



Course Syllabus
Methods in Systems Science for Defence and Security

Metod i försvarssystem

Course Code	2FS025	Main Field of Study	Systems Science for Defence and Security
Valid from Semester	Spring 2022	Department	Department of Systems Science for Defence and Security
Education Cycle	Advanced level	Subject	Systems Science for Defence and Security
Scope	15.0	Language of Instruction	The teaching is conducted partly in Swedish.
Progression	A1N	Decided by	The Research and Education Board's Course Syllabus Committee at the Swedish Defence University
Grading Scale	Fail, Pass, Pass with Distinction	Decision date	2022-01-01
Revision	1.0		

Entry Requirements

A bachelor's degree with a minimum of 180 credits, including a minimum of 90 credits in the field of defence, crisis management and security, alternatively a bachelor's degree in Engineering or equivalent.

Course Content and Structure

The purpose of the course is to provide the student with the necessary knowledge to participate in and benefit from development work, based on a scientific approach and with an independent ability to analyse, reflect and critically evaluate this work. The course deals with key elements of the research process, with a focus on problem formulation, research design, data collection methods and analytical methods. The course is divided into two modules.

Modules

Science theory, research design and method

Vetenskapsteori, forskningsdesign och metod (7,5hp)

Scope: 7.5

The purpose of this module is to provide a more in-depth theoretical scientific understanding linked to the student's own field, including from a social constructionism perspective. The fundamentals of research design will be addressed, as will a number of methods for data collection and analysis. The emphasis will be on qualitative methods. The module will specifically focus on field studies.

Simulation, modeling and war games

Simulering, modellering och krigsspel (7,5hp)

Scope: 7.5

The purpose of this module is to provide the student with a theoretical and methodological understanding of the opportunities and challenges presented by modelling, simulation and war games. The student shall be provided with knowledge of how they can evaluate results and understand the strengths and



weaknesses of various methods and the types of answers they can provide.

Intended Learning Outcomes

After completed course the student should be able to:

Module 1

- explain basic scientific and epistemological concepts and relate these to their own field of defence systems;
- compare and evaluate various methods for data collection and analysis base on a specific issue; and
- identify and assess various ethical aspects of research and development activities.

Module 2

- demonstrate the ability to critically and systematically integrate knowledge, as well as the ability to model, simulate, predict (within given parameters) and evaluate sociotechnical defence systems; and
- demonstrate the ability to critically and systematically review models, simulations and war games and the results thereof.

Type of Instruction

Teaching will be conducted in the form of lectures, independent study and seminars. Module 2 will also utilise teaching in the form of computer lab experiments and war games.

Assessment

Examination

Scope: 7.5

Grading Scale: Fail, Pass, Pass with Distinction

Examination will be through individual written assignments

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Grading

Grades are set according to a three-grade scale: Pass with merit (VG), Pass (G) and Fail (U). Grading criteria are stated in the course description.

A passing grade (G) requires a pass for the two individual written assignments.

A pass with merit (VG) requires a pass with merit (VG) for the two individual written assignments.

The examiner may decide that supplementary work is required in order for a pass grade to be achieved. Examination papers submitted late will not be graded, unless there are special reasons, which have been approved by the examiner.

Supplementary assignments are to be submitted no later than five working days after the notification of results and the supplementary assignment for the examination in question, unless there are special reasons, which have been approved by the examiner.

Restrictions in Number of Examinations

There is no limit on the total number of examination opportunities.

Restrictions Concerning Degree



The course cannot be part of a degree whose content is wholly or partly in accordance with the content of this course.

Transitional Provisions

When a course is no longer provided or when the content of a course has been significantly altered, the student/participant retains the right to be examined in accordance with this course syllabus once per term during a three-term period.

Miscellaneous

This course is held as a compulsory element of the Master's Programme in Defence and Security Systems Development.

On the completion of the course, an evaluation will be conducted under the auspices of the course director, which will form the basis for any changes to the course.

The course will be held in English. If no international students are admitted, parts of the course will be held in Swedish

If the student has a decision from the Swedish Defence University stating the need for extra pedagogical support because of a functional disability, the examiner may decide on alternative examination forms for the student.



Reading List
Methods in Systems Science for Defence and Security

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Course Code	2FS025
Revision	1.0
Reading List Valid from Date	2020-05-04
Reading List Decided Date	2020-05-04

Säfsten, K and Gustavsson, M., Research methodology – for engineers and other problem solvers, Studentlitteratur, 2020

- Washburn, A. and Kress, M., Combat modeling, Springer, 2009
- Birta, L.G. and Arbez, Modelling and simulation - Exploring dynamic system behaviour, Springer, 2013

Distributed literature during the course