Course syllabus

Riskanalysmetoder för hälsa- och miljöområdet
Risk Analysis Methods for Health and Environment

MAMN35, 7,5 credits, A (Second Cycle)

Valid for: 2023/24
Faculty: Faculty of Engineering, LTH
Decided by: PLED C/D
Date of Decision: 2023-04-18

General Information

Compulsory for: RH4-rh
Elective for: BME4, Pi4, W4
Language of instruction: The course will be given in Swedish

Aim

The aim of the course is that, in combination with earlier courses, the students gain the capability of fundamentals and methods for the implementation of risk analysis within the fields of Health, and Environment. Furthermore, the course is aimed at providing a foundation for continuing studies in the risk management field.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

• be able to explain various concepts used for risk analysis in health and environment.
• be able to describe how uncertainty in risk analysis affects how risk is perceived and assessed.
• be able to identify risks within systems associated with health and environment.
• be able to describe risk analysis methods for systems associated with health, and environment.
• be able to analyse such systems and be able to calculate the relevant risk measurement values.

• demonstrate knowledge of present research and developments within the area of risk analysis related to health and environment.
• have knowledge of current legislation in health and environment connected to risk analysis.

Competences and skills
For a passing grade the student must

• be able to utilize, in a new situation, the methods and tools used in uncertainty analysis such as Monte Carlo simulation.
• be able to evaluate the contents of existing risk analyses.
• be able to assess the reasonableness of input data in cases where the knowledge base is uncertain.
• be able to report, both orally and in writing, and discuss the implications of an executed risk analysis.
• be able to utilise material in scientific publications that is relevant for risk analysis within the fields of health, and environment.
• demonstrate a capacity for teamwork and for working in groups,
• demonstrate the capacity to plan and with adequate methods undertake project assignments focused on risk assessments.

Judgement and approach
For a passing grade the student must

• be able to assess the applicability of various risk analysis methods depending on the nature of the problem and within the framework of health, and environment.
• be able to carry out analyses in a way that takes into consideration both scientific, societal and ethical aspects.

Contents

The overall aims of the course risk analysis methods consist of introduction to the field with an overview of risk analysis for health and the environment and different concepts and methods to assess and control risks in the areas of health and environment.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)
Assessment: The examination represents a combination of results of tests, a written examination and the project assignments undertaken. The exam consists of both questions on theory and questions of a problem-solving nature. Approved seminars and laboratory works required to pass.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts
Code: 0118. **Name:** Risk Analysis Methods.
Credits: 4,5. **Grading scale:** TH. **Assessment:** Written examination **Contents:** The general topics of the course consists of the introduction to the field with an overview of risk analysis for health and the environment, uncertainty analysis, and risk analysis methodologies in the areas of Health and Environment.
Code: 0218. **Name:** Project Assignments.
Credits: 3. **Grading scale:** UG. **Assessment:** Successfully completed home assignments and project assignments. **Contents:** Successfully completed home assignments and project assignments. Contents: During the course, two projects implemented. These tasks are solved in groups. For project information is tutoring available for consultation. The project tasks include relevant issues in the areas of Health and Environment. Project information is presented in writing and orally. Participation in the seminar.

Admission

Admission requirements:

- Basic course in statistics, minimum 7,5 hp

The number of participants is limited to: No
The course overlaps following course/s: VBR180

Reading list

- Kompendium i miljötoxikologi för miljötoxikologikurs på kemitekniklinjen. Avd för yrkes- och miljömedicin. Universitetssjukhuset i Lund, 2002. Version 1.12.2002. sid 3-12, 21-40 och 123-127.
- Scientific paper. Künzli, N. m fl: Public-health impact of outdoor and traffic-related air pollution: a European assessment. 2000. The Lancet, Vol 356, pp 795-783, 2000.
- Öberg, T.: Miljöriskanalys. Studentlitteratur, 2009.
- Handouts for the course.

Contact and other information

Course coordinator: Jakob Löndahl, jakob.londahl@design.lth.se
Further information: Group assignments require active participation. Each group member must individually be able to account for the content of the assignment. If a group member does not fulfill the demands of the group or ignores hers/his commitment, she/he can be reassigned to another group or get a fail result.