

Data Science Major, Bachelor of Science (73-75 credit hours)

A major in data science prepares graduates to pursue a life of curiosity, exploration, and knowledge creation. Graduates of this program will have developed an intuition for discovering meaning in data and will have the skills needed to provide value and purpose in almost any field.

Major Requirements:

Mathematics Core (21 credit hours):

- MATH 2010, Calculus I, 4 credit hours
- MATH 2020, Calculus II, 4 credit hours
- MATH 3010, Linear Algebra, 4 credit hours
- MATH 3020, Calculus III, 4 credit hours
- MATH 4010, Mathematical Statistics, 4 credit hours
- POSC 2420, Applied Statistics Lab, 1 credit hour

Computer Science Core (27 credit hours):

- CPSC 1400, Computer Science I, 4 credit hours
- CPSC 1500, Computer Science II, 4 credit hours
- CPSC 2040, Introduction to Data Science, 4 credit hours
- CPSC 2080, Introduction to Cybersecurity, 3 credit hours
- CPSC 2100, Database Programming, 4 credit hours
- CPSC 2330, Introduction to Web Applications, 4 credit hours
- CPSC 2500, Data Structures and Algorithms, 4 credit hours

Professional Core (19 hours):

- CPSC 3520 Introduction to Artificial Intelligence, 4 credit hours
- CPSC 4100 Advanced Databases and Big Data Analytics, 4 credit hours
 - CPSC 4430, Software Engineering, 4 credit hours
 - CPSC 4950, Senior Design Capstone 1, 2 credit hours
 - CPSC 4960, Senior Design Capstone 2, 2 credit hours
- PHIL/RLGN 3250, Ethics and Morality for Professionals, 3 credit hours

Communication Elective (3-4 hours):

One course from:

- ARTS 2100 Introduction to Graphic Design
- COMM 2200 Visual Communication
- ENGL 3140 Writing and Digital Media
- ENGL 3160 Professional Writing and Editing
- or another communications elective approved by the data science advisor

Domain Elective (3-4 hours):

A major in data science also requires a major or minor in an application domain, as approved by a data science advisor. Suggested minors include: Accounting, Biology, Chemistry, Criminal Justice, Marketing, Management, Physics, Psychology, Social Media, and Sports Marketing.

Questions? Please contact the [Department of Computer Science](#).



- One course at the level of 3000 and above in the domain of the minor

Suggested domain elective courses:

<i>Natural Sciences</i> BIOL 4050 Genetics CHEM 3100 Analytical Chemistry CHEM 4110 Thermodynamics and Kinetics ENGR 4120 Computational Mechanics PHYS 4220 Computational Physics PHYS 4410 Statistical Mechanics	<i>Falls School of Business</i> ACCT 3110 Managerial Accounting BSNS 2450 Business and Economic Data Analysis BSNS 3240 Operations Management MATH 3400 Mathematics of Finance
<i>Social Sciences</i> SOC 3700 Introduction to Social Research POSC 3140 Elections, Public Opinion, and Democracy PSYC 3240 Experimental Design	<i>Humanities</i> BIBL 2050 Methods in Biblical Exegesis HIST 2300 Historical Inquiry RLGN 3120 Current Issues in Christian Ethics

In the Liberal Arts Program, several requirements are fulfilled by this major:

- The Quantitative Ways of Knowing requirement is fulfilled by CPSC 1400
- The Christian Ways of Knowing requirement is fulfilled by PHIL 3250
- One Writing Intensive requirement is fulfilled by CPSC 4950
- The Speaking Intensive requirement and the Experiential Learning requirement is fulfilled by CPSC 4960

Questions? Please contact the [Department of Computer Science](#).

Proposed Course Sequence:

- Freshman: CPSC 1400, 2040, MATH 2010; CPSC 1500, MATH 2020
- Sophomore: CPSC 2100, 2500, MATH 3010; CPSC 2330, MATH 3020
- Junior: CPSC 2080, 4430, MATH 4010, PHIL 3250, Minor 1;
POSC 2420, CPSC 3520 or CPSC 4100, Communication Elective, Minor 2
- Senior: CPSC 4950, Math Elective, Minor 3; CPSC 4960, CPSC 3520 or CPSC 4100, Domain Elective

Data Science Major, Bachelor of Science Suggested Course Sequence

SEMESTER 1		SEMESTER 2	
CPSC 1400	4 Hours	CPSC 1500	4 Hours
CPSC 2040	4 Hours	MATH 2020	4 Hours
MATH 2010	4 Hours	Foreign Language	4 Hours
ENGL 1100/ENGL 1110	3-4 Hours	ENGL 1120	3 Hours
LART 1050	1 Hour		

16-17, 15

SEMESTER 3		SEMESTER 4	
CPSC 2100	4 Hours	CPSC 2330	4 Hours
CPSC 2500	4 Hours	MATH 3020	4 Hours
MATH 3010	4 Hours	COMM 1000	3 Hours
BIBL 2000	3 Hours	Scientific Ways of Knowing	4 Hours
		Personal Wellness	2 Hours

15, 17

SEMESTER 5		SEMESTER 6	
CPSC 2080	3 Hours	POSC 2420*	1 Hour
CPSC 4430	4 Hours	CPSC 3520 (alt years)**	4 Hours
MATH 4010*	4 Hours	Communication Elective	3-4 Hours
PHIL 3250	3 Hours	Minor 2***	3-4 Hours
Minor 1***	3-4 Hours	Global Ways of Knowing + WI	3 Hours

17-18, 14-16

SEMESTER 7		SEMESTER 8	
CPSC 4950	2 Hours	CPSC 4960	2 Hours
Minor 3***	3-4 Hours	CPSC 4100 (alt years)**	4 Hours
Minor 4 (if needed)***	3-4 Hours	Domain Elective	3-4 Hours
Aesthetic Ways of Knowing	3 Hours	Civic Ways of Knowing	3 Hours
Social/Behavioral Ways of Knowing	3 Hours		

14-16, 12-13

*MATH 4010 can be taken senior year, and POSC 2420 then taken in Semester 8.

**CPSC 3520 and CPSC 4100 are offered alternate years, and can be taken Semester 6 or 8.

***A minor is required.

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