

## Data Science Minor

### Required courses:

1. Math 2830 Introductory Statistics, Math 3382 Statistical Theory, or Math 3800 Probability and Statistics for Engineers
2. Math 4830 Applied Statistics or Math 4387 Applied Regression Analysis
3. Math 1376 Programming for Data Science or ISMG 4400 Web Application Development (Programming Fundamentals with Python)
4. Math 3376 Data Wrangling & Visualization
5. 2 eligible department-approved electives (discussed in more detail below).

The following table is a breakdown the Data Science core, including relevant prerequisites:

	Data Science Core	Prerequisite
Choose one:	Math 2830 Introductory Statistics	None
	Math 3800 Prob/Stat for Engineers	Calc III (co-requisite)
	Math 3382 Statistical Theory	Calc III
Choose one:	Math 4830 Applied Statistics	Math 2830
	Math 4387 Applied Regression Analysis	Math 3800 or 3382, Math 3191 or 3195
Choose one:	Math 1376 Programming for Data Science	None
	<b>ISMG 4400 Web Application Development</b>	<b>ISMG 2800 and ISMG 3500 (co-requisite)</b>
	Math 3376 Data wrangling & visualization	Math 2830 or 3382 and programming experience

### Currently eligible electives:

MATH 3191 - Applied Linear Algebra  
 MATH 3195 - Linear Algebra and Differential Equations  
 MATH 3200 - Elementary Differential Equations  
 MATH 3301 - Introduction to Optimization in Operations Research  
 MATH 3302 - Simulation in Operations Research  
 MATH 4390 - Game Theory  
 MATH 4394 - Experimental Designs  
 MATH 4408 - Applied Graph Theory  
 MATH 4650 - Numerical Analysis I  
 MATH 4660 - Numerical Analysis II  
 MATH 4733 - Partial Differential Equations  
 MATH 4791 - Continuous Modeling  
 MATH 4792 - Probabilistic Modeling  
 MATH 4793 - Discrete Math Modeling  
 MATH 4794 - Optimization Modeling  
 MATH 4810 - Probability  
 MATH 6330 - Workshop in Statistical Consulting  
 ECON 4030 - Data Analysis with SAS  
 ECON 4811 - Introduction to Econometrics  
 CSCI 3287 - Database System Concepts  
 CSCI 3963 - Network Structures  
 CSCI 4455 – Data Mining

CSCI 4580 – Data Science  
CSCI 4788 – Bioinformatics  
CSCI 4930 – Machine Learning  
CSCI 4931 – Deep Learning  
CSCI 4951 – Big Data Systems  
ISMG 3000 – Technology in Business  
ISMG 3500 - Enterprise Data and Content Management  
GEOG 4080: Geographic Information Systems  
GEOG 4081: Introduction to Cartography and Computer Mapping  
GEOG/GEOL 4070: Remote Sensing II: Advanced Remote Sensing  
GEOG 4085: GIS Applications for the Urban Environment  
GEOG 4090: Environmental Modeling with GIS  
GEOG 4091: Open Source Software for Geospatial Applications  
GEOG 4092: GIS Programming and Automation  
GEOG 4095: Deploying GIS Functionality on the Web  
GEOG 4235: GIS Applications in the Health Sciences