**DATA SCIENCE, BS (COLLEGE OF ENGINEERING AND APPLIED SCIENCE, DEPARTMENT OF COMPUTER SCIENCE)**

The Bachelor of Science in Data Science (BSDS) program is a special degree program that blends courses from both the College of Letters & Science and the College of Engineering & Applied Science. It is a structured curriculum offering courses from both statistics and computer science, in addition to electives from other departments and colleges.

The job outlook for individuals with data science degrees is extremely favorable. A student with combined skills in statistical analysis and computer programming is likely to be in high demand on the job market.

Our program is highly technical in nature yet still retains elements of a classic liberal arts degree. Students take courses in the humanities, social sciences, and natural sciences as part of the general education requirements, in addition to mandatory courses on the ethical implications of data science and on writing and communication. A broad world view of cultures, history, and society leads to better decision-making in scientific careers, and strong communication skills make graduates even more attractive in the job market.

**Data Sciences Program Requirements**

Students who intend to complete the BS in Data Sciences (BSDS) program in four years will need to begin taking mathematics in their first semester. Such students should have a University of Wisconsin-Milwaukee mathematics placement level of 30 (ready for precalculus) or better.

**Admission**

For admission to the BSDS program, students need only meet the general requirements of admission to UW-Milwaukee.

As soon as students realize their interest in the BSDS degree, they should consult with an BSDS advisor either in the College of Engineering and Applied Science or College of Letters and Science, who will assist in planning a program.

**Degree Requirements**

The program requires at least 120 credits, which include University-wide General Education Requirements (https://catalog.uwm.edu/policies/undergraduate-policies/#generaleducationtext), 24 credits of mandatory preparatory courses, 36 credits of mandatory advanced core courses, a capstone course or an internship at the end of the coursework, and additional elective courses to fulfill the overall credit requirement.

An overall GPA of 2.000 on all coursework attempted at UWM is required for this degree. In addition, students must achieve a 2.000 GPA on all coursework attempted, including transfer work. A minimum 2.000 GPA must be earned on all 300-level and above courses taken to satisfy the advanced requirements. Students satisfy the residency requirement for the degree by completing at UWM both a minimum of 15 credits of the required advanced courses and one of the following:

- The last 30 credits;
- 45 of the last 60 credits;
- Any 90 credits.

### Code | Preparatory Courses | Title | Credits
---|---|---|---
**Mathematics**
- MATH 231  Calculus and Analytic Geometry I
- MATH 232  Calculus and Analytic Geometry II
- MATH 233  Calculus and Analytic Geometry III
- MATH 234  Linear Algebra and Differential Equations
- or MATH 240  Matrices and Applications

**Statistics**
- MTHSTAT 215  Elementary Statistical Analysis
- or MTHSTAT 216  Introduction to Statistical Computing and Data Science

**Computer Science**
- COMPSCI 250  Introductory Computer Programming
- COMPSCI 251  Intermediate Computer Programming
- COMPSCI 350  Advanced Computer Programming
- MTHSTAT 361  Introduction to Mathematical Statistics I
- MTHSTAT 362  Introduction to Mathematical Statistics II
- MTHSTAT 563  Regression Analysis
- MTHSTAT 566  Computational Statistics
- MTHSTAT 568  Multivariate Statistical Analysis
- COMPSCI 315  Introduction to Computer Organization and Assembly Language Programming
- COMPSCI 351  Data Structures and Algorithms
- COMPSCI 395  Social, Professional, and Ethical Issues
- or PHILOS 237  Technology, Values, and Society
- COMPSCI 422  Introduction to Artificial Intelligence
- COMPSCI 411  Machine Learning and Applications
- or COMPSCI 425  Introduction to Data Mining
- COMPSCI 557  Introduction to Database Systems
- ENGLISH 310  Writing, Speaking, and Technoscience in the 21st Century

**Total Credits**

<table>
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<tr>
<th>Code</th>
<th>Core Courses</th>
<th>Title</th>
<th>Credits</th>
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**Statistics**
- MTHSTAT 361  Introduction to Mathematical Statistics I
- MTHSTAT 362  Introduction to Mathematical Statistics II
- MTHSTAT 563  Regression Analysis
- MTHSTAT 566  Computational Statistics
- MTHSTAT 568  Multivariate Statistical Analysis
- COMPSCI 315  Introduction to Computer Organization and Assembly Language Programming
- COMPSCI 351  Data Structures and Algorithms
- COMPSCI 395  Social, Professional, and Ethical Issues
- or PHILOS 237  Technology, Values, and Society
- COMPSCI 422  Introduction to Artificial Intelligence
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**Total Credits**

<table>
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<tr>
<th>Code</th>
<th>Capstone Experience (select one of the options below)</th>
<th>Title</th>
<th>Credits</th>
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- MTHSTAT 489  Internship in Mathematical Statistics, Upper Division
- MATH 599  Capstone Experience
- COMPSCI 595  Capstone Project
- COMPSCI 599  Senior Thesis

**Credits**

24-25

36

1-6
<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>COMPSCI 317</td>
<td>Discrete Information Structures</td>
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<td>COMPSCI 411</td>
<td>Machine Learning and Applications</td>
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<tr>
<td>COMPSCI 423</td>
<td>Introduction to Natural Language Processing</td>
<td>3</td>
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<tr>
<td>COMPSCI 425</td>
<td>Introduction to Data Mining</td>
<td>3</td>
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<tr>
<td>COMPSCI 444</td>
<td>Introduction to Text Retrieval and Its Applications in Biomedicine</td>
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<td>COMPSCI 459</td>
<td>Fundamentals of Computer Graphics</td>
<td>3</td>
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<td>COMPSCI 469</td>
<td>Introduction to Computer Security</td>
<td>3</td>
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<tr>
<td>COMPSCI 535</td>
<td>Algorithm Design and Analysis</td>
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<td>MTHSTAT 562</td>
<td>Design of Experiments</td>
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<td>MTHSTAT 564</td>
<td>Time Series Analysis</td>
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<td>MTHSTAT 565</td>
<td>Nonparametric Statistics</td>
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<td>MATH 315</td>
<td>Mathematical Programming and Optimization</td>
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<td>MATH 318</td>
<td>Topics in Discrete Mathematics</td>
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<td>MATH 341</td>
<td>Seminar: Introduction to the Language and Practice of Mathematics</td>
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<td>MATH 571</td>
<td>Introduction to Probability Models</td>
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<td>INFOST 120</td>
<td>Information Technology Ethics</td>
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<td>INFOST 315</td>
<td>Knowledge Organization for Information Science and Technology</td>
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<td>INFOST 465</td>
<td>Legal Aspects of Information Products and Services</td>
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<td>INFOST 660</td>
<td>Information Policy</td>
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<tr>
<td>INFOST 661</td>
<td>Information Ethics</td>
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**Honors in the College of Engineering and Applied Science**

**Dean's Honor List**

GPA of 3.500 or above, earned on a full-time student’s GPA on 12 or more graded credits in a given semester.

**Honors College Degree and Honors College Degree with Distinction**

Granted to graduating seniors who complete Honors College requirements, as listed in the Honors College [link](http://catalog.uwm.edu/opportunities-resources/honors-college/) section of this site.

**Commencement Honors**

Students with a cumulative GPA of 3.500 or above, based on a minimum of 40 graded UWM credits earned prior to the final semester, will receive all-university commencement honors and be awarded the traditional gold cord at the December or May Honors Convocation. Please note that for honors calculation, the GPA is **not** rounded and is truncated at the third decimal (e.g., 3.499).

**Final Honors**

Earned on a minimum of 60 graded UWM credits: Cum Laude - 3.500 or above; Magna Cum Laude - 3.650 or above; Summa Cum Laude - 3.800 or above.