

## Topics in Modelling Cognitive Processes (H002420)

**Course size** *(nominal values; actual values may depend on programme)*

**Credits 6.0**

**Study time 180 h**

**Contact hrs**

30.0h

### Course offerings and teaching methods in academic year 2022-2023

A (semester 2)

English

Gent

lecture: response lecture

30.0h

self-reliant study activities

0.0h

### Lecturers in academic year 2022-2023

Braem, Senne

PP02

lecturer-in-charge

Holroyd, Clay

PP02

co-lecturer

### Offered in the following programmes in 2022-2023

**crdts**

**offering**

[Master of Science in Psychology\(main subject Theoretical and Experimental Psychology\)](#)

6

A

[Exchange Programme in Psychology](#)

6

A

### Teaching languages

English

### Keywords

cognitive neuroscience

### Position of the course

Topics in Modelling Cognitive Processes is an integral part of the Master's program Experimental Psychology. Given that the program teaches competences that are crucial for researchers, the aim of the course is to give students the opportunity to discuss ongoing research with internationally recognised scientists. The Master's program also provides training in computational modelling. This course aims to provide examples of how these models can and are being used in ongoing cognitive (neuro)science. Furthermore, the course presents research topics that are usually not covered in the curriculum but are nevertheless relevant in the context of cognitive neuroscience.

### Contents

The course will give an overview of recent neuro-cognitive findings in the areas of cognitive neuroscience. We will pay special attention to the interdisciplinary nature of cognitive (neuro) science by zooming in on the role and use of computational models in cognitive (neuro) science.

### Initial competences

This course unit builds on certain course competencies of Neuropsychology and Modelling of cognitive processes.

### Final competences

- 1 To be able to identify and reproduce the most important models and key experiments in a specific research domain.
- 2 To critically evaluate computational models and empirical research designs and be aware of their strengths and weaknesses.
- 3 To understand and reproduce the most crucial theories and associated computational models in a specific research domain.
- 4 To become aware that theories become more testable when they can be computationally defined and modelled.
- 5 To evaluate to what degree a theoretical model or framework is supported by empirical data.
- 6 To become aware that empirical research never provides conclusive evidence for a specific computational model.
- 7 To realize that computational models, too, are embedded in a specific historical, cultural and

personal context which determines the empirical question and the way they are investigated.  
8 To realize that published empirical work is the product of a time consuming work process.

#### **Conditions for credit contract**

Access to this course unit via a credit contract is determined after successful competences assessment

#### **Conditions for exam contract**

This course unit cannot be taken via an exam contract

#### **Teaching methods**

Self-reliant study activities, Lecture: response lecture

#### **Extra information on the teaching methods**

The lecture series consists of presentations by external speakers that are followed by extensive discussion. Students have to prepare the lectures by reading research articles. Furthermore, they have to prepare the discussion. 24 hours are devoted to the lectures and 6 hours to discussion.

#### **Learning materials and price**

Background literature will be distributed a few weeks before each lecture through Ufora. No book purchase will be necessary.

#### **References**

#### **Course content-related study coaching**

Interactive support

#### **Assessment moments**

end-of-term assessment

#### **Examination methods in case of periodic assessment during the first examination period**

Written examination with open questions

#### **Examination methods in case of periodic assessment during the second examination period**

Written examination with open questions

#### **Examination methods in case of permanent assessment**

Participation

#### **Possibilities of retake in case of permanent assessment**

not applicable

#### **Extra information on the examination methods**

There will be a written exam in which knowledge and understanding of the course material is evaluated. Participation will be evaluated on the basis of the questions that are submitted in preparation for the discussion, and their presence during the discussion. It is expected that students submit a question before each lecture based on the reading material.

#### **Calculation of the examination mark**

The examination mark is 90% based on the final exam outcome, and 10% participation.