



Course Syllabus Threat and Risk Management

Hot- och riskhantering

Course Code	2FS019	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	7.5	Language of Instruction	The teaching is conducted in English.
Progression	A1F	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 minimum of 7.5 ects in the field of Systems Science for Defence and Security or Military Studies at second-cycle level.

Course Content and Structure

Risk analysis is a methodological field emerging from civil engineering applications, although it is currently utilised in all sectors of society to support risk management. In relation to antagonistic threats, threat and risk management is a crucial methodological field that provides a basis for decisions on defence and security. This course provides a theoretical foundation for understanding, utilising and adapting threat and risk management methodology.

The course takes its starting point from descriptions of how threat and risk analysis is conducted and discussions on the role of these analyses as an element of risk management. The course therefore cover:

- Risk analysis, including defining scenarios, identifying threats and hazards and estimating risk.
- Risk assessment including decisions regarding which risks can be tolerated and analysis of options (risk control options).
- Risk reduction and management, including decision-making, implementation and monitoring.

The focus throughout the course will be on the various types of uncertainty associated with this type of work, and how these uncertainties should influence the work.

The course also addresses understanding and communicating risk as a means for critically reviewing the benefits of implemented assessments.

Intended Learning Outcomes

After completed course the student should be able to:

- perform a threat and risk analysis in a manner relevant to defence and security organisations;
- propose which decisions should be made based on the performed analyses and how these decisions can be implemented;
- with regard to the performed analyses, discuss identified uncertainties and limitations; and
- based on identified limitations, propose changes in the approach in order to reduce the level of uncertainty in a completed analysis.

Type of Instruction

The course is conducted through lectures, group work, seminars and the submission of an individual written assignment on an applied case. The course is structured in a manner that provides the student with considerable opportunities to plan their studies

individually.

Assessment

Examination

Scope: 7.5

Grading Scale: Fail, Pass, Pass with Distinction

The course is examined through a compulsory seminar and a written assignment in which each student will perform an individual threat and risk assessment.

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.

Grading

Grades are set according to a three-grade scale: Pass with merit (VG), Pass (G) and Fail (U).

A pass (G) requires active participation in the compulsory seminar and a pass (G) for the individual threat and risk assessment.

A pass with merit (VG) requires a pass with merit (VG) for the individual threat and risk assessment in addition to a pass (G) for active participation in the compulsory seminar.

Grading criteria are stated in the course description.

Restrictions in Number of Examinations

There is no limit on the total number of examination opportunities. The total number is restricted to one ordinary examination and two retakes in any two-term period, unless special circumstances exist that are acceptable to the examiner.

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 retains the right to be examined in accordance with this course syllabus once per term during a three-term period.

Miscellaneous

The course is an elective course in the Master's Programme in Defence and Security Systems Development.

The course can also be read as a freestanding course.

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 may 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
Threat and Risk Management

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Course Code	2FS019
Revision	1.0
Reading List Valid from Date	2020-06-01
Reading List Decided Date	2020-06-01

Literature (digitally available to students, also additional titles dependent on individual work):

- Agrell, W., & Treverton, G. F. (2014). Conveying uncertainty. In *National intelligence and science, Beyond the Great Divide in Analysis and Policy*. Oxford University Press.
- Aven, T. (2009). Identification of safety and security critical systems and activities. *Reliability Engineering & System Safety*, 94(2), 404–411. <https://doi.org/http://dx.doi.org/10.1016/j.ress.2008.04.001>
- Aven, T. (2012). On the link between risk and exposure. *Reliability Engineering & System Safety*, 106, 191–199. <https://doi.org/https://doi.org/10.1016/j.ress.2012.06.004>
- Aven, T. (2015a). Implications of black swans to the foundations and practice of risk assessment and management. *Reliability Engineering & System Safety*, 134(0), 83–91. <https://doi.org/http://dx.doi.org/10.1016/j.ress.2014.10.004>
- Aven, T. (2015b). On the allegations that small risks are treated out of proportion to their importance. *Reliability Engineering & System Safety*, 140(0), 116–121. <https://doi.org/http://dx.doi.org/10.1016/j.ress.2015.04.001>
- Aven, T., & Krohn, B. S. (2014). A new perspective on how to understand, assess and manage risk and the unforeseen. *Reliability Engineering & System Safety*, 121(0), 1–10. <https://doi.org/http://dx.doi.org/10.1016/j.ress.2013.07.005>
- Bang, M., & Liwång, H. (2016). Influences on threat assessment in a military context. *Defense and Security Analysis*, 32(3), 264–277. <https://doi.org/10.1080/14751798.2016.1199118>
- Huddleston, S. H., & Brown, D. E. (2009). A Statistical Threat Assessment. *Ieee Transactions on Systems Man and Cybernetics Part A-Systems and Humans*, 39(6), 1307–1315. <https://doi.org/10.1109/tsmca.2009.2027611>
- Jackson, M. C. (1995). Beyond the fads: Systems thinking for managers. *Systems Research*, 12(1), 25–42. <https://doi.org/10.1002/sres.3850120106>
- Johnson, C. W. (2012). *Military Risk Assessment: From Conventional Warfare to Counter Insurgency Operations*. University of Glasgow Press.
- Liwång, H. (2017). Risk communication within military decision-making: Pedagogic considerations. *Defense and Security Analysis*, 33(1), 30–44. <https://doi.org/10.1080/14751798.2016.1269389>
- Liwång, H. (2018). Risk level in peacetime Swedish naval operations, Meta lessons identified. *The Proceedings and Journal of the Royal Swedish Academy of War Sciences*, 2018(1), 160–180.
- Liwång, H., Ericson, M., & Bang, M. (2014). An examination of the implementation of risk based approaches in military operations. *Journal of Military Studies*, 5(2), 50–67.
- Paté-Cornell, M. E. (1996). Uncertainties in risk analysis: Six levels of treatment. *Reliability Engineering & System Safety*, 54(2–3), 95–111. [https://doi.org/http://dx.doi.org/10.1016/S0951-8320\(96\)00067-1](https://doi.org/http://dx.doi.org/10.1016/S0951-8320(96)00067-1)
- Thompson, K. M. (2002). Variability and uncertainty meet risk management and risk communication. *Risk Analysis*, 22(3), 647–654. <https://doi.org/10.1111/0272-4332.00044>
- Tomes, S. (2012). Risk: misunderstanding or military misnomer. *The British Army Review*, 153, 32–40.

Reference literature (digitally available to students):

- NATO (2007). *ALLIED JOINT DOCTRINE FOR FORCE PROTECTION (AJP-3.14)*. NATO Standardization Agency.
- US Army (2006). *Composite Risk Management*. Department of the Army. Washington DC.
- NATO (2008). *Improving Common Security Risk Analysis*. NATO Research and technology organization.
- US Army (2006). *COUNTERINSURGENCY (FM 3-24)*. Department of the Army. Washington DC.