

# Neurotechnology

HT 2020, 7.5 hp, ELA411

## Course responsible:

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# The neurotechnology course

## You will learn:

- How physiological signals can be used to control a computer/machine/robot
- How this can be implemented to improve health
- Frontier research in the field
- **To implement real-time signal analysis and control of a neurorobotic system**

Case:  
BRAIN

## Why is this important?

- Health robotics is an exponentially increasing field with physiologically connected health robotics having a particularly promising impact on health.
- Real-time analysis and control can be applied to wide range of different applications (both industrial and within health).



# Course plan

Introduction	9 Nov 2020
Lecture 1	16 Nov 2020
Lecture 2	18 Nov 2020
Lecture 3	23 Nov 2020
Seminar 1	30 Nov 2020
Seminar 2	7 Dec 2020
Seminar 3	14 Dec 2020

Project status meeting	21 Dec 2020
Project report	11 Jan 2021
Projekt presentation	13 Jan 2021

For details, check out the **study guide**  
For dates/times, see course schedule



# Course modules

## 1. Theory

- Lectures in zoom and on campus
- Scientific review articles to read before the lecture

## 2. Theory-practice

- 3 seminars in zoom
  - You are expected:
    - To study the material posted on Canvas beforehand.
    - Perform required tasks instructed before each seminar.

## 3. Practice

- Collaborative project (3 different components)
- Status project meeting



# Examination

## 1. Seminars (SEM1), 3 hp

- Grade Pass (G) or Fail (U).
- To pass you need to:
  - fulfill all requirements (e.g. written reflection etc.) communicated in advance by seminar material published on Canvas, and
  - participate in the discussions during each seminar and thus show an understanding of the theoretic material.

## 2. Project (PRO1), 4.5 hp

- Written project report
- Oral presentation and real-time demonstration of the system
- Grade: U, 3, 4, or 5. Grading criteria can be found in the study guide. If unclear, ask in advance!



# What's next?

**Lecture 1**

**16 Nov 2020**

→ Read Lebedev and Nicolelis (2017)

Questions?