

COURSE DETAIL

MATHEMATICAL STATISTICS: STATIONARY STOCHASTIC PROCESSES

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

110

UCEAP Course Suffix**UCEAP Official Title**

MATHEMATICAL STATISTICS: STATIONARY STOCHASTIC PROCESSES

UCEAP Transcript Title

STATIONRY STOCHASTIC

UCEAP Quarter Units

6.00

UCEAP Semester Units

4.00

Course Description

Stochastic processes find applications in a wide variety of fields and offer a refined and powerful framework to examine and analyze time series. This course presents the basics for the treatment of stochastic signals and time series. Topics covered include models for stochastic dependence; concepts of description of stationary stochastic processes in the time domain including expectation, covariance, and cross-covariance functions; concepts of description of stationary stochastic processes in the frequency domain including effect spectrum and cross-spectrum; Gaussian process, Wiener process, white noise, and Gaussian fields in time and space; Stochastic processes in linear filters including relationships between in- and out-signals, autoregression and moving average (AR, MA, ARMA), and derivation and integration of stochastic processes; the basics in statistical signal processing, estimation of expectations, covariance function, and spectrum; and application of linear filters: frequency analysis and optimal filters.

Language(s) of Instruction

English

Host Institution Course Number

FMSF10/MASC14

Host Institution Course Title

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Host Institution Course Details

<https://www.lunduniversity.lu.se/lubas/i-uoh-lu-MASC14>

Host Institution Campus

Lund

Host Institution Faculty

Engineering/Science

Host Institution Degree

Host Institution Department

Course Last Reviewed

2023-2024

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