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 STOCHASTC
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

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MATHEMATICAL STATISTICS: STATIONARY STOCHASTIC PROCESSES

Host Institution Campus
Lund

Host Institution Faculty
Engineering/Science

Host Institution Degree

Host Institution Department

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