

# Requirements for the MPS Degree in Applied Statistics

---

## Degree requirements

**Required courses for a student's chosen option are listed below.**

1. Both options require a total of at least 30 credit hours in required courses and electives. The 30 required credit hours must be earned while an MPS student is enrolled in the MPS program; no transfer of credits from undergraduate study or another graduate program, etc. is allowed.
2. All required course must be taken for a letter grade, except STSCI 5953 which is S/U only.
3. At most one elective course to be used towards the MPS degree can be taken S/U each semester.
4. Option I students can take STSCI 5060, STSCI 4060, and STSCI 5065 as electives and so may take these courses S/U. For option II students, these courses are required and must be taken for a letter grade.
5. A grade of C- or better (or S for S/U courses) is required of all courses used to meet MPS requirements.
6. A GPA of 2.5 or higher in courses used towards the MPS degree is required for graduation.
7. Electives must be taken from the list below of approved electives.
8. Students can ask the Director of the MPS Program to add courses to the list of electives. With few exceptions, to be approved by the Director a course must be a technical course numbered 4000 level or higher and have substantial statistics content.
9. Two courses covering similar material and at the same level cannot both be used towards the 30 credit hours for the MPS degree.

## Core required courses for both options

**[STSCI 5030](#)**: Linear Models with Matrices (4 credits)

**[STSCI 5080](#)**: Probability Models and Inference (4 credits)

**[STSCI 5953](#)**: MPS Professional Development (1 credit)

**[STSCI 5999](#)**: Applied Statistics MPS Data Analysis Project (4 credits)

## Additional required courses for option II

**[STSCI 4060](#)**: Python Programming and its Applications in Statistics (3 credits)

**[STSCI 5060](#)**: Database Management and SAS High Performance Computing with DBMS (4 credits)

**[STSCI 5065](#)**: Big Data Management and Analysis (3 credits)

## Statistical Science Electives

Option I students must take at least 12 credit hours and Option II students at least 4 credits of Statistical Science electives from this list. Option II students cannot use STSCI 4060, 5060, or 5065 as a statistical science elective since these courses are required as core option II courses.

- [STSCI 3100](#): Statistical Sampling (4 credits)
- [STSCI 4520](#): Statistical Computing (4 credits)
- [STSCI 4060](#): Python Programming and its Applications in Statistics (3 credits)
- [STSCI 4100](#): Multivariate Analysis (4 credits)
- [STSCI 4110](#): Categorical Data (4 credits)
- [STSCI 4140](#): Applied Design (4 credits)
- [STSCI 4270](#): Survival Analysis (3 credits)
- [STSCI 4550](#): Applied Time Series Analysis (4 credits)
- [STSCI 4740](#): Data Mining and Machine Learning (4 credits)
- [STSCI 4780](#): Bayesian Data Analysis: Principles and Practice
- [STSCI 5640](#): Statistics for Financial Engineering (4 credits)
- [STSCI 5010](#): Applied Statistical Computation with SAS (4 credits)
- [STSCI 5060](#): Database Management and SAS High Performance Computing with DBMS (4 credits)
- [STSCI 5065](#): Big Data Management and Analysis (3 credits)
- [STSCI 6070](#): Functional Data Analysis (3 credits)
- [STSCI 6520](#): Computationally Intensive Statistical Methods (4 credits)

## Other Approved MPS Electives

- [AEM 7100](#): Econometrics I (3 credits)
- [BTRY 3090](#): Theory of Interest (3 credits)
- [BTRY 4830](#): Quantitative Genomics and Genetics (4 credits)
- [BTRY 4840](#): Computational Genetics and Genomics (4 credits)
- [BTRY 6381](#): Bioinformatics Programming (3 credits)
- [CS 4780](#): Machine Learning (4 credits)
- [CS 5786](#): Machine Learning for Data Science (4 credits)
- [MATH 4740](#): Stochastic Processes (4 credits)
- [ORIE 3120](#): Practical Tools for Operations Research, Machine Learning, and Data Science (4 credits)
- [ORIE 4630](#): Operations Research Tools for Financial Engineering (3 credits)
- [ORIE 4741](#): Learning with Big Messy Data (4 credits)
- [ORIE 5510](#): Introduction to Engineering Stochastic Processes I (4 credits)
- [ORIE 5580](#): Simulation Modeling & Analysis (4 credits)
- [ORIE 5581](#): Monte Carlo Simulation (2 credits)
- [ORIE 5600](#): Financial Engineering with Stochastic Calculus I (4 credits)
- [ORIE 5610](#): Financial Engineering with Stochastic Calculus II (4 credits)
- [ORIE 5640](#): Statistics for Financial Engineering (4 credits)
- [ORIE 6500](#): Applied Stochastic Processes (4 credits)
- [ORIE 6741](#): Bayesian Machine Learning (3 credits)
- [ORIE 6780](#): Bayesian Statistics and Data Analysis (3 credits)

Last updated: January 22, 2019