Information Science & Technology  
2019-2020 Catalog Checklist

**UA GENERAL EDUCATION**

<table>
<thead>
<tr>
<th>COMPOSITION (Select ONE pair)</th>
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<tbody>
<tr>
<td>ENGL 101 &amp; ENGL 102 or</td>
<td>&amp;</td>
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<tr>
<td>ENGL 107 &amp; 108 or</td>
<td>&amp;</td>
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<tr>
<td>ENGL 109H</td>
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<table>
<thead>
<tr>
<th>MATH</th>
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<tbody>
<tr>
<td>MATH 122B or MATH 113 or MATH 116</td>
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<table>
<thead>
<tr>
<th>TIER ONE (select two courses from each)</th>
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<tbody>
<tr>
<td>Individuals and Societies (150)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Traditions &amp; Cultures (160)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Natural Sciences (170)</td>
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<table>
<thead>
<tr>
<th>TIER TWO (select one course from each)</th>
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<tbody>
<tr>
<td>Arts</td>
</tr>
<tr>
<td>Humanities</td>
</tr>
<tr>
<td>Individuals and Societies</td>
</tr>
<tr>
<td>Diversity (can be fulfilled with GE course)</td>
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<tr>
<th>2nd Semester of SECOND LANGUAGE</th>
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**INFORMATION SCIENCE & TECH MAJOR**

<table>
<thead>
<tr>
<th>ISTA Core (TAKE ALL FIVE)</th>
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<tbody>
<tr>
<td>ISTA 100: Great Ideas of the Information Age</td>
</tr>
<tr>
<td>ISTA 116: Statistical Foundations for the Information Age</td>
</tr>
<tr>
<td>ISTA 130*: Computational Thinking and Doing</td>
</tr>
<tr>
<td>ISTA 131: Dealing with Data*</td>
</tr>
<tr>
<td>ISTA 161: Ethics in a Digital World</td>
</tr>
<tr>
<td>*CSC 110 can sub for ISTA 130</td>
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</table>

**MINOR**

A minor is required for this major. Typically, Minors are 18 units (6 classes), 9 units of which are typically required to be Upper Division (300 level or greater)

**INTENSIVE COMPUTING (TAKE FIVE COURSES)**

<table>
<thead>
<tr>
<th>RESEARCH METHODS &amp; DATA ANALYSIS</th>
</tr>
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<tbody>
<tr>
<td>ESOC 302: Quantitative Methods for the Digital Marketplace</td>
</tr>
</tbody>
</table>

**COMPUTATIONAL ARTS & MEDIA (TAKE ONE COURSE)**

**SOCIETY (TAKE ONE COURSE)**

**ENGAGEMENT/INDIVIDUAL STUDIES/PROJECTS (TAKE BOTH):**
- Independent Study, Directed Research, or Internship (3 units)
- Senior Capstone: ISTA 498 (3 units)

<table>
<thead>
<tr>
<th>Electives (if needed to reach 120 total units/42 UD):</th>
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<tbody>
<tr>
<td>Total Units ____/120</td>
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<tr>
<td>Upper Division Units ____/42</td>
</tr>
<tr>
<td>University Level ____/56</td>
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</tbody>
</table>

Minimum GPA of 2.0 is required for graduation!

*Please note that while students can double-dip up to five courses from other departments, at least two Intensive Computing courses MUST have an ISTA/ESOC/LIS prefix.

* ISTA 131 is typically offered in Fall semester and requires ISTA 130. The rest of the core can be taken in any order.
It is recommended that students complete ISTA 130 and 116 before taking Intensive Computing coursework. Some coursework also requires ISTA 131 or advanced programming or Math pre-requisites.

**Intensive Computing (Select FIVE of the courses below)**

Please note that while students can double-dip up to five courses from other departments, at least two Intensive Computing courses **MUST** have an ISTA/ESOC/LIS prefix.

**INTENSIVE COMPUTING COURSEWORK**

ISTA 311: Foundations of Information and Inference
  *Requires ISTA 130 and ISTA 116
ISTA 321: Data Mining and Discovery
  *Requires ISTA 116
ISTA 416/516: Introduction to Human Computer Interaction
  *ISTA 130 or CSC 110 or ECE 175 required. ISTA 350 or CSC 120 recommended. **Not offered in Fall 2019**
ISTA 424: Virtual Reality
  *A “C” or higher in ISTA 130 or CSC 110 or ECE 175 required. ISTA 350 or CSC 120 recommended. Knowledge of object-oriented programming essential for course.
ISTA 425: Algorithms for Games
  *ISTA 130 or CSC 110 or ECE 175 required. ISTA 350 or CSC 120 recommended. C# and Unity used in course.
ISTA 429: Applied Cyberinfrastructure Concepts
  *No pre-requisites. Second semester programming (CSC 120 or ISTA 131) recommended but not required. **Typically offered in Fall only.**
ISTA 451/551: Game Development
  *ISTA 130 or CSC 110 required. ISTA 350 or CSC 120 recommended
LIS 470: Database Development and Management **Typically offered in Fall only.**

**MATH-INTENSIVE COURSEWORK**

ISTA 421/521: Introduction to Machine Learning
  *Requires Calc I and II, Linear Algebra (MATH 313), and ISTA 311 or consent of instructor
  **Typically offered in Fall only**

**PROGRAMMING-INTENSIVE OPTIONS**

ISTA 331: Principles of Data Science
  *Requires ISTA 116, ISTA 130, and 131 **Typically offered in Fall only**
ISTA 350: Programming for Informatics Applications
  **Typically offered in Spring only**
  *Requires ISTA 116, ISTA 130, and 131
ISTA 355: Introduction to Natural Language Processing **Not offered in Fall 2019**
  *ISTA 131 or CSC 120 required.
ISTA 455: Natural Language Processing **Not offered in Fall 2019**
  *ISTA 350 or ISTA 355 required
ISTA 450/550: Artificial Intelligence **Typically offered in Spring only**
  *Requires ISTA 350 or CSC 245 or MATH 243 or consent of instructor
ISTA 457: Neural Networks
  *Requires ISTA 350 or CSC 345 or ECE 275 or NSCS 344 or consent of instructor.
OTHER COURSEWORK AVAILABLE FOR INTENSIVE COMPUTING REQUIREMENT

Please note that while students can double-dip up to five courses from other departments, at least two Intensive Computing courses MUST have an ISTA/LIS prefix.

MATH 129: Calculus II
MATH 313: Linear Algebra
  *Requires MATH 129
GEOG 417: Geographic Information Systems for Natural and Social Sciences
CSC 120/CSC 127B: Introduction to Computer Programming
  *Requires CSC 110/127A
CSC 337: Web Programming
  *Requires CSC 110 or ISTA 130
CSC 252: Computer Organization
  *Requires CSC 210. Must be CS major
CSC 245: Introduction to Discrete Structures
  *Requires CSC 120. Must be CS major
CSC 345: Analysis of Discrete Structures
  *Requires CSC 245 and 210. Must be CSC major
CSC 335: Object-Oriented Programming and Design
  *Requires CSC 210. Must be CSC major

Computational Arts & Media (Select ONE course)
ISTA 230: Introduction to Web Design and Development
ISTA 251: Introduction to Game Design
ISTA 301: Computing and the Arts
ISTA 302: Technology of Sound
ISTA 303: Introduction to Creative Coding
  *ISTA 130 or CSC 110 or ECE 175 required.
ART/FA 432A: Interactivity
ART/FA 437A: Foundation Digital 3D Modeling, Rendering and Rapid Prototyping
ESOC 300: Digital Storytelling and Culture
ESOC 340: Information, Multimedia Design, and the Moving Image
LING 388: Language and Computers

Society (Select ONE course)
ISTA 263: Learning in the Information Age
ESOC 213: The Past and New Media
ESOC 313: Digital Discourse and Identity
ESOC 314: Theories of New Media
ESOC 315: From Publishing to Papyrus
ESOC 316: Digital Commerce
ESOC 317: Digital Crime
ESOC 318: Disruptive Technologies
ESOC 330: Digital Dilemmas
ESOC 477: Information Security
ESOC 488: Special Topics