

From Vision to Action – Seminar information

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From Vision to Action - Major Topics

- The early visual system – *Alexander Gail*
- Cognitive aspects of vision: Visual motion and attention – *Stefan Treue*
- Sensorimotor integration, decision making, brain-machine interfaces – *Hans Scherberger*



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- Introduce the **visual and visuomotor system of primates** (human and non-human)
- Cover its topics ...
 - at an **advanced textbook level** (lecture)
 - at the level of **original research papers** (seminar, partly also lecture)
- Highlight **selected issues** and themes
- Emphasize **common principles** (lecture)
 - e.g. principles of information coding
- Identify **current topics** of research (seminar)

The seminar topics are tightly linked to the previous week's lecture topic and are intended to deepen the understanding.

Homepage



Abteilung Kognitive Neurowissenschaften
am Deutschen Primatenzentrum

Suchwort eingeben

Suche

Über uns Forschung **Lehre** Publikationen Arbeitsgruppen

Kognitive Neurowissenschaften ▶ Lehre ▶ From Vision to Action

Lecture and Seminar „From Vision to Action“ 2023/24

The first lecture on **Monday, October 23rd, at 16.15** has to be canceled due to sickness. We will keep you updated.

Please click the lecture schedule link for detailed information!

This website is continually updated, whenever new information becomes available.

Updated information is additionally available on the [PsychoBlog](#).

Diese Vorlesungen erfolgen auf Englisch. Klausurfragen können auch auf Deutsch beantwortet werden.

Lecture (2 SWS) and Seminar (2 SWS)

The lecture series From Vision to Action will provide an introduction to visual processing and action planning in the central nervous system of primates. We will provide an overview over the different processing stages along the two major visual processing streams, leading to object perception on the one hand, and providing the basis for movement planning on the other. We will put special emphasis on the discussion of general design and coding principles. Additionally, we will discuss how improved knowledge in neuroscience can lead to clinical applications, like visual and motor neuroprosthetics or improved neuropsychological programs.

The course can be completed either with the seminar (Module M.Psy.901) or without the seminar (Module M.Bio.350).

Seminar (Module M.Psy.901)

The elective module Vision to Action (M.Psy.901) of the Psychology Master's program is composed of both the lecture and seminar.

The seminar provides students with deeper insights in selected topics based predominantly on original research papers, examined and presented by seminar participants. Seminar topics are linked to lecture



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[Lecture Slides](#)

[Lecture Schedule](#)

[Textbooks](#)



Link to dates and
table of content

Two modules – for whom?

- **Module M.Psy.901**

- covers **lecture and seminar** (*both relevant for exam*)
- master psychology students
- DPZ PhD students

- **Module M.Bio.350**

- covers lecture (*separate exam, but mostly overlapping*)
- all other students

- 12 topics/dates
- open to max. 24 students
- one (max. 2) students per date
 - typically independent material and presentations
 - tightly related topics can be presented jointly, if wanted
- 2/3 oral presentation + 1/3 discussion time
 - i.e., typically 30 min presentation + 15 min discussion
- all participants are expected to actively contribute to the discussions for each topic/date

■ Goal

- in-depth discussion of lecture-related contents
 - consolidation of content or
 - translational perspective (e.g., prosthetics)
- critical evaluation of original research study
- embedding of study findings in research context

■ Style

- introduction of **topic** by presenting student
 - original research paper alone typically not sufficient for this
- in-depth presentation of original research paper
 - explain methodological details
 - not just summary of results and conclusions
- discussion of topic by all
 - lead by presenting student

Seminar topics

(dates refer to year 22/23; for future years see homepage or Stud-IP)



| No | Lecturer | Topic |
|-----|----------|----------------------------------|
| S01 | AG | S01 Retinal processing |
| S02 | AG | S02 Visual prosthetics |
| S03 | AG | S03 Primary visual cortex |
| S04 | AG | S04 Features, forms & objects |
| S05 | ST | S05 Processing of visual motion |
| S06 | ST | S06 Adaptation |
| S07 | ST | S07 Attention 1 |
| S08 | ST | S08 Attention 2 |
| S09 | HS | S09 Neural encoding and decoding |
| S10 | HS | S10 Sensorimotor transformation |
| S11 | HS | S11 Decision making |
| S12 | HS | S12 Motor neuroprosthetics |

**Sign up for topic/date
will happen during
preparatory meeting
at beginning of term**

- 90 min
- covers lecture + seminar
- mostly short essay questions (+ occasional multiple choice)
- lecture and seminar are held in English, but exam can be taken in **German or English**