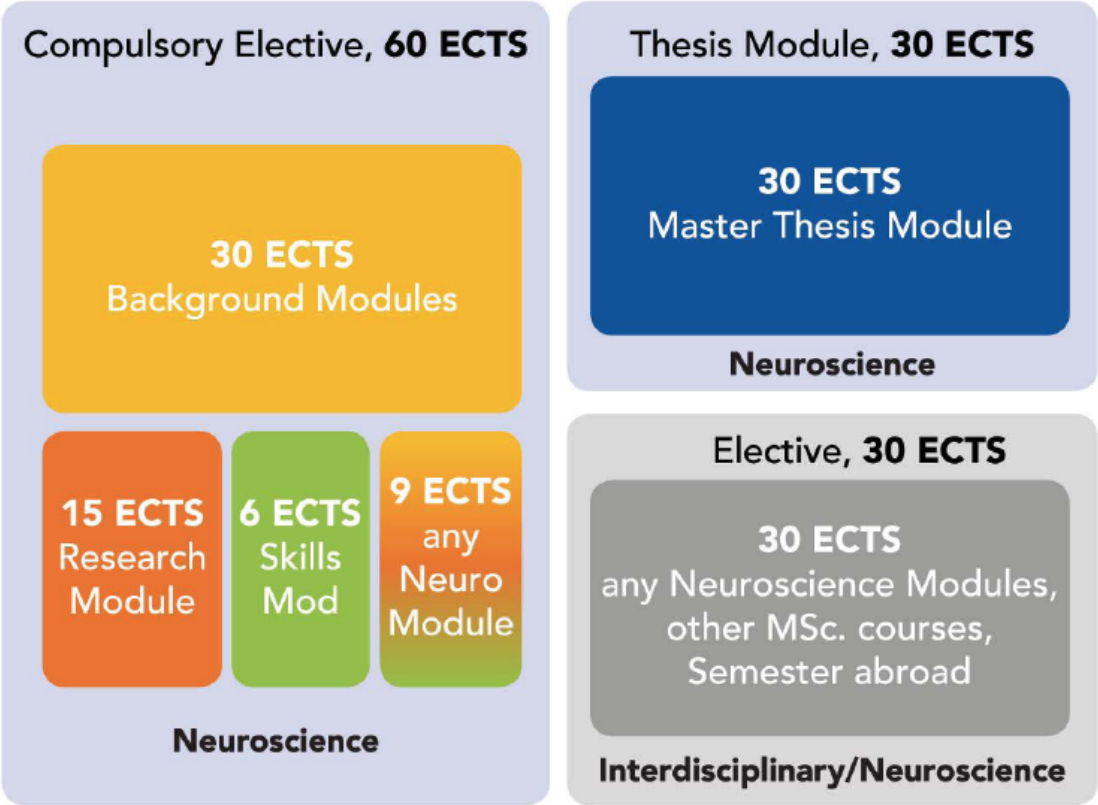
14:00 on the ring level in front of W4-1-162
*For **new** MSc Neuroscience students:*
Campus tour organized by the student body Neuroscience

15:00 in W4-1-162 Overview of neuroscience and biology groups offering research modules
*For **all** MSc Neuroscience and MSc Biology students:*
The labs of both departments introduce themselves and give a short overview of student research project options.

17:00 on the ring level in front of W4-1-162
*For **all** Masters students of both departments:*
Welcome reception with sparkling wine, snacks and informal discussion.
Take the chance to interact with teachers and students of all semesters!

MASTER PROGRAM
NEUROSCIENCE
UNIVERSITY OF OLDENBURG

Program overview



There are **no obligatory courses** in the M.Sc. Neuroscience program (except for the Master's thesis) – you can design your own curriculum according to your interests within the following rules. The program requires 120 credit points (CP, ECTS):

- 30 ECTS (or more) Neuroscience background modules. These courses are mostly held as full-time blocks of 2 – 7 weeks length during lecture times (see module list), corresponding to 6 or 12 ECTS.
- 15 ECTS (or more) Neuroscience research modules. These individual research projects (each 15 ECTS) in a neuroscience group in Oldenburg or externally at a different university or research center can usually be done with flexible timing.
- 6 ECTS (or more) Neuroscience skills modules. These courses take place either as block courses during the semester breaks or use late afternoon time slots to make them compatible with the other modules.
- 9 ECTS (or more) additional modules from the MSc Neuroscience curriculum of any module type.
- 30 ECTS free choice – Any modules from the MSC Neuroscience curriculum, or courses from other Master's programs (see attached list) or from studies abroad.
- 30 ECTS Master's thesis.

Conditional admission

Please check your formal admission letter, if you received a **conditional admission** to the program. In this case, you will have to take additional courses of 6 ECTS during your first semester to obtain some additional background that will help you in your further studies. You need to pass this required additional course work, but the grade and the ECTS will not be listed on your certificate.

If you are required to pass a **neuroscience** course:

- The recommended module is “neu350: Biological foundations of neuroscience” (6 ECTS), which takes place in the first half of the semester (14.10.-29.11.2019).
- If you are unable to pass this course (e.g. because of late arrival in Oldenburg due to visa issues), you need to pass the module “neu280: Research techniques in neuroscience” (6 ECTS) at the end of your first semester (17.02.-05.03.2020)

If you are required to pass a **statistics / programming** course:

- The recommended choice is to take the combination of the two courses specifically designed for catching up on statistics and programming:
  “6.03.712 - Basics of neuroscientific data analysis with Matlab” (3 ECTS) **AND**
  “6.02.001 - Introductory Statistics” (3 ECTS),
  both of which take place during the first half of the semester (14.10.-29.11.2020). (These courses are no modules in MSc neuroscience and cannot be credited, but students who want to get some additional background without the requirement are welcome to join.)
- If you are unable to pass these courses (e.g. because of late arrival in Oldenburg due to visa issues), you need to pass the module “neu780 Introduction to Data Analysis with Python” (6 ECTS) at the end of your first semester (02.03.-13.03.2020)

Study abroad

Many students in our program choose to **study abroad** for some months. The two most common ways to do so are the fellowship program of our partner University in Marseille (France) and the external research project (neu610).

The external research module can be done on an individual basis at any neuroscience lab worldwide, if one of the neuroscience staff members at University of Oldenburg agrees to supervise and evaluate the project. We provide an **international mobility grant** of up to 400 Euros for each Master Neuroscience student who studies abroad or presents a poster or a talk at an international scientific meeting.

More information

Please find attached the **list of all MSc Neuroscience modules** and their **course times** in winter term 2019/20. You can download the full handbook of MSc Neuroscience modules with course descriptions from our homepage:

http://www.uni-oldenburg.de/en/neurosciences/studies-and-teaching/master-neuroscience/curriculum/

Once you are enrolled, you need to register UOL's eLearning platform **Stud.IP** (https://elearning.uni-oldenburg.de/) to get admitted to the individual modules. In this system, you find up-to-date information about each module and about University Oldenburg in general. Module registration for the winter term will probably be available by the end of August. Please register as soon as possible for the modules you want to take in your first semester to help the lecturers plan the course organization.

During the **orientation week**, the student body and the program coordinator will give an overview of the program on Monday and help you with planning your individual curriculum on Friday. Please make sure to attend these meetings for optimal preparation and organization of your studies. Many modules have an **introductory meeting** during the orientation week, in which the course structure and requirements are explained and – in case of more applicants than available spaces – participants are selected. The exact dates of the individual introductory meetings will be indicated in Stud.IP and in the updated orientation week schedule. Please check our homepage for updates. Participation in the introductory meetings is mandatory for getting admission to a module. If you are not able to join an introductory meeting of a course you want to take, please contact the respective module coordinator prior to the meeting.

We try to accommodate all students' choice of modules. However, space limitations apply to practical courses to ensure high-quality hands-on education. In case you do not get admitted to all of your first choice courses, please choose an alternative module from the attached module list and you will be given top priority for admission to your favorite course one year later. After the introductory meetings, you will have time until the end of the orientation week to change your choice of modules in Stud.IP.

If you are already interested in a specific topic or group, please feel free to contact the staff members directly, they will be happy to give you advice on your schedule. During the **new students' orientation and reception** on Monday, 7th of October 2019, you will have the chance to get an overview of the Neuroscience research topics in Oldenburg and meet several of the teachers and scientists involved in the program. The module 'Neuroscience Research Project (neu600)' offers the opportunity to join up to three different groups for an individual research project of 2-3 months.

For more information on the Neuroscience program (including the handbook of all modules and a list of all teachers), please see or program home page
http://www.uni-oldenburg.de/en/master-neuroscience/
or contact the program director (jutta.kretzberg@uol.de Tel. +49 (0)441-798-3314) or the student body (fachschaft.neuroscience@uol.de).

List of all M.Sc. Neuroscience Modules (year 2019/20) https://uol.de/en/master-neuroscience/

	NR	Module	Shared / similar previous Modules	Teachers	Winter Semester 1. Half	Winter Semester 2. Half	Semester break	Summer Semester 1. Half	Summer Semester 2. Half	Semester break
Background Modules	neu350	Biological Foundations of Neuroscience		Puller, Greschner, Hartmann, Koch et al	6 CP					
	neu305	Essentials fMRI data analysis SPM/FSL	psy275, neu300	Weerda, Sörös	6 CP					
	bio845	Introduction Development & Evolution	bio840, neu110	Sienknecht, Nothwang, Köppl	6 CP					
	bio846	Lab Exercise in Devo & Evo	bio840, neu120	Sienknecht, Nothwang, Köppl		6 CP				
	bio605	Molecular Genetics & Cell Biology	bio600, neu170	Koch, Neidhardt	12 CP					
	neu320	Introduction to Neurophysics		Anemüller, Dietz	weekly course 6 CP					
	neu241	Computational Neurosci. - Introduction	neu240	Ashida, Kretzberg, Greschner		12 CP				
	bio695	Biochem. Conc. in Signal Transduct.	bio690, neu190	Koch, Scholten		12 CP				
	neu210	Neurosensory Science & Behaviour	bio610	Klump, Langemann, Mouritsen		9 CP				
	neu220	Neurocognition & Psychopharmacology	bio610, psy180	Thiel, Giessing		6 CP				
	neu280	Research Techniques in Neuroscience		Hartmann, Nothwang, Thiel, Neidhardt, et al			6 CP			
	neu141	Visual Neurosci. - Physiology & Anatomy	bio620, neu140/15	Greschner, Dedek, Janssen-Bienhold, Puller				12 CP		
	neu150	Visual Neurosci.: Anatomy	bio620, neu141	Janssen-Bienhold, Puller				6 CP		
	neu250	Comp. Neurosci. - Statistical Learning	psy220	Anemüller, Rieger				6 CP		
	neu290	Biophysics of Sensory Reception		Winklhofer					6 CP	
	neu370	Neuroprosthetics		Dietz					6 CP	
	neu360	Auditory Neuroscience		Klump, Köppl					6 CP	
	neu310	Psychophysics of Hearing	bio640, neu270	Klump, Langemann					12 CP	
	neu300	Functional MRI Data Analysis	psy270, neu305	Thiel, Gießing					12 CP	
	neu340	Invertebrate Neuroscience		Kretzberg					6 CP	
	neu345	Computation in Invertebrate Systems		Kretzberg						6 CP
Skills Modules	neu710	Neuroscientific Data Analysis in Matlab	neu800	Kretzberg	6 CP					
	neu790	Communicating Neuroscience		Kretzberg, Köppl	weekly course 3 CP			weekly course 3 CP		
	neu720	Statistical Programming in R		Sobotka				weekly course 6 CP		
	neu730	Biowiss. i. d. gesellschaftl. Debatte	pb227	Köppl, Sienknecht				weekly course 6 CP		
	neu740	Molecular Mechanisms of Ageing	pb193	Ebbers				irregular meetings 6 CP		
	neu751	Laboratory Animal Science	neu150	Köppl, Klump, Langemann			3 CP			3 CP
	neu780	Introduction Data Analysis with Python		Winklhofer			6 CP			
	neu760	Scientific English		Manley, Köppl			6 CP			
	neu800	Introduction to Matlab	neu710, neu270	Gießing					3 CP	
	neu810	International Meeting Contribution		Kretzberg, Köppl	3 CP flexible timing					
Res.	neu600	Neuroscience Research Project (see list)		all teachers	15 CP flexible timing					
	neu610	External Research Module		all teachers	15 CP flexible timing					
MT	mam	Master Thesis Module		all teachers	30 CP flexible timing					

Legend:

full-time courses with fixed time slots

part-time courses with fixed time slots

CP credit point, ECTS (30h work load)

Program requirements:

- 30 CP Master Thesis Module
- 30 CP Background Modules
- 15 CP Research Modules
- 6 CP Skills Modules
- 9 CP any further module(s) from Neuroscience curriculum
- 30 CP free choice: any further Neuroscience module(s) or (subject to approval) courses from other M.Sc. programs, from other universities, or from abroad.

Modules with shared course components, similar content or previous versions (see list) cannot be credited twice.

Modules neu600 and neu610 offer several project options and can be credited up to three times for different projects.

Recommendations:

- For students with **neuroscience course requirement** or with little biological background, it is recommended to start with **'biological foundations' (neu350)** in the first semester.
- For students with **mathematics course requirement** or with little programming and / or statistics experience, it is recommended to start with the (ungraded and uncredited) courses '**6.30.712 Basics of neuroscientific data analysis in Matlab' AND '6.02.001 introductory statistics'** in the first half of the first semester.
- The combination of 'biological foundations' (neu350) and Matlab (neu710) provides a good starting point for many students.
- Research modules are individual research projects in a neuroscience lab. Please find the separate list of project options for each semester in Stud.IP.
- Before joining the group of a supervisor for a research module, it is recommended to take at least one of the background modules this supervisor teaches.
- In many groups, research modules are flexible in time, e.g. allowing combination with semester-long courses, including courses from other Master's programs.
- Please find a list of approved free choice courses from other M.Sc. programs at our homepage http://www.uni-oldenburg.de/en/master-neuroscience.de
- For more information please contact the program directors master-neuroscience@uni-oldenburg.de or the student body fachschaft-neuroscience@uni-oldenburg.de

neu600 – Neuroscience Research Projects offered 2019/20

No.	**Project** (Preliminary list, please check Stud.IP for updates)	**Teacher**
6.03.613	Human Genetics - Exploration of rare monogenic brain malformations in children using high-throughput and classical sequencing techniques	Owczarek-Lipska, Marta
6.03.614	Human Genetics - Developing therapies to treat splice defect	Jüschke, Christoph, Neidhardt, John
6.03.615	Mutation identification, pathogenic mechanisms and therapy development	Neidhardt, John
6.03.616	Human Genetics - Severe diseases of the cilium: signal transduction and treatment options	Neidhardt, John
6.03.617	Human Genetics - Transcriptome and Exome analyses in neuronal and neurosensory diseases	Neidhardt, John, Jüschke, Christoph
6.03.620	Animal Physiology & Behaviour: Auditory perception studies	Klump, Georg Martin, Langemann, Ulrike
6.03.621	Animal Physiology & Behaviour: Modeling the auditory system	Klump, Georg Martin, Langemann, Ulrike
6.03.630	Biochemistry: Protein function in neurosensory systems	Koch, Karl-Wilhelm Scholten, Alexander
6.03.640	Cochlea and auditory brainstem physiology: Lab project in auditory neuroscience	Köppl, Christine
6.03.641	Cochlear/Brainstem Physiology: Brainstem Physiology	Sienknecht, Ulrike
6.03.650	Computational Neuroscience: Invertebrate somatosensory system	Kretzberg, Jutta
6.03.651	Computational Neuroscience: Modeling & data analysis	Kretzberg, Jutta, Ashida, Go
6.03.660	Neurogenetics - Structure-function analyses of the potassium chloride cotransporter KCC2	Hartmann, Anna-Maria
6.03.661	Neurogenetics - Evolution of the auditory system	Claußen, Maike, Ebbers, Lena
6.03.662	Neurogenetics - Analysis of mouse models for deafness	Ebbers, Lena, Claußen, Maike
6.03.665	Auditory Perception - Physiology & Modeling	Dietz, Mathias
6.03.670	Visual neuroscience – Retinal Anatomy	Puller, Christian, Greschner, Martin
6.03.671	Visual neuroscience - physiology / data analysis	Greschner, Martin

		Puller, Christian
6.03.675	Visual neuroscience - Molecular mechanisms and cellular networks involved in signal transduction in the vertebrate retina	Janssen-Bienhold, Ulrike
6.03.676	Visual neuroscience - Molecular and cellular basis of regeneration in the peripheral nervous system	Janssen-Bienhold, Ulrike
6.03.680	Neurosensorics - Vertebrate retina: Immunohistochemistry, intracellular dye injections, microscopy and image analysis	Dedek, Karin
6.03.685	Anatomy - Molecular and cellular mechanisms of neuronal differentiation	Bräuer, Anja
6.03.690	Computational Audition - Statistical data analysis	Anemüller, Jörn

Planned time slots for M.Sc. Neuroscience modules in winter term 2019 / 2020 - please check homepage / stud.IP for updates!

no.	Module	ECTS	Week 1 14.-18.10.	Week 2 21.-25.10.	Week 3 28.10-1.11	Week 4 04.-08.11.	Week 5 11.-15.11.	Week 6 18.-22.11.	Week 7 25.-29.11	Week 8 02.-05.12.	Week 9 09.-13.12.	Week 10 16.-20.12.	Week 11 06.-10.01.	Week 12 13.-17.01.	Week 13 20.-24.01.	Week 14 27.-31.01.	"break" 04.-07.02.	"break" 10.-14.02.	"break" 17.-21.02.	"break" 24.-.28.02	"break" 02.-06.03.	"break" 09.-13.03	"break" 16.-20.03.	"break" 23.-27.03.	"break" 30.3.-03.4.	"break" 06.-10.04.
6.30. 712	Basics of neuroscientific data analysis with Matlab	0	Tue 8.30-12, Thu 8.30-10 & 12-14 (together with neu710)														**Note:** The courses 6.30.712 and 6.02.001 cannot be credited. The combination of the courses can be used to fulfil the requirement of obtaining additional statistics / programming background for conditional admission. Students without this requirement are welcome to join if they want to obtain some additional programming and / or statistics background.									
6.02. 001	Introductory Statistics	0		Fr 10-16		Fr 10-16		Fr 10-16																		
neu350	Biological Foundations of Neuroscience	6 / 0	Mo 10-14, Mi 10-14 lecture / seminar														**Note:** If neu350 is taken to fulfil the requirement of an additional neuroscience course for conditional admission, it is not credited and not graded. For students without the requirement it is a graded 6 ECTS module.									
neu710	Neuroscientific data analysis in Matlab	6	Tue 8.30-12, Thu 8-10 & 12-14 lecture / computer exercise																							
neu305	Essentials fMRI data analysis SPM/FSL	6	Mo 14-18, Mi 16-18, Fr 14-18 seminar / computer exercises																							
bio845	Introduction Development & Evolution	6	Mo-Thu 9-13 lecture / seminar																							
bio846	Lab Exercises Development & Evolution	6					Mo-Fr 8.00-16 lab																			
bio605	Molecular genetics & cell biology	12	Mo-Fr 8-18 lab / lecture			Mo, Tue, Thu 8-10 & Fr 8-13 lecture / seminar																				
neu320	Introduction to Neurophysics	6	Tue & Thu 16-18 lecture / seminar																							
neu790	Communicating Neuroscience	3	Fr 12-14 seminar																							
bio695	Biochemical concepts signal transduction	12								Mo-Fr 10-12 lecture / seminar			Mo-Fr 9-18 lab													
neu241	Computational neuroscience - Introduction	12								Mo-Thu 9-16, Fr 9-12 lecture / computer ex.			Mo-Thu 9-16, Fr 9-12 lecture / computer exercises													
neu210	Neurosensory Science & Behavior	9								Mo 10-14, Tue 8-10 & 12-16, Thu 10-12 lecture / seminar																
neu220	Neurocognition & Psychopharmacology	6								Mo 8-10, Tue 10-12, Thu 8-10 & 14-16, lecture / seminar																
neu280	Research Techniques in Neuroscience	6 / 0	**Note:** If neu280 is taken to fulfil the requirement of an additional neuroscience course for conditional admission, it is not credited and not graded. For students without the requirement it is a graded 6 ECTS module.																Mo-Thu 09-17 lecture & lab							
neu751	Lab Animal Science	3											Thu 18-20 + exam preparation				Mo-Fr 8-17 lab									
neu780	Introduction to Data Analysis with Python	6 / 0	**Note:** If neu780 is taken to fulfil the requirement of an additional programming course for conditional admission, it is not credited and not graded. For students without the requirement it is a graded 6 ECTS module.																		full-time lecture / computer exercises					
neu760	Scientific English	6																			Mo -Fr 9-16 seminar					
neu810	International Meeting Contribution	3	any time, poster or oral presentation at international conference, workshop or summer school																							
neu600	Neuroscience Research Project	15	any time for 7 weeks full-time or part-time options																							
neu610	External Research Project	15	any time for 7 weeks full-time or part-time options																							
mam	Master Thesis Module	30	any time for max. 6 months																							
	All summer term modules & career day																									intro meetings
	Intensive German Courses																				full-time German courses by university language center, can be credited, but not graded (6 ECTS)					

Background and skills modules you might want to consider if you are interested in…

A broad overview of neuroscience topics and methods:

neu350	Biological Foundations of Neuroscience
neu280	Research Techniques in Neuroscience
neu210	Neurosensory Science & Behaviour
neu790	Communicating Neuroscience
neu751	Laboratory Animal Science

The cognitive / behavioral level of neuroscience:

neu210	Neurosensory Science & Behaviour
neu220	Neurocognition & Psychopharmacology
neu310	Psychophysics of Hearing
neu300	Functional MRI Data Analysis
neu305	Essentials fMRI data analysis SPM/FSL

The cellular / network level of neuroscience:

neu141	Visual Neuroscience - Physiology & Anatomy
neu340	Invertebrate Neuroscience
neu345	Computation in Invertebrate Systems
neu320	Introduction to Neurophysics
neu241	Computational Neuroscience – Introduction

The molecular level of neuroscience:

bio605	Molecular Genetics & Cell Biology
bio695	Biochemical Concepts in Signal Transduction
neu150	Visual Neuroscience: Anatomy
bio845	Introduction Development & Evolution
bio846	Lab Exercise in Development & Evolution
neu290	Biophysics of Sensory Reception
neu740	Molecular Mechanisms of Ageing

Computational neuroscience:

neu241	Computational Neuroscience– Introduction
neu250	Computational Neuroscience- Statistical Learning
neu320	Introduction to Neurophysics
neu345	Computation in invertebrate systems
neu710	Neuroscientific Data Analysis in Matlab

Sensory systems:

neu141	Visual Neuroscience: Physiology & Anatomy
neu150	Visual Neuroscience: Anatomy
neu360	Auditory Neuroscience
neu310	Psychophysics of Hearing
neu290	Biophysics of Sensory Reception
neu370	Neuroprosthetics

Neurobiology:

neu350	Biological Foundations of Neuroscience
bio845	Introduction Development & Evolution
bio846	Lab Exercise in Devolopment & Evolution
neu210	Neurosensory Science & Behaviour
neu360	Auditory Neuroscience
neu340	Invertebrate Neuroscience

Human neuroscience:

neu300	Functional MRI Data Analysis
neu305	Essentials fMRI data analysis SPM/FSL
neu220	Neurocognition & Psychopharmacology
neu310	Psychophysics of Hearing
neu370	Neuroprosthetics
neu740	Molecular Mechanisms of Ageing

Clinical aspects of neuroscience:

neu370	Neuroprosthetics
neu220	Neurocognition & Psychopharmacology
bio605	Molecular Genetics & Cell Biology
neu280	Research Techniques in Neuroscience
neu740	Molecular Mechanisms of Ageing

Ethical aspects of neuroscience:

neu790	Communicating Neuroscience
neu730	Biowissenschaften i. d. gesellschaftlichen Debatte
neu740	Molecular Mechanisms of Ageing
neu751	Laboratory Animal Science
neu340	Invertebrate Neuroscience

Data analysis techniques:

neu305	Essentials fMRI data analysis SPM/FSL
neu300	Functional MRI Data Analysis
neu241	Computational Neuroscience – Introduction
neu250	Computational Neuroscience - Statistical Learning
neu710	Neuroscientific Data Analysis in Matlab
neu780	Introduction Data Analysis with Python
neu720	Statistical Programming in R
6.02.001	*Introductory statistics (uncredited)*

Science Communication:

neu790	Communicating Neuroscience
neu760	Scientific English
neu810	International Meeting Contribution
neu730	Biowissenschaften i. d. gesellschaftlichen Debatte
neu740	Molecular Mechanisms of Ageing

Neuroscience Student Body
University of Oldenburg

Important keywords for the Master's program *Neuroscience*

We as the Student Body Neuroscience thought you would appreciate a first glimpse of what you might be dealing with while studying Neuroscience in Oldenburg. That's why we came up with a keyword list.

This keyword list is intended to provide an overview of some of the most important keywords for different topics of the Master's program. This **does not** mean that all these terms are relevant to each student or that all of these keywords must be known before the beginning of the program! The list should only offer the possibility of an individual preparation for the upcoming study program if things are unknown and students are willing to prepare.

Category	Keywords
Biology	Action potential
	Diffusion, osmosis
	DNA, RNA
	Receptors (types)
	Second messenger
	Synapse (electrical/chemical)
	Membrane potential
	Cochlea
	Retina
	Neuron
	Patch-clamp method
	Neurotransmitter

	Basic neuroanatomy
	Proteins
	PCR
	Transfection
Programming	Basic MATLAB knowledge → https://www.mathworks.com/training-schedule/matlab-onramp.html or first chapters of 'MATLAB for Neuroscientists' by Pascal Wallisch
	Variable
	'=' as an operator (assign right side to left side of '=')
	Scalar, vector, matrix, element
	Basic matrix operations (e.g. vector/matrix multiplication)
	Index/indexing (data access)
	Data types (integer, double, float, array, cell, structure, table, logical)
	If-condition (if/else)
	Loop (for/while)
	Iteration (of loops)
	Control variable (in for-loops)
	Figure, plot
	Handle
	Function (algorithm with input/output)
	Script
	Toolbox
Statistics	Mean, median, modus
	Standard deviation, variance, standard error
	Data visualization (boxplot, histogram)
	Distributions (nd, poisson, t)
	Idea of hypothesis testing
	Law of large numbers
	Central limit theorem

	Concepts of Bayesian statistics
	Concepts of regression analysis
	Concepts of probability theory
	Idea of power analysis
	Effect size measures
	P-value
	Multiple comparison correction methods
	Confidence intervals
	Concepts of combinatorics
	Alpha and beta error
	Notations (sigma, sums etc.)
	Definition of "Parameter"
Cognitive Neuroscience	fMRI
	EEG
	Conditioning
	Functional specialization vs. distributed processing
	Selective attention
	Different forms of memory
	Theory of mind
	Sensitization & tolerance
	Long-term potentiation

MASTER PROGRAM NEUROSCIENCE
UNIVERSITY OF OLDENBURG

Information for international students

Dear international students,

We are look forward to welcome you to Oldenburg as new addition to our international study program!

Please note that you should register at the **registrar's office** as soon as possible after your arrival to make sure that you receive your Stud.IP login before the start of the courses. Prior to enrollment, you need to open a bank account and obtain German health insurance (see next page for advice).

In addition to the neuroscience student body and the program organizers, two institutions of University of Oldenburg can help you with taking care of your specific needs and interests:

International student office (ISO): http://www.uni-oldenburg.de/en/iso/

The international student office offers information on organizing your stay and studying in Oldenburg, costs and scholarships etc.
Moreover, they organize an **International Orientation Week** for all new international students: September 30 – October 4, 2019
Please check their website for program updates:
http://www.uni-oldenburg.de/en/iso/study/life-in-oldenburg/international-orientation/

Language Center: www.uol.de/en/school3/language-centre/languages/
The language center offers a wide variety of language courses. In order to find out your language level, you must take a placement test offered at the beginning of the semester. Regular German courses take place 6 hours a week during the semester, but they are often difficult to combine with M.Sc. neuroscience modules. Therefore, we recommend intensive German language courses, comprising a total of 100 hours, which take place in September and March.
http://www.uni-oldenburg.de/en/intensivkurse-deutsch/
The participation costs of € 250 for one German course will be covered by the M.Sc. program and 6 ECTS (ungraded) can be credited as free choice course.

Opening a German bank account:

The most common and student friendly bank is Landessparkasse. An appointment must be made in order to open up an account.

Things to take to the appointment are:

- Passport
- acceptance letter from the university/enrollment confirmation
- proof of accomodation.

Proof of enrollment as a student needs to be submitted later after enrollment to change from a regular bank account to a 'block account'.

Other options for bank accounts: You can also use international online banks like N26, which has multiple language options. You can look into other options at https://nomadgate.com/best-banks-international-travel/ .

Obtaining German health insurance:

Things you will need:

- German bank account
- Two Passport Photos
- Passport
- Acceptance Letter
- Proof of Undergraduate Education
  - *Note:* It is very important that your document shows the year that you started university and the year that you ended. Most transcripts will have the starting semester and year on them).

If applying in person:

Bring the information above to an office of the insurance company, and they will help you with the enrollment. When you leave, you will have a document that you can use for enrollment to Oldenburg University. Once you receive your "Immatrikulations-Bescheinigung" after you complete your enrollment with Oldenburg University, you will send this to the insurance company. They will then tell you the next steps in completing your insurance (giving them your passport photos for an insurance card, etc.).

If applying from abroad:

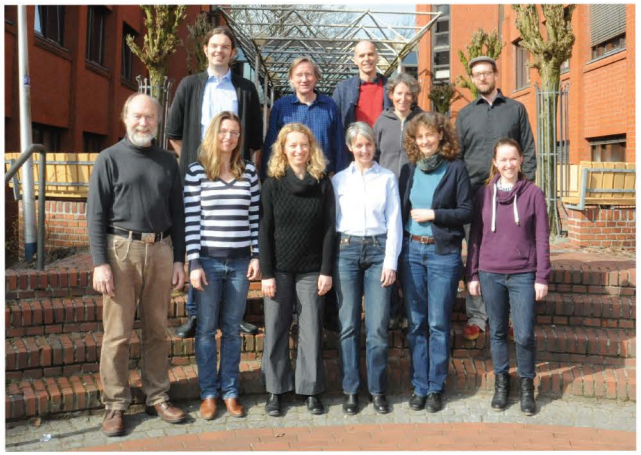
Simply request a Student Insurance application from the insurance company of choice. If the company asks for Proof of Enrollment, send them a copy of your acceptance letter. Just like if you are applying in person, once you receive your "Immatrikulations-Bescheinigung" after you complete your enrollment with Oldenburg Universität, you will send this to the insurance company. They will then tell you the next steps in completing your insurance (giving them your passport photos for an insurance card, etc.).

Notes:

- The most common public insurance company for international students is TK. There is an office located on the Main Campus.
- If you choose to go with a private company, then you will need to get a letter of exemption from a German insurance company.

FACULTY

The Master program Neuroscience is jointly hosted by the School of Mathematics and Science and by the School of Medicine and Health Sciences. Our interdisciplinary faculty comes from the departments Neuroscience, Biology & Environmental Science, Psychology, Human Medicine and Medical Physics & Acoustics.



STUDENT BODY

We represent and support all Master Neuroscience students and take an active role in shaping the program. Please do not hesitate to contact us!

APPLICATION

Application Requirements

- B.Sc. in Neuroscience, Biology, Psychology, Computer Science, Engineering or other related discipline.
- Completed at least 12 ECTS courses in neuroscience and 12 ECTS courses in mathematics / statistics / programming. 6 ECTS of these 24 ECTS can be completed after admission to the program.

- Proof of English proficiency, level B2.

- Motivation letter, written in English.

Application Procedure

Applicants with German entrance qualification
Application period May 1 - 31
www.uni-oldenburg.de/i-amt

International applicants
Applications should be filed by March 31
www.uni-assist.de

Admission will be given to the best students, depending on final grade. Additional bonus points can be earned by internships or participation in neuroscience projects, scientific publications or awards, at least one semester study abroad, social engagement or volunteer work.

Information

Master program homepage
www.uni-oldenburg.de/en/master-neuroscience
master-neuroscience@uni-oldenburg.de
Student body
www.uni-oldenburg.de/en/student-body-neuroscience
fachschaft.neuroscience@uni-oldenburg.de
General questions regarding studies in Oldenburg
www.zsb.uni-oldenburg.de
studienberatung@uni-oldenburg.de

CARL VON OSSIETZKY universität OLDENBURG

MASTER PROGRAM NEUROSCIENCE

Focused on sensory systems

MASTER PROGRAM NEUROSCIENCE
UNIVERSITY OF OLDENBURG

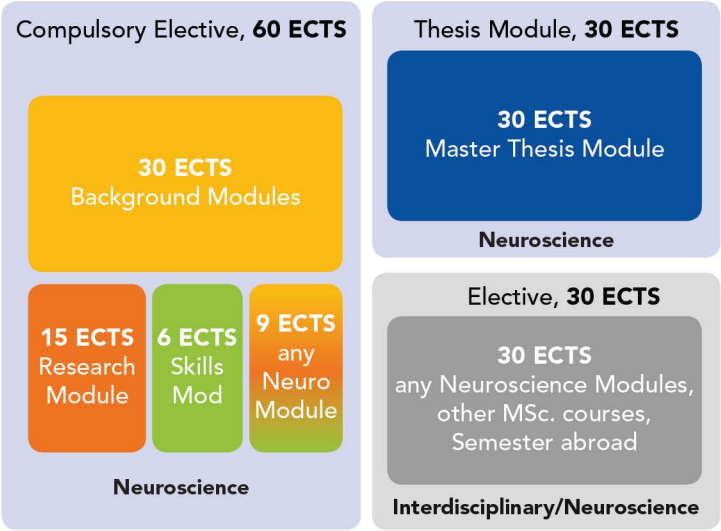
www.uni-oldenburg.de/en/master-neuroscience

WHY STUDY NEUROSCIENCE IN OLDENBURG?

Focus: Sensory systems
Levels: From molecule to behavior
Science-oriented: Individual student research projects
Skills-oriented: Specific skills courses complement the scientific education
Hands-on: Almost all courses include lab time or exercises
Intensive: Block courses focus on one topic at a time
International: All courses in English, optional semester / research project abroad
Interdisciplinary: Teachers & students with mixed backgrounds, joint courses in Biology & Psychology
Flexible: Individual study plans, wide choice of courses
Personal: Small groups, close contact to teacher-scientists
Future perspectives in Oldenburg: PhD Neurosensory Science & Systems, Research Center Neurosensory Sciences, Cluster of Excellence Hearing4all, graduate schools, collaborative science projects

CURRICULUM

The program takes 2 years to achieve 120 ECTS. There are no mandatory courses except for the master thesis.



BACKGROUND MODULES

Provide background knowledge on a neuroscientific topic. Courses for 8 - 20 students are organized in full-time blocks of 2 - 7 weeks and usually consist of lecture, seminar and hands-on practicals. Modules can be chosen in any combination.

Background module topics	**30 – 69 ECTS**
Biological background, research techniques	6 + 6
Molecular & cellular biology, biochemistry	12 + 12
Behavior & cognitive neuroscience	9 + 6
Computational neuroscience	12 + 6
Auditory neuroscience	12 + 6
Visual neuroscience	12 or 6
Invertebrate neuroscience	6 + 6
Development & evolution	9 + 6
Neurophysics & biophysics of reception	6 + 6
fMRI data analysis	12 or 6

RESEARCH MODULES

Are individual student research projects on a variety of different topics in the supervisor's lab at the University of Oldenburg or in any international neuroscience research lab. The aim is to practice independent research, including experiments, background literature and presentation of results. Lab time lasts 6-8 weeks.

Projects on all background module topics 15 – 45 ECTS

Research Module in Oldenburg or external 15 + 15 + 15

SKILLS MODULES

Professional skills are developed in courses for up to 25 students.

Skills module topics	**6 – 45 ECTS**
Data analysis in Matlab, Python, R	6 + 6 + 6
Bioethics, seminars in ageing	6 + 6
Scientific English	6
Science communication	3 + 3
Lab animal science	3

ELECTIVE

30 ECTS (one semester) can be chosen from:

- All courses of the M.Sc. Neuroscience curriculum
- Courses of related Master programs, e.g. Biology, Neurocognitive Psychology, Audiology, Computer Science
- Up to one semester at an international university

MASTER PROGRAM NEUROSCIENCE
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