Academic Map: Mathematics, Data Science

Department: Mathematics **Degree:** BS
Program/Major: Mathematics
Track/Emphasis: Data Science
Does this program require a minor? (Yes/No) Yes[1]

Important program information in the online *Undergraduate Bulletin*:

UCA Core Requirements:	http://uca.edu/ubulletin/general-policies-information/uca-core/
LD UCA Core Check Sheet:	http://uca.edu/academicbulletins/ld-uca-core/
UD UCA Core Course List:	http://uca.edu/academicbulletins/ud-uca-core/
Degree Requirements:	http://uca.edu/ubulletin/general-policies-information/degree-requirements/
Program Description:	http://uca.edu/ubulletin/colleges-departments-programs/college-of-natural-sciences-and-mathematics/department-of-mathematics/
Course Descriptions:	http://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 (http://uca.edu/academicbulletins/ld-uca-core/) takes the user to the *Undergraduate Bulletin*'s UCA Lower-Division Core check sheet, where UCA Core options and ACTS course numbers are listed in full; an acts link takes the user to the *Undergraduate Bulletin*'s ACTS page (http://uca.edu/academicbulletins/acts/) for additional information and a UCA-ACTS crosswalk.

Year 1

Fall – Semester 1 (Credit hours: 14)

SUBJ	NUM	TITLE	SCH	ACTS
MATH	1496	Calculus I[2]	4	MATH2405
WRTG	1310	Introduction to College Writing or Other approved alternative (LD UCA Core: Writing Foundation)[3]	3	ENGL1013 core link
HIST HIST PSCI	2301 2302 1330	The Making of America: US History to 1877 or America in the Modern Era: US History Since 1877 or US Government & Politics[4]	3	HIST2113 HIST2123 PLSC2003
BIOL	1400 1401 1402	Exploring Concepts in Biology or Exploring Ecology & the Environment or Exploring Human Biology[5]	4	BIOL1004 BIOL1004 BIOL1004

Spring – Semester 2 (Credit hours: 17)

SUBJ	NUM	TITLE	SCH	ACTS
MATH	1497	Calculus II	4	MATH2505
WRTG ENGL	1320 1320	Academic Writing & Research or Interdisciplinary Writing & Research or Other approved alternative (LD UCA Core: Research/Writing)[3]	3	ENGL1023 ENGL1023 core link
		LD UCA Core: Social Science[3]	3	core link
		LD UCA Core: Natural Sciences – Physical Science[3]	4	core link
		LD UCA Core: Fine Arts[3]	3	core link

Year 2

Fall – Semester 3 (Credit hours: 16)

SUBJ	NUM	TITLE	SCH	ACTS
MATH	3320	Linear Algebra (UD UCA Core: I)	3	
MATH	2441	Introduction to Mathematic Computation	4	
MGMT COMM	2301 1300	Business Communication (recommended) or Principles of Communication [formerly SPCH 1300][6]	3	BUSI2013 SPCH1003
		LD UCA Core: Responsible Living[3]	3	core link
		LD UCA Core: Diversity in Creative Works[3]	3	core link

Spring – Semester 4 (Credit hours: 14)

SUBJ	NUM	TITLE	SCH	ACTS
MATH	2471	Calculus III	4	MATH2603
MATH	3311	Statistical Methods	3	
CSCI	1470	Minor field (Computer Science minor recommended): Computer Science I	4	
ECON	2310	Global Environment of Business (recommended) or Other approved course (LD UCA Core: Diversity/World Cultures)[3]	3	core link

Year 3

Fall – Semester 5 (Credit hours: 16)

SUBJ	NUM	TITLE	SCH	ACTS
MATH	3392	Multivariate Analysis	3	
MATH	4373	Regression Analysis	3	
MIS	4355	Project Management	3	
CSCI	1480	Minor field (Computer Science minor recommended) Computer Science II	4	
MATH	4371	Introduction to Probability (UD UCA Core: R)	3	

Spring – Semester 6 (Credit hours: 15)

SUBJ	NUM	TITLE	SCH	ACTS
MATH	4391	Machine Learning	3	
MATH		Major major elective	3	
MIS	4380	Business Intelligence	3	
CSCI	2320	Minor field (Computer Science minor recommended) Data Structures	3	
		General elective	3	

Year 4

Fall – Semester 7 (Credit hours: 15)

SUBJ	NUM	TITLE	SCH	ACTS
MATH	3391	Nonparametric Statistics	3	
MATH	4381	Special Topics[7]	3	
MATH	4381	Special Topics[7]	3	

SUBJ	NUM	TITLE	SCH	ACTS
		Minor field (Computer Science minor recommended)	3	
		Minor field (Computer Science minor recommended)	3	

Spring – Semester 8 (Credit hours: 13)

SUBJ	NUM	TITLE	SCH	ACTS
MATH	4395	Practicum in Data Science	3	
MATH		MATH elective	3	
		Minor field (Computer Science minor recommended)	3	
		General elective	4	

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

[1] The Computer Science minor is strongly encouraged. In this Academic Map, 20 credit hours are set aside for the minor. The Computer Science minor requires a minimum of 18 credit hours. Depending on the minor and courses selected, the number of general electives may need to be adjusted to bring the total credit hours in the program to 120.

[2] For the BS in Mathematics, this course fulfills the LD UCA Core Critical Inquiry – Quantitative requirement.

[3] See appropriate choices, alternatives, or substitutions designated in the UCA Core Requirements and the lower-division (LD) UCA Core Check Sheet in the *Undergraduate Bulletin*. Prior to completion of 30 semester hours, a student must complete an LD 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 within the major that fulfill the UD UCA Core requirements. Consult the *Undergraduate Bulletin* and your academic advisor for other available UD UCA Core courses.

[4] Any one of the three courses listed here fulfills the LD UCA Core requirement in American History and Government.

[5] Any one of the three courses listed here fulfills the LD UCA Core requirement in Natural Sciences – Life Science.

[6] Either MGMT 2301 or COMM 1300 fulfills the LD UCA Core requirement in Oral Communication. Note: COMM 1300 and SPCH 1300 are the same course. Take only one of them.

[7] More than one instance of this course may be taken if topics differ. Special topics may include Experimental Design, Six-Sigma Analysis, and Social Network Analysis.