# **COURSE DETAIL**

#### SPATIAL STATISTICS WITH IMAGE ANALYSIS

**Country** Sweden

**Host Institution** Lund University

**Program(s)** Lund University

UCEAP Course Level Upper Division

**UCEAP Subject Area(s)** Statistics Mathematics Engineering

**UCEAP Course Number** 184

**UCEAP Course Suffix** 

UCEAP Official Title SPATIAL STATISTICS WITH IMAGE ANALYSIS

UCEAP Transcript Title SPATIAL STATS&IMAGE

**UCEAP Quarter Units** 6.00

**UCEAP Semester Units** 4.00

## **Course Description**

This course provides students with tools for handling high-dimensional statistical problems. The course contains models and methods with practical applications, mainly for spatial statistics and image analysis. Of special importance are the Bayesian aspects, since they form the foundation for many modern spatial statistical and image analysis methods. The course emphasizes methods with applications in climate, environmental statistics, and remote sensing. The following topics are covered: Bayesian methods for stochastic modelling, classification, and reconstruction; random fields, Gaussian random fields, Kriging, Markov fields, Gaussian Markov random fields, non-Gaussian observationer; covariance functions, multivariate techniques; simulation methods for stochastic inference (Gibbs sampling); applications in climate, environmental statistics, remote sensing, and spatial statistics.

## Language(s) of Instruction

English

Host Institution Course Number FMSN20/MASM25

Host Institution Course Title SPATIAL STATISTICS WITH IMAGE ANALYSIS

## **Host Institution Campus**

Science/Engineering

## Host Institution Faculty

Host Institution Degree

Host Institution Department Mathematics/Engineering- Mathematical Statistics

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