

## B.S. Computer Science Data Science Concentration 129 Credits

Remedial Courses * **				
✓	Course number	Course Name	Credits	Prerequisite
	MATH050	Basic Algebra	**3	None
	ENG050	Grammar and Composition	**3	None
Additional Math Course ***				
✓	Course number	Course Name	Credits	Prerequisite
	MATH116	Pre-Calculus	***4	Placement Test or MATH050
Trimester 1 & 2				
✓	Course number	Course Name	Credits	Prerequisite
	CS115	Web Programming: HTML5, CSS and JavaScript ◊	3	None
	CS100	Introduction to Scripting: Python ◊	3	None
	MATH143	Calculus 1 ◊	4	MATH116 or Math Placement Test
	HUM100	Disruptive Imagination ◊	3	None
	ENG100	English Composition ◊	3	Placement Test or ENG050
	SCI145	College Physics 1	4	None
	CS110	C Programming	4	MATH116 or Math Placement Test
	MATH145	Calculus 2	4	MATH143
	SCI245	College Physics 2	4	SCI145
	GE Course	Please see General Education Requirements	3	As Required
		◊ Recommended first term courses		
Trimester 3 & 4				
✓	Course number	Course Name	Credits	Prerequisite
	CS190	Digital Systems	3	MATH143
	MATH295	Discrete Mathematics	3	MATH145
	CS221	Linux Programming Environment	3	CS110
	CS212	Java Programming	4	CS100 or CS110
	GE Course	Please see General Education Requirements	3	As Required
	GE Course	Please see General Education Requirements	3	As Required
	CS295	Data Structures and Algorithms	4	(CS110 or CS212 or CS285) and MATH145
	CS285	C++ Programming: Object Oriented Programming	4	CS110 or CS100
	CS341	Network Systems	3	CS110 and CS221
	GE Course	Please see General Education Requirements	3	As Required
	GE Course	Please see General Education Requirements	3	As Required

\* Remedial classes are required when a placement test is not passed.

\*\* Remedial class credits are not counted towards earning a degree.

Trimester 5 & 6				
✓	Course number	Course Name	Credits	Prerequisite
	CS320	Operating Systems Concepts	3	CS221 and CS295
	CS360	Database Management Systems	4	CS285 and CS295
	CS457	Machine Learning	3	CS295 and MATH240
	CS446	High Performance Computing	3	CS295 and MATH 290 or MATH320
	GE Course	Please see General Education Requirements	3	As Required
	CS351	Computer Architecture	3	CS110 and CS295
	CS361	Introduction to Compilers	3	CS110 and CS295
	MATH240	Applied Probability and Random Processes	3	As Required
	CSE PAC Course	CSE Program Approved Course	3	As Required
	CSE PAC Course	CSE Program Approved Course	3	As Required
Trimester 7 & 8				
✓	Course number	Course Name	Credits	Prerequisite
	CSE480	Senior Project 1: Planning	3	Senior Level
	CS459	Data Mining and Visualization	3	CS295 and MATH240
	CSE PAC Course	CSE Program Approved Course	3	As Required
	GE Course	Please see General Education Requirements	3	As Required
	GE Course	Please see General Education Requirements	3	As Required
	CSE485	Senior Project 2: Execution	3	CSE480
	CSE PAC Course	CSE Program Approved Course	3	As Required
	GE Course	Please see General Education Requirements	3	As Required
	GE Course	Please see General Education Requirements	3	As Required
CSE Program Approved Courses (select 4)				
✓	Course number	Course Name	Credits	Prerequisite
	MATH245	Calculus 3	3	MATH144 or MATH145
	MATH285	Abstract Algebra	3	MATH144 or MATH145
	MATH290	Linear Algebra and Transformations	3	MATH144 or MATH145
	CS316	Advanced Web Programming	3	CS115
	CS375	Mobile Programming for iOS	3	CS285
	CS376	Mobile Programming for Android	3	CS212 or CS285
	CS352	Embedded Software Systems	3	CS190 and CS295 and MATH143
	CS340	Software Engineering Methods and Project 1	3	CS285
	SWE361	Software QA, Testing and Validation	3	CS295
	SWE442	Software Engineering Methods and Project 2	3	CS340
	CS445	Advanced C++ Programming	3	CS285
	CS447	GUI and Graphics Programming	3	CS285

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	SWE449	Tools Programming	3	CS100 and DAA240
	SCI345	College Physics 3	3	SCI245
	Elective	Elective or Internship	3	As required