

COMPUTER SCIENCE, B.S.

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The Bachelor of Science in Computer Science program prepares students for careers in computer science through learning based on practice and grounded in theory. Students learn how to analyze, design, build, test, and deploy computer based systems by making technical trade offs between performance, scalability, availability, reliability, security, maintainability, cost and societal impact. Marshall's computing facilities are state-of-the-art and readily available to students.

Admission and Transfer Criteria

Minimum requirements for admission into the Computer Science major for first-time freshmen are:

- an ACT composite score of 21 (composite SAT of 1060) and
- an ACT mathematics score of 24 (Math SAT of 570).

Minimum requirements for admission into the Computer Science major for transfer students, whether from within Marshall University or from another institution, are:

- 15 earned semester credit hours of college-level coursework,
- an overall Grade Point Average of at least 2.0 in all college-level coursework,
- completion of ENG 101 Beginning Composition (or equivalent) with a grade of C, and
- completion of MTH 132 Precalculus with Sci Applica, or MTH 127 College Algebra-Expanded/MTH 130 College Algebra and MTH 132 Precalculus with Sci Applica (or equivalent) with a grade of C.


Since enrollment may be limited, prospective students are encouraged to apply for admission as soon as possible and are urged to contact an advisor.

For those desiring to major in computer science who do not meet the admission or transfer criteria listed above:

- Students may be admitted to "Pre-Computer Science" with a minimum ACT composite of 19 and an ACT mathematics score of 19-23 (composite SAT of 990; Math SAT of 510-560). Transfer students must be eligible for MTH 127 College Algebra-Expanded/MTH 130 College Algebra and MTH 132 Precalculus with Sci Applica.

Students in Pre-Computer Science must complete the criteria for transfer students to Computer Science. Registration for Computer Science courses will be limited until transfer criteria are met.























 - General Education Course

 - Milestone course: a key success marker for your major. See your advisor to discuss the importance of this course in your plan of study.

The Core Curriculum is designed to foster critical thinking skills and introduce students to basic domains of thinking that transcend

disciplines. The Core applies to all majors. Information on specific classes in the Core can be found at <https://www.marshall.edu/gened/>.











Course Requirements

Code	Title	Credit Hours
Core Curriculum		
<i>Core 1: Critical Thinking</i>		
FYS 100	First Yr Sem Critical Thinking	3
MTH 229 	Calculus/Analytic Geom I (CT)	5
	Critical Thinking Course	3
<i>Core 2</i>		
ENG 101 	Beginning Composition	3
ENG 201 	Advanced Composition	3
CMM 103 	Fund Speech-Communication	3
		
MTH 229 	 Calculus/Analytic Geom I (CT)	5
	Sci w/Lab Core II Physical/Natural Science	4
	Core II Humanities	3
	Core II Social Studies	3
	Core II Fine Arts	3
<i>Additional University Requirements</i>		
	Writing Intensive	3
	Writing Intensive	3
	Multicultural or International	3
CS 490 	Senior Project	3
Major-Specific		
MTH 220 	 Discrete Structures	3
MTH 229 	 Calculus/Analytic Geom I (CT)	5
MTH 230 	Calculus/Analytic Geom II	4
MTH 329	Elementary Linear Algebra	3
STA 345	Applied Prob and Stat	3
CS 110 	Computer Science I	3
CS 120 	Computer Science II	3
CS 210 	Data Structures and Algorithms	3
CS 215	Adv Data Struct and Algorithms	3
CS 300 	Programming Languages	3
CS 305	Software Engineering	3
CS 310	Software Engineering II	3
CS 320 	Internetworking	3
CS 330	Operating Systems	3
CS 360	Automata and Formal Languages	3
CS 402	Computer Architecture	3
CS 410	Database Engineering	3
CS 430 	Cyber Security	3
CS 490 	Senior Project	3
ENGR 221	Engineering Economy	3
ENG 354 	Scientific & Tech Writing	3
MGT 320 	Principles of Management	3
<i>CS Electives</i>		
Select two of the following:		6
CS 315	Software Quality Assurance	

CS 370	Computer Graphics
CS 404	High Performance Computing
CS 405	Computing for Bioinformatics
CS 425	Computational Intelligence
CS 435	Cyber Risk
CS 440	Digital Image Processing
CS 455	Systems Engineering
CS 480	Special Topics
CS 481	Special Topics
CS 482	Special Topics
CS 483	Special Topics


Science w/ Lab

Select three of the following with labs: 12

BSC 120  & BSC 120L 	Principles of Biology I and Principles of Biology I Lab (or above)
CHM 211  & CHM 217 	Principles of Chemistry I and Principles of Chem Lab I (or above)
GLY 200  & GLY 210L 	The Dynamic Earth and Earth Materials Lab (or above)
PHY 201  & PHY 202 	College Physics I and General Physics I Laboratory (or above)
PHY 211  & PHY 202 	University Physics I and General Physics I Laboratory (or above)
Free Elective	3
Free Elective	3
Free Elective	2







Major Information

- Students are required to know and track their degree requirements for graduation or for entrance to a professional school.
- Coursework listed as “free elective” may vary for each student. Students are encouraged to use elective hours toward a minor or toward prerequisites.
- Course offerings and course attributes are subject to change each semester. Please consult each semester’s schedule of courses for availability and attributes.






 - General Education Course - Milestone course: a key success marker for your major. See your advisor to discuss the importance of this course in your plan of study.**Semester Plan**

The Bachelor of Science in Computer Science program prepares students for careers in computer science through learning based on practice and grounded in theory. Students learn how to analyze, design, build, test, and deploy computer based systems by making technical trade offs between performance, scalability, availability, reliability, security, maintainability, cost and societal impact. Marshall's computing facilities are state-of-the-art and readily available to students.



First Year**First Semester**

CS 110 	Computer Science I	3
MTH 229  	Calculus/Analytic Geom I (CT)	5
ENG 101 	Beginning Composition	3
CMM 103 	Fund Speech-Communication	3
UNI 100 	Freshman First Class	1


Credit Hours**15****Second Semester**

CS 120 	Computer Science II	3
ENG 201 	Advanced Composition	3
FYS 100	First Yr Sem Critical Thinking	3
MTH 220  	Discrete Structures	3
MTH 230 	Calculus/Analytic Geom II	4



Credit Hours**16****Second Year****First Semester**

CS 210 	Data Structures and Algorithms	3
ENG 354 	Scientific & Tech Writing	3
MTH 329	Elementary Linear Algebra	3
Core II Physical/Natural Science		4
Core II Social Science (CT, M/I)		3


Credit Hours**16****Second Semester**

CS 215	Adv Data Struct and Algorithms	3
CS 300 	Programming Languages	3
STA 345	Applied Prob and Stat	3
Science w/ Lab		4
Core II Fine Arts		3

Credit Hours**16****Third Year****First Semester**


CS 305	Software Engineering	3
CS 320 	Internetworking	3
CS 330	Operating Systems	3
MGT 320 	Principles of Management	3
Core II Humanities (WI)		3

Credit Hours**15****Second Semester**

CS 310	Software Engineering II	3
CS 402	Computer Architecture	3
CS 430 	Cyber Security	3
CS 410	Database Engineering	3
ENGR 221	Engineering Economy	3

Credit Hours**15****Fourth Year****First Semester**

CS Elective		3
Science w/ Lab		4

CS 360	Automata and Formal Languages	3
Writing Intensive		3
Credit Hours		13
Second Semester		
CS 490 	Senior Project (C)	3
CS Elective		3
Free Elective		3
Free Elective		3
Free Elective		2
Credit Hours		14
Total Credit Hours		120