MINOR IN DATA SCIENCE

Program Learning Outcomes for the Minor in Data Science

Upon completing the minor in Data Science, students will be able to:

1. Formulate questions in a domain that can be answered with data.
2. Use tools and algorithms from statistics, applied mathematics, and computer science for analyses.
3. Visualize, interpret, and explain results cogently, accurately, and persuasively.
4. Understand the underlying social, political, and ethical contexts that are importantly and inevitably tied to data-driven decision-making.

Requirements for the Minor in Data Science

Students pursuing the minor in Data Science must complete:

- A minimum of 9 courses (27-30 credit hours, depending on course selection) to satisfy minor requirements.
- A minimum of 6 courses (18-20 credit hours, depending on course selection) taken at the 300-level or above.
- 3 courses (9-10 credit hours, depending on course selection) to satisfy Prerequisites.
- 5 courses (15-17 credit hours, depending on course selection) to satisfy the Core Requirements.
- A capstone project (3 credit hours).

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor's Official Certifier [https://registrar.rice.edu/facstaff/degeworks/officialcertifier]). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Minor in Data Science</td>
<td>27:30</td>
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Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Prerequisites</td>
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**Mathematics**

MATH 101  SINGLE VARIABLE CALCULUS I  6
or MATH 105AP/OTH CREDIT IN CALCULUS I
or MATH 211ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA

MATH 102  SINGLE VARIABLE CALCULUS II  3
or MATH 105AP/OTH CREDIT IN CALCULUS II
or MATH 211MULTIVARIABLE CALCULUS

**Programming**

COMP 140  COMPUTATIONAL THINKING  3-4

Core Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>DSCI 301 / STAT 315</td>
<td>PROBABILITY AND STATISTICS FOR DATA SCIENCE</td>
<td>3-4</td>
</tr>
<tr>
<td>or STAT 310</td>
<td>PROBABILITY AND STATISTICS</td>
<td></td>
</tr>
<tr>
<td>DSCI 302</td>
<td>INTRODUCTION TO DATA SCIENCE TOOLS AND MODELS</td>
<td>3</td>
</tr>
<tr>
<td>or COMP 330</td>
<td>TOOLS AND MODELS FOR DATA SCIENCE</td>
<td></td>
</tr>
<tr>
<td>DSCI 303</td>
<td>MACHINE LEARNING FOR DATA SCIENCE</td>
<td>3-4</td>
</tr>
<tr>
<td>or STAT 413</td>
<td>INTRODUCTION TO STATISTICAL MACHINE LEARNING</td>
<td></td>
</tr>
<tr>
<td>or COMP 540</td>
<td>STATISTICAL MACHINE LEARNING</td>
<td></td>
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<tr>
<td>DSCI 304</td>
<td>INTRODUCTION TO EFFECTIVE DATA VISUALIZATION</td>
<td>3</td>
</tr>
<tr>
<td>DSCI 305</td>
<td>DATA, ETHICS, AND SOCIETY</td>
<td>3</td>
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</table>

Capstone Requirement

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>STAT 435</td>
<td>DATA SCIENCE PROJECTS</td>
<td>3</td>
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</table>

Total Credit Hours  27-30

Footnotes and Additional Information

1 Students may substitute a higher-level MATH course for the MATH 101/MATH 105/MATH 211 and MATH 102/MATH 106/MATH 212 prerequisites.

2 As a programming prerequisite, COMP 140 is highly recommended (due to its inclusion of Python programming in its course material). Students will only be able to register for DSCI 302 if they have COMP 140 in their academic history, or in exceptional circumstances, by permission of the DSCI 302 instructor.

3 In certain situations the DSCI Official Certifier may approve various specific course substitutions.

Policies for the Minor in Data Science

Program Restrictions and Exclusions

Students pursuing the minor in Data Science should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (ga.rice.edu/undergraduate-students/academic-opportunities/majors-minors-certificates), i) students may declare their intent to pursue a minor only after they have first declared a major, and ii) students may not major and minor in the same subject.
- Students pursuing the major in Statistics and the minor in Data Science may fulfill the Data Science minor requirements according to the following guidelines: i.) DSCI 301 may be fulfilled by STAT 310 or STAT 315; ii.) DSCI 302 may be used as the STAT major’s Advanced Computing elective; and iii.) DSCI 303 must be substituted with STAT 413.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (ga.rice.edu/undergraduate-students/academic-policies-procedures/transfer-credit). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.
Program Transfer Credit Guidelines
Students pursuing the minor in Data Science should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Data Science website: https://datascience.rice.edu/

Opportunities for the Minor in Data Science
Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (ga.rice.edu/undergraduate-students/honors-distinctions/university) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (ga.rice.edu/undergraduate-students/honors-distinctions/university). Some departments have department-specific Honors awards or designations.

Additional Information
For additional information, please see the Data Science website: https://datascience.rice.edu/