Computer Science, Economics and Data Science (Course 6-14)


Bachelor of Science in Computer Science, Economics and Data Science

General Institute Requirements (GIRs)
The General Institute Requirements include a Communication Requirement that is integrated into both the HASS Requirement and the requirements of each major; see details below.

Summary of Subject Requirements  Subjects
Science Requirement  6
Humanities, Arts, and Social Sciences (HASS)  8
Requirement [between one and three subjects can be from the Departmental Program]; at least two of these subjects must be designated as communication-intensive (CI-H) to fulfill the Communication Requirement.
Restricted Electives in Science and Technology (REST) Requirement [can be satisfied by 6.1200[J] and 18.06 in the Departmental Program]  2
Laboratory Requirement (12 units) [can be satisfied by 14.32 in the Departmental Program]  1
Total GIR Subjects Required for SB Degree  17

Physical Education Requirement
Swimming requirement, plus four physical education courses for eight points.

Departmental Program
Choose at least two subjects in the major that are designated as communication-intensive (CI-M) to fulfill the Communication Requirement.

Required Subjects  Units
Mathematics  18.06  Linear Algebra  12
Computational Algorithms  6.100A  Introduction to Computer Science Programming in Python  6
  or 6.100B  Fundamentals of Programming  12
  or Introduction to Computational Thinking and Data Science  12
6.1210  Introduction to Algorithms  12
Economics  14.01  Principles of Microeconomics  12
  or 14.32  Econometric Data Science  12
Introductory Probability and Statistics
Select one of the following:  12
  14.30  Introduction to Statistical Methods in Economics
  18.600  Probability and Random Variables
  6.3700  Introduction to Probability
Data Science
6.3900  Introduction to Machine Learning  12
Project-based
Select one of the following:  9-12
  6.UAR  Seminar in Undergraduate Advanced Research (12 units, CI-M)
  6.UAT  Oral Communication (CI-M)
  15.276  Communicating with Data (CI-M)
Select one of the following:  12
  14.05  Intermediate Macroeconomics (CI-M)
  14.18  Mathematical Economic Modeling (CI-M)
  14.33  Research and Communication in Economics: Topics, Methods, and Implementation (CI-M)
Elective Subjects
Select one of the following computer science electives:  12
  6.3260[J]  Networks
  6.7201  Optimization Methods
  15.053  Optimization Methods in Business Analytics
Select three economics electives from the list below, including at least one subject from each group  36
Unrestricted Electives  48-63
Units in Major  177-186
Units in Major That Also Satisfy the GIRs (48-60)  186

The units for any subject that counts as one of the 17 GIR subjects cannot also be counted as units required beyond the GIRs.

1. Subject has prerequisites that are outside of the program.

2. 14.03 Microeconomic Theory and Public Policy is also an acceptable option.

Economics Electives
Select three of the following, including at least one subject from each group:  36
### Data Science

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>14.20</td>
<td>Industrial Organization: Competitive Strategy and Public Policy</td>
</tr>
<tr>
<td>14.27</td>
<td>Economics and E-Commerce</td>
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<tr>
<td>14.36</td>
<td>Advanced Econometrics</td>
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<tr>
<td>14.38</td>
<td>Inference on Causal and Structural Parameters Using ML and AI</td>
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<tr>
<td>14.41</td>
<td>Public Finance and Public Policy</td>
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<tr>
<td>14.42</td>
<td>Environmental Policy and Economics</td>
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<tr>
<td>14.43[J]</td>
<td>Economics of Energy, Innovation, and Sustainability</td>
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<tr>
<td>14.64</td>
<td>Labor Economics and Public Policy</td>
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<tr>
<td>14.75</td>
<td>Political Economy and Economic Development</td>
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<tr>
<td>14.76</td>
<td>Firms, Markets, Trade and Growth</td>
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<tr>
<td>15.780</td>
<td>Analytics of Operations Management</td>
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### Theory

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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>14.04</td>
<td>Intermediate Microeconomic Theory</td>
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<tr>
<td>14.12</td>
<td>Economic Applications of Game Theory</td>
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<tr>
<td>14.13</td>
<td>Psychology and Economics</td>
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<tr>
<td>14.15[J]</td>
<td>Networks</td>
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<td>14.16</td>
<td>Strategy and Information</td>
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<td>14.19</td>
<td>Market Design</td>
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<tr>
<td>14.26[J]</td>
<td>Organizational Economics</td>
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<tr>
<td>14.54</td>
<td>International Trade ¹</td>
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¹ Subject has prerequisites that are outside of the program.