Reg No: DVAD55/20251

Faculty of Health, Science and Technology
Computer Science

Syllabus

Cloud Security

Course Code:	DVAD55
Course Title:	Cloud Security *Molnsäkerhet*
Credits:	1.5
Degree Level:	Master's level
Progressive Specialisation:	Second cycle, has only first-cycle course/s as entry requirements (A1N)

Major Field of Study:
DVA (Computer Science)

Course Approval
The syllabus was approved by the Faculty of Health, Science and Technology 2024-09-11, and is valid from the Spring semester 2025 at Karlstad University.

Prerequisites
30 ECTS credits in Computer Science or three years of work experience in the IT sector, and upper secondary level English 6 or B, or equivalent

Learning Outcomes
Upon completion of the course, students should be able to:
1. name and describe essential security problems in cloud environments, such as cloud-specific threats and models of attack,
2. interpret and analyse scientific literature on cloud security,
3. identify risks and containment measures for various virtualisation platforms and cloud service models,
4. analyse and discuss the effect of relevant privacy and data protection legislation on the use of cloud resources,
5. demonstrate practical skills in attacking and defending cloud systems,

6. assess and explain security issues and best practice for cloud-hosted environments, and
7. communicate knowledge about relevant scientific literature, orally and in writing.

Content
The course treats security aspects pertaining to cloud service environments, specifically various modes of attack that are specific for cloud-hosted environments and virtualisation techniques, and covers most relevant countermeasures and best practices for containment, such as isolation. Common methods of standardising and certifying cloud security efforts, such as those provided by Cloud Security Alliance, are discussed. The course also outlines further aspects of cloud privacy and legal frameworks relevant to data protection in cloud contexts, such as GDPR or other frameworks for privacy between the EU and the US. Key concepts related to cloud security are examined based on laboratory experiments and self-evaluations online.

Reading List
See separate document.

Examination
Assessment is based on individual hand-in assignments and an oral exam.

If students have a decision from Karlstad University entitling them to Targeted Study Support due to a documented disability, the examiner has the right to give such students an adapted examination or to examine them in a different manner.

Grades
One of the grades 5 (Pass with Distinction), 4 (Some Distinction), 3 (Pass) or U (Fail) is awarded in the examination of the course.

Quality Assurance
Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

Course Certificate
A course certificate will be provided upon request.

Additional information
The local regulations for studies at the Bachelor and Master levels at Karlstad University stipulate the obligations and rights of students and staff.

Students are recommended (not required) to complete DVAD51 Introduction to Cloud Computing before taking DVAD55.