

## Academic Map: Data Science, Computer Science

**Department:** \_\_\_\_\_ Computer Science and Engineering \_\_\_\_\_ **Degree:** \_\_\_\_\_ BS \_\_\_\_\_  
**Program/Major:** \_\_\_\_\_ Data Science \_\_\_\_\_  
**Track/Emphasis:** \_\_\_\_\_ Computer Science \_\_\_\_\_  
**Does this program require a minor? (Yes/No)** \_\_\_\_\_ No \_\_\_\_\_

### Important program information in the online *Undergraduate Bulletin*:

**UCA Core Requirements:** <https://uca.edu/ubulletin/general-policies-information/uca-core/>  
**LD UCA Core Check Sheet:** <https://uca.edu/academicbulletins/ld-uca-core/>  
**UD UCA Core Course List:** <https://uca.edu/academicbulletins/ud-uca-core/>  
**Degree Requirements:** <https://uca.edu/ubulletin/general-policies-information/degree-requirements/>  
**Program Description:** <https://uca.edu/ubulletin/colleges-departments/cn/computer-science/>  
**Course Descriptions:** <https://uca.edu/ubulletin/courses/>

**This degree program requires a total of 120 semester credit hours, including at least 40 upper-division credit hours.**

Comparable courses in the Arkansas Course Transfer System (ACTS) are cross-referenced in the ACTS column of each semester block below; a [core link](https://uca.edu/academicbulletins/ld-uca-core/) (https://uca.edu/academicbulletins/ld-uca-core/) takes the user to the *Undergraduate Bulletin's* Lower-Division (LD) UCA Core check sheet, where UCA Core options and ACTS course numbers are listed in full; an [acts link](https://uca.edu/academicbulletins/acts/) takes the user to the *Undergraduate Bulletin's* ACTS page (https://uca.edu/academicbulletins/acts/) for additional information and a UCA-ACTS crosswalk.

**Scholarship recipients:** Please be aware of eligibility criteria for your scholarship(s). In particular, pay attention to (1) the enrollment requirements each semester for disbursement of your scholarship(s) and (2) the number of hours and GPA required each semester and/or year for renewal of your scholarship(s). Some Academic Maps may suggest enrollment in fewer hours than required for disbursement of your scholarship(s). In such cases, work with your academic advisor to adjust your schedule to meet requirements most efficiently. Contact the Office of Student Financial Aid at (501) 450-3140 with any questions regarding enrollment/renewal requirements of your scholarship(s). For online information resources, see endnote 1.

### Year 1

#### Fall – Semester 1 (Credit hours: 14)

| SUBJ | NUM  | TITLE  | SCH | ACTS                      |
|------|------|--|-----|---------------------------|
| CSCI | 1470 | Computer Science I   | 4   |                           |
| MATH | 1496 | Calculus I   | 4   | MATH2405                  |
| WRTG | 1310 | Introduction to College Writing                                    | 3   | ENGL1013                  |
|      |      | LD UCA Core Elective (First Year Seminar recommended) <sup>2</sup> | 3   | <a href="#">core link</a> |

#### Spring – Semester 2 (Credit hours: 17)

| SUBJ         | NUM          | TITLE   | SCH | ACTS  |
|--------------|--------------|---|-----|---|
| CSCI         | 1480         | Computer Science II   | 4   |   |
| MATH         | 1497         | Calculus II   | 4   | MATH2505  |
| WRTG<br>ENGL | 1320<br>1320 | Academic Writing and Research or<br>Interdisciplinary Writing and Research or<br>Other approved alternative (LD UCA Core: Research/Writing) | 3   | ENGL1023<br>ENGL1023<br><a href="#">core link</a> |
|              |              | LD UCA Core Elective (First Year Seminar, if not taken semester 1)  | 3   | <a href="#">core link</a>                         |
|              |              | LD UCA Core Elective  | 3   | <a href="#">core link</a>                         |

**Year 2****Fall – Semester 3 (Credit hours: 16)**

| SUBJ | NUM  | TITLE                                | SCH | ACTS                      |
|------|------|--------------------------------------|-----|---------------------------|
| CSCI | 2310 | Introduction to Data Science         | 3   |                           |
| CSCI | 2320 | Data Structures                      | 3   |                           |
| CSCI | 2330 | Discrete Mathematics for Computing   | 3   |                           |
|      |      | LD UCA Core: Lab Science Requirement | 4   | <a href="#">core link</a> |
|      |      | LD UCA Core Elective                 | 3   | <a href="#">core link</a> |

**Spring – Semester 4 (Credit hours: 16)**

| SUBJ | NUM  | TITLE                                | SCH | ACTS                      |
|------|------|--------------------------------------|-----|---------------------------|
| CSCI | 3330 | Algorithms                           | 3   |                           |
| CSCI | 3360 | Database Systems [UD UCA Core: C]    | 3   |                           |
| MATH | 3320 | Linear Algebra [UD UCA Core: I]      | 3   |                           |
|      |      | LD UCA Core: Lab Science Requirement | 4   | <a href="#">core link</a> |
|      |      | LD UCA Core Elective                 | 3   | <a href="#">core link</a> |

**Year 3****Fall – Semester 5 (Credit hours: 15)**

| SUBJ | NUM  | TITLE  | SCH | ACTS                      |
|------|------|--|-----|---------------------------|
| CSCI | 3385 | Artificial Intelligence                        | 3   |                           |
| CSCI | 3381 | Object-Oriented Software Development with Java | 3   |                           |
| CSCI | 4321 | Ethical Implications [UD UCA Core: D, R]       | 3   |                           |
| MATH | 3311 | Statistical Methods                            | 3   |                           |
|      |      | LD UCA Core Elective                           | 3   | <a href="#">core link</a> |

**Spring – Semester 6 (Credit hours: 15)**

| SUBJ | NUM  | TITLE   | SCH | ACTS |
|------|------|---|-----|------|
| CSCI | 3V75 | Internship or<br>Approved alternative [Concentration Requirement] | 3   |      |
| CSCI | 4370 | Data Mining   | 3   |      |
| MATH | 3381 | Data Cleaning and Visualization                                   | 3   |      |
| MATH | 4371 | Introduction to Probability [UD UCA Core: R]                      | 3   |      |
|      |      | General Elective  | 3   |      |

**Year 4****Fall – Semester 7 (Credit hours: 15)**

| SUBJ | NUM                  | TITLE  | SCH | ACTS |
|------|----------------------|--|-----|------|
| CSCI | 2335<br>3345<br>4340 | Networking or<br>Human-Computer Interaction or<br>Introduction to Parallel Programming [Concentration Requirement] | 3   |      |
| CSCI | 4315                 | Information Security [UD UCA Core: R]  | 3   |      |
| CSCI | 4371                 | Machine Learning [Concentration Requirement]   | 3   |      |
|      |                      | General Elective   | 3   |      |
|      |                      | General Elective   | 3   |      |

**Spring – Semester 8 (Credit hours: 12)**

| SUBJ | NUM  | TITLE                                       | SCH | ACTS                      |
|------|------|---|-----|---------------------------|
| CSCI | 4372 | Data Clustering [Concentration Requirement] | 3   |                           |
| CSCI | 4491 | Applied Data Science [UD UCA Core: Z]       | 4   |                           |
|      |      | LD UCA Core Elective                        | 3   | <a href="#">core link</a> |
|      |      | General Elective                            | 2   |                           |

\_\_\_\_\_  
SIGNED – DEPARTMENT CHAIR

\_\_\_\_\_  
DATE

\_\_\_\_\_  
SIGNED – COLLEGE DEAN

\_\_\_\_\_  
DATE

**To be completed by the advisor when an Eight-Semester plan is accepted by the student:**

**If applicable, has student selected a minor? Type “x” as appropriate.**      \_\_\_\_\_ **No**      \_\_\_\_\_ **Yes**

**If “yes,” specify:** \_\_\_\_\_

### Notes

<sup>1</sup> See online information resources for UCA scholarships at <https://uca.edu/scholarships/> and for state scholarships at <https://scholarships.adhe.edu/scholarships-and-programs/a-z/>.

<sup>2</sup> See appropriate choices, alternatives, or substitutions under “UCA Core” in the *Undergraduate Bulletin*. Prior to completion of 30 semester hours, a student must complete a UCA Core course designated as a First-Year Seminar (FYS) in Critical Inquiry, Diversity, or Responsible Living.

The student will also need to complete major, minor, or general elective courses designated as fulfilling the upper-division and capstone requirements of the UCA Core. See annotations in this Academic Map for courses that fulfill these upper-division requirements.