Data Science B.S. with Computational Analytics Concentration

Data Science B.S. with Computational Analytics Concentration Eight-Semester Program

First Year	Units	
	Fall	Spring
MATH 24004 Calculus I (ACTS Equivalency = MATH 2405) (Satisfies General Education Outcome 2.1)[2]	4	
ENGL 10103 Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)	3	
DASC 10003 Introduction to Data Science	3	
DASC 11004 Programming Languages for Data Science	4	
MATH 25004 Calculus II		4
ECON 21403 Basic Economics: Theory and Practice (Satisfies General Education Outcome 3.3)		3
ENGL 10303 Technical Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.2)		3
DASC 12004 Introduction to Object Oriented Programming for Data Science		4
DASC 12203 Role of Data Science in Today's World		3
Year Total:	14	17

Second Year	Units	
	Fall	Spring
DASC 25904 Multivariable Math for Data Scientists	4	
STAT 30133 Introduction to Probability[4] or INEG 23203 Probability and Stochastic Processes for Industrial Engineers	3	
DASC 22103 Data Visualization and Communication	3	
DASC 21103 Principles and Techniques of Data Science	3	
State Minimum Core U.S. History or Government Elective (Satisfies General Education Outcome 4.2)[2]	3	
SEVI 20503 Business Foundations (Data Science Majors-only section)		3
STAT 30043 Statistical Methods[5] or INEG 23104 Statistics for Industrial Engineers I		3-4
DASC 22003 Data Management and Data Base		3
DASC 21003 Data Structures & Algorithms		3
State Minimum Core Natural Science Elective with Lab (Satisfies General Education Outcome 3.4)		4

Year Total:	16	16

Third Year	Units	
	Fall	Spring
DASC 21303 Data Privacy & Ethics (Satisfies General Education Outcome 5.1)	3	
DASC 31003 Big Data Analytics with Cloud Computing	3	
CSCE 41403 Data Mining	3	
State Minimum Core Natural Science Elective with Lab (Satisfies General Education Outcome 3.4)	4	
State Minimum Core Social Sciences Elective (Satisfies General Education Outcomes 3.2 and 3.3)[3]	3	
DASC 32003 Optimization Methods in Data Science		3
DASC 32103 Statistical Learning		3
CSCE 46103 Artificial Intelligence		3
State Minimum Core Fine Arts Elective (Satisfies General Education Outcome 3.1)[3]		3
State Minimum Core Social Sciences Elective (Satisfies General Education Outcomes 3.3 and 4.1)[3]		3
Year Total:	16	15

Fourth Year	Units	
	Fall	Spring
DASC 48902 Data Science Practicum I	2	
DASC 41103 Machine Learning	3	
DASC 41203 Social Problems in Data Science and Analytics	3	
Computational Analytics Elective	3	
Computational Analytics Elective	3	
DASC 49903 Data Science Practicum II (Satisfies General Education Outcome 6.1)		3
Computational Analytics Elective		3
Computational Analytics Elective		3
General Education Elective[4]		2-3
Year Total:	14	12

Total Units in Sequence:	**120**

[1] MATH 26103 or MATH 28003 is a pre-req for CSCE 41303 and CSCE 43203.

[2] Students have demonstrated successful completion of the learning indicators identified for learning outcome 2.1, by meeting the prerequisites for MATH 24004.

[3] Students must complete the State Minimum Core requirements (http://catalog.uark.edu/undergraduatecatalog/gened/stateminimum/) as outlined in the Catalog of Studies. The courses that meet the state minimum core also fulfill many of the university's General Education requirements (http://catalog.uark.edu/undergraduatecatalog/gened/generaleducation/), although there are additional considerations to satisfy the general education learning outcomes. Students are encouraged to consult with their academic adviser when making course selections.

[4] Students are required to complete 40 hours of upper-division courses (3000-4000 level). It is recommended that students consult with their adviser when making course selections.

[5] Data Science Statistics and Computational Analytics Concentration students are advised to select STAT 30133/STAT 30043 to meet the prerequisites required in the concentration.

[6] CSCE 31903 is a pre-req for CSCE 41203, CSCE 43203, CSCE 45203, CSCE 47503, CSCE 48103.

[7] Pre-req for CSCE 41203 is CSCE 31903 or CSCE 319H3 with a grade of C or better.