



**Karolinska
Institutet**

Course syllabus for

Neuroscience, 6 credits

Neurovetenskap, 6 hp

This course syllabus is valid from autumn 2022.

Course code	4BI121
Course name	Neuroscience
Credits	6 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Biomedicine
Level	AV - Second cycle
Grading scale	Fail (U), pass (G) or pass with distinction (VG)
Department	Department of Neuroscience
Participating institutions	• Department of Medical Biochemistry and Biophysics
Decided by	Programme committee for study programmes in biomedicine
Decision date	2022-03-23
Course syllabus valid from	Autumn 2022

Specific entry requirements

At least the grade G (Pass) for the courses Frontiers in Biomedicine, Applied Biostatistics, Bioinformatics, semester 1 elective course, Bioethics and Laboratory Animal Science, Applied Biomedical Communication and Professional Development, and registration for the course Frontiers in Biomedicine: Research Project 1, within the Master's Programme in Biomedicine.

Objectives

The aim of the course is to provide the students with a strong basis in neuroscience, including brain development, organisation and function of brain circuits, brain anatomy and cognition, and neurodegenerative disorders.

On completion of the course, the student should be able to:

Regarding knowledge and understanding

- explain the principles and main theories of brain development and the roles of key brain circuits including key methodologies used in their study,
- explain the anatomy of the human brain and how it relates to key aspects of cognition and emotion, and how these are altered in neurodegenerative and neurogenetic disorders,

Regarding competence and skills

- identify key neuroanatomical structures in human specimens and magnetic resonance images,
- acquire, critically review, report accurately and discuss neuroscientific literature in both speech and writing
- show critical thinking when analysing problems in neuroscience, both individually and in collaboration with others,
- make connections between theoretical aspects and the use of appropriate neuroscientific methodologies,

Regarding judgement and approach

- handle human specimens according to Karolinska Institutet's ethical guidelines.

Content

The course consists of several modules covering the mechanisms of brain development, the organisation and function of defined brain circuits, practical brain anatomy linked to cognition and emotion, and principles of the main neurodegenerative and neurogenetic disorders.

Teaching methods

Teaching will be in the form of expert lectures, seminars and group-based work guided by researchers. Group-based and/or individual assignments are included and are presented as written reports and oral presentations.

Examination

Examination is performed at the end of each module and consists of oral and/or written assignments. Examination format will be communicated at the latest at the start of each module. The grading scale is fail/pass (U/G). To pass the entire course, a student must obtain the grade of pass (G) for all modules in the course.

Compulsory participation

Seminars, group work and demonstrations are compulsory according to information provided by each module. The course examiner assesses if and, in that case, how absence from compulsory components can be compensated for. A student's study results cannot be finalised/registered until the student has participated in the compulsory components or compensated for their absence in accordance with the examiner's instructions. Absence from a compulsory component may mean that the student cannot compensate for absence until the next time the course is given.

Limitations of the number of examinations or practical training sessions:

Students who have not passed the regular examination are entitled to participate in five more examinations. If the student has failed six examinations/tests, no additional examination or new admission is provided.

The number of times that the student has participated in one and the same examination is regarded as an examination session. Submission of a blank examination is regarded as an examination. An examination for which the student registered but not participated in, will not be counted as an examination.

If there are special grounds, or a need for adaptation for a student with a disability, the examiner may decide to deviate from the syllabus's regulations on the examination form, the number of examination opportunities, the possibility of supplementation or exemptions from the compulsory section/s of the

course etc. Content and learning outcomes as well as the level of expected skills, knowledge and abilities may not be changed, removed or reduced.

Other directives

The course language is English and examination is performed in English.

Course evaluation will be carried out in accordance with the guidelines established by the Board of Higher Education.

Oral evaluation in the form of course council meetings will be carried out during the course.

Literature and other teaching aids

Course literature comprises scientific papers and material handed out during the course.