

Requirements for the B.S. Degree in Computer Science (Data Science Concentration)

Department of Computer Science, University of Central Arkansas 1/17/19 revised

CS Required Courses (39 hours)

Course Number	Course	Prerequisites
CSCI 1470	Computer Science I	MATH 1390
CSCI 1480	Computer Science II	CSCI 1470
CSCI 2320	Data Structures	CSCI 1480
CSCI 3330	Algorithms	CSCI 2320, MATH 2330*
CSCI 3360	(C) Database Systems	CSCI 2320
CSCI 3381	OO Software Dev.	CSCI 2320
CSCI 3385	Artificial Intelligence	CSCI 2320
CSCI 4300	Operating Systems	Upper level status, CSCI 3330
CSCI 4321	(D, R) Ethical Impl.	45+ credits
CSCI 4370	Data Mining	CSCI 3360
CSCI 4371	Machine Learning	CSCI 3385
CSCI 4491	(Z) Applied Data Sci.	CSCI 4370, 4371

CS Elective Courses (15 hours)

Course Number	Course	Prerequisites
CSCI 3xxx/4xxx	Any upper level CSCI course**	
ENGR 3xxx/4xxx	Any upper level ENGR course	
CSEC 3xxx/4xxx	Any upper level CSEC course	
MATH 3391	Nonparam. Stat.	MATH 3311
MATH 3392	Multivariate Anal.	MATH 3311, 3320
MATH 4371	(R) Intro. Prob.	MATH 1497
MATH 4373	Regression Analysis	MATH 3311
MIS 4355	Project Mgmt.	MATH 3311
MIS 4380	Business Intelligence	MIS 3321/ MATH 4373

* or, equivalently, CSCI 4360: Discrete Mathematics for Computer Science (this course may not be used as a CS elective)

** Except those that are required

Notes:

- Prerequisites columns: "A,B" means "A and B"; "A/B" means "A or B".
- Students who do (**not**) opt for BIOL sequence must take **CHEM 1400/PHYS 1400/PHYS 1401 (BIOL 1400/1440)** to fulfill life science requirements.
- UCA Upper-Division Core: **(C)** Communication, **(I)** Critical Inquiry, **(D)** Diversity, **(R)** Responsible Living, **(Z)** Capstone

For additional information, consult your academic advisor or visit <https://bit.ly/2yNcCmp>

Math Required Courses (16 hours)

Course Number	Course	Prerequisites
MATH 1496	Calculus I	MATH 1390, MATH 1392/1580
MATH 2311	Elementary Statistics	MATH 1390
MATH 2330 or CSCI 4360	Discrete Structures I or Discrete Math. for Computer Science	CSCI 1470, MATH 1491/1496 CSCI 1470, MATH 1491/1496
MATH 3320	(I) Linear Algebra	MATH 1497/2330*
MATH 3311	Statistical Methods	MATH 2441

Science Required Courses (12 hours)

A sequence of BIOL/CHEM/PHYS (8 hrs) + additional science course (4 hrs)

Course Number	Course	Prerequisites
BIOL 1440	Principles of Biology I	CHEM 1301
BIOL 1441	Principles of Biology II	BIOL 1440

or

CHEM 1450	College Chemistry I	CHEM 1301
CHEM 1451	College Chemistry II	CHEM 1450

or

PHYS 1410	College Physics I	MATH 1390
PHYS 1420	College Physics II	PHYS 1410

or

PHYS 1441	University Physics I	MATH 1496
PHYS 1442	University Physics II	PHYS 1441