

# COURSE DETAIL

## STATISTICAL MODELING OF EXTREME VALUES

**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**

137

**UCEAP Course Suffix****UCEAP Official Title**

STATISTICAL MODELING OF EXTREME VALUES

**UCEAP Transcript Title**

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**UCEAP Quarter Units**

6.00

**UCEAP Semester Units**

4.00

## Course Description

The course presents the fundamental statistical methods for extreme value analysis, discusses examples of applications regarding floods, storm damage, human life expectancy, and corrosion, provide practical use of the models, and points to some open problems and possible developments. Extreme value theory concerns mathematical modelling of random extreme events. Recent development has introduced mathematical models for extreme values and statistical methods for them. Extreme values are of interest in economics, safety and reliability, insurance mathematics, hydrology, meteorology, environmental sciences, and oceanography, as well as branches in statistics such as sequential analysis and robust statistics. The theory is used for flood monitoring, construction of oil rigs, and calculation of insurance premiums for re-insurance of storm damage. Often extreme values can lead to very large consequences, both financial and in the loss of life and property. At the same time the experience of really extreme events is always very limited. Extreme value statistics is therefore forced to difficult and uncertain extrapolations, but is, none the less, necessary in order to use available experience in order to solve important problems.

## Language(s) of Instruction

English

## Host Institution Course Number

FMSN55

## Host Institution Course Title

STATISTICAL MODELING OF EXTREME VALUES

## Host Institution Campus

Engineering

## Host Institution Faculty

## Host Institution Degree

## Host Institution Department

Engineering- Mathematical Statistics

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