DEPARTMENT OF NEUROSCIENCE

C4F6001, Trauma Science , 1.5 credits (hec)

Traumavetenskap, 1,5 högskolepoäng

Third-cycle level / Forskarnivå

Approval

This syllabus was approved by the The Committee for Doctoral Education on 2024-02-03, and is valid from autumn semester 2024.

Responsible department

Department of neuroscience, Faculty of Medicine

Contributing department/s

Department of Medicine, Solna

Prerequisite courses, or equivalent

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

Purpose & Intended learning outcomes

Purpose:

Trauma is a major global public health concern and is the largest single factor of death and severe disability for people younger than 45 years The incidence of trauma continues to rise. The World Health Organization estimates that by 2025 trauma will become the leading cause of death worldwide due to ageing in Western populations, increasing road use in developing countries and conflicts. This course is organized for PhD students who are interested in clinical and translational trauma science.

Intended learning outcomes:

At the end of the course the participants should have a good overview of and will be able to show good understanding of:

1. Pathophysiological mechanisms in trauma

2. Principles of diagnosis and treatment in trauma

3. Trauma research methodology
4. Results in recent trauma trials
5. Knowledge gaps in trauma

Course content

The course content consists of eight trauma modules.

Introduction to Trauma science

This module will enable you to acquire knowledge to consider and manage trauma as a disease including trauma systems and the different aspects on how to deliver a specialist trauma care, from prehospital care through the entire patient's care pathway.

Haemorrhage and response to injury

This module will enable you to acquire knowledge on diagnosis and management of shock syndrome and the deranged physiology underlying the onset of acute traumatic coagulopathy.

Chest and abdominal trauma

This module will focus on the mechanism and pathophysiology of chest and abdominal injuries. It will enable you to acquire critical knowledge of common patterns for torso injuries, as well as the tools to recognise and initiate treatments for the most common and life threatening injuries.

Brain and spinal cord injury

This module will cover the contemporary pathophysiology of brain and spinal cord injury, teaching you to critically evaluate the principles of diagnosis and treatment for patients with traumatic brain and spinal cord injuries.

Critical care and trauma

This module will enable you to acquire a solid background in the rapidly evolving area of critical care including shock therapy, ventilator management, organ dysfunctions, and infectious disease.

Extremity and vascular trauma

This module will provide a comprehensive science overview of management of musculoskeletal and extremities vascular trauma. There will be a specific focus on the science of fracture and vessel healing.

Burns and wound healing

This module will enable you to acquire a deep and broad knowledge on burn and wound healing in line with contemporary literature.

Military and humanitarian trauma

This module will enable you to acquire knowledge of military and civilian austere trauma. The module will cover the science of triage, mass casualty management and surge capacity, ballistics, chemical and biological trauma.

Forms of teaching and learning

Daily class-room lectures by invited clinicians and researchers within the field of trauma. Interactive seminars, problem-solving in groups, and oral presentations will be used. Time will be allocated for students to prepare a group presentation of a selected key article of trauma science, and flash presentations of each PhD-student trauma related research project. The course also includes a visit to the trauma center at Karolinska University Hospital. The course requires all participants to bring a laptop.

Language of instruction

The course is given in English

Grading scale

Pass (G) /Fail (U)

Compulsory components & forms of assessment

Mandatory attendance to all scheduled activities. Absence can be compensated with a supplementary written task.

Forms of assessment

The examination will be on the last day of the course and will consist of a digital, inividual MCQ examination.

Course literature

The lecturers and course organizer will provide a list and PDF-copies of recommended scientific articles published in scientific journals as well as recommended weblinks. Recommended up-to-date reading material relating to each lecture/topic will be made available prior to the lectures.