

# Requirements for the B.S. Degree in Data Science

Department of Computer Science, University of Central Arkansas    6/5/21 revised

## CS Required Courses (42 hours)

Number	Title	Prerequisites
CSCI 1470	Computer Science I	MATH 1390
CSCI 1480	Computer Science II	CSCI 1470
CSCI 2310	Intro. Data Science	CSCI 1480
CSCI 2320	Data Structures	CSCI 1480
CSCI 3330	Algorithms	CSCI 2320, 2330
CSCI 3360	Database Syst. [C]	CSCI 2320
CSCI 3381	OO Software Dev.	CSCI 2320
MATH 3381	Data Clean. & Vis.	MATH 3311
CSCI 3385	Artificial Intelligence	CSCI 3330
CSCI 4315	Info. Security [R]	CSCI 2320
CSCI 4321	Ethical Impl. [D, R]	Junior/senior status, CSCI 2320
CSCI 4370	Data Mining	CSCI 3360
CSCI 4491	Applied Data Sci. [Z]	CSCI 4370

## Math Required Courses (20 hours)

Number	Title	Prerequisites
MATH 1496	Calculus I	(MATH 1390, 1392)/MATH 1486
MATH 1497	Calculus II	MATH 1496
CSCI 2330	Discrete Math.	CSCI 1480
MATH 3311	Statistical Methods	MATH 2441/(MATH 1496, CSCI 1470)
MATH 3320	Linear Algebra [I]	MATH 1497/ CSCI 2330
MATH 4371	Intro. Prob. [R]	MATH 1497

\* Choose one concentration

\*\* When the subject is one of the following: Qualitative Data Analysis, Text Mining, or Bayesian Analysis

\*\*\* Or upper-division course approved by chair

Notes:

- Prerequisite columns: "A,B" means "A and B"; "A/B" means "A or B".
- UCA Upper-Division Core: Communication [C], Critical Inquiry [I], Diversity [D], Responsible Living [R], Capstone [Z]

For additional information, consult your academic advisor or visit

<https://bit.ly/3uO2UdG>

## Concentration\* Courses (12 or 18 hours)

Number	Title	Prerequisites
<b>Statistics (18 hours)</b>		
MATH 3392	Multivariate Analysis	MATH 3311, 3320
MATH 4373	Regression Analysis	MATH 3311
MATH 4391	Machine Learning	MATH 4373
MATH 4392	Time Ser. & Forecast.	MATH 4373

**and** 6 hours chosen from the following

MATH 3391	Nonparametric Stat.	MATH 3311
MATH 4381	Special Prob. Math.**	
<b>Business (12 hours)</b>		
MIS 3382	Internship***	Junior/senior status
MIS 4325	Predictive Analytics	MATH 3311
MIS 4330	Prescriptive Analytics	MATH 3311
MIS 4380	Bus. Intel. & Data Vis.	MATH 3311
<b>Computer Science (12 hours)</b>		
CSCI 3V75	Internship***	Junior/senior status
CSCI 2335 or CSCI 3345 or CSCI 4340	Networking or Human-Comp. Inter. or Intro. Parallel Prog.	CSCI 1480  CSCI 2320  CSCI 3330
CSCI 4371	Machine Learning	CSCI 3330
CSCI 4372	Data Clustering	CSCI 3330