BS in Data Science with a Statistics Concentration

Degree Requirements

To earn a Bachelor of Science in Data Science with a Statistics Concentration from UIC, students need to complete university, college, and department degree requirements. The degree requirements are outlined below. Students should consult the College of Engineering section for additional degree requirements and college academic policies.

Code	Title	Hours
Summary of Requirements		
General and Basic Education Requirements		37
Core Courses		57
Statistics Concentration Requirements		15
Free Electives		11
Total Hours		**120**

General and Basic Education Requirements

Code	Title	Hours
ENGL 160	Academic Writing I: Writing in Academic and Public Contexts	3
ENGL 161	Academic Writing II: Writing for Inquiry and Research	3
Foreign Language		8
Understanding the Individual and Society course [a]		3
Understanding U.S. Society course [a]		3
Exploring World Cultures course [a]		3
Understanding the Creative Arts course [a]		3
Understanding the Past course [a]		3
Two Analyzing the Natural World courses (with lab) [a,b]		8
Total Hours		**37**

a *Students should consult the General Education section of the catalog for a list of approved courses.*

b *Students planning to pursue the Bioinformatics Concentration will take BIOS 110 and BIOS 120 to fulfill the Analyzing the Natural World requirement.*

Core Courses

Code	Title	Hours
Required Courses		
ENGR 100	Engineering Orientation (no graduation credit)	1
MATH 180	Calculus I	4
MATH 181	Calculus II	4
MATH 210	Calculus III	3
MATH 310	Applied Linear Algebra	3
CS 111	Program Design I	3
CS 141	Program Design II	3
CS 151	Mathematical Foundations of Computing	3
or MCS 361	Discrete Mathematics	
CS 211	Programming Practicum	2
CS 251	Data Structures	4
CS 377	Communication and Ethical Issues in Computing	3
Select one of the following:		3
STAT 381	Applied Statistical Methods I	
IE 342	Probability and Statistics for Engineers [a]	
ECE 341	Probability and Random Processes for Engineers [b]	
STAT 382	Statistical Methods and Computing	3
or IDS 462	Statistical Software for Business Applications	
STAT 385	Elementary Statistical Techniques for Machine Learning and Big Data	3
STAT 481	Applied Statistical Methods II	3
IDS 312	Business Project Management	3
IDS 435	Optimization for Analytics	3
CS 418	Introduction to Data Science [c]	3
or IDS 472	Business Data Mining	
CS 480	Database Systems [c]	3
or IDS 410	Business Database Technology	
Total Hours		**57**

a *IE 342 must be taken for the Concentration in Industrial Engineering.*

b *ECE 341 must be taken for the Concentration in Data Processing, Science, and Engineering.*

c *CS 418 and CS 480 must be taken for the Concentration in Computer Science.*

Statistics Concentration Requirements

Code	Title	Hours
Required Courses		
STAT 401	Introduction to Probability	3
STAT 411	Statistical Theory	3
STAT 451	Computational Statistics	3
STAT 485	Intermediate Statistical Techniques for Machine Learning and Big Data	3
STAT 486	Statistical Consulting	3
Optional Electives		
CS 411	Artificial Intelligence I	
CS 424	Visualization and Visual Analytics	
STAT 431	Introduction to Survey Sampling	
STAT 475	Mathematics and Statistics for Actuarial Sciences I	
Total Hours		**15**

Free Electives

Code	Title	Hours
Electives		
Select 11 hours of Free Electives.		11
Total Hours		**11**

Sample Course Schedule

Course	Title	Hours
First Year		
First Semester		
CS 111	Program Design I	3
ENGL 160	Academic Writing I: Writing in Academic and Public Contexts	3
MATH 180	Calculus I	4
Analyzing the Natural World (with Lab) General Education course		4
ENGR 100	Engineering Orientation	1
	Hours	**15**
Second Semester		
CS 141	Program Design II	3
ENGL 161	Academic Writing II: Writing for Inquiry and Research	3
MATH 181	Calculus II	4
General Education Core course		3
Foreign Language		4
	Hours	**17**
Second Year		
First Semester		
CS 151 or MCS 361	Mathematical Foundations of Computing or Discrete Mathematics	3
CS 211	Programming Practicum	2
STAT 381 or IE 342 or ECE 341	Applied Statistical Methods I or Probability and Statistics for Engineers or Probability and Random Processes for Engineers	3
Analyzing the Natural World (with lab) General Education course		4
Foreign Language		4
	Hours	**16**
Second Semester		
CS 251	Data Structures	4
STAT 382 or IDS 462	Statistical Methods and Computing or Statistical Software for Business Applications	3
IDS 312	Business Project Management	3
MATH 210	Calculus III	3
General Education Core course		3
	Hours	**16**
Third Year		
First Semester		
CS 377	Communication and Ethical Issues in Computing	3
CS 480 or IDS 410	Database Systems or Business Database Technology	3
STAT 385	Elementary Statistical Techniques for Machine Learning and Big Data	3
MATH 310	Applied Linear Algebra	3
General Education Core course		3
	Hours	**15**
Second Semester		
CS 418 or IDS 472	Introduction to Data Science or Business Data Mining	3
STAT 481	Applied Statistical Methods II	3
IDS 435	Optimization for Analytics	3
Concentration Requirement		3
Free Elective		3
	Hours	**15**
Fourth Year		
First Semester		
Concentration Requirement		3
Concentration Requirement		3
General Education Core course		3
Free Elective		4
	Hours	**13**
Second Semester		
Concentration Requirement		3
Concentration Requirement		3
General Education Core course		3
Free Elective		4
	Hours	**13**
	Total Hours	**120**