

# Computer Science

## BS in Computer Science (Fall 2019 & Later)

Minimum 120 credits required for Bachelor's degree

60+30 credits COMPUTER SCIENCE MAJOR

### Foundational Core (30-32 Credits) Grade

FYS 125 <sup>1</sup>	First Year Seminar	
CTL-125	Critical Thinking	
MA _____	Foundational Core Math course <sup>3</sup>	
Choose 1 course from each area *		
<sup>2</sup> Natural and Physical Science <sup>4</sup>		
Literature		
History	HI-100 or HI-102	
Arts/Design/Comm. <sup>7</sup>		
Philosophy		
Theology/Relig		
Social/Behavioral Science <sup>5</sup>		

### Human Journey Seminars: Great Books in CIT (6 Credits)

CIT 201	CIT Seminar I	
CIT 202	CIT Seminar II	

### Liberal Arts Explorations (9 Credits Total)

Student must complete one course in each area.  
(see list on Registrar's Website - checksheets)

Humanistic Inquiry (3 credits)		
Social and Global Awareness <sup>6</sup>		
Scientific Literacy (3 credits) <sup>6</sup>		

\* See list of courses.

<sup>1</sup>(Requires Grade C or higher)

<sup>2</sup>Science/Natural Science courses includes

approved Math and Computer Science courses. Students

are required to take at least one course in Biology, Chemistry, or

Physics in the Foundational or Liberal Arts Exploration Core.

Major and MA courses may be used as a Science/Natural Science

in either the Foundational Core or as a requirement in the LAE

Core, but not in both categories.

<sup>3</sup> MA106/MA140/MA151 may count in this area

<sup>4</sup> PY151/153 may count in this area

<sup>5</sup> EC101 or EC202 or EC295 is recommended

<sup>6</sup> MA331 may count in this area

<sup>7</sup> AR114 is recommended

Note: MA 006 and ESL courses **will not** count towards the 120 credit graduation requirement.

Approved Study Abroad courses may be used to satisfy requirements for the foundational core or a Liberal Arts Exploration

A maximum of 8 Applied Music credits may be applied towards graduation

REQUIRED CURRICULUM		CR	Grade
CSE 125	CSE Explorations	1	
CS 125	CS Explorations	1	
CS 111	Introduction to Structured Programming	3	
CS 112	Data Structures	3	
CS 113	Discrete Structures	3	
CS 215	Computer Systems Organization	3	
CS 241	C Programming	3	
CS 262	Programming Paradigms	3	
CS 311	Database Design	3	
CS 319	Computer Ethics	3	
CS 321	Research Methods Seminar	2	
CS 338	Systems Analysis and Design	3	
CS 339	Networking and Data Communications	3	
CS 341	Analysis of Algorithms	3	
CS 349	Operating Systems	3	
CS 390	Internship	3	
CS 417	Senior Project Design	2	
CS 418	Senior Project Implementation	3	

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CS ELECTIVES - TAKE FOUR OF THE FOLLOWING		CR	Grade
CS 421	Theory of Computation	3	
CS 422	Compiler Design	3	
CS 430	Cyber-Physical Systems	3	
CS 432	Cloud Computing Fundamentals	3	
CS 461	Software Engineering	3	
CS 472	Computer Graphics	3	
CS 481	Introduction to Artificial Intelligence	3	
CS 482	Applied Machine Learning	3	

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Required Supporting Courses <sup>1</sup>		CR	Grade
MA 151	Calculus I	4	
MA 152	Calculus II	4	
MA 253	Calculus III	4	
MA 261	Linear Algebra	4	
MA 331	Probability**	3	
PY151/153	Principles of Physics I and Lab	4	
PY152/154	Principles of Physics II and Lab	4	
PH-221, PH-231 or PH-251	Philosophy course***	3	
	Must have grade of C or better		

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### Checksheet Key

T	Course transferred and Requirement satisfied
W	Requirement waived
TW	Course transferred and Requirement waived

**WELCH COLLEGE OF BUSINESS AND TECHNOLOGY**  
**SCHOOL OF COMPUTER SCIENCE & ENGINEERING**  
**BS in Computer Science (Fall 2019 & Later)**

YEAR 1	SEMESTER 1		YEAR 1	SEMESTER 2
FYS 125 OR CTL 125	First Year Seminar OR Crititcal Thinking	3	CTL 125 OR FYS 125	Critical Thinking OR First Year Seminar
MA 151	Calculus I	4	MA 152	Calculus II
CSE 125	CSE Explorations	1	CS 125	CS Explorations
CS 111	Intro to Structured Programming	3	CS 112	Data Structures
CORE	Foundational Core	3	CS 113	Discrete Structures
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YEAR 2	SEMESTER 3		YEAR 2	SEMESTER 4
CIT 201	Human Journey Seminar I	3	CIT 202	Human Journey Seminar II
CS 262	Programming Paradigms	3	CS 215	Computer Systems Organization
MA 253	Calculus III	4	CS 241	C Programming
PY 151/153	Principles of Physics I	4	MA 261	Linear Algebra
CORE	Foundational Core	3	PY 152/154	Principles of Physics II
17				
YEAR 3	SEMESTER 5		YEAR 3	SEMESTER 6
CS 311	Database Design	3	CS 321	Research Methods Seminar
CS 319	Computer Ethics (LAE Awareness)	3	CS 338	Systems Analysis and Design
CS 339	Networking and Data Communications	3	CS 341	Analysis of Algorithms
MA 331	Probability (LAE Literacy)	3	CS 349	Operating Systems
CORE	Foundational Core	3	CORE	Foundational Core
CS 390	Internship (Summer or Fall)	3		
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YEAR 4	SEMESTER 7		YEAR 4	SEMESTER 8
CS 417	Senior Project Design	2	CS 418	Senior Project Implementation
CS ELEC	CS Elective	3	CS ELEC	CS Elective
CS ELEC	CS Elective	3	CS ELEC	CS Elective
CORE	Foundational Core	3		Free Elective
LAE Inquiry	LA Exploration Inquiry	3	CORE	Foundational Core