

University of Wisconsin-Milwaukee
College of Engineering and Applied Science

COMPUTER SCIENCE

The minimum number of credits required to complete the Bachelor of Science in Computer Science is 120 credits.

Computer Science Requirements (53 credits)		Credits	Prerequisite
CompSci 150	Survey of Computer Science (recommended only)	3	none
CompSci 201	Introductory Computer Programming	3	Math 116 (C) or Math 211 (C)
CompSci 251	Intermediate Computer Programming	3	CS 201*, Math 116 or 211
CompSci 315	Introduction to Computer Organization and Assembly Language Programming	3	CS 201, Math 211 or 226 or 231
CompSci 317	Discrete Information Structures	3	CS 201, Math 221* or 231*
CompSci 337	Systems Programming	3	CS 251*
CompSci 351	Data Structures and Algorithms	3	CS 251*, Math 116 or 211
CompSci 361	Introduction to Software Engineering	3	CS 251*, GER English
CompSci 395	Social, Professional, and Ethical Issues	3	Soph St
CompSci 417	Introduction to the Theory of Computation	3	Jr St, CS 317*, Math 221 or 232
CompSci 431	Programming Languages Concepts	3	Jr St, CS 351*
CompSci 458	Computer Architecture	3	Jr St, CS 315 or EE 367, EE 354
CompSci 520	Computer Networks	3	Jr St, CS 315 or CS 458 or EE 367
CompSci 535	Algorithm Design and Analysis	3	Jr St, CS 317*, CS 351*
CompSci 537	Introduction to Operating Systems	3	Jr St, CS 431 or 535, CS 315*, 317*
CompSci 557	Introduction to Database Systems	3	Jr St, CS 315, 251
CompSci 595	Capstone Project	4	Sr St, CS 361, 458, 535, 537
EAS 200	Professional Seminar	1	none
ElecEng 354	Digital Logic	3	CS 151 or CS 201 or CS 315

* C or better in prerequisite.

Mathematics Requirements (8 credits)			
Math 231	Calculus and Analytic Geometry I	4	Math Placement A
Math 232	Calculus and Analytic Geometry II	4	Math 231*

* C or better in prerequisite.

Natural Science Requirements (12 credits including at least 1 laboratory credit)			
Must include one of the following sequences:			
BioSci 150 - 152	Foundations of Biology I & II	8	Chem placement
BioSci 202 - 203	Anatomy and Physiology I & II	8	none
Chem 102 - 104	General Chemistry I & II	10	Math 105, Chem placement
Physics 120 - 122	General Physics I & II	8	Math placement C
Physics 209 - 210	Physics I & II	8	Math 232 (C), Math 233 (C)

Remaining credits to be chosen from the Natural Science elective from GER list

General Education Requirements (15 credits)			
Art		3	variable
Humanities		6	variable
Social Science		3	variable
Commun 105	Business and Professional Communication	3	none

One of the arts, humanities, or social science courses selected must also meet the UWM cultural diversity requirement.

Competency Requirements

English Composition (0-6 credits)

The English Composition requirement is satisfied by one of the following:

- Earning a satisfactory score on the English placement test.
- Earning a grade of C or higher in English 102.
- Transferring with a grade of C or better in a course (3 credits or more) equivalent to English 102 or higher level expository writing course.

Foreign Language (0-8 credits)

The foreign language requirement can be completed with one of these options:

- Two years of a single foreign language in high school,
- Two semesters of a single foreign language in college,
- Demonstrate ability by examination

Advancement to Major: 1. Completion of the following courses, each with a minimum C grade in each course: Math 231, 232, CompSci 201, 251, 315, 317 and ElecEng 354. 2. Complete EAS 200 Professional Seminar. 3. Complete the English composition requirement. 4. Obtain a 2.33 GPA in all courses in item 1. **The program may impose major status as a prerequisite for courses number 400 or above.**

Placement Examinations
 Students without previous college level credits in Math and English may not be required to take placement exams. The results of these tests determine the appropriate course in which to register. Background prerequisite courses may be required in addition to the courses listed above.

Technical Electives - Select 12 credits from the following three lists:

All non-required CompSci courses number 400-699 are either Computer Science or Applied Technology Electives. The Applied Technology Electives are in the range 480-489, 580-589, or 680-689. All other non-required CompSci courses in the 400- 699 range are Computer Science Electives.

Computer Science Electives (Select 6 to 12 credits from this list)

		Credits	Prerequisite
CompSci 422	Introduction to Artificial Intelligence	3	Jr St, CS 317*, 351*
CompSci 423	Introduction to Natural Language Processing	3	Jr St, CS 351*, 417*
CompSci 425	Introduction to Data Mining	3	Jr St, CS 251, Math 232
CompSci 438	Software Engineering Laboratory	(1 – 6)	Jr St, CS 251*
CompSci 444	Intro to Text Retrieval & Its Applications in Biomedicine	3	Jr st, CS 351
CompSci 459	Fundamentals of Computer Graphics	3	Jr St, CS 251, Math 232
CompSci 469	Introduction to Computer Security	3	Jr St, CS 201*, 317*
CompSci 511	Symbolic Logic	3	Jr St, Phil 212
CompSci 530	Computer Networks Laboratory	3	Jr St, CS 520
CompSci 536	Software Engineering	3	Jr St, CS 251*
CompSci 552	Object Oriented Programming	3	Jr St, CS 431
CompSci 599	Senior Thesis	3	Sr st, cons instr
CompSci 654	Introduction to Compilers	4	Jr St, CS 417, 431
CompSci 657	Topics in Computer Science	(1 – 4)	variable
CompSci 699	Independent Study	(1 – 3)	variable
ElecEng 367	Introduction to Microprocessors	4	EE 354*, CS 151 or CS 201
ElecEng 451	Introduction to VLSI Design	3	Jr St, EE 330, 354
ElecEng 457	Digital Logic Laboratory	3	Jr St, EE 330, 354

* C or better in prerequisite.

Applied Technology Electives (Select 0 to 3 credits from this list)

CompSci 481	Server-side Internet Programming	3	CS 251, 113 or 581
CompSci 482	Rich Internet Applications	3	CS 251, 113 or 581
CompSci 581	Web Languages and Standards	3	Jr St, CompSci 417, 431
CompSci 658	Topics in Applied Computing	3	variable

Supplemental Electives (Select 0 to 3 credits from this list)

Bus Adm 490	Entrepreneur Internship	3	Jr St, Bus Adm 295 or 497
EAS 001	Engineering Co-op Work Period	(1 – 3)	cons co-op dir
EAS 497	Study Abroad	(1 – 3)	acceptance to Study Abroad Prog
English 206	Technical Writing	3	GER English

Applied Mathematics Electives (Select 6 credits from this list)**May not include both Math 234 and ElecEng 234**

Math 233	Calculus and Analytic Geometry III	4	Math 232*
Math 234	Linear Algebra and Differential Equations	4	Math 232*
Math 337	Introduction to Number Theory	3	Math Placement A
Math 431	Modern Algebra with Applications	3	Math 232
Math 451	Axiomatic Geometry	3	Math 232, Math 341
MthStat 361	Introduction to Mathematical Statistics I	3	Math 233
ElecEng 234	Analytical Methods in Engineering	4	Math 232*
IndEng 467	Intro to Statistics for Phy Sciences and Engineering	3	Math 233

* C or better in prerequisite.

Free Elective Courses (Variable credits)

University level courses of your choice as needed to reach a minimum of 120 total credits.

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