DEPARTMENT OF CLINICAL NEUROSCIENCE

K8F5216, Stress, Sleep and Health, 3 credits (hec)

Stress, sömn och hälsa, 3 högskolepoäng

Third-cycle level / Forskarnivå

Approval

This syllabus was approved by the The Committee for Doctoral Education on 2023-12-01, and was last revised on 2024-02-15. 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

Stress- and sleep disturbances are common in the discourse of modern societies, and can affect wellbeing and health. The purpose of the course is to provide an overview of how stress and sleep affect mental and physical health. The course will also offer an opportunity to develop critical thinking about research findings, and to apply a cross-disciplinary mechanistic perspective across physiological and pathological conditions. The students will be given good opportunities to network with each other and to interact with leading national and international researchers in this area of research.

Intended learning outcomes

At the end of the course, the doctoral student shall be able to:
1) understand, describe, and critically discuss central theoretical and empirical issues regarding how stress and sleep affect health, and the basic mechanisms by which this association occurs;
2) critically reflect on the literature in the field;
3) identify knowledge gaps, and design an adequate research plan for a study of the effects of stress and sleep on health, and to critically discuss the chosen design in relation to pertinent literature.

Course content

The course will consist of lectures and seminars that will provide an overview of the essential concepts and the research on stress, sleep, and health. In particular, how acute stress, chronic stress, circadian rhythms, and sleep disturbances affect physiological systems such as the immune system and metabolism, and mental health and cognition, will be discussed. Lectures/seminars will also describe neuronal underpinnings of such effects, and possible treatments to improve stress- and sleep-related disorders. Models/tasks to study the effect of stress and sleep will also be presented and discussed.

Forms of teaching and learning

All teaching activities are provided online using Zoom or Gather (https://gather.town/):

- Lectures and seminars, which will provide an overview of the essential concepts and the research in the different areas of relevance 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 areas of interest.

- The doctoral student will have access to supervision in the preparation of the written examination.

Language of instruction

The course is given in English

Grading scale

Pass (G) /Fail (U)

Compulsory components & forms of assessment

Compulsory components

- 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 finish the assignments, on a case-by-case basis (e.g. students with special needs).

Forms of assessment

The examinations will consist of short written and oral presentations of a mock research project that is well motivated in background of the current state of knowledge/lack of knowledge in the research area of relevance. The oral presentations will take place during a seminar in the end of the course.

Course literature

The following are articles of relevance for the course, and are no mandatory read:

Bruce S McEwen, 2000. The neurobiology of stress: from serendipity to clinical relevance. Brain Research 886:172-189.

Bruce S. McEwen, 2005. Stressed or stressed out: What is the difference? J Psychiatry Neurosci. Sep; 30(5): 315–318.

Godoy et al, 2018. A Comprehensive Overview on Stress Neurobiology: Basic Concepts and Clinical Implications. Front. Behav. Neurosci., 03 July 2018.

Dhabhar FS, 2014. Effects of stress on immune function: the good, the bad, and the beautiful. Immunol Res. May;58(2-3):193-210.

Elin Lindsäter, 2020. Background in "Cognitive behavioral therapy for stress-related disorders", pages 26-36. Thesis.

Lindsäter et al, 2018. Internet-Based Cognitive Behavioral Therapy for Chronic Stress: A Randomized Controlled Trial. Psychother Psychosom 87(5):296-305.

Institute of Medicine (US) Committee on Sleep Medicine and Research; Colten HR, Altevogt BM, editors. 2, Sleep Physiology, in Sleep Disorders and Sleep Deprivation: An Unmet Public Health Problem. Washington (DC): National Academies Press (US); 2006.

Laposky et al, 2015. Reducing health disparities: the role of sleep deficiency and sleep disorders. Sleep Med. 18:3-6.

Irwin, 2015. Why sleep is important for health: a psychoneuroimmunology perspective. Annu Rev Psychol. 66:143-72.

Kecklund and Axelsson, 2016. Health consequences of shift work and insufficient sleep. BMJ 355:i5210.

Ye et al, 2015. Internet-Based Cognitive Behavioral Therapy for Insomnia (ICBT-i) Improves Comorbid Anxiety and Depression-A Meta-Analysis of Randomized Controlled Trials. PLoS One 10(11):e0142258.