COURSE INSTRUCTIONS - PSMT64-HT22
Stress and sleep: from bench to bedside

Course content
An established theme in the contemporary society regards how stressors and sleep problems should be handled. Over longer time, such exposures can affect wellbeing and risk for ill health. The present course aims to give in-depth knowledge about how stress and sleep are related to mental and somatic health and how stress and sleep are interconnected, and the underlying mechanisms. The course will also provide an opportunity to develop a critical perspective on relevant research, and to apply interdisciplinary perspectives on pathological states as well as on behavioral and biological processes related to stress and sleep.

The course reviews central concepts and topical research in stress, sleep and health. In particular, it is focused on how acute stress, chronic stress, diurnal rhythm and sleep problems affect and interact physiological systems such as the immune system, the endocrine system, cognitive processes and possible consequences for health. The course encompasses neuroscientific and other biological perspectives, and describes interventions to improve stress- and sleep related symptoms. Theoretical models and methods to understand and study stress- and sleep related processes will be applied.

Expected learning outcomes
Upon completion of the course, students are expected to be able to:
1) understand, describe and critically discuss central theoretical and empirical issues regarding how stress and sleep are related to health, as well as the fundamental mechanisms for associations between stress, sleep and health;
2) critically reflect on research reports in the field of interest;
3) design an adequate research plan for a study of the effects of stress and sleep on health outcomes, and to critically discuss the chosen design in relation to pertinent literature;
4) orally and in letter present a research plan, and to critically reflect on other students’ research plans.

Educational activities and attendance
The course is running as a distance course through the Stockholm University e-learning platform, Zoom and Gather Town. All teaching is given in English, and consists of lectures, seminars (including a journal club), as well as preparatory activities and reflective learning activities.

The participation in the seminars (in Zoom and in Gather Town) are mandatory. During the seminars, it is a requirement to have the camera on as well as have the possibility to use the microphone. Technical problems e.g. related to equipment need to be taken up with the course leader at the beginning of the course or well before each seminar. Absence can be compensated by written assignments in accordance with the course leader’s instructions.

Journal Clubs are literature seminars where the student analyze strengths and limitations of research articles about the effect of stress and/or sleep alterations on health, and then discusses these articles in small groups. Details about the choice of articles and the discussion will be given during the course. The purpose of the Journal Clubs is to give the student the
opportunity to critically reflect on research that is conducted in the field and to consolidate knowledge obtained from lectures and own studies.

Non-mandatory educational activities include lectures in Zoom, as well as preparatory activities and reflective learning activities (e.g. quiz, write 2-3 sentences reflection on the knowledge learned) online. The participation in the non-mandatory educational activities is highly recommended as it facilitates the reading of literature and provides an opportunity for in-depth learning and discussion. Having the camera on during non-mandatory educational activities is not a formal requirement, but encouraged as it provides more interactivity, both for the teacher and for the students.

Course literature and educational activities form the basis for the assignments. To make the best use of the educational activities and to save precious time for the course organizers, please follow the reading instructions in Athena closely.

**Assignments and course requirement**
The course is examined on the basis of a written assignment, consisting of a research plan of a mock project for a study of the effects of stress and sleep on health outcomes. Additional assignments are provided to verify that the student has fulfilled the expected learning outcomes (ELOs, see above).

Assignments are as follows:
1) present a research plan for a mock project in writing (ELOs #1, #2, #3, #4);
2) provide feedback on the research plan of another student (ELOs #1, #3, #4);
3) present your project orally in a video-recorded “elevator pitch” (ELO #4);
4) provide a summary of the discussion in the journal club (ELO #2).

Course requirements are:
1) attendance and active participation in seminars;
2) a passing grade on the assignments #1-4 above.

**Assessment and grading criteria**
Grades will be set according to a seven-point scale related to the learning objectives of the course. In order to pass the course, students must receive a grade of E or higher on the written examination, as well as a passing grade (G or VG) on all mandatory components of the course. The overall course grade is the grade of the written assignment weighted with the grades of the additional assignment.

**Overall course grade:**

A = Excellent.
The expected learning outcomes have been reached to an exceptionally high degree. The student is able to independently connect key concepts, theories, and models to explain actual examples, and is also able to critically reflect on the strengths and limitations of the concepts/theories/models. The student engages in argumentation and discussion independent of the literature and course material, and integrates relevant principles on a general theoretical level in a meritorious way.
B = Very good.
The expected learning outcomes have been reached to a very high degree. The student can in own words account for differences and similarities between central concepts, theories and models, and reason about the relevance, shortcomings and validity of key concepts. The student engages in argumentation and discussion independent of the literature and course material.

C = Good.
The expected learning outcomes have been reached to a high degree. The student can in own words explain differences between key concepts, theories, and models, and can apply key concepts to own examples. The student is able, to some degree, to draw independent connections between the various theories and lines of reasoning presented in the literature.

D = Satisfactory.
The expected learning outcomes have been satisfactorily reached. The student can reasonably explain key concepts, theories and models in their own words. The student is able to refer to the concepts, theories, and models when discussing actual examples.

E = Adequate.
The expected learning outcomes have been reached despite some shortcomings. The student is able to define the concepts and describe what the theories and models are meant to explain. The student is able to utilize such lines of reasoning to some extent to describe the processes occurring in actual examples.

Fx = Insufficient, some additional work required.
The expected learning outcomes have not been reached, compensatory work is required.

F = Fail, much additional work required.
Completely insufficient. The learning outcomes have not been reached and reaching them is not judged to be possible.

Plagiarism, cheating and unallowed cooperation
It is included in your responsibility as a student to be aware of the examination rules at Stockholm University. Detailed information is available both at the web pages of the Department of Psychology and Stockholm University (www.su.se/regelboken). Teachers are obliged to report suspicion about cheating and plagiarism to the principal and the disciplinary board. Plagiarism and cheating are always disciplinary matters and can lead to shutting off from studies. One example of plagiarism is to verbatim (word-by-word), or almost verbatim, copy a text (this also concerns occasional sentences) without quoting the source of the text. This also concerns texts that you have yourself authored previously (self-plagiarism). To be involved in study groups (i.e., the smaller units within seminar groups) is developing and time efficient, but when it comes to examination tasks you will need to make sure that you are working on your own (if nothing else is instructed) in order not to risk that any collaboration will be considered unauthorized.

Schedule and teachers
See Athena for the complete schedule and teachers. The schedule might change over time until the course starts. Any changes during the course will be communicated directly to you.

**Course leader:**
Julie Lasselin, PhD ([julie.lasselin@su.se](mailto:julie.lasselin@su.se), 073 707 8921)

**Co-organizer:**
Mats Lekander, Professor ([mats.lekander@su.se](mailto:mats.lekander@su.se), 08-553 789 33)

**Course examinator:**
Mats Lekander, Professor

**Course literature:**

**Stress:**

*Book (available in e-book via Stockholm University’s library):*

**The Handbook of Stress Science: Biology, Psychology, and Health.** R Contrada and A Baum. *Springer Publishing Company.*

*Chapter 2, MF Dallman and D Hellhammer, Regulation of the Hypothalamo-Pituitary-Adrenal Axis, chronic stress, and energy: the role of brain networks*

  - p14-16 Characteristics of the HPA axis
  - p16-17 Feedback regulation of the HPA axis from the periphery
  - p17-18 Characteristics of the ANS

*Chapter 5, JM Hash-Converse and AW Kusnecov, Behavioral, Emotional, and Cognitive Sequelae of Immune System Activation*

  - p65 Introduction
  - p65-69 Immune system-CNS interaction

*Chapter 16, PH Finan, AJ Zautra, and R Wershba, The Dynamic of Emotion in Adaptation to Stress*

  - p213-214 Negative emotions, stress, and health
  - p214-216 Positive emotions, stress, and health

*Chapter 17, CS Carver, Coping*

  - p221-222 Psychological stress
  - p222-224 Coping

*Chapter 23, TM Edenfield and JA Blumenthal, Exerices and Stress Reduction*

  - p304-306 Exercise-related stress reduction

*Chapter 35, DA Gutman and CB Nemeroff, Stress and Depression*

  - p347 The HPA axis and depression
  - p347-349 Functional tests of HPA axis activity
  - p350-351 Early life stress and depression
  - p351 Current life stressors and depression

*Articles:*


Sleep:

Book (available in e-book via Stockholm University’s library):
Sleep and Health. MA Grandner. Academic Press
Chapter 1 (p3-10), The basics of sleep physiology and behavior. AS Tubbs, HK Dollish, F Fernandez, MA Grandner.
Chapter 10 (p117-131), Screening for sleep disorders. CA McCall, NF Watson.
Chapter 12 (p147-157), Actigraphic sleep tracking and wearables. MA Grandner, ME Rosenberger.
Chapter 16 (p203-210), Insufficient sleep and cardiovascular disease risk. S Javaheri, O Omobomi, S Redline.
Chapter 26 (p339-358), Sleep loss, executive function, and decision-making. BC Satterfield, WDS Killgore.
Chapter 28 (p373-389), Insomnia and psychiatric disorders. I Vargas, SN Garland, JD Kloss, ML Perlis.

Articles:
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

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