

Requirements for the B.S. Degree in Computer Science

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

CS Required Courses (39 hours)

Code	Title	Prerequisites
CSCI 1470	Computer Science I	MATH 1390
CSCI 1480	Computer Science II	CSCI 1470
CSCI 2320	Data Structures	CSCI 1480
CSCI 2340	Assembly Lang.	CSCI 1480
CSCI 3330	Algorithms	CSCI 2320, MATH 2330*
CSCI 3360	(C) Database Syst.	CSCI 2320
CSCI 3370	Programming Lang.	CSCI 2320
CSCI 3380	Computer Arch.	CSCI 2320
CSCI 3381	OO Software Dev.	CSCI 2320
CSCI 4300	Operating Systems	Upper level status, CSCI 3330
CSCI 4321	(D, R) Ethical Impl.	45+ credits
CSCI 4490	(Z) Software Eng.	CSCI 3381

CS Elective Courses (Choose at least 12 hours)

Code	Title	Prerequisites
CSCI 3V75	Internship	Instr. Consent
CSCI 3335	Networking	CSCI 2320
CSCI 3345	Hum.-Comp. Inter.	CSCI 2320
CSCI 3382	Multi-Core Prog.	Upper level status
CSCI 3385	Artificial Intell.	CSCI 2320
CSCI 4V95	Independent Study	Instr. Consent
CSCI 4305	Linux/UNIX Syst.	CSCI 2320
CSCI 4310	Num. Methods for Data Science**	MATH 3320
CSCI 4315	(R) Info. Sec.	CSCI 2320
CSCI 4340	Parallel Computing	CSCI 3330
CSCI 4350	Computer Graphics	CSCI 2320, MATH 3320
CSCI 4352	Game Prog.	CSCI 3330
CSCI 4353	Multimedia	CSCI 2320
CSCI 4357	Mobile Prog.	CSCI 3381
CSCI 4360	Special Topics	Upper level status
CSCI 4365	Web Technology	CSCI 3330
CSCI 4370	Data Mining	CSCI 3360
CSCI 4371	Machine Learning	CSCI 3385
CSCI 4372	Data Clustering	CSCI 3330
CSCI 4390	Theory of Computation**	CSCI 2320, MATH 2330*
ENGR 3xxx/4xxx	Any upper level ENGR course	
CSEC 3xxx/4xxx	Any upper level CSEC course	

Math Required Courses (13 hours)

Code	Title	Prerequisites
MATH 1491 or MATH 1496	Applied Calculus or Calculus I	MATH 1390 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 Elective Courses (3 hours)

Code	Title	Prerequisites
MATH 1497	Calculus II	MATH 1496
MATH 3311	Statistical Methods	MATH 2441/ CSCI 1470
CSCI 4310	Numerical Methods for Data Science**	MATH 3320
CSCI 4390	Theory of Computation**	CSCI 2320, MATH 2330*

Science Required Courses (12 hours)

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

Code	Title	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

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

** CSCI 4310/4390 may be used as either a CS or MATH electives

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/2zoTvPb>