### Interdisciplinary Doctor of Philosophy in Statistics

Interdisciplinary Doctoral Program in Statistics ([http://catalog.mit.edu/interdisciplinary/graduate-programs/phd-statistics](http://catalog.mit.edu/interdisciplinary/graduate-programs/phd-statistics))

#### Common Core
All students in the Interdisciplinary Doctoral Program in Statistics are required to complete the common core for a total of 27 units.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.436</td>
<td>Fundamentals of Probability</td>
<td>12</td>
</tr>
<tr>
<td>or 18.175</td>
<td>Theory of Probability</td>
<td></td>
</tr>
<tr>
<td>18.655</td>
<td>Mathematical Statistics</td>
<td>12</td>
</tr>
<tr>
<td>IDS.190</td>
<td>Doctoral Seminar in Statistics and Data Science</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Units:** 27

#### Program-specific Requirements
Each student must complete the requirements specified by their home department in the lists below by taking one subject from the Computation and Statistics category and one subject from the Data Analysis category.

**Aeronautics and Astronautics**

**Computation and Statistics**

*Select one of the following:* 12

- 6.438 Algorithms for Inference
- 6.867 Machine Learning
- 9.520 Statistical Learning Theory and Applications
- 16.391 Statistics for Engineers and Scientists
- 16.940 Numerical Methods for Stochastic Modeling and Inference

**Data Analysis**

*Select one of the following:* 12

- 16.393 Statistical Communication and Localization Theory
- 16.470 Statistical Methods in Experimental Design
- IDS.131 Statistics, Computation and Applications

**Total Units:** 24

**Economics**

**Computation and Statistics**

*Select one of the following:* 12

- 6.867 Machine Learning
- 9.520 Statistical Learning Theory and Applications
- 14.381 Statistical Method in Economics

**Data Analysis**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>9.520</td>
<td>Statistical Learning Theory and Applications</td>
</tr>
<tr>
<td>6.867</td>
<td>Machine Learning</td>
</tr>
</tbody>
</table>

**Mathematics**

**Computation and Statistics**

*Select one of the following:* 12

- 6.252 Nonlinear Optimization
- 6.256 Algebraic Techniques and Semidefinite Optimization
- 6.438 Algorithms for Inference
- 6.867 Machine Learning
- 9.520 Statistical Learning Theory and Applications
- 18.337 Numerical Computing and Interactive Software
- 18.338 Eigenvalues of Random Matrices
- 18.415 Advanced Algorithms
- 18.416 Randomized Algorithms
- 18.657 Topics in Statistics

**Data Analysis**

*Select one of the following:* 12

- 6.555 Biomedical Signal and Image Processing
- 6.869 Advances in Computer Vision
- 9.073 Statistics for Neuroscience Research
- 9.272 Topics in Neural Signal Processing
- 18.367 Waves and Imaging
- IDS.131 Statistics, Computation and Applications

**Total Units:** 24

**Political Science**

**Computation and Statistics**

*Select one of the following:* 12

- 6.867 Machine Learning
- 9.520 Statistical Learning Theory and Applications
- 14.381 Statistical Method in Economics
Select one of the following:  

17.802 Quantitative Research Methods II: Causal Inference
17.804 Quantitative Research Methods III: Generalized Linear Models and Extensions
17.806 Quantitative Research Methods IV: Advanced Topics

Total Units: 24

Social and Engineering Systems
Computation and Statistics

Select one of the following:  

6.434[J] Statistics for Engineers and Scientists
6.438 Algorithms for Inference
6.867 Machine Learning
9.520[J] Statistical Learning Theory and Applications
14.381 Statistical Method in Economics
14.382 Econometrics
15.077[J] Statistical Learning and Data Mining
17.802 Quantitative Research Methods II: Causal Inference
17.804 Quantitative Research Methods III: Generalized Linear Models and Extensions
17.806 Quantitative Research Methods IV: Advanced Topics

Data Analysis

Select one of the following:  

6.555[J] Biomedical Signal and Image Processing
6.869 Advances in Computer Vision
9.272[J] Topics in Neural Signal Processing
18.367 Waves and Imaging
IDS.131[J] Statistics, Computation and Applications

Total Units: 24-27