

**Master's Programme in Mathematics and Statistics - Preliminary teaching programme for academic year 2025-26**

| Code            | Course unit name                                    | Scope (cr) | Period       | Languages   | Form of teaching                 | Open university studies  | Open to exchange students | Open to other programmes |
|-----------------|---|------------|--------------|---|----------------------------------|--|---------------------------|--------------------------|
| MAST31505       | Adaptive Dynamics                                   | 10 cr      | 3.-4. period | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST32004       | Advanced Bayesian Inference                         | 5 cr       | 4. period    | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST31806       | Advanced risk theory                                | 5 cr       | 3. period    | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST31005       | Algebra II  | 10 cr      | 1.-2. period | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST30128       | Asymptotic statistical inference                    | 5 cr       | 3. period    | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST31202       | Axiomatic set theory                                | 10 cr      | 3.-4. period | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST30156       | Bifurcation theory                                  | 5 cr       | entire year  | English - Completely in English (or multilingual) | online teaching (not time-bound) | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST30154       | Career seminar in insurance mathematics             | 5 cr       | 3.-4. period | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST30155       | Case studies in insurance mathematics               | 5 cr       | 1.-2. period | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST30157       | Case Studies in Mathematics and Statistics          | 5 cr       | 1.-2. period | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| to be announced | Clustering, classification and nonlinear regression | 5 cr       | 3. period    | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| to be announced | Complex dynamics (preliminary name)                 | 5 cr       | 4. period    | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST31214       | Computability theory                                | 10 cr      | 3.-4. period | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST30146       | Computational methods I                             | 5 cr       | 3. period    | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST32001       | Computational statistics                            | 5 cr       | 1. period    | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST31036       | Convex analysis and optimization I                  | 5 cr       | 3. period    | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST31041       | Convex analysis and optimization II                 | 5 cr       | 4. period    | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST31206       | Dependence logic                                    | 10 cr      | 1.-2. period | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST30210       | Design and analysis of experiments and surveys      | 5 cr       | 3. period    | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST30170       | Functional analysis I                               | 5 cr       | 1. period    | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST30171       | Functional Analysis II                              | 5 cr       | 2. period    | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST32006       | High-dimensional statistics                         | 5 cr       | 3. period    | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST31901       | History of mathematics                              | 5 cr       | 3.-4. period | English - Completely in English (or multilingual) | contact teaching                 | Course unit is both for degree students and open university studies. | yes                       | yes                      |
| MAST32015       | History of statistics                               | 5 cr       | 1.-4. period | English - Completely in English (or multilingual) | online teaching (not time-bound) | Course unit is both for degree students and open university studies. | yes                       | yes                      |
| MAST31023       | Introduction to algebraic topology                  | 10 cr      | 3.-4. period | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST30143       | Introduction to Complex Analysis                    | 5 cr       | 3. period    | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |
| MAST31017       | Introduction to differential geometry               | 10 cr      | 3.-4. period | English - Completely in English (or multilingual) | contact teaching                 | Course unit is only for degree students.                             | yes                       | yes                      |

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| MAST30130       | Introduction to mathematical physics A            | 5 cr       | 3. period     | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST30131       | Introduction to mathematical physics B            | 5 cr       | 4. period     | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST31218       | Introduction to quantum computation               | 5 cr       | 3. period     | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST30132       | Introduction to Real and Fourier Analysis         | 5 cr       | 2. period     | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST31401       | Inverse Problems 1: convolution and deconvolution | 5 cr       | 1. period     | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST31406       | Inverse Problems 2: tomography and regularization | 5 cr       | 2. period     | English - Completely in English (or multilingual)          | blended teaching (both contact and distance teaching) | Course unit is only for degree students. | yes                       | yes                      |
| MAST31405       | Inverse problems Project work                     | 5 cr       | 3-4. period   | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST30011       | Master's studies seminar I                        | 2 cr       | 3. period     | Finnish, English - Completely in English (or multilingual) | contact teaching                                      | Course unit is only for degree students. | no                        | no                       |
| MAST30011       | Master's studies seminar I                        | 2 cr       | 1. period     | Finnish, English - Completely in English (or multilingual) | contact teaching                                      | Course unit is only for degree students. | no                        | no                       |
| MAST30012       | Master's studies seminar II                       | 3 cr       | 4. period     | Finnish, English - Completely in English (or multilingual) | contact teaching                                      | Course unit is only for degree students. | no                        | no                       |
| MAST30012       | Master's studies seminar II                       | 3 cr       | 2. period     | Finnish, English - Completely in English (or multilingual) | contact teaching                                      | Course unit is only for degree students. | no                        | no                       |
| MAST31201       | Mathematical logic                                | 10 cr      | 1.-2. period  | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST30163       | Mathematical modelling I                          | 5 cr       | 1. period     | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST30164       | Mathematical modelling II                         | 5 cr       | 2. period     | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST30133       | Multivariate analysis                             | 5 cr       | 2. period     | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST32017       | Nonparametric Inference                           | 5 cr       | 2. period     | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST30172       | Partial differential equations I                  | 5 cr       | 3. period     | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST30173       | Partial differential equations II                 | 5 cr       | 4. period     | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST31701       | Probability theory I                              | 5 cr       | 1. period     | English - Completely in English (or multilingual)          | blended teaching (both contact and distance teaching) | Course unit is only for degree students. | yes                       | yes                      |
| MAST31702       | Probability theory II                             | 5 cr       | 2. period     | English - Completely in English (or multilingual)          | blended teaching (both contact and distance teaching) | Course unit is only for degree students. | yes                       | yes                      |
| MAST31908       | Quantitative finance                              | 5 cr       | 3.-4. period  | English - Completely in English (or multilingual)          | blended teaching (both contact and distance teaching) | Course unit is only for degree students. | yes                       | yes                      |
| MAST31026       | Riemannian geometry                               | 10 cr      | 1.-2. period  | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST31908       | Risk theory                                       | 10 cr      | 1.-2. period  | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST33004       | Robust regression                                 | 5 cr       | 1. period     | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST31018       | Spectral theory                                   | 10 cr      | 3.-4. period  | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| to be announced | Statistical and mathematical causality theory     | 5 cr       | May intensive | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST30165       | Statistical decision theory                       | 5 cr       | 4. period     | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |
| MAST31706       | Stochastic analysis I                             | 5 cr       | 1. period     | English - Completely in English (or multilingual)          | contact teaching                                      | Course unit is only for degree students. | yes                       | yes                      |

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| MAST31710 | Stochastic analysis II                      | 5 cr       | 2. period    | English - Completely in English (or multilingual) | contact teaching | Course unit is only for degree students. | yes                       | yes                      |
| MAST31038 | Stochastic partial differential equations I | 5 cr       | 3. period    | English - Completely in English (or multilingual) | contact teaching | Course unit is only for degree students. | yes                       | yes                      |
| MAST32012 | Survival and event history analysis I       | 5 cr       | 2. period    | English - Completely in English (or multilingual) | contact teaching | Course unit is only for degree students. | yes                       | yes                      |
| MAST32013 | Survival and event history analysis II      | 5 cr       | 4. period    | English - Completely in English (or multilingual) | contact teaching | Course unit is only for degree students. | yes                       | yes                      |
| MAST31804 | Tariff theory                               | 5 cr       | 4. period    | English - Completely in English (or multilingual) | contact teaching | Course unit is only for degree students. | yes                       | yes                      |
| MAST31003 | Topology II                                 | 10 cr      | 1.-2. period | English - Completely in English (or multilingual) | contact teaching | Course unit is only for degree students. | yes                       | yes                      |