Title PhD course
Psychoneuroimmunology

Language
English

Duration
Three weeks (2+1) – January 15-26 + February 12-16, 2024

Purpose of the course
Psychoneuroimmunology is the study of the functional and bidirectional relationships between the nervous system, the endocrine system, the immune system and behavior. The main purpose of the course is to provide the student with an overview of present knowledge in this field and to offer an opportunity to apply a crossdisciplinary mechanistic perspective across physiological and pathological conditions. The students are given good opportunities to network and to interact with leading national and international researchers in a quickly developing area. We also wish this course to be an opportunity to interact with other PhD students with overlapping research interests.

Intended learning outcomes
At the end of the course, the doctoral student will be able to:
1) Understand and describe the essential concepts in psychoneuroimmunology, the basic mechanisms by which the nervous, the endocrine, and the immune system communicate.
2) Critically discuss how these mechanisms are relevant for health.
3) Critically reflect on the literature in the field of psychoneuroimmunology.
4) Identify knowledge gaps, and design an adequate research plan for a study in psychoneuroimmunology.

Contents of the course
An overview of the essential concepts and the research in the different areas of psychoneuroimmunology will be provided. The adaptive and pathological consequences of immune activation on brain functions and behavior, including fatigue, pain, mood regulation, social behavior, and neuropsychiatric symptoms, as well as how the immune system is modulated by brain inputs, such as during stress, will be described. In addition, the course will give an opportunity to understand how behaviors can be proactively activated to improve overall defense against microbes. Models/tasks used in psychoneuroimmunology research will also be the subject of a seminar. The course will additionally include a journal club, where specific papers will be discussed; and time to prepare the written and oral presentations of a mock research project, as well as tutoring sessions to help in the preparation.

Teaching and learning activities
- Lectures and seminars, which will provide an overview of the essential concepts and the research in the different areas of psychoneuroimmunology for the use of the doctoral student in the preparation of the examination assignment (written and oral presentations).
- Journal club.
- Meet-the-experts session, where the students will have the opportunity to meet and interact with leading national and international researchers in psychoneuroimmunology.
- The doctoral student has access to supervision in the preparation of the written examination.
- The oral presentations will take place during a seminar in the end of the course.

Note that the course will be provided fully online. Zoom and Gather Town will be used for the classroom activities.

Compulsory elements
- Written and oral examination.
- Participation in the examination seminar. In case of absence from the scheduled examination seminar, another occasion for examination can be arranged as agreed upon with the course leader.

The compulsory elements can be adapted, for instance by providing more support or additional time to provide the assignments, on a case-by-case basis (e.g. students with special needs) - please talk to the course leader at the start of the course.

Examinations
The examinations will consist in a written (2-3 pages) and oral presentation of a mock research project that is well motivated in background of the current state of knowledge/lack of knowledge in psychoneuroimmunology. Each student need to show that all intended learning outcomes have been reached in order to pass the course.

Literature and other teaching material
Dantzer R. Neuroimmune Interactions: From the Brain to the Immune System and Vice Versa. Physiol Rev. 2018 Jan 1;98(1):477-504. doi: 10.1152/physrev.00039.2016.

Other relevant scientific publications will be provided during the course.

Course leader
Julie Lasselin

Course co-leader
Mats Lekander