

Advanced courses in mathematics available during the spring of 2023 by study track:

Mathematics study track:

[MAST31901](#) History of mathematics (3rd--4th periods)

[MAST30001](#) Master's thesis seminar (Continues from fall)

Analysis

[MAST31014](#) Harmonic analysis I (3rd period)

[MAST31015](#) Harmonic analysis II (4th period)

[MAST30143](#) Introduction to complex analysis (4th period)

Geometry, Algebra and Topology

[MAST31005](#) Algebra II (3rd--4th period)

[MAST31025](#) de Rham theory (3rd--4th period)

[MAST31026](#) Riemannian geometry (3rd--4th period)

Mathematical Logic

[MAST30158](#) Logic and databases (3rd period)

[MAST31203](#) Model theory (3rd--4th period)

[MAST31218](#) Introduction to quantum computation (4th period)

Mathematical Physics

[MAST30130](#) Introduction to mathematical physics A (3rd period)

[MAST30131](#) Introduction to mathematical physics B (4th period)

[MAST31040](#) Coagulation Dynamics (3rd period)

MAST30159 Topics in mathematical physics (Teaching period to be confirmed)

Applied Analysis

[MAST31010](#) Partial differential equations I (3rd--4th period)

[MAST30146](#) Computational methods I (3rd period)

[MAST30147](#) Computational methods II (4th period)

Mathematical modelling

[MAST31503](#) Spatial models in ecology and evolution (3rd--4th period)

[MAST31504](#) Stochastic population models (3rd--4th period)

Insurance and Financial Mathematics

[MAST31801](#) Mathematical finance I (3rd period)

[MAST31805](#) Mathematical finance II (4th period)

[MAST31911](#) Life insurance mathematics I (3rd period)

[MAST31912](#) Life insurance mathematics II (4th period)

[MAST30154](#) Career seminar in insurance mathematics (3rd--4th period)

Probabilistic modelling

[MAST32005](#) Spatial modelling and Bayesian inference (3rd--4th period)

Statistics study track:

[MAST30003](#) Master's thesis seminar (Continues from fall)

[MAST30128](#) Asymptotic statistical inference (4th period)

[MAST32001](#) Computational statistics (3rd--4th period)

[MAST32008](#) Time series analysis II (3rd period)

[MAST32013](#) Survival and event history analysis II (4th period)

[MAST32015](#) History of statistics (Continues from fall)

Advanced courses in mathematics available during the fall of 2023 by study track:

Yleiset MAST kurssit / General MAST courses

- MAST30157 Case Studies in Mathematics
- MAST30011 & MAST30012 Master's studies seminar I&II
- MAST31901 History of mathematics

Mathematics study track:

Analysis specialization:

1. Periodi / teaching period
 - 1.1. MAST301705 Functional analysis I
 - 1.2. MAST30149 Real analysis IIA

- 1.3. MAST31016 Sobolev spaces (jatkuu periodissa 2 / continues in period 2)
2. Periodi / teaching period
 - 2.1. MAST30132 Introduction to real and Fourier analysis
 - 2.2. MAST301715 Functional analysis II
 - 2.3. MAST30150 Real analysis IIB

Teaching period undecided:

- MAST30172 Partial differential equations I
- MAST30173 Partial differential equations II

Geometry, Topology and Algebra specialization:

1. Periodi / Teaching period
 - 1.1. MAST31003 Topology II (jatkuu periodissa 2 / continues in period 2)
 - 1.2. MAST31020 Homotopy theory (jatkuu periodissa 2 / continues in period 2)
2. Periodi / Teaching period

Mathematical logic specialization:

1. Periodi / Teaching period
 - 1.1. MAST31206 Dependence logic (jatkuu periodissa 2 / continues in period 2)
 - 1.2. MAST31201 Mathematical logic (jatkuu periodissa 2 / continues in period 2)
2. Periodi / Teaching period

Mathematical physics and probability specialization:

1. Periodi / Teaching period
 - 1.1. MAST30130 Introduction to mathematical physics A
 - 1.2. MAST31706 Stochastic analysis I
 - 1.3. MAST31701 Probability theory I
2. Periodi / Teaching period
 - 2.1. MAST30131 Introduction to mathematical physics B
 - 2.2. MAST31710 Stochastic analysis II
 - 2.3. MAST31702 Probability theory II

Applied mathematics study track:

Mathematical biology specialization:

1. Periodi / Teaching period
 - 1.1. MAST30163 Mathematical modelling I
 - 1.2. LSI33003 Mathematics of infectious diseases
2. Periodi / Teaching period
 - 2.1. MAST30164 Mathematical modelling II
 - 2.2. LSI33003 Mathematics of infectious diseases

Inverse problems and imaging specialization:

1. Periodi / Teaching period
 - 1.1. MAST31401 Inverse problems I
2. Periodi / Teaching period
 - 2.1. MAST31406 Inverse problems II
 - 2.2. MAST31405 Inverse problems project work

Insurance and financial mathematics specialization:

1. Periodi / Teaching period
 - 1.1. MAST31802 Risk theory (jatkuu periodissa 2 / continues in period 2)
2. Periodi / Teaching period

Statistics study track:

Statistics specialization:

1. Periodi / Teaching period
 - 1.1. MAST32001 Computational statistics
 - 1.2. MAST30133 Multivariate analysis
 - 1.3. MAST33004 Robust regression
 - 1.4. MAST30121 Causal inference: foundation, application and assumptions

2. Periodi / Teaching period

- 2.1. MAST32006 High-dimensional statistics
- 2.2. MAST32012 Survival and event history analysis I
- 2.3. MAST32007 Time series analysis I
- 2.4. MAST32016 Statistical methods to handle missing data
- 2.5. MAST32017 Nonparametric Inference

Koko vuoden kurssit / continuous courses:

- MAST32015 History of statistics

Opetus ajankohtaa ei päätetty vielä / Teaching period undecided:

- MAST30210 Design and analysis of experiments and surveys