Congratulations, dear prospective neuroscience student!

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

Due to the Corona pandemic, the University of Oldenburg will have a 'hybrid semester,' with most theoretical courses held online and only some course components (e.g. lab or computer exercises) being taught on campus in smaller groups. We will make sure that **students who are unable to move to Oldenburg or in quarantine can start studying online.** Due to the massive use of online tools for teaching, you will need a laptop with a microphone, headphones, and a camera to participate in video conferences and work on course assignments.

However: Master Neuroscience is NOT an online program. We strongly recommend moving to Oldenburg by early October, or at the next possible date. Otherwise, you will miss the orientation week (12.-16.10.2020), and your choice of modules will be severely limited to the modules without mandatory on-site components. Moreover, the quality of some courses will be improved by optional on-campus components. Many modules will have written exams in December or February, which require your presence on campus. In particular, if you have a conditional admission with the requirement to take an additional neuroscience course, you need to arrive in Oldenburg in February at the very latest, or you will not be able to continue your studies.

With this **information package**, we (the Student Body Neuroscience and I, as the head of the program) would like to help you with your decision if you want to study Neuroscience in Oldenburg.

Pages 3-4: The current situation in Germany and at the University of Oldenburg concerning the **Corona pandemic**

Pages 5-6: The **Master Neuroscience orientation week**

Pages 7-15: The **structure of the program** and **curriculum**. Please note that all time slots for the 'hybrid semester' are still preliminary plans.

Pages 16-20: A **list of keywords to prepare your studies** and **specific information for international students**

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

We are looking forward to meeting you soon 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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Jutta.Kretzberg@uni-oldenburg.de
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HOMEPAGE
http://www.uol.de/en/master-neuroscience/

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Carl-von-Ossietzky-Str. 9-11
D-26129 Oldenburg
Germany

OLDENBURG, 6th of July 2020

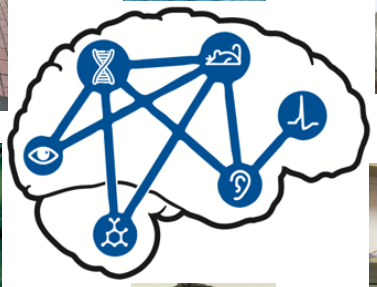
Neuroscience Student Body
University of Oldenburg

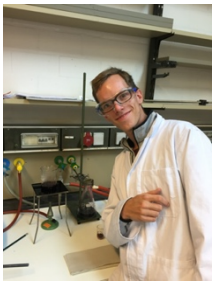
4th of July 2020

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 12th to 16th**. 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/

Corona Information

In times of a global pandemic, it is very difficult to make reliable plans. Regulations on what is allowed in public places and in the university change on a weekly or even daily basis depending on the global and local situation. Therefore, we are not able to provide reliable information for October yet. The international office of the University of Oldenburg will soon provide frequently updated information on the Corona situation for international students: https://uol.de/en/io/studieren

The general situation in Germany

Fortunately, Germany was not hit as hard by the Corona pandemic as many other countries worldwide (and city of Oldenburg had low infection rates, even for German standards). The German health system is quite powerful (everybody has health insurance, and there are enough doctors and hospitals to deal with many infections simultaneously), and Germany imposed strict contact restrictions. These are now relaxed, but people still have to keep a distance of 1.5 m, wearing a mask is mandatory when entering a shop, and in Lower Saxony (the federal state, in which Oldenburg is located) only 10 people are allowed to meet in public places (e.g. a restaurant). However, the exact hygiene measures differ between federal states. Generally, a lockdown with travel and contact restrictions is imposed for two weeks to regions in which more than 50 out of 100 000 people were infected within 7 days.

Moving to Germany

In Germany, the Robert Koch Institute is responsible for continuously monitoring the global pandemic situation. They provide a frequently updated list of international risk areas: https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Risikogebiete_neu.html (Download of English version at the bottom of the page). People entering Germany, who have spent time in a risk area within 14 days prior to entry, may be subject to quarantine. If you travel to Oldenburg from a risk area, you need to contact the health office immediately after your arrival. Please refer to https://uol.de/en/io/studieren for further instructions.

University of Oldenburg: 'Hybrid Semester'

The University of Oldenburg developed a hygiene concept to prevent the spreading of the disease amongst students and staff. The next page shows a summary of the general hygiene rules on campus, the university homepage provides more detailed information: https://uol.de/en/info-coronavirus

After an 'online semester' from April to July 2020, the winter term will be a 'hybrid semester' with theoretical courses being held mostly online, while lab work is allowed on campus with drastically reduced group sizes. Please find the list of online and on-site components of the neuroscience modules on page 11 and check for updates on our homepage: https://uol.de/en/master-neuroscience

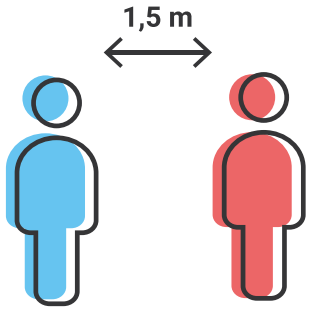
Attendance on campus is mandatory for lab exercises and for written exams. Members of risk groups (with a medical certificate) or those in quarantine will be able to take the exam in a different format (e.g. oral exam via video conference).

CARL VON OSSIETZKY universität OLDENBURG

Hygiene Rules on Campus

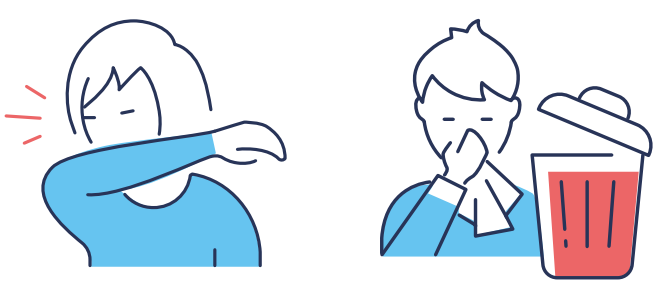
The corona pandemic requires special precautions and utmost vigilance.
Please adhere to the following principles:

If you are ill and/or are experiencing cold-like symptoms, you must not enter the university's premises. The same applies to pregnant women, nursing mothers, and individuals who are at a higher risk of the disease progressing severely.

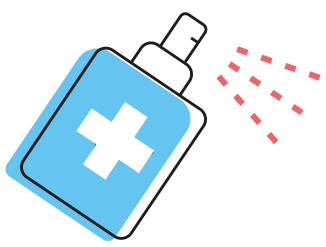


Maintain a safe distance between yourself and others across campus.* Small rooms may be entered and used by only one person at a time.

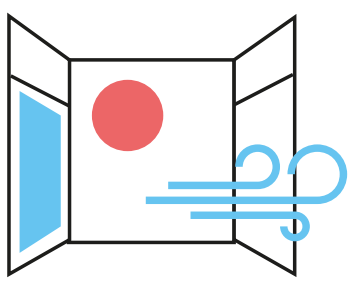
Frequently wash your hands with soap for at least 30 seconds or disinfect them: upon arriving in or returning to a facility, prior to using common areas, after using shared appliances and objects, etc.



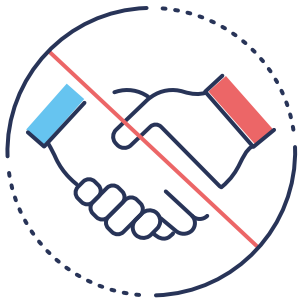
Sneeze or cough into a tissue or your bent elbow. Please keep your distance to other people.



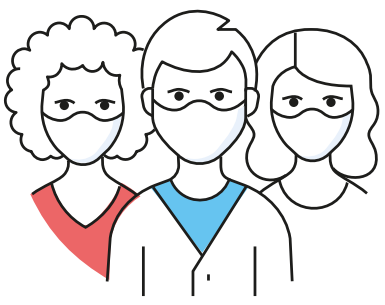
Clean/disinfect shared surfaces after each use. Do not share dish towels or similar items.



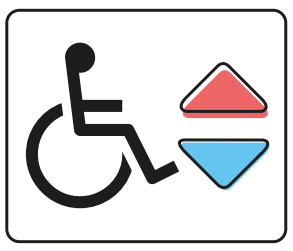
Air out rooms regularly, at least once an hour for 5 minutes.* If several people were present in a room, open windows immediately thereafter.



Reduce social contact to a minimum and keep a safe distance. Hallways or other areas should not be used by several people simultaneously.



Please wear a mask covering your nose and mouth in all high-traffic areas (e.g. entrances, hallways, and stairwells). *



Elevators may only be used by persons with reduced mobility and for transporting heavy loads. Please keep a safe distance.

* Laboratories and a number of other workplaces are subject to special rules which take particular conditions and work environments into account. These rules will be communicated by the respective individuals in charge.

The current guidelines for proper conduct issued by the university (Explanatory Notes on Special Operations) apply.

More information: **uol.de/en/info-coronavirus**

MASTER PROGRAM NEUROSCIENCE
UNIVERSITY OF OLDENBURG

Orientation Week

Monday 12th to Friday 16th of October 2020

Usually, the student body, the program coordinator, and the lecturers welcome the new students with a reception and a full week of information and social interaction events… and we would love to do so again this year! However, the Corona rules will not allow us to have big events with all students and all teachers in the same room – in particular, we will not be allowed to eat, drink, chat, and play board games inside of the University building as we usually would do. Instead, we plan a '**hybrid orientation week**' consisting of:

Virtual Orientation Week

University of Oldenburg will create a special website for first semester students. The address and the password of this website will be sent to all new students who enroll. This will be the central starting point for the new students to find information on their study program and University of Oldenburg. We plan to provide for you:

Information resources for download:

- General information on the program and tips on how to design your individual curriculum
- An introduction to Stud.IP, the learning platform of University of Oldenburg
- Specific information for each individual module, provided by the responsible teacher
- Specific information on student research projects offered by the individual research groups

Online-events for virtual interaction:

- Streaming of the on-site welcoming event for students who are not able to join
- A virtual meeting room to meet and chat with the other neuroscience students
- Individual timeslots for each student to discuss your **individual curriculum** with the program coordinator and / or members of the student body via **video conference**.

On-Campus Orientation Week

The University requires a hygiene concept for all kinds of events that are held on campus. We still need to get this concept approved and apply for a university room. And even after approval plans can change on short notice due to changes of Corona regulations in Germany, the state of Lower Saxony, or University of Oldenburg. Therefore:

Please check https://uol.de/en/master-neuroscience for updates!

Our current plans include:

- A **welcoming event on campus on Monday, October 12th** by the student body and the program coordinator giving an overview of the study program
- A campus tour in smaller groups after the welcoming event
- A pub night (in the city center)
- A meeting on campus on Friday, October 16th to discuss the planned individual curricula and find teamwork groups for the different modules

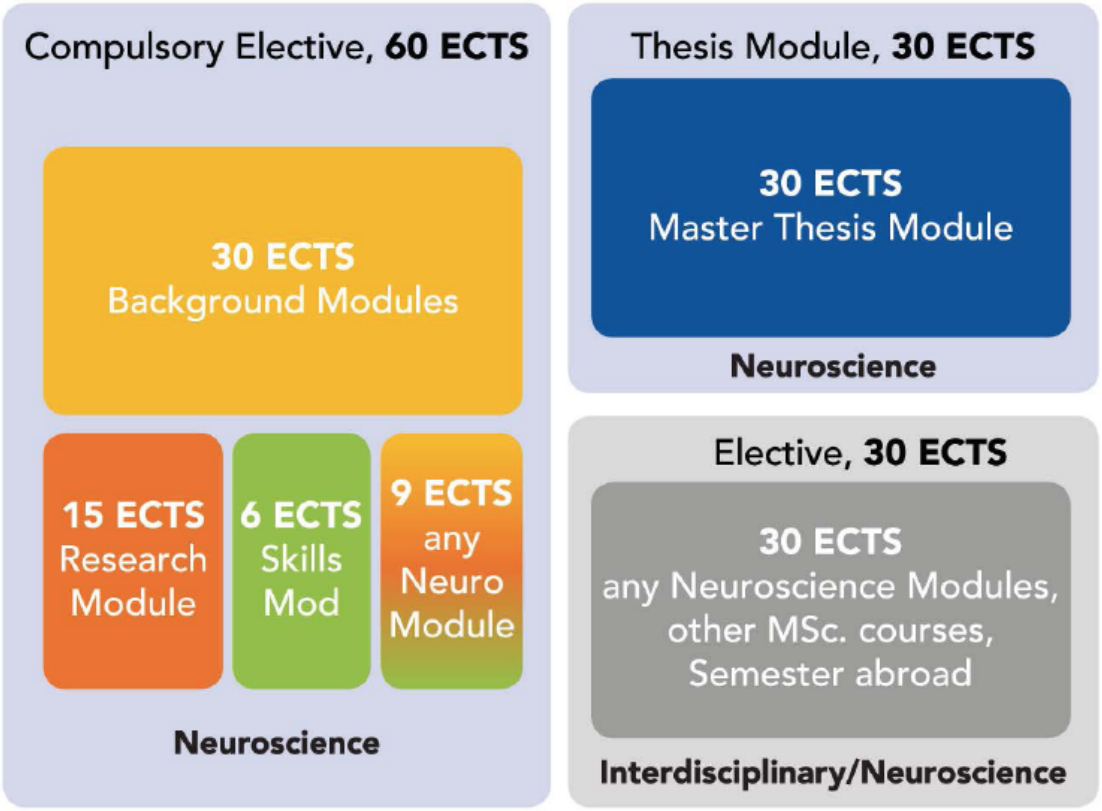
Orientation Week (WS 2019/20)*

Monday 07.10.2019	Tuesday 08.10.2019	Wednesday 09.10.2019	Thursday 10.10.2019	Friday 11.10.2019
13:00 - 14:00 **Welcoming & Program Overview** W4-01-162 14:00 - 14:50 **Campus Tour** W04 Ringebene 15:00 - 16:00 **Introduction to Neuroscience Research Modules** W04-01-162 16:00 - 17:00 **Introduction to Biology Research Modules** W04-01-162 17:00 **Welcome Reception** W04 Ringebene	9:00 - 13:00 **Module Instructions (Neuroscience Skills)** W03-01-152 17:00 **City tour & Pub Crawl** Gathering place (TBD)	13:00 - 17:00 **Module Instructions (Neuroscience)** W04-01-162	9:00 - 13:00 **Module Instructions (Biology)** W04-01-162 13:15 - 14:00 **Lab safety Instructions** W03-01-161	10:30 - 14:00 **Breakfast, Stud.IP introduction & planning your Curriculum** W03-01-152 17:00 - 22:00 **Gaming Night** W03-01-152

*Due to the current situation, there is no orientation week schedule yet, this is from the previous year to provide an idea. The schedule will be conveyed once decided.

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 (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 M.Sc. Neuroscience curriculum of any module type.
- 30 ECTS free choice – Any modules from the M.Sc. Neuroscience curriculum, or courses from other Master's programs (M.Sc. Neurosciences at the University of Bremen, M.Sc. Neurocognitive Psychology, selected modules of other programs) or from studies abroad. Up to 6 ECTS (ungraded) can come from a language course.
- 30 ECTS Master's thesis.

General structure

The M.Sc. Neuroscience at the University of Oldenburg is **NOT an online program! We strongly recommend arriving in Oldenburg before the orientation week.** Only when you are here can you meet your fellow students in person, enjoy teamwork, and attend classroom and lab components of your courses and have the free choice of modules to study. However, we re-structured our program in a way that students who cannot move to Oldenburg until mid-October, because of visa issues or Corona regulations, can start with online courses this year. But please make sure to arrive in Oldenburg before the first mandatory lab work or written exam takes place in the modules of your choice. Otherwise, you will not be able to pass your modules and get the credit points for your first semester!

The general study structure of the M.Sc. Neuroscience program is organized in **block courses**. The semester (14 weeks) is sub-divided into two halves of 7 weeks, which can be further split into blocks of 3 weeks duration. Usually, you take **only one** background module or one research module at the same time. However, there are some exceptions to that rule. E.g. the combination of the modules 'Biological Foundation of Neuroscience' and 'Neuroscientific data analysis in Matlab' are the standard choice of first semester students in the first half of the winter term. Some courses, which stretch over the entire semester and are conducted in the afternoons can be combined with the blocked courses.

Please find attached the **list of all M.Sc. Neuroscience modules** and their **preliminary planned course times** in winter term 2020/21. Due to the unclear situation in times during a pandemic, the plans for all modules with on-campus course elements might change (maybe even on very short notice). Please check our **program homepage** https://uol.de/en/master-neuroscience frequently for updates on the semester plan and the orientation week!

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. We will provide detailed information on the modules on the orientation homepage (the link will be sent to you after enrollment). During the orientation week, you will also get the chance to discuss your curriculum individually with the program coordinator and / or student body members. Once you decide to take a particular module, please register as soon as possible for the corresponding courses to help the lecturers plan the course organization.

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' online orientation**, you will have the chance to get an overview of the Neuroscience research topics in Oldenburg. 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. Please find the list of research module options attached. If you plan to do a project that requires animal handling, you are legally required to take the 'lab animal science' course before starting the project.

For more information on the Neuroscience program, please see our program home page http://www.uni-oldenburg.de/en/master-neuroscience/
or contact the program director (jutta.kretzberg@uol.de) or the student body (fachschaft.neuroscience@uol.de)

Study abroad

Many students in our program choose to **study abroad** for some months. The most common way to do so is 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 the University of Oldenburg agrees to supervise and evaluate the project.

The second frequently used the opportunity to go abroad is the fellowship program of our partner University in Marseille (France): https://neuro-marseille.org/en/ and there are also some more general exchange programs offered by University of Oldenburg.

All students of University of Oldenburg can apply for a mobility grant of the University https://uol.de/en/io/going-abroad/financing/fernweh-grant
In recent years, our program also provided an international mobility grant of up to 400 Euros for each Master Neuroscience student who studied abroad or presented a poster or a talk at an international scientific meeting. However, it is undecided if the program can afford to continue this financial support for all students.

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 during your first year (and hence gain 126 instead of 120 ECTS until the end of your studies). However, the grade and the ECTS for this additional course 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).
- Alternatively, if you are unable to pass this course (e.g. if you miss the written exam because of a 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 (19.10.-27.11.2021). (These courses are no modules in M.Sc. neuroscience and are NOT credited, but students who want to get some additional background without the requirement are welcome to join.)
- If you are unable to pass these two courses, you need to pass the module "neu780 Introduction to Data Analysis with Python" (6 ECTS) at the end of your first semester (22.02.-05.03.2021). Please note that this module is planned as classroom teaching, and places will be very limited!

List of all M.Sc. Neuroscience Modules (year 2020/21) https://uol.de/en/master-neuroscience/

	NR	Module	Teachers	Winter Semester		Semester break	Summer Semester		Semester break
				1. Half	2. Half		1. Half	2. Half	
Background Modules	neu350	Biological Foundations of Neuroscience	Puller, Greschner, Hartmann, Koch et al	6 CP					
	bio845	Introduction Development & Evolution	Sienknecht, Nothwang, Köppl	6 CP					
	bio846	Lab Exercise in Devo & Evo	Sienknecht, Nothwang, Köppl		6 CP				
	bio605	Molecular Genetics & Cell Biology	Koch, Neidhardt	12 CP					
	neu320	Introduction to Neurophysics	Anemüller, Dietz	weekly course 6 CP					
	neu241	Computational Neurosci. - Introduction	Ashida, Kretzberg, Greschner		12 CP				
	bio695	Biochem. Conc. in Signal Transduct.	Koch, Scholten		12 CP				
	neu210	Neurosensory Science & Behaviour	Klump, Langemann, Mouritsen		9 CP				
	neu220	Neurocognition & Psychopharmacology	Thiel, Giessing		6 CP				
	neu280	Research Techniques in Neuroscience	Hartmann, Nothwang, Thiel, Neidhardt, et al			6 CP			
	neu141	Visual Neurosci. - Physiology & Anatomy	Greschner, Dedek, Janssen-Bienhold, Puller				12 CP		
	neu150	Visual Neurosci.: Anatomy	Janssen-Bienhold, Puller				6 CP		
	neu250	Comp. Neurosci. - Statistical Learning	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	Klump, Langemann					12 CP	
	neu300	Functional MRI Data Analysis	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	Kretzberg	6 CP					
	neu790	Communicating Neuroscience	Kretzberg, Köppl	weekly course 3 CP					
	neu730	Biowiss. i. d. gesellschaftl. Debatte	Köppl, Sienknecht				weekly course 6 CP		
	neu751	Laboratory Animal Science	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	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 ECTS Master Thesis Module
- 30 ECTS Background Modules
- 15 ECTS Research Modules
- 6 ECTS Skills Modules
- 9 ECTS any further module(s) from Neuroscience curriculum
- 30 ECTS free choice: any further Neuroscience module(s) or (subject to approval) courses from other M.Sc. programs, from other universities, or from abroad.

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. (They are not in this list, because they are no credited modules.)
- 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

Preliminary planned time slots for M.Sc. Neuroscience modules in winter term 2020 / 2021 (hybrid semester) - please check homepage / stud.IP for updates!

Lecture Seminar	Exer-cises	Exam	no.	Module	ECTS	Week 1 19.-23.10.	Week 2 26.-30.10.	Week 3 02.-06.11	Week 4 09.-13.11.	Week 5 16.-20.11.	Week 6 23.-27.11.	Week 7 30.11-4.12	Week 8 07.-11.12.	Week 9 14.-18.12.	Week 10 21./22.12. &6.-8.1.	Week 11 11.-15.01.	Week 12 18.-22.01.	Week 13 25.-29.01.	Week 14 01.-05.02.	"break" 08.-12.02.	"break" 15.-19.02.	"break" 22.-26.02.	"break" 01.-05.03	"break" 08.-12.03.	"break" 15.-19.03	"break" 22.-26.03.	"break" 29.3.-2.4.	"break" 05.-09.04.
			6.30. 712	Basics of neuroscientific data analysis with Matlab	0	2*2h lecture & 2*2h computer exercise (together with neu710)																						
			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 online lecture / online seminar																						
			neu710	Neuroscientific data analysis in Matlab	6	2*2h online lecture & 2*2 h computer exercise (presence not mandatory)																						
			bio845	Introduction Development & Evolution	6	Mo-Thu 9-13 online 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 / online lecture				Mo, Tue, Thu 8-10 & Fr 8-13 online lecture / seminar																		
			neu320	Introduction to Neurophysics	6	Tue & Thu 16-18 online lecture / online seminar																						
			neu790	Communicating Neuroscience	3	Fr 12-14 online seminar																						
			bio695	Biochemical concepts signal transduction	12								Mo-Fr 10-12 online lecture / seminar			Mo-Fr 9-18 lab												
			neu241	Computational neuroscience - Introduction	12								Mo-Thu 9-16, Fr 9-12 onl lecture / comp ex.			Mo-Thu 9-16, Fr 9-12 online lecture / computer exercises												
			neu210	Neurosensory Science & Behavior	9								Mo 10-14, Tue 8-10 & 12-16, Thu 10-12 online lecture / seminar															
			neu220	Neurocognition & Psychopharmacology	6								Mo 8-10, Tue 10-12, Thu 8-10 & 14-16, online 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 online 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 online 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																						

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.

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.

Module types: full-time courses with fixed time slots, take only one at a time; part-time courses with fixed time slots, which can be taken in parallel

Course types: online lecture / seminar, no presence necessary; classroom computer exercise / seminar, presence recommended but not mandatory; computer exercises, presence mandatory; lab work, presence mandatory

Examination types: electronic portfolio, no presence necessary; oral exam, can be taken in presence or online; written exam, presence mandatory

Please make sure to arrive in Oldenburg before your first course component (, or) for which your presence is mandatory!
If you arrive from a country outside of the European Union or a Corona hot spot, be prepared to spend 2 weeks in quarantine before you can enter the university!

neu600 – Neuroscience Research Projects offered 2020/21

No.	**Project** (Preliminary list, please check Stud.IP for updates)	**Teacher**
5.02.945	Navigation mechanisms in nocturnal bird migration	Heyers, Dominik, Mouritsen, Henrik
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	Human Genetics - 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: Evolutionary auditory neuroscience	Köppl, Christine
6.03.641	Cochlear and auditory brainstem physiology: Developmental neurobiology and evolution	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
6.03.670	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
6.03.691	Neurocognition and functional neurorehabilitation	Kranczioch-Debener, Cornelia
6.03.695	Linguistics in Dept. of Dutch - Psycholinguistics	Ruigendijk, Esther

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

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

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 Development & Evolution
neu210	Neurosensory Science & Behaviour
neu360	Auditory Neuroscience
neu340	Invertebrate Neuroscience

Human neuroscience:

neu300	Functional MRI Data Analysis
neu220	Neurocognition & Psychopharmacology
neu310	Psychophysics of Hearing
neu370	Neuroprosthetics

Clinical aspects of neuroscience:

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

Ethical aspects of neuroscience:

neu790	Communicating Neuroscience
neu730	Biowissenschaften i. d. gesellschaftlichen Debatte
neu751	Laboratory Animal Science
neu340	Invertebrate Neuroscience

Data analysis techniques:

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
6.02.001	*Introductory statistics (uncredited)*

Science Communication:

neu790	Communicating Neuroscience
neu760	Scientific English
neu810	International Meeting Contribution
neu730	Biowissenschaften i. d. gesellschaftlichen Debatte

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
	Extracellular/ intracellular recordings
	Ion channels
	Immunohistochemistry
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 (t-test; ANOVA)
	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, MEG
	Conditioning
	Functional specialization vs. distributed processing
	Selective attention
	Different forms of memory
	Theory of mind
	Sensitization & tolerance
	Long-term potentiation
	Neural circuit
	Nucleus (neuroanatomy)

MASTER PROGRAM NEUROSCIENCE
UNIVERSITY OF OLDENBURG

Information for international students

Dear international students,

We look forward to welcoming you to Oldenburg as a 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).

Though one might not miss upon lectures, **it is highly advisable to come to Oldenburg as soon as possible as** there are various things you still might miss upon including recruitment in the Neuroscience Student Body Council, which offers direct contact with the professors, university policies, admission and examination committee; direct access to the University library; practical courses taking place at the campus and Interaction with students, participation in university student life which includes gaming nights, sports, workshops.

In addition to the neuroscience student body and the program organizers, two institutions of the 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:
October 5 – October 9, 2020
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 a 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 accommodation.

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:

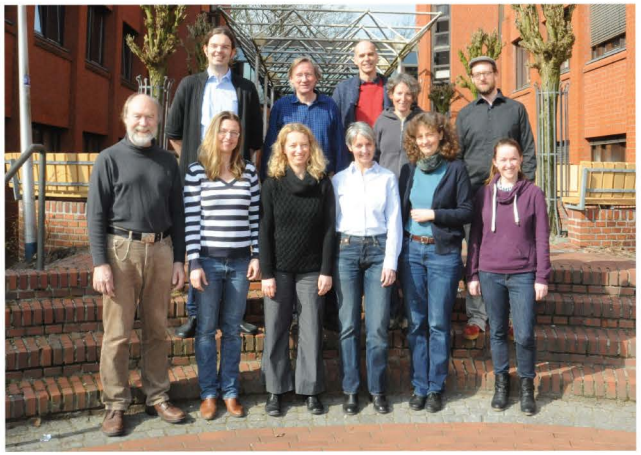
Simply request a Student Insurance application from the insurance company of choice. If the company asks for Proof of Enrollment, send them a copy of your ac- ceptance letter. Just like if you are applying in person, once you receive your "Im- matrikulations-Bescheinigung" after you complete your enrollment 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

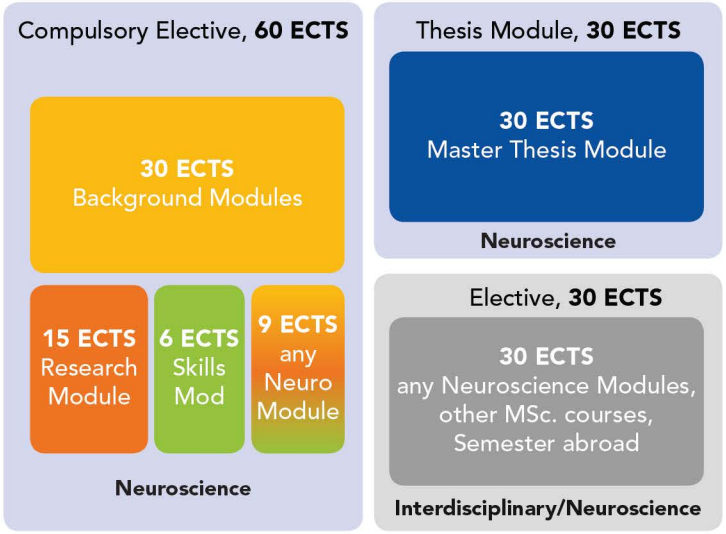
www.uni-oldenburg.de/en/master-neuroscience

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
UNIVERSITY OF OLDENBURG