# COURSE SYLLABUS

## Datastyrd säkerhet
## Data-Driven Security
### 3 credits (3 högskolepoäng)

**Course code:** DV2610
**Main field of study:** Computer Science, Software Engineering
**Disciplinary domain:** Technology
**Education level:** Second cycle
**Specialization:** A1N - Second cycle, has only first cycle course/s as entry requirements

**Language of instruction:** English
**Applies from:** 2022-01-17
**Approved:** 2021-09-01

## 1. Decision

This course is established by Dean 2021-04-29. The course syllabus is approved by Head of Department of Computer Science 2021-09-01 and applies from 2022-01-17.

## 2. Entry requirements

Admission to the course requires at least 120 credits, of which at least 90 credits are in a technical area, and a minimum of 2 years professional experience within an area related to software-intensive product and/or service development (shown by, for example, a work certificate from an employer).

## 3. Objective and content

### 3.1 Objective

Organisations today produce a large amount of data. This course covers how to utilize that data for cybersecurity purposes. It covers topics such as how to acquire (e.g., through SIEM) and prepare security data, from collection and storage to management and analysis as well as visualization and presentation, predicting rouge behaviours, and correlate security events. How to use data science to understand and communicate security problems.

### 3.2 Content

This course is an introductory to the data science in security. Since our devices and users now produce tons of data, as a security people we need to understand how to extract useful information out of it. Within this course we will dive into the basics of data gathering, its preparation and processing, data management, analysis and visualisation, including machine learning basics.

Main topics of this course are:
• Intro to the Data-Driven Security
• Building the Analytics Toolbox
• Exploratory Security Data Analysis
• Network Security Review
• Network Data Sources
• Data Collection
• Data Analysis
• Machine Learning Basics
• Visualizing Security Data
• Designing Security Dashboards

## 4. Learning outcomes

The following learning outcomes are examined in the course:

### 4.1 Knowledge and understanding

On completion of the course, the student will be able to:
• Know the principles of data collection, integration, cleaning, and pre-processing.
• Understand the domain, prior knowledge, and goals.
• Discuss the data-science issues regarding the domain of cybersecurity.

#### 4.2 Competence and skills
On completion of the course, the student will be able to:
• Apply tools for processing the security data to extract an information out of it.
• Implement out-of-the-box and custom solutions to address the security through the data.

#### 4.3 Judgement and approach
On completion of the course, the student will be able to:
• Evaluate the appropriate application of the tools and methods that are presented in the course to choose the best fit for their purposes.

## 5. Learning activities
The teaching is organised around online lectures, pre-recorded videos, together with written material, literature, and research literature. Throughout the course, communication, feedback, and discussions with teachers and fellow participants will take place through email and the course's online learning platform.

## 6. Assessment and grading
Modes of examinations of the course

| Code | Module | Credits | Grade |
|------|--------|---------|-------|
| 2205 | Written assignment 1 | 1 credits | GU |
| 2215 | Written assignment 2 | 1 credits | GU |
| 2225 | Written assignment 3 | 1 credits | GU |

The course will be graded G Pass, UX Fail, supplementation required, U Fail.

The information before a course occasion states the assessment criteria and make explicit in which modes of examination that the learning outcomes are assessed.

An examiner can, after consulting the Disability Advisor at BTH, decide on a customized examination form for a student with a long-term disability to be provided with an examination equivalent to one given to a student who is not disabled.

## 7. Course evaluation
The course evaluation should be carried out in line with BTH:s course evaluation template and process.

## 8. Restrictions regarding degree
The course can form part of a degree but not together with another course the content of which completely or partly corresponds with the contents of this course.

## 9. Course literature and other materials of instruction
Materials such as research articles and other course materials, as well as recommendations for additional reading, are provided via the courses' online platform.