BIOENG-451 **Scientific literature analysis in neuroscience**

McCabe Brian, Sandi Carmen

Cursus	Sem.	Type
Life Sciences Engineering	MA1, MA3	Opt.

Language of teaching	English
Credits	5
Withdrawal	Unauthorized
Session	Winter
Semester	Fall
Exam	During the semester
Workload	150h
Weeks	14
Hours	**5 weekly**
Courses	2 weekly
Exercises	3 weekly
Number of positions	**20**

It is not allowed to withdraw from this subject after the registration deadline.

Remark

Only one registration per student to a scientific thinking course

Summary

The goal of this course is to learn how to discover, digest, analyze and a criticize scientific papers encompassing defined topics within neuroscience.

Content

The goal of the course is to teach you to find, read and evaluate papers on a given neuroscience topic, link them together into a coherent scientific narrative and use this detailed and considered analysis as a foundation to critically assess current conclusions and suggest future avenues for the field, compiled in a format such as found in review articles. We will set defined topics within the field of neuroscience and then students will learn how to find, collect and critically read published papers relevant to the topics. From this effort we will decide upon the most impactful and critically assess the conclusions drawn, comparing and contrasting the methods and results between studies. Each week, students will summarize the main findings of the papers they select and link them in a collective narrative which will first be presented orally and then summarized in written form. Working in teams, students will then coalesce their collective summaries into mini-review type formats designed to interweave their analysis and extract a consensus on progress in the field and define key unanswered questions. Dependent upon the quality and state of completion of the collective course documents, the assembled articles may be considered for potential publication.

Keywords

critical reading, science writing, neuroscience

Learning Prerequisites

Important concepts to start the course

MA1-MA3. Extensive background in Biology strongly recommended.
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Learning Outcomes

By the end of the course, the student must be able to:

- Demonstrate the ability to place the individual research results within the context of the larger field.
- Critique the content of papers and express this analysis in oral and written form.
- Synthesize a scientific review narrative demonstrating a deep comprehension of the assigned papers
- Assess / Evaluate a related group of research papers.

Teaching methods

Lectures to give background information required to choose and read the papers.
Group discussion of papers and their contribution to the larger narrative.

Expected student activities

Oral presentation of select papers, singly or in group.
Read background literature in order to present papers with appropriate context.
Prepare written abstracts or other synthesis of papers, and provide a critical, constructive evaluation of relevant literature.

Assessment methods

In course assessment of the quality of the analysis of assigned papers.
In course assessment of the oral presentations and participation in discussions.
In course assessment of contribution to final collective output manuscript.