

COMPUTER SCIENCE, BS

The Department of Computer Science and Information Technology offers three majors in Computer Science, Information Technology, and Data Analytics. A comprehensive range of courses are taught in Cyber Security and Information Assurance, as well as general technology and computer literacy. All courses presented for the major and minor must be coordinated with a departmental advisor in accordance with curriculum check sheets and must be passed with a grade of C- or higher.

All students considering a major within the Department of Computer Science and Information Technology are highly encouraged to discuss their academic plans with an advisor within the department at their earliest opportunity, even while still working with admissions or general advising. Everyone is welcome to initiate a conversation with a CST advisor at any time.

A minimum of 15 credit hours of CST coursework must be completed at Roosevelt University to earn a CST major.

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). A double major among any of the CST majors is not offered because of the aligned nature of these degree programs. For additional information, please view the Department of Computer Science and Information Technology website (<http://cs.roosevelt.edu>).

The Computer Science program follows the traditional computer science curriculum with its emphasis on mathematics and computing systems theory. It prepares students to pursue careers in highly technical areas such as systems programming and software engineering or to go on to pursue graduate degrees in computer science.

At least 30 credit hours of credit must be taken at Roosevelt University, with at least 15 of these in the computer science major; at most 60 credit hours may be taken at the 100 level. At least 69 credit hours must be in non-computing courses. Students planning to pursue an MS in computer science should take MATH 231 CALCULUS I, MATH 245 DISCRETE STRUCTURES, and MATH 246 LINEAR ALGEBRA, as well as CST 280 INTRODUCTION TO ALGORITHMS in their curriculum.

Requirements

The final 30 credit hours of the degree must be taken at Roosevelt University. At least 15 credit hours of credit in the computer science major must also be taken at Roosevelt. At most 60 credit hours may be taken at the 100 level. At least 63 credit hours must be in non-computing courses.

Further requirements for the BS Degree:

At least 60 credit hours in the computer sciences, natural sciences, mathematics, and/or psychology;

Core		
CST 150	COMPUTER SCIENCE I	4
CST 250	COMPUTER SCIENCE II	4
CST 280	INTRODUCTION TO ALGORITHMS	3
CST 311	ANALYSIS OF REAL WORLD NETWORKS	3

CST 317	OPERATING SYSTEMS	3
CST 333	DATABASE SYSTEMS	3
CST 370	SOFTWARE ENGINEERING I	3
CST 372	PROGRAMMING LANGUAGES	3
Select one of the following:		3
CST 337	THEORY OF COMPUTATION	
CST 338	EFFICIENT COMPUTING	
CST 387	ALGORITHM DESIGN	

Electives		
Three 300+ level CST courses		9
Project-Based Course		
Select one of the following:		3
CST 309	DATA MINING	
CST 376	DISTRIBUTED APPLICATIONS	
CST 399	SENIOR PROJECT	
CST 312	BIG DATA	
CST 343	O.O.P AND WEB SERVICES	
CST 365	NETWORK APPLICATIONS PROGRAM	
CST 367	WEB-BASE DATABASE APPLICATIONS	
CST 3XX	Other Programming Course Chosen With CST advisor	

Required Math Courses		
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	65
Total Credit Hours	120

General Education Requirements

Code	Title	Credit Hours
Academic Communities of Practice		
ACP 101	FIRST YEAR SEMINAR ¹	3
ACP 110	PRIMARY TEXTS	3
ACP 250	FOUNDATIONS FOR CHANGE	3
English Composition ²		
ENG 101	COMPOSITION I: CRITICAL READING & WRITING	3
ENG 102	COMPOSITION II: INTRODUCTION TO ACADEMIC RESEARCH	3
Humanities		
Select 9 credits from the following subject areas: African-American Studies, Art History, English (excluding ENG 101 and ENG 102), History, Languages, Music, Philosophy, Theatre, Speech and Women's and Gender Studies		9
Mathematics		
MATH 110	QUANTITATIVE LITERACY (or above) ³	3
Non-Western requirement		
Non-Western course (can be used for Humanities or Social Sciences general education requirements)		3
RU mission-related course ²		

LIBS 201	WRITING SOCIAL JUSTICE	3
Science		
One biological science and one physical science required (at least one must be a four-hour lab (not applicable for science majors))		7-8
Social Sciences		
Select 9 credits from the following subject areas: African-American Studies, Anthropology, Economics, History, Journalism, Philosophy, Political Science, Psychology, Sociology and Women's and Gender Studies		9
Total Credit Hours		49-50

¹ Required for students who enter RU with fewer than 12 credit hours

² Minimum grade of C- required

³ Math, Computer Science & Technology, and Science majors have different requirements--see advisor

These quantitative requirements also apply to degrees in the College of Arts and Sciences:

- 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 66 credit hours from community colleges.
- Students 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 must have a minimum of 90 hours in Arts and Sciences.
- 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
ACP 101	3 ACP 110	3
ENG 101	3 ENG 102	3
CST 150	4 CST 250	4
Social Science #1	3 Social Science #2	3
Humanities #1	3 Biological Science ⁵	3
	16	16

Year 2		
Fall	Credit Hours Spring	Credit Hours
ACP 250 or LIBS 201	3 LIBS 201 or ACP 250	3
CST 280	3 CST 2XX or CST 3XX ^{2,3}	3
Physical Science Course with a Lab ⁵	5 MATH 245	3
MATH 231	5 Humanities #2	3
	Social Science #3	3
	16	15

Year 3		
Fall	Credit Hours Spring	Credit Hours
CST 333	3 CST 311	3
CST 372	3 CST 317	3
MATH 2XX or MATH 3XX ^{2,3}	3 MATH 246	3
Humanities #3	3 General Elective ¹	3
General Elective ¹	3 General Elective ¹	3
	15	15

Year 4		
Fall	Credit Hours Spring	Credit Hours
CST 370	3 General Elective ¹	3
Project Based Computer Science Course	3 General Elective ¹	3
Non-Western Studies Course ⁴	3 Computer Theory Course	3
Computer Science Elective	3 CST 2XX or 3XX ^{2,3}	3
CST 2XX or 3XX ^{2,3}	3	
	15	12

Total Credit Hours 120

¹ Or course towards an optional Minor.

² Any course at the 200 level within the discipline.

³ Any course at the 300 level within the discipline.

⁴ This requirement can be fulfilled by other requirements.

⁵ One Natural Science course must have a lab.