INTERDISCIPLINARY DOCTOR OF PHILOSOPHY IN STATISTICS

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

Interdisciplinary PhD in 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.

6.7700[J]	Fundamentals of Probability	12
or 18.675	Theory of Probability	
IDS.190	Doctoral Seminar in Statistics and Data Science	3
Select one of the following: [1]		12
18.6501	Fundamentals of Statistics	
18.655	Mathematical Statistics	
IDS.160[J]	Mathematical Statistics: a Non-Asymptotic Approach	
Total Units		**27**

[1] *Mathematics students may not elect 18.6501 (http://student.mit.edu/catalog/search.cgi?search=18.6501).*

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
6.7810	Algorithms for Inference	
6.7900	Machine Learning	
9.520[J]	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[J]	Statistics, Computation and Applications	
Total Units		**24**

Brain and Cognitive Sciences

Computation and Statistics		
Select one of the following:		12
6.8800[J]	Biomedical Signal and Image Processing	
6.7900	Machine Learning	
9.190	Computational Psycholinguistics	
9.520[J]	Statistical Learning Theory and Applications	
9.660	Computational Cognitive Science	
Data Analysis		
Select one of the following:		12
9.073[J]	Statistics for Neuroscience Research	
9.272[J]	Topics in Neural Signal Processing	
9.583[J]	Functional Magnetic Resonance Imaging: Data Acquisition and Analysis	
Total Units		**24**

Economics

Computation and Statistics		
Select one of the following: [1]		12
9.520[J]	Statistical Learning Theory and Applications	
6.7900	Machine Learning	
Data Analysis		
14.192	Advanced Research and Communication	12
14.386	New Econometric Methods	12
or 14.387	Applied Econometrics	
Total Units		**36**

[1] *Students may substitute a more advanced subject with permission of the program director.*

Mathematics

Computation and Statistics		
Select one of the following: [1]		12
6.7220[J]	Nonlinear Optimization	
6.7230[J]	Algebraic Techniques and Semidefinite Optimization	
6.7810	Algorithms for Inference	
6.7900	Machine Learning	

9.520[J]	Statistical Learning Theory and Applications	
18.337[J]	Parallel Computing and Scientific Machine Learning	
18.338	Eigenvalues of Random Matrices	
18.415[J]	Advanced Algorithms	
18.416[J]	Randomized Algorithms	
18.657	Topics in Statistics	
Data Analysis		
Select one of the following:		12
6.8800[J]	Biomedical Signal and Image Processing	
6.8300	Advances in Computer Vision	
9.073[J]	Statistics for Neuroscience Research	
9.272[J]	Topics in Neural Signal Processing	
18.367	Waves and Imaging	
IDS.131[J]	Statistics, Computation and Applications	
Total Units		**24**

[1] *Students may petition to use IDS.160 to fulfill the Computation and Statistics requirement, if not elected as part of the Common Core.*

Mechanical Engineering

Computation and Statistics		
2.168	Learning Machines	12
or 6.7910[J]	Statistical Learning Theory and Applications	
Data Analysis		
2.122	Stochastic Systems	12
or 2.29	Numerical Fluid Mechanics	
Total Units		**24**

Physics

Computation and Statistics		
Select one of the following:		12
6.7810	Algorithms for Inference	
6.8610	Quantitative Methods for Natural Language Processing	
6.7900	Machine Learning	
6.8710[J]	Computational Systems Biology: Deep Learning in the Life Sciences	
9.520[J]	Statistical Learning Theory and Applications	
16.940	Numerical Methods for Stochastic Modeling and Inference	
18.337[J]	Parallel Computing and Scientific Machine Learning	
Data Analysis		
Select one of the following:		12
6.8300	Advances in Computer Vision	
8.334	Statistical Mechanics II	
8.371[J]	Quantum Information Science	
8.591[J]	Systems Biology	
8.592[J]	Statistical Physics in Biology	
8.942	Cosmology	
9.583[J]	Functional Magnetic Resonance Imaging: Data Acquisition and Analysis	
16.456[J]	Biomedical Signal and Image Processing	
18.367	Waves and Imaging	
IDS.131[J]	Statistics, Computation and Applications	
IDS.957	Practical Experience in Data Analysis	
Total Units		**24**

Political Science

Computation and Statistics		
Select one of the following:		12
6.7900	Machine Learning	
9.520[J]	Statistical Learning Theory and Applications	
14.380 & 14.381	Statistical Method in Economics and Estimation and Inference for Linear Causal and Structural Models	
Data Analysis		
Select one of the following:		12
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:		12
6.7810	Algorithms for Inference	
6.7900	Machine Learning	
9.520[J]	Statistical Learning Theory and Applications	
16.391	Statistics for Engineers and Scientists	

14.380 & 14.381	Statistical Method in Economics and Estimation and Inference for Linear Causal and Structural Models	
14.382	Econometrics	
15.077[J]	Statistical Machine Learning and Data Science	
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:		12-15
6.8800[J]	Biomedical Signal and Image Processing	
6.8300	Advances in Computer Vision	
9.073[J]	Statistics for Neuroscience Research	
9.272[J]	Topics in Neural Signal Processing	
18.367	Waves and Imaging	
IDS.131[J]	Statistics, Computation and Applications	
IDS.957	Practical Experience in Data Analysis	
Total Units		**24-27**