

Field Experience, only three credits of 491 will count toward the necessary 36. Students must complete 15 hours from the following: COMM 105, 202, 306, 307, 308, 309, 316, 317, 404, 405, 406, and 408. An additional three hours are selected from the following: COMM 212, 303, 304, 305, and 314. All students must complete a minimum of 30 hours of credit, 21 of which must be in communication studies, following the semester in which they were admitted to this program. Students must also complete 21 hours of coursework outside of the department. Within these 21 hours, students must complete CS 101 and STAT 111. The department recommends that STAT 111 be taken prior to COMM 201. Additional decisions involving elective coursework to fulfill this 21-hour requirement will be made in consultation with a communication studies advisor.

Graduation

Students must maintain a cumulative GPA of 2.5 in all courses in the department to be certified for graduation with a major in communication studies. Courses in communication studies that the student wishes to count toward the major must be completed with a grade of C or better. The minimum requirement for a major in communication studies is 36 hours. A maximum of 42 hours in communication studies may be counted toward graduation.

Advisement

Before or during the second semester of the freshman year, students interested in pursuing a major in communication studies should consult with a department advisor.

Minor in Communication Studies

Students may elect to complete a 15-credit-hour minor in the field of communication studies. This minor is designed to provide a broad overview of the field. Requirements are: (a) COMM 100 + 102, or 100 + 104, or 112, or 122 or 303 (three hours); (b) COMM 105 and 306 and 308 (nine hours); (c) COMM 305 or 309 or 316 (three hours). A GPA of 2.0 in courses counted toward the minor is required.

Computer Science

Brian D. Woerner, Chair

John M. Atkins, Associate Chair for Academic Affairs

Degree Offered

Bachelor of Science

Curriculum in Computer Science

Degrees Offered

Bachelor of Science In Computer Science (College of Engineering and Mineral Resources)

Bachelor of Science In Computer Science (Eberly College of Arts and Sciences)

Computer science is a discipline that involves the understanding and design of computational processes. The discipline ranges from a theoretical study of algorithms and information processing in general, to a practical design of efficient and reliable software that meets given specifications. This differs from most physical sciences, engineering included, that separate theoretical underpinnings of the science from applications within it.

Partly because of the dual nature of computer science, and partly because students need flexibility in choosing a plan that best fits their needs, the department offers two B.S. degree programs: one degree conferred by the College of Engineering and Mineral Resources (CEMR), the other by the Eberly College of Arts and Science (ECAS).

Nature of the Program

The B.S.C.S. option through CEMR introduces students to engineering principles through Engineering 101/199 and required courses in computer engineering. Chemistry and a two-semester sequence in physics is also required, but the student gains flexibility in choosing senior-level computer science (CS) courses, which leaves open the opportunity to explore much of software engineering or other areas. This option is well-suited for freshman engineering students who meet pre-computer science entrance requirements, and for engineering students who want to double major in computer science and computer engineering.

The B.S.C.S. option through ECAS offers flexibility in choosing a liberal education that could include courses, even dual majors, offered in many colleges: Eberly College of Arts and Sciences, Business and Economics, Creative Arts, or any others for which course prerequisites are satisfied. The required two-semester sequence in science can be fulfilled through a variety of science disciplines, as can the additional third lab science required course. A few requirements on selection of senior level CS courses lean to the theoretical side of the discipline. This option is best suited for students who want a more liberal education with the opportunity to pursue minors or double majors outside of engineering

From WVU Admission to Completion of B.S.C.S. Degree: CEMR and ECAS

Entering freshman and transfer students face admission standards, pre-degree requirements, and degree requirements before completing their chosen program. Transfer students, especially those already having college credit for mathematics or computer science courses, need to read the Transfer Students section.

1. WVU and College Admission

Admission to the pre-computer science program in Lane Department of Computer Science and Electrical Engineering requires prior admission to WVU and to either the Eberly College of Arts and Sciences (ECAS) or CEMR, depending on the degree program chosen. CEMR specifically lists additional high school credits and standardized test score requirements beyond WVU admission, while ECAS leaves that judgment to the department. WVU and college requirements can be found in the index of this catalog. Look under:

- Admission, Freshman (for WVU)
- Arts and Sciences (for ECAS)
- Engineering and Mineral Resources (for CEMR)

2. Pre-Computer Science Admission Lane Department of Computer Science and Electrical Engineering.

At this point, all students have satisfied Section 1. Those pursuing a bachelor's degree through CEMR automatically become members of the pre-CS program. Those in the ECAS degree program also become members automatically provided they satisfy the following two requirements:

- 3.0 grade point average in high school.
- Mathematics ACT score of 26, or mathematics SAT score of 600.

ECAS students who do not meet the requirements are admitted to general studies. They may gain admission to pre-computer science later as transfer students. See Transfer Students.

3. Pre-Computer Science Requirements

Pre-computer science (pre-CS) consists of core courses required of both CEMR and ECAS degree programs. Typically, students complete pre-CS during their first two years, at which time they become CS degree candidates beginning their junior year.

Pre-CS consists of all courses listed below, and each course (or transfer equivalent) must be completed with a grade of C or better.

Courses separated by/are sequence courses:

- CS 110/111
- CS 220
- Math 155 (calculus)

4. Computer Science Degree Program Requirements

Having satisfied all pre-CS requirements, students now become computer science degree candidates (CS). Typically, CS students spend their junior and senior years completing WVU and college course requirements while taking all remaining CS core and elective courses as required of their degree plan. All such courses, listed below, must be finished with a C or better.

ECAS Degree Plan

- MATH 156, 251
- STAT 215
- CPE 271/272
- CS 210, CS 221, CS 230, CS 310, CS 350
- Pick one theory course: CS 420, 422, 426
- Pick one systems course: CS 450, 451, 453, 455
- Pick one applications course: CS 410, 430, 440, 470, 472
- Pick two technical electives (6 hrs.): CS 400 level, MATH 400 level, CPE 400 level
- CS 480, CS 481 (Capstone series)

CEMR Degree Plan

- MATH 156, 251
- STAT 215
- CPE 271/272
- CS 210, CS 221, CS 230, CS 310, CS 350
- CPE 310/311
- Pick four technical electives (12 hrs.): CS 400-level course
- CS 480, CS 481 (Capstone series)

5. Suggested Four-Year Plan of Study

Both degree plans (CEMR or ECAS) require 128 hours of coursework. The following shows suggested plans of study for each.

CEMR Degree Plan for B.S.C.S.

First Year

First Semester	Hrs.	Second Semester	Hrs.
CS 110 <i>Intro. Computer Science</i>	4	CS 111 <i>Intro. Data Structures</i>	4
MATH 155 <i>Calculus I</i>	4	MATH 156 <i>Calculus II</i>	4
CHEM 115 <i>Fundamentals Chem.</i>	4	PHYS 111.....	4
ENGL 101 <i>Comp. and Rhetoric</i>	3	GEC Elective	3
ENGR 101/199 <i>Fr. Engr. Design</i>	3	GEC Elective	3
Total	18	Total	18

Second Year

First Semester	Hrs.	Second Semester	Hrs.
MATH 251 <i>Multivar. Calculus</i>	4	CPE 271/272 <i>Dig. Logic Dsgn & Lab.</i> 4	4
PHYS 112 <i>Gen. Physics</i> [†]	4	ENGL 102 <i>Comp. and Rhetoric</i>	3
CS 210 <i>Adv. Data and File Strct.</i>	4	STAT 215 <i>Intro. Prob. & Stat.</i>	3
CS 220 <i>Discrete Mathematics</i>	3	CS 230 <i>Intro. Software Engr.</i>	4
GEC Elective	3	GEC Elective	3
Total	18	Total	17

Third Year

First Semester	Hrs.	Second Semester	Hrs.
CPE 310/311 <i>Microprocessor Sys.</i>	4	CS 310 <i>Prin. Program Language</i>	3
CS 350 <i>Comp. Sys. Concepts</i>	3	CS Technical Elective (CS 4XX)	3
CS 221 <i>Analysis of Algorithms</i>	3	Elective*	3
GEC Elective	3	GEC Elective (3-9)	3
GEC Elective	3	GEC Elective	3
Total	16	Total	15

Fourth Year

First Semester	Hrs.	Second Semester	Hrs.
CS 480 <i>Sr. Design Seminar</i>	2	CS 481 I	3
CS <i>Technical Elective (CS 4xx)</i>	3	CS <i>Technical Elective (CS 4xx)</i>	3
CS <i>Technical Elective (CS 4xx)</i>	3	Elective*	3
Elective*	3	Elective*	3
Elective*	3	Total	12
Total	14	Grand Total	128

*Free electives must satisfy the following: At least 9 credits must be at the 200 level or above. At least 6 credits must be in one discipline.

ECAS Degree Plan for B.S.C.S.

First Year

First Semester	Hrs.	Second Semester	Hrs.
CS 110 <i>Intro. Computer Science</i>	4	CS 111 <i>Intro. Data Structures</i>	4
MATH 155 <i>Calculus I</i>	4	MATH 156 <i>Calculus II</i>	4
UNIV 101	1	ENGL 101 <i>Comp. and Rhetoric</i>	3
GEC Elective	3	GEC Elective	3
GEC Elective	3	GEC Elective	3
Total	15	Total	17

Second Year

First Semester	Hrs.	Second Semester	Hrs.
CS 210 <i>Data and File Structure</i>	4	CPE 271/272 <i>Dig Logic Dsgn & Lab..</i> 4	
CS 220 <i>Discreet Mathematics</i>	3	STAT 215 <i>Intro. Prob. & Stat</i>	3
ENGL 102 <i>Comp. and Rhetoric</i>	3	CS 230 <i>Intro. Software Engr.</i>	4
Lab Science Elective [†]	4	Lab Science Elective [†]	4
MATH 251 <i>Multivariable Calculus</i>	4	GEC Elective	3
Total	17	Total	18

Third Year

First Semester	Hrs.	Second Semester	Hrs.
CS 310 <i>Prin. Program Language</i>	3	CS <i>Tech Elect. Systems (CS 4xx)*</i>	3
CS 350 <i>Comp. Sys. Concepts</i>	3	CS <i>Tech Elect., App. (CS 4xx)*</i>	3
CS 221 <i>Analysis of Algorithms</i>	3	Lab Science Elective [†]	3
GEC Elective	3	GEC Elective (3-9)	3
GEC Elective	3	Elective**	3
Total	15	Total	15

Fourth Year

First Semester	Hrs.	Second Semester	Hrs.
CS or CPE 480 <i>Sr. Dsgn. Seminar</i> ...	2	CS or CPE 481 <i>Sr. Design Project</i> ...	3
CS Tech Elect., <i>Theroy (CS 4xx)*</i> ...	3	CS <i>Tech Elect. (CS 4xx or CpE 4xx)</i> .	3
CS Tech Elect. (CS 4xx or CpE 4xx)	3	Elective**	3
Elective**	3	Elective**	3
Elective**	3	Elective**	3
Total	14	Total	15
		Grand Total	128

[†]A two-semester sequence in a laboratory science and a third laboratory science course chosen from the following: BIOL 115 and BIOL 117; CHEM 115 and CHEM 116 or CHEM 117 and CHEM 118; GEOL 101/102 and GEOL 103/104 or GEOL 110/111 and GEOL 103/104 or GEOG 110/111 and GEOL 103/104; PHYS 111 and PHYS 112.

*Students must pick one from each of: theory, systems, and applications.

**Free electives must satisfy the following: At least nine credits must be at the 200 level or above. At least nine credits must be in one discipline.

Transfer Students

Students wishing to transfer into pre-computer science or computer science must satisfy admission requirements and must petition the Lane Department of Computer Science and Electrical Engineering for admission. If petitioning:

- In person, come to the department's office and ask for the undergraduate coordinator. Bring a transcript of all college-level coursework attempted.
- By mail, be sure to include a transcript of all college-level coursework attempted and an indication of when the transfer is desired. On the envelope in the lower-left corner, write "Transfer petition for UG CS." Mail to Lane Department of Computer Science and Electrical Engineering, WVU, P.O. Box 6109, Morgantown, WV 26506-6109.

Transfer students are expected to meet the following requirements:

- A grade point average of at least 3.0 in all college-level work attempted.
- A grade of C or better in any transfer course that will count as pre-CS or CS.

The number of transfer students accepted into the department is governed by the enrollment capacities of the degree programs. First admission priority is given to those students currently matriculated at WVU; second priority, to students enrolled in computer science curricula at external colleges and universities; third priority, to students enrolled in other degree programs at external colleges and universities. Within the last two priorities, preferential admission is in the following order: West Virginia residents, U.S. citizens or permanent residents, and international students.

Minor in Computer Science

Any student may take a minor in computer science by taking the following courses and making a C or better. The symbol "/" means sequence courses:

- CS 110 / 111.
- Pick one from: CS 210, CS 220, CS 230.
- CS 310 and 350.
- At least one CS 400-level course.

Economics

William N. Trumbull, Chair

Degree Offered *Bachelor of Arts*

Nature of Program

The Department of Economics offers two majors in economics: one through the College of Business and Economics and the other through the Eberly College of Arts and Sciences. The College of Business and Economics grants a bachelor of science in economics. The Eberly College of Arts and Sciences grants a bachelor of arts with a major in economics.

The program leading to the B.A. degree is designed for students who wish to combine fundamental training in economics with a liberal arts education. In addition to the general education and related requirements, students have in excess of 40 credit hours of unrestricted electives.

Economics students are taught to identify the costs and the benefits of a decision, which are sometimes not obvious. The economist has the skill to identify the real consequences of a decision. That skill is valued highly.

Economics is a useful major for anyone interested in a career in politics, business, law, foreign service, government, banking, or any other field in which the ability to make or analyze policy decisions is important. The demand for people with degrees in economics, both at the graduate and undergraduate levels, is high.

Economics deals with some of today's most pressing issues: acid rain, support for the poor, international trade, unemployment, capital punishment, education, the deficit, the third world, and national defense.