

DATA SCIENCE, BS

The Data Science degree teaches students how to obtain, clean, process, explore, analyze, and interpret data and how to effectively communicate the results of this process. Data Mining and Machine Learning have combined to become a force for competitive advantage. This program covers a variety of computational and statistical methods designed for using data as an enterprise asset. We emphasize computational and statistical thinking, and we focus on model building, algorithms, their implementations and how to apply existing popular implementations to real datasets. We also study how to effectively and efficiently communicate the results of the analysis using data visualization techniques. Graduates are positioned to join this growing field in a variety of professions and industries.

All students considering the Data Analytics major are highly encouraged to discuss their academic plans with faculty within the program at their earliest opportunity, even while still working with admissions or general advising.

Requirements

- Students must maintain a 2.0 GPA in the major, and must earn grades of C- or higher in all major coursework.
- At least 30 credit hours of credit must be taken at Roosevelt University, with at least 15 of these in the major.
- At least 60 credit hours in computer science, cyber security, the natural sciences, mathematics, and/or psychology.
- Because of the rapidly changing nature of this field of study, computing courses taken more than eight years ago cannot be counted towards degree requirements unless the student has been continuously registered since the time the course was taken (excluding summers).

Code	Title	Credit Hours
Core		
CST 150	COMPUTER SCIENCE I	4
CST 280	INTRODUCTION TO ALGORITHMS	3
CST 309	DATA MINING	3
CST 310	GAME THEORY AND APPLICATIONS	3
CST 311	NETWORK SCIENCE	3
CST 333	DATABASE SYSTEMS	3
CST 381	INTELLIGENT SYSTEMS	3
CST 387	ALGORITHM DESIGN	3
MATH 349	REGRESSION & TIME SERIES	3
Electives		15
Select five major electives:		
CST 312	BIG DATA	
CST 355	CRYPTOGRAPHY	
CST 361	DEEP LEARNING	
CST 386	INFORMATION RETRIEVAL	
CST 371	DISTRIBUTED DATABASES	
MATH 347	PROBABILITY THEORY	
MATH 367	FINANCIAL MATH	
Note: No more than 6 Credit Hours from among CST 390 Special Topics, CST 394 Internship, and/or CST 395 Independent Study.		

Required Math Courses

MATH 122	TRIGONOMETRY AND PRECALCULUS	3
MATH 217	ELEMENTARY STATISTICS	3
MATH 231	CALCULUS I	5
MATH 245	DISCRETE STRUCTURES	3
MATH 246	LINEAR ALGEBRA	3

General Education, University Writing Requirement, and Electives

Courses to total 120	60
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Total Credit Hours	120
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CORE Requirements (General Education)

Code	Title	Credit Hours
First Year Success Course or Transfer Success Course		
FYS 101 or TRS 101	FIRST YEAR SUCCESS COURSE TRANSFER SUCCESS 101	1
Communication Requirement		
ENG 101	COMPOSITION I: CRITICAL READING & WRITING	3
ENG 102	COMPOSITION II: INTRODUCTION TO ACADEMIC RESEARCH	3
COMM 101	PUBLIC SPEAKING (or program specific CORE communications course)	3
Ideas of Social Justice		
3 credits in coursework categorized as Ideas.		3
Humanities and Fine and Performing Arts ^{2,3}		
9 credits from the following subject areas: African-American Studies, Art History, English (excluding ENG 101 and ENG 102), History, Languages, Music, Philosophy, Theatre, Communication and Women's and Gender Studies		9
Mathematics		
MATH 110	QUANTITATIVE LITERACY (or above) ¹	3
Science		
One biological science and one physical science required (one must include a one credit lab).		7-8
Social Sciences ^{2,3,4}		
9 credits from the following subject areas: African-American Studies, Criminal Justice, Economics, History, Journalism, Philosophy, Political Science, Psychology, Sociology and Women's and Gender Studies		9
Experiential Learning		
6 credits from coursework categorized as Experiential Learning.		6
Total Credit Hours		47-48

¹ Higher level of Math may be required by major

² Coursework must come from outside of students' major discipline

³ A maximum of 9 credits can be applied from a single discipline towards humanities and social science requirements

⁴ Digital Advertising and Public Relations Majors must complete COMM 110 with a grade of C or higher. This course can fulfill one Social Science requirement.

These quantitative requirements also apply to degrees.

- Students must earn a minimum of 120 semester hours.
- Students may apply no more than 60 credit hours of 100-level courses toward the degree.
- Students must apply no fewer than 60 credit hours of 200- and 300-level courses toward the degree.
- Students must have at least 18 credit hours (of the 60 credit hours above) at the 300 level.
- Students may transfer in no more than 70 credit hours from community colleges.
- Students earning less than 60 total hours in residence must take their final 30 hours at Roosevelt University. Note that some majors have additional requirements for RU hours.
- Students must have a grade point average of 2.0 or higher to graduate. Note that some majors have additional GPA requirements.
- Students may apply no more than 51 hours in the major (BA) or 57 hours in the major (BS)

Your degree map is a general guide suggesting courses to complete each term on the academic pathway to your degree. It is based on the most current scheduling information from your academic program. Your program's degree map is reviewed annually and updated as schedules change (although you retain the same course requirements as long as you are continuously enrolled in your degree program).

Always work closely with your academic advisor to understand curriculum requirements and scheduling, as each student's academic plan can look slightly different.

Year 1

Fall	Credit Hours Spring	Credit Hours
ENG 101	3 ENG 102	3
FYS 101	1 CST 150	4
MATH 121	3 Ideas of Social Justice	3
BIOL 111 or 112 ⁴	4 Physical Science ⁴	3
Social Science #1	3 MATH 122	3
	14	16

Year 2

Fall	Credit Hours Spring	Credit Hours
MATH 245	3 MATH 246	3
MATH 217	3 CST 280	3
COMM 101	3 Social Science #3	3
General Elective ¹	3 Humanities #1	3
Social Science #2	3 General Elective ¹	3
	15	15

Year 3

Fall	Credit Hours Spring	Credit Hours
CST 333	3 CST 311	3
CST 387	3 Major Elective ²	3
Major Elective ²	3 Major Elective ²	3
MATH 231	5 Humanities #3	3
Humanities #2	3 Experiential Learning #1 ³	3
	17	15

Year 4

Fall	Credit Hours Spring	Credit Hours
CST 309	3 CST 310	3
CST 381	3 Major Elective ²	3
MATH 349	3 Major Elective ²	3
Experiential Learning #2 ³	3 General Elective ¹	3
General Elective ¹	1 General Elective ¹	3
	13	15

Total Credit Hours 120

¹ Or course towards an optional Minor.

² Major electives chosen with advisor.

³ Experiential Learning class must be 200/300 level. Satisfies CORE Experiential Learning requirement.

⁴ One Natural Science course must have a lab.