

# Data Science

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## Department Information

- **Department Web Site:**  
www.ndsu.edu/cs/ (<http://www.ndsu.edu/cs/>)
- **Credential Offered:**  
UG Certificate
- **Program Overview:**  
[catalog.ndsu.edu/programs-study/undergraduate/data-science/](http://catalog.ndsu.edu/programs-study/undergraduate/data-science/) (<http://catalog.ndsu.edu/programs-study/undergraduate/data-science/>)

## Degree Requirements

### Major: Data Science

Degree Type: B.S.

Minimum Degree Credits to Graduate: 120

### University Degree Requirements

1. Satisfactory completion of all requirements of the curriculum in which one is enrolled.
2. Earn a minimum total of 120 credits in approved coursework. Some academic programs exceed this minimum.
3. Satisfactory completion of the general education requirements as specified by the university.
4. A minimum institutional GPA of 2.00 based on work taken at NDSU.
5. At least 30 credits must be NDSU resident credits. Resident credits include credits registered and paid for at NDSU.
6. At least 36 credits presented for graduation must be in courses numbered 300 or higher.
7. Students presenting transfer credit must meet the NDSU residence credits and the minimum upper level credit. Of the 30 credits earned in residence, a minimum of 15 semester credits must be in courses numbered 300 or above, and 15 semester credits must be in the student's curricula for their declared major.

For complete information, please refer to the Degree and Graduation Requirements (<http://catalog.ndsu.edu/academic-policies/undergraduate-policies/degree-and-graduation/>) section of this Bulletin.

### University General Education Requirements

A list of university approved general education courses and administrative policies are available here (<http://catalog.ndsu.edu/academic-policies/undergraduate-policies/general-education/#genedcoursestext>).

Code	Title	Credits
<b>Category C: Communication</b>		<b>12</b>
ENGL 110	College Composition I	
ENGL 120	College Composition II	
COMM 110	Fundamentals of Public Speaking	
Upper Division Writing <sup>†</sup>		
<b>Category R: Quantitative Reasoning <sup>†</sup></b>		<b>3</b>
<b>Category S: Science and Technology <sup>†</sup></b>		<b>10</b>
<b>Category A: Humanities and Fine Arts <sup>†</sup></b>		<b>6</b>
<b>Category B: Social and Behavioral Sciences <sup>†</sup></b>		<b>6</b>
<b>Category W: Wellness <sup>†</sup></b>		<b>2</b>
<b>Category D: Cultural Diversity <sup>**†</sup></b>		
<b>Category G: Global Perspectives <sup>**†</sup></b>		
<b>Total Credits</b>		<b>39</b>

\* Courses for category D & G are satisfied by completing D & G designated courses in another general education category.

† General education courses may be used to satisfy requirements for both general education and the major, minor, and program emphases, where applicable. Students should carefully review major requirements to determine if specific courses can also satisfy these general education categories.

Code	Title	Credits
<b>Major Core Requirements</b>		
Select one from the following:		3
CSCI 114	Computer Applications	
TL 116	Business Software Applications	
CSCI 159	Computer Science Problem Solving	
ENGL 321	Writing in the Technical Professions	3
or ENGL 324	Writing in the Sciences	
BUSN 380	Business Analytics: Business Problem Solving with Spreadsheets	3
MATH 165	Calculus I	4
MATH 166	Calculus II	4
STAT 367	Probability	3
STAT 368	Statistics	3
STAT 412	Statistics for Data Science using R	3
MIS 340	Applied Business Intelligence	3
MIS 479	Business Data Mining and Predictive Analytics	3
CSCI 312	Survey of Programming Languages	3
CSCI 222	Discrete Mathematics	3
CSCI 227	Computing Fundamentals in Python I	3
CSCI 228	Computing Fundamentals in Python II	3
CSCI 161	Computer Science II	4
CSCI 366	Database Systems	3
Select one from the following:		3
PHIL 216	Business Ethics	
CSCI 489	Social Implications of Computers	
ENGR 327	Ethics, Engineering, and Technology	
<b>Major Track</b>		
Select one track from below to complete the major		12
<b>Total Credits</b>		<b>66</b>

### Track One: Artificial Intelligence

Code	Title	Credits
Select 12 credits from the following:		12
CSCI 313	Software Development with Frameworks	
CSCI 420	Introduction to Data Science in Python	
CSCI 422	Fundamentals of Data Engineering	
CSCI 425	Machine Learning	
CSCI 426	Introduction to Artificial Intelligence	
CSCI 428	Artificial Intelligence, Ethics, and the Environment	
CSCI 450	Cloud Computing	
CSCI 479	Introduction to Data Mining (Introduction to Data Mining)	
<b>Total Credits</b>		<b>12</b>

### Track Two: Statistical Data Analytics

Code	Title	Credits
STAT 460	Applied Survey Sampling	3
STAT 462	Introduction to Experimental Design	3
STAT 463	Nonparametric Statistics	3
STAT 464	Discrete Data Analysis	3
<b>Total Credits</b>		<b>12</b>

**Track Three: Business Analytics**

<b>Code</b>	<b>Title</b>	<b>Credits</b>
MRKT 466	Digital Marketing Analytics	3
SCM 330	Supply Chain Analysis and Analytics	3
SCM 455	Supply Chain Technology Enablers	3
MIS 350	Enterprise Systems	3
<b>Total Credits</b>		<b>12</b>

**Track Four: Generalist**

<b>Code</b>	<b>Title</b>	<b>Credits</b>
Select any courses from Tracks 1-3 or list below for a total of 12 credits.		12
IME 470	Operations Research I	3