DEPARTMENT OF CLINICAL NEUROSCIENCE

K8F5642, Scientific Illustration and Data Visualisation, 3 credits (hec)

Vetenskaplig illustration och datavisualisering, 3 högskolepoäng

Third-cycle level / Forskarnivå

Approval

This syllabus was approved by the The Committee for Doctoral Education on 2023-12-21, and was last revised on 2024-09-19. The revised course syllabus is valid from autumn semester 2024.

Responsible department

Department of Clinical Neuroscience, Faculty of Medicine

Prerequisite courses, or equivalent

No prerequisite courses, or equivalent, demanded for this course.

Purpose & Intended learning outcomes

Purpose

This course will enable the participant to obtain knowledge and skills in scientific illustration and visualisation: how to use digital tools to create images and figures to communicate scientific ideas, concepts, results, and interpretations to different target audiences and in different formats.

Intended learning outcomes

After the course, the student is expected to:
- Be able to critically evaluate the suitability and effectiveness of scientific illustrations and visualisations for different target groups and contexts
- Be able to create effective scientific illustrations by using appropriate software
- Be able to create effective data visualisations using statistical software
- Be able to reflect critically on ethical and legal aspects of scientific visualisation

Course content

- General principles of illustration and graphic design
- Data visualisation: diagrams and figures
- Photographs, photomicrographs, and other images in science
- Softwares and file formats
- Ethical and legal aspects on visualisation
- Visual research communication in context: figures, presentations, posters, graphical abstracts

Forms of teaching and learning

The course emphasises interactivity and practical skills training. Lectures will be used to introduce and cover theoretical aspects. Practise in working with digital tools for illustration and visualisation will be performed during practical workshops with supervision. We will use well-established software packages that are open source and/or for which Karolinska Institutet has a licence available for students. Students will create their own illustrations and visualisations and submit them during the course; these will be discussed in group seminars, revised based on the feedback, and resubmitted.

Language of instruction

The course is given in English

Grading scale

Pass (G) /Fail (U)

Compulsory components & forms of assessment

Compulsory components

Seminars for discussion of students' submitted illustrations and visualisations will be mandatory. In case of absence, a written reflection can be submitted instead.

Forms of assessment

Examination takes place through a final illustration/visualisation exercise which will be submitted and discussed.

Course literature

Recommended literature:
- Tufte, E. (2001). The visual display of quantitative information. ISBN: 0961392142.
- Munzner, T. (2015). Visualization Analysis and Design, 2015. ISBN: 9781466508910.
- Franconeri, S. L., Padilla, L. M., Shah, P., Zacks, J. M., & Hullman, J. (2021). The science of visual data communication: What works. Psychological Science in the Public Interest, 22(3), 110–161. https://doi .org/10.1177/15291006211051956
- Schwabish, J. (2021). The Practice of Visual Data Communication: What Works. Psychological Science in the Public Interest, 22(3), 97-109, https://doi.org/10.1177/15291006211057899