

B.S. IN COMPUTER SCIENCE

College of the Sciences and Mathematics

Curriculum

Code	Title	Credits
GENERAL EDUCATION REQUIREMENTS (http://catalog.wcupa.edu/undergraduate/general-education-requirements/)		
Academic Foundations		
First Year Experience requirement		4
English Composition requirement		6-7
Mathematics requirement		3-4
MAT 151	Introduction to Discrete Mathematics	
Interdisciplinary requirement		3
Diverse Communities requirement		3
Ethics requirement		3
Satisfied by Core Requirement CSC 301		
Distributed Disciplinary Foundations		
Science requirement		6-8
Choose from the following:		
BIO 110	General Biology I ¹	
CHE 103	General Chemistry I	
& CRL 103	and General Chemistry I Lab ¹	
ESS 101	Introduction to Geology ¹	
PHY 130	General Physics I ¹	
or PHY 170	Physics I	
Behavioral & Social Science requirement		6
Humanities requirement		6
Arts requirement		3
ADDITIONAL BACCALAUREATE REQUIREMENTS (http://catalog.wcupa.edu/undergraduate/general-education-requirements/)		
University Requirements		
Writing Emphasis requirement		9
ENG 368	Business and Organizational Writing ¹	
or ENG 371	Technical Writing	
Speaking Emphasis requirement		9
SPK 208	Public Speaking ¹	
or SPK 230	Business and Professional Speech Communication	
Degree Requirements		
Capstone requirement		1-15
MAJOR REQUIREMENTS		
Mathematics ¹		
MAT 121	Introduction to Statistics I	3
MAT 151	Introduction to Discrete Mathematics	3
MAT 161	Calculus I	4
STA 200	Introduction to Statistics II	3
or MAT 162	Calculus II	
Communications ¹		
SPK 208	Public Speaking	3
or SPK 230	Business and Professional Speech Communication	
ENG 368	Business and Organizational Writing	3
or ENG 371	Technical Writing	
Computer Science Core ¹		
CSC 141	Computer Science I	3

CSC 142	Computer Science II	3
CSC 220	Foundations of Computer Science	3
CSC 231	Computer Systems	3
CSC 240	Computer Science III	3
CSC 241	Data Structures & Algorithms	3
CSC 301	Computer Security & Ethics	3
CSC 345	Programming Language Concepts/Paradigms	3

Complex Large-Scale Systems Courses ¹

Select one of the following:		3
CSC 416	Design/Construction Compilers	
CSC 417	User Interfaces	
CSC 418	Modern Web Applications Using Server-Side Technologies	
CSC 466	Distributed and Parallel Computing	
CSC 467	Big Data Engineering	
CSC 468	Introduction to Cloud Computing	
CSC 476	Game Development	
CSC 496	Topics in Complex Large-Scale Systems	

Capstone Requirement ¹

CSC 402	Software Engineering ²	3
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Computer Science 300-/400-Level Electives ¹

A minimum of 6 credits of 400-level courses is required. 3 credits of the 6-credit internship (CSC 400) can be used here.

Total Minimum Credits Required 120

Accelerated B.S. in Computer Science to M.S. in Computer Science Program

Students may substitute up to 4 M.S. Computer Science electives for B.S. Computer Science electives, excluding the combinations noted.

Code	Title	Credits
Electives		
Select up to 4 graduate Computer Science electives to satisfy undergraduate elective requirements: ³		
CSC 525	Operating Systems	
CSC 535	Networks and Data Communication	
CSC 545	Database Systems Concepts	
CSC 555	Software Engineering	
CSC 565	Compiler Design	
CSC 575	Artificial Intelligence	
CSC 576	Data Science	
CSC 577	Natural Language Processing	
CSC 581	Topics in Computer Science	
CSC 582	Topics in Information Systems	
CSC 583	Topics in Computer Security	
CSC 584	Topics in Web Technology	
CSC 585	User Interfaces	
CSC 586	System Administration and Security	
CSC 587	Modern Web Applications Using Server-Side Technologies	
CSC 588	Wireless Programming and Security	
CSC 600	Advanced Seminar	
CSC 603	Advanced Seminar in Security	
CSC 604	Advanced Seminar Web Technology	
CSC 605	Internship in Computer Science	
CSC 610	Independent Research	

Note: Students may NOT use the following combinations:

Operating Systems: CSC 525 and CSC 331

Networking: CSC 535 and CSC 335

Database: CSC 545 and CSC 321

Software Engineering: CSC 555 and CSC 402

Compilers: CSC 565 and CSC 416

Artificial Intelligence: CSC 575 and CSC 481

User Interfaces: CSC 585 and CSC 417

Server-Side Technologies: CSC 587 and CSC 418

Internship: CSC 605 and CSC 400

¹ A grade of C- or better is required in these courses.

² This course fulfills the Capstone requirement.

³ Additional CSC 500-600 level courses will be considered under advisement.

Sample Course Plan

To track their individual degree progress, students are advised to access their Degree Progress Report (DPR) via myWCU regularly. For more information, visit wcupa.edu/DegreeProgressReport (<http://wcupa.edu/degreeprogressreport/>).

The following is a sample suggested course sequence for this program; course offerings and availability are not guaranteed. Students should consult their academic advisor with any questions.

B.S. in Computer Science

Course	Title	Credits
Year One		
Fall		
CSC 141	Computer Science I	3
MAT 131	Precalculus	3
WRT 120	Effective Writing I ¹	3-4
or	or Effective Writing with Supplemental	
WRT 123	Writing Workshop	
Science Gen Ed		
Complete one of the following:		
BIO 110	General Biology I	3-4
or	or General Chemistry I <i>and</i> General	
CHE 103	Chemistry I Lab	
<i>and</i>	or Introduction to Geology	
CRL 103	or General Physics I	
or	or General Physics II	
ESS 101		
or		
PHY 130		
or		
PHY 140		
FYE 100X	First Year Experience	4
Credits		16-18
Spring		
CSC 142	Computer Science II	3
MAT 151	Introduction to Discrete Mathematics	3
WRT 2XX	200-Level WRT Course	3
Behavioral & Social Science Gen Ed		3
Humanities Gen Ed		3
Credits		15
Year Two		
Fall		
CSC 231	Computer Systems	3
CSC 240	Computer Science III	3

MAT 161	Calculus I	4
SPK 208	Public Speaking	3
or	or Business and Professional Speech	
SPK 230	Communication	
Arts Gen Ed		3
Credits		16
Spring		
CSC 220	Foundations of Computer Science	3
CSC 241	Data Structures & Algorithms	3
MAT 121	Introduction to Statistics I	3
Diverse Communities Gen Ed		3
Writing Emphasis Gen Ed		3
Credits		15
Year Three		
Fall		
CSC 301	Computer Security & Ethics	3
CSC 345	Programming Language Concepts/Paradigms	3
MAT 162	Calculus II	3-4
or	or Introduction to Statistics II	
STA 200		
Speaking Emphasis Gen Ed		3
Behavioral & Social Science Gen Ed		3-4
Credits		15-17
Spring		
CSC 402	Software Engineering	3
Science Gen Ed		3-4
Select one of the following that has not yet been completed:		
BIO 110	General Biology I	3-4
or	or General Chemistry I <i>and</i> General	
CHE 103	Chemistry I Lab	
<i>and</i>	or Introduction to Geology	
CRL 103	or General Physics I	
or	or General Physics II	
ESS 101		
or		
PHY 130		
or		
PHY 140		
CSC XXX	Computer Science Elective	3
Humanities Gen Ed		3
Speaking Emphasis Gen Ed		3
Credits		18-20
Year Four		
Fall		
ENG 368	Business and Organizational Writing	3
or	or Technical Writing	
ENG 371		
CSC XXX	Complex Large-Scale Elective	3
CSC XXX	Computer Science Elective	3
CSC XXX	Computer Science Elective	3
Interdisciplinary Gen Ed		3
Credits		15
Spring		
CSC XXX	Computer Science Elective	3
CSC XXX	Computer Science Elective	3
CSC XXX	Computer Science Elective	3
Writing Emphasis Gen Ed		3

Free Elective	3
Credits	15
Total Credits	125-131

¹ Students who place out of WRT 120 or WRT 123 will have one additional free elective.

Accelerated B.S. in Computer Science to M.S. in Computer Science

Course	Title	Credits
Year One		
Fall		
CSC 141	Computer Science I	3
MAT 131	Precalculus	3
WRT 120	Effective Writing I ¹	3-4
or	or Effective Writing with Supplemental	
WRT 123	Writing Workshop	
FYE 100X	First Year Experience	4
Behavioral & Social Science Gen Ed		3
Credits		16-17
Spring		
CSC 142	Computer Science II	3
MAT 161	Calculus I	4
WRT 2XX	200-Level WRT Course	3
Behavioral & Social Science Gen Ed		3
Humanities Gen Ed		3
Credits		16
Year Two		
Fall		
CSC 231	Computer Systems	3
CSC 240	Computer Science III	3
MAT 151	Introduction to Discrete Mathematics	3
SPK 208	Public Speaking	3
or	or Business and Professional Speech	
SPK 230	Communication	
Humanities Gen Ed		3
Credits		15
Spring		
CSC 220	Foundations of Computer Science	3
CSC 241	Data Structures & Algorithms	3
MAT 121	Introduction to Statistics I	3
Diverse Communities Gen Ed		3
Writing Emphasis Gen Ed		3
Credits		15
Year Three		
Fall		
CSC 301	Computer Security & Ethics	3
CSC 402	Software Engineering	3
MAT 162	Calculus II	3-4
or	or Introduction to Statistics II	
STA 200		
Science Gen Ed		3-4
Select one of the following:		

BIO 110	General Biology I	3-4
or	or General Chemistry I <i>and</i> General	
CHE 103	Chemistry I Lab	
<i>and</i>	or Introduction to Geology	
CRL 103	or General Physics I	
or	or Physics I	
ESS 101		
or		
PHY 130		
or		
PHY 170		
Speaking Emphasis Gen Ed		3
Credits		18-21
Spring		
CSC 345	Programming Language Concepts/Paradigms	3
CSC XXX	Computer Science Graduate Elective	3
Science Gen Ed		3-4
Select one of the following that has not yet been completed:		
BIO 110	General Biology I	3-4
or	or General Chemistry I <i>and</i> General	
CHE 103	Chemistry I Lab	
<i>and</i>	or Introduction to Geology	
CRL 103	or General Physics I	
or	or Physics I	
ESS 101		
or		
PHY 130		
or		
PHY 170		
Arts Gen Ed		3
Speaking Emphasis Gen Ed		3
Credits		18-20
Year Four		
Fall		
ENG 368	Business and Organizational Writing	3
or	or Technical Writing	
ENG 371		
CSC XXX	Complex Large-Scale Elective	3
CSC XXX	Computer Science Elective	3
CSC XXX	Computer Science Graduate Elective	3
Interdisciplinary Gen Ed		3
Credits		15
Spring		
CSC XXX	Computer Science Elective	3
CSC XXX	Computer Science Graduate Elective	3
CSC XXX	Computer Science Graduate Elective	3
Writing Emphasis Gen Ed		3
Free Elective		3
Credits		15
Summer		
CSC XXX	Computer Science Graduate Elective	3
Credits		3
Year Five		
Fall		
CSC 520	Foundations of Computer Science	3
CSC 530	Data Structures	3
CSC 600	Advanced Seminar	3
Credits		9

Spring		
CSC 540	Programming Languages	3
CSC 560	Analysis of Algorithms	3
CSC 600	Advanced Seminar	3
Credits		9
Total Credits		149-155

¹ Students who place out of WRT 120 or WRT 123 will have one additional free elective.

B.S in Computer Science with Certificate in Computer Security

Course	Title	Credits
Year One		
Fall		
CSC 141	Computer Science I	3
MAT 131	Precalculus	3
WRT 120	Effective Writing I ¹	3-4
or	or Effective Writing with Supplemental	
WRT 123	Writing Workshop	
FYE 100X	First Year Experience	4
Behavioral & Social Science Gen Ed		3
Credits		16-17

Spring		
CSC 142	Computer Science II	3
MAT 161	Calculus I	4
WRT 2XX	200-Level WRT Course	3
Behavioral & Social Science Gen Ed		3
Humanities Gen Ed		3
Credits		16

Year Two		
Fall		
CSC 231	Computer Systems	3
CSC 240	Computer Science III	3
MAT 151	Introduction to Discrete Mathematics	3
SPK 208	Public Speaking	3
or	or Business and Professional Speech	
SPK 230	Communication	
Humanities Gen Ed		3
Credits		15

Spring		
CSC 220	Foundations of Computer Science	3
CSC 241	Data Structures & Algorithms	3
MAT 121	Introduction to Statistics I	3
Diverse Communities Gen Ed		3
Writing Emphasis Gen Ed		3
Credits		15

Year Three		
Fall		
CSC 301	Computer Security & Ethics	3
CSC 335	Data Communications and Networking I	3
MAT 162	Calculus II	3-4
or	or Introduction to Statistics II	
STA 200		
Science Gen Ed		3-4
Select one of the following:		

BIO 110	General Biology I	3-4
or	or General Chemistry I <i>and</i> General	
CHE 103	Chemistry I Lab	
<i>and</i>	or Introduction to Geology	
CRL 103	or General Physics I	
or	or Physics I	
ESS 101		
or		
PHY 130		
or		
PHY 170		

Speaking Emphasis Gen Ed		3
Credits		18-21

Spring		
CSC 302	Computer Security	3
CSC 402	Software Engineering	3
Science Gen Ed		3-4
Select one of the following that has not yet been completed:		

BIO 110	General Biology I	3-4
or	or General Chemistry I <i>and</i> General	
CHE 103	Chemistry I Lab	
<i>and</i>	or Introduction to Geology	
CRL 103	or General Physics I	
or	or Physics I	
ESS 101		
or		
PHY 130		
or		
PHY 170		

Arts Gen Ed		3
Speaking Emphasis Gen Ed		3
Credits		18-20

Year Four		
Fall		
CSC 345	Programming Language Concepts/Paradigms	3
CSC 472	Software Security	3
ENG 368	Business and Organizational Writing	3
or	or Technical Writing	
ENG 371		
CSC XXX	Complex Large-Scale Elective	3
Interdisciplinary Gen Ed		3
Credits		15

Spring		
CSC 468	Introduction to Cloud Computing	3
CSC 471	Modern Malware Analysis	3
CSC XXX	Computer Science Elective	3
Writing Emphasis Gen Ed		3
Free Elective		3
Credits		15

Total Credits		128-134
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¹ Students who place out of WRT 120 or WRT 123 will have one additional free elective.