1 Name, Scope and Level of the Course

The course is provided by the University of Skövde and is named Research Methods and Data Processing in Cognitive Neuroscience A1N. It comprises 7.5 credits and is on advanced level. The level of progression of the course is A1N.

2 Objectives

After completed course the student should be able to:

- survey and evaluate the most important research methods within cognitive neuroscience,
- recommend research methods to facilitate different forms of experimental design, and judge the way these designs affect e.g. the selection of participants (as regards gender, age, educational level, handedness, etc.),
- partially process sample data from different research methods, using relevant software tools,
- critique the methods, design, and conclusions of published cognitive neuroscience research, and
- create and present a scientific poster within the topic.

3 Course Content

The course provides a probing review of some of the most important research methods within cognitive neuroscience, such as EEG, ERP, MRI, and fMRI. The focus is on putting the methods into their respective research contexts, partly through a comprehensive description of their underlying technologies and inherent constraints, and how these constrain experimental designs, and partly through an introduction to processing and interpreting (some of) the methods’ data, in various software applications. In addition, students work to improve their ability to critically assess published cognitive neuroscience research, and are introduced to and get to practice creating scientific posters.

4 Forms of Teaching

The teaching comprises lectures, seminars and workshops.

The teaching is conducted in English.

5 Examination

The course is graded A (Excellent), B (Very good), C (Good), D (Satisfactory), E (Sufficient) or F (Fail).

The final course grade is determined by the average of the grades for the examination components Written assignments and Home examination.

Registration of examination results:

<table>
<thead>
<tr>
<th>Name of examination</th>
<th>Credits</th>
<th>Grading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written assignments</td>
<td>2.5</td>
<td>A/B/C/D/E/F</td>
</tr>
<tr>
<td>Home examination</td>
<td>2.5</td>
<td>A/B/C/D/E/F</td>
</tr>
<tr>
<td>Poster presentation</td>
<td>2.5</td>
<td>G/U</td>
</tr>
</tbody>
</table>

Students with a permanent disability who have been approved for special educational support may be offered adapted or alternative examinations.
### Admission Requirements
The prerequisite for this course is passed course KU523G Bachelor Degree Project in Cognitive Neuroscience G2E (or equivalent).

### Subject, Main Field of Study and Disciplinary Domain
The course forms a part of the academic subject area of Cognitive Neuroscience. The course is a part of the main field of study in Cognitive Neuroscience at the University of Skövde. The disciplinary domain of the course is Natural Sciences.

Every course at the University of Skövde belongs to a subject. The division of subjects is used for follow-up and quality assurance. A main field of study is an area in which a degree can be awarded. Disciplinary domain is a division which is used by the government for the allocation of resources for studies at basic level and advanced level.

### Approval of Course and Course Syllabus
The course was approved by the Curriculum Committee for Bioscience on 24 October 2020. This course syllabus was approved by the Curriculum Committee for Bioscience on 24 October 2020. It is valid from 1 July 2020.

### Overlapping with Another Course
This course cannot constitute a part of a degree also containing a course the content of which is totally or partly equivalent to the content of this course.

### Additional Information
Further information will be available on the university’s website before a course is given.

National and local regulations for higher education are available on the university’s website.

Upon completion of the course there will be a follow-up. The main purpose of this follow-up is to contribute to improvements of the course. The students’ experiences and views constitute one of the criteria for the follow-up and are gathered by means of course evaluations. The students will be informed of the results of the follow-up and any decisions regarding actions that are to be taken.

### Course Literature and Other Educational Materials

Scientific articles and other relevant materials may be added according to the teacher’s instructions.