Bachelor of Science in Computer Science

This program is designed to prepare students for employment as computer scientists in engineering, scientific, industrial, and business environments as software developers, programmers, and systems analysts. While most students will enter the job market directly upon graduation, graduate school in computer science or related areas is also an option. Selection of electives can be tailored for students pursuing this path.

Contact

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PennState Harrisburg

School of Science, Engineering, and Technology

Bachelor of Science in Computer Science

Curriculum

The Computer Science major provides a solid foundation in the areas of systems programming, algorithm design, artificial intelligence, and engineering large software systems using state-of-the-art methodologies and programming languages.

Students should be expected to: develop a solid foundation in mathematical studies relevant to computer science; master skills in computer science; enjoy possibilities for internships and part-time employment with local companies; and become problem solvers. These goals are consistent with the goals outlined by the Association for Computing Machinery.

Entry to Major Requirements:

Entry to the Computer Science major requires that the student has completed: MATH 140 GQ(4), MATH 141 GQ(4), CMPSC 121(3), and CMPSC 122(3). A 2.00 or higher cumulative grade-point average is required.

Integrated B.S./M.S. Program in Computer Science

The Computer Science program offers a limited number of academically superior Bachelor of Science candidates the opportunity to enroll in an integrated, continuous program of study leading to both the Bachelor of Science and the Master of Science in Computer Science. The ability to coordinate as well as concurrently pursue the two degree programs enables the student to earn the two degrees in five years.

Review the full Computer Science IUG program description.

Courses

For a B.S. degree in Computer Science, a minimum of 120 credits is required.

Entry to Major Requirements:
Entry to the Computer Science major requires that the student has earned a C or better in the following courses: MATH 140 GQ(4), MATH 141 GQ(4), CMPSC 121(3), and CMPSC 122(3). A 2.00 or higher cumulative grade-point average is required.

Scheduling Recommendation by Semester Standing given like (Sem:1-2).

In addition to General Education requirements (45 credits), this major requires the following:

REQUIREMENTS FOR THE MAJOR: 88 credits

(This includes 13 credits of General Education courses: 3 credits of GWS courses, 6 credits of GQ courses, and 4 credits in GN courses.)

PRESCRIBED COURSES (59 credits)
MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-2)
CMPSC 121 GQ(3),PHYS 211 GN(4) (Sem: 2)
CMPSC 122(3), CMPSC 360(3) (Sem: 3)
CMPSC 221(3), CMPSC 312(3), MATH 220(2) (Sem: 4)
CMPSC 430(3), CMPSC 460(3), CMPSC 462(3), CMPSC 463(3), CMPSC 469(3), CMPSC 470(3), CMPSC 472(3), CMPSC 487W(3), CMPSC 488(3), ENGL 202C GWS(3) (Sem: 5-8)

ADDITIONAL COURSES (18 credits)
MATH 318(3), STAT 301 GQ(3), or STAT 318(3) (Sem: 5-8)
Select 15 credits from the following (9 of which must have a CMPSC prefix): CMPSC 313(3), CMPSC 412(1.5), CMPSC 413(1.5), CMPSC 426(3), CMPSC 428(3), CMPSC 438(3), CMPSC 441(3), CMPSC 444(3), CMPSC 455(3), CMPSC 457(3), CMPSC 475(3), CMPSC 496(1-9), CMPSC 497(1-9), MATH 401(3), MATH 411(3), MATH 412(3), MATH 425(3), MATH 430(3), MATH 431(3), MATH 435(3), MATH 449(3), MATH 450(3), MATH 455(3), MATH 465(3), MATH 468(3), MATH 496(1-9), MATH 497(1-9) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (11 credits)
Select 6 credits of 300-400 level courses in consultation with an academic adviser and in support of the student's interests. (Sem: 5-8)
Select 5 credits of 100-400 level courses (Sem: 5-8)

Undergraduate Admissions Requirements

Minimum high school course requirements for admission to baccalaureate (four-year) degree programs are listed below. Keep in mind that specific programs may have additional requirements or recommendations.

English

Four units, including one unit each in composition and literature, are required.

Social Studies/Art/Humanities

Three units in any combination of social studies, arts, and humanities are required.

World Language

Two units in a single world language other than English are required. However, a student may be admitted with fewer than two units in a world language other than English, but must correct this deficiency by the time s/he earns 60 credits or graduates from Penn State, whichever comes first. This deficiency may be corrected by passing one three- or four-credit college level world language course or by demonstrating proficiency equivalent to two units of high school world language study.

Either a third unit in the same language or an additional unit in a second world language other than English is recommended.

Science

Three units of science are required
Preparation in chemistry and physics is recommended but not required for our Science and Engineering/Engineering Technology programs

Math

Three units of mathematics are required (four are recommended), selected from any combination of algebra, geometry, and trigonometry
Some programs have additional mathematics requirements. Our Business, Engineering/Engineering Technology, and Science programs require one-half unit of trigonometry or higher level math within the required three units

Penn State requires proof of graduation or a GED for admission to four-year degree programs.

*In most high school curricula, one unit = one year.

Visit Undergraduate Admissions: Admissions Requirements for more information (http://goo.gl/eVGAMB)