UCR | Bourns College of Engineering

Data Science

Fall Quarter	Units	Winter Quarter	Units	Spring Quarter	Units
FIRST YEAR					
CS 010A	4	CS 010B or CS 013	4	CS 010C	4
C++ Programming I		*C++ Programming II*		*Intro to Data Structures & Algorithms*	
ENGL 001A	4	ENGL 001B	4	MATH 009C	4
Beginning Composition		*Intermediate Composition*		*First Year Calculus*	
MATH 009A	4	MATH 009B	4	Breadth _____	5
First Year Calculus		*First Year Calculus*		*Physical Sciences*	
Breadth _____	4	Breadth _____	4		
Humanities/Social Sciences		*Humanities/Social Sciences*			
SECOND YEAR					
CS 100	4	MATH 010A	4	CS 105	4
Software Construction		*Multivariable Calculus*		*Data Analysis Methods*	
MATH 031	5	CS/MATH 011	4	CS 111	4
Applied Linear Algebra		*Intro to Discrete Structures*		*Discrete Structures*	
STAT 100A* or Equivalent	5	STAT 100B* or Equivalent	5	Breadth _____	5
Introduction to Statistics		*Introduction to Statistics*		*Additional Sciences 2*	
Breadth _____	4	Breadth _____	5		
Biological Sciences		*Additional Sciences 1*			
THIRD YEAR					
STAT 156A	4	STAT 156B	4	STAT 167 or CS 171	4
Statistics for Data Science I		*Statistics for Data Science II*		*Intro to Data Science or*	
CS 166 or CS 167	4	CS 141	4	*Intro to Mach Lrning&Data Mining*	
Database Management or BIG Data		*Interm. Data Structures & Algorithms*		DS Technical Elective**	4
STAT 147	4	ENGR/PBPL 170	4	_____	
Intro Stat Computing		*Technology, Policy, and Ethics*		Breadth _____	4
Breadth _____	4	Breadth _____	4	*Humanities/Social Sciences*	
Humanities/Social Sciences		*Humanities/Social Sciences*			
FOURTH YEAR					
STAT 170A	4	STAT 170B	4	STAT 183 or CS 179 (E-Z)	4
Regression Analysis		*Design of Experiments*		*Stat Consulting or Project in CS*	
DS Technical Elective**	4	DS Technical Elective**	4	DS Technical Elective**	4
_____		_____		_____	
Application Course Sequence***	4	Application Course Sequence***	4		
Course 1		*Course 2*			
ENGL 001C or ENGR 180W	4				
Technical Communications					

ENGLISH COMPOSITION

A C or better is required in three quarters of English Composition courses to satisfy the graduation requirement. ENGR 180W fulfills third quarter English Composition.

BREADTH REQUIREMENTS

For an approved list of Breadth courses: http://student.engr.ucr.edu/policies/requirements/breadth.html.

Humanities: (3 courses)
- A. World History: _____
- B. Fine Arts/Lit./Phil./Rlst: _____
- C. Human Persp. on Sci: _____

Social Sciences: (3 courses)
- A. Econ or Posc: _____
- B. Anth, Psyc, or Soc: _____
- C. General Social Science: _____

Ethnicity: _____
Biological Science: _____
Physical Science: _____
Science 1: _____
Science 2: _____

Upper Division 1: _____
Upper Division 2: _____

Please note that Technical Electives may be offered throughout the Academic Year. Consult with your Academic Advisor about potential offerings. See approved technical electives on back.

Course Plan is subject to change.

Total Units: 174

Maximum Units: 222

*Highly Recommended Course

Data Science Technical Electives

You must complete at least four upper division courses (16 units) from the list below, none of which can be used to satisfy other major requirements:

CS 166	Database Management Systems (4)	STAT 104	Decision Analysis and Management Science (4)
CS 167	Intro to BIG-DATA Management (4)	STAT 127	Introduction to Quality Improvements (4)
CS 170	Introduction to Artificial Intelligence (4)	STAT 130	Sampling Surveys (4)
CS 172	Introduction to Information Retrieval (4)	STAT 140	Nonparametric Techniques (4)
CS 180	Introduction to Software Engineering (4)	STAT 146	Statistical Forecasting Techniques (4)
CS 181	Principles of Programming Languages (4)	STAT 157	Statistical Computer Packages (4)
MATH 120	Optimization (4)	STAT 171	General Statistical Models (4)
MATH 135A	Numerical Analysis (4)		

** Technical Electives may require that you complete additional courses as prerequisites that are not accounted for in the undergraduate program. Please go to www.catalog.ucr.edu for course descriptions and prerequisite information.

Data Science Application Course Sequences

***One two-course sequence, chosen from the course sequences listed below. Courses must be taken in sequence and cannot be combined to create new sequences.

Economics Sequence:	ECON 108 and ECON 136
Business Sequence 1:	BUS 104 and BUS 123
Business Sequence 2:	BUS 124 and BUS 125
Business Sequence 3:	BUS 103 and BUS 115
Earth Science Sequence 1:	GEO 111 and GEO 161
Earth Science Sequence 2:	GEO 115 and GEO 147
Electrical & Computer Engineering Sequence:	EE 142 and EE 146
Biology/Bioinformatics Sequence:	BIOL 05A and BIOL 020