## Information Science & Technology
### 2019-2020 Catalog Checklist

### UA GENERAL EDUCATION

#### COMPOSITION (Select ONE pair)
- ENGL 101 & ENGL 102 or __ & __
- ENGL 107 & 108 or __ & __
- ENGL 109H __

#### MATH
- MATH 122B or MATH 113 or MATH 116 __

#### TIER ONE (select two courses from each)
- **Individuals and Societies (150)**
  - __
- **Traditions & Cultures (160)**
  - __
- **Natural Sciences (170)**
  - __

#### TIER TWO (select one course from each)
- **Arts** __
- **Humanities** __
- **Individuals and Societies** __
- **Diversity (can be fulfilled with GE course)** __

#### 2nd Semester of SECOND LANGUAGE __

### INFORMATION SCIENCE & TECH MAJOR

#### ISTA Core (TAKE ALL FIVE)
- ISTA 100: Great Ideas of the Information Age
- ISTA 116: Statistical Foundations for the Information Age
- ISTA 130*: Computational Thinking and Doing
- ISTA 161: Ethics in a Digital World

*CSC 110 can sub for ISTA 130

#### 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)

#### RESEARCH METHODS & DATA ANALYSIS
- ESOC 302: Quantitative Methods for the Digital Marketplace __

#### 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)

### Electives (if needed to reach 120 total units/42 UD):

<table>
<thead>
<tr>
<th>Total Units</th>
<th>120</th>
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<tbody>
<tr>
<td>Upper Division Units</td>
<td>42</td>
</tr>
<tr>
<td>University Level</td>
<td>56</td>
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Minimum GPA of 2.0 is required for graduation!

* ISTA 131 is typically offered in Fall semester and requires ISTA 130. The rest of the core can be taken in any order.

*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.*
**Information Science & Technology**  
**2019-2020**

*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 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.*

- **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 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.*

#### 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.*

#### PROGRAMMING-INTENSIVE OPTIONS

- **ISTA 331: Principles of Data Science**  
  *Requires ISTA 116, ISTA 130, and 131 Typically offered in Fall*

- **ISTA 350: Programming for Informatics Applications**  
  *Requires ISTA 116, ISTA 130, and 131 Typically offered in Spring.*

- **ISTA 355: Introduction to Natural Language Processing**  
  *ISTA 131 or CSC 120 required. Not offered in Fall 2019*

- **ISTA 455: Natural Language Processing**  
  *ISTA 350 or ISTA 355 required  
  Not offered in Fall 2019*

- **ISTA 450/550: Artificial Intelligence**  
  *Requires ISTA 350 or CSC 245 or MATH 243 or consent of instructor Typically offered in Spring.*

- **ISTA 457: Neural Networks**  
  *Requires ISTA 350 or CSC 345 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 129

GEOG 417: Geographic Information Systems for Natural and Social Sciences

CSC 120/CSC 127B: Introduction to Computer Programming
*Requires CSC 110/127A

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 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