

Computer Science B.S. and Minor



Contact Information

Dr. Kyle Riley

Department of Mathematics
and Computer Science

McLaury 308

(605) 394-2471

E-mail: Kyle.Riley@sdsmt.edu

Faculty

Professors Corwin, Logar, Penaloza, and Weiss;
Associate Professor McGough; Assistant
Professors Hoover and Zong; Instructor Schrader;
Emeritus Professors Carda, Opp and Weger.

General Information

The Department of Mathematics and
Computer Science offers a bachelor of science
degree in computer science and a master of
science degree in Robotics and Intelligent

Autonomous Systems (RIAS). The bachelor of
science degree in computer science is accredited
by the Accreditation Board for Engineering and
Technology (ABET).

Students who desire to major in this program
should announce their intention to the Department
of Mathematics and Computer Science as early as
possible and should consult advisors in the
department at each registration period.

Any student who is pursuing a double major
and whose designated advisor is in another
department should consult an advisor in the
mathematics and computer science department at
each registration.

Laboratories

The School of Mines has a variety of
computing platforms available. Resources
include an extensive PC network, a Linux lab, a
Tablet PC lab, and robotics lab. The Linux lab is
fully equipped with quad-core desktops. Other
computing resources may be accessed via the
Internet. The institution encourages its students to
use the computer facilities in the creative and
efficient solution of scientific and engineering
problems.

Computer Science Major

The primary goal of the computer science
program is to prepare graduates to enter a
dynamic and rapidly changing field as competent
computer scientists. Graduates are expected to be
capable in all phases of software development
including design, development, and testing.
Graduates should also have a firm understanding
of hardware technologies. These capabilities
require the graduate to possess good
communication skills, both oral and written, and
the ability to work effectively as a team member.
Graduates must be able to read and comprehend
the literature of the discipline and be sufficiently
well-versed in general theory to allow growth
within the discipline as it advances. Most of the
graduates will pursue careers as software
engineers within the computer industry. Some
may choose careers as entrepreneurs and others
will pursue advanced degrees and careers in

research.

The sample Computer Science Checklist in this section lists all required courses for the bachelor's degree in their proper prerequisite sequence. Students should consult course listings for prerequisites and should consult their advisors at each registration.

A computer science major must complete 30 total hours in humanities, social science, or other nontechnical disciplines that serve to broaden the background of the student. Within that requirement, the student must complete a minimum of 16 credits in humanities and social science, with at least 6 credit hours in humanities and at least 6 credit hours in social science. Refer to the humanities and social sciences section of this catalog for a list of courses satisfying these requirements. It is also important to refer to the general education core requirements under bachelor of science graduation requirements for further information. Students must complete the general education core requirements within the first 64 credits.

Any computer science major desiring a minor in another field should consult his or her advisor in the Department of Mathematics and Computer Science as early in his or her program of study as possible. The Office of the Registrar and Academic Services has a form that must be signed by the student and the department heads of both departments involved.

Minor in Computer Science

A minor in the Department of Mathematics and Computer Science must be approved by the student's major department. The Office of the Registrar and Academic Services has forms that should be completed and signed by the department heads from both departments involved in this minor. The minor in computer science requires the completion of 21 credit hours.

The core course work includes CSC 150, CSC 250, CSC 251, CSC 300, and at least 6 credit hours from an approved list.

The approved list of courses for the minor: CSC 314, CSC 317, CSC 372, CSC 410, CSC 412, CSC 421, CSC 433, CSC 440, CSC 445, CSC 447, CSC 448, CSC 456, CSC 461, CSC

463, CSC 464, CSC 476, and CSC 484.

Computer Science and Mathematics Double Major

Due to the large number of courses common to the computer science major and the mathematics major, many students find it attractive to pursue a double major in these two areas. Students seeking the double major should consult their advisors for details about this option.

Computer Science Curriculum/Checklist

Students are responsible for checking with their advisors for any program modifications that may occur after the publication of this catalog.

Freshman Year

First Semester		
ENGL 101	Composition I	3
Science Elective ¹		3
Science Elective Lab ¹		1
MATH 123	Calculus I	4
CSC 150	Computer Science I	3
Humanities or Social Sciences Elective(s) ¹		3
TOTAL		17

Second Semester

MATH 125	Calculus II	4
Humanities or Social Sciences Elective(s) ¹		3
CSC 250	Computer Science II	4
CSC 251	Finite Structures	4
PE	Physical Education	1
TOTAL		16

Sophomore Year

First Semester

CSC 300	Data Structures	4
MATH 225	Calculus III	4
CENG 244	Intro to Digital Systems	4
PE	Physical Education	1
Humanities or Social Sciences Elective(s) ¹		3
TOTAL		16

Second Semester

ENGL 279	Technical Comm	3
CSC 314	Assembly Language	4
Humanities or Social Sciences Elective(s) ¹		3

Science Elective ¹	3
Science Elective Lab ¹	1
Free Elective	2
TOTAL	16

Junior Year

First Semester

ENGL 289	Technical Comm II	3
MATH 321	Differential Equations	4
PHYS 211	University Physics I	3
CSC 372	Analysis of Algorithms	3
Elective or CSC Elective ¹		3
TOTAL		16

Second Semester

CSC 317	Computer Organization and Architecture	4
MATH 315	Linear Algebra	3
CSC 461	Programming Languages	4
CSC 470	Software Engineering	3
CSC Elective ¹		3
TOTAL		17

Senior Year

First Semester

CSC 465	Senior Design I	2
CSC 484	Database Mgmt Systems	3
CSC 421	Graphical User Interfaces	3
Humanities or Social Sciences Elective(s) ¹		4
Free Elective		3
TOTAL		15

Second Semester

CSC 456	Operating Systems	4
CSC 467	Senior Design II	2
HUM 375	Computers in Society ¹	3
CSC Electives ¹		3
MATH 381	Intro to Probability and Statistics	3
TOTAL		15

128 credits required for graduation

Curriculum Notes

- CSC 465/467 is a two-course sequence in senior design. It is expected that the course sequence will be taken in successive semesters.

- An exit exam, such as the Major Field Achievement Test in Computer Science, will be given as part of CSC 467. The overall results of this exam will be used to assess the computer science program.
- CSC 105 may not be counted toward any mathematics, computer science, or engineering degree. Other majors should consult their departments on policy regarding this course.
- MUEN 101, 121, 122 can be used to substitute for one or two of the required two physical education credits.

¹Elective courses must be chosen to satisfy all of the following requirements.

- Sixteen semester hours in humanities or social science. At least 6 hours must be in humanities and at least 6 hours must be in social sciences.
- Six credit hours of humanities and 6 credit hours of social science must be completed within the first 64 hours. It is important to refer to the general education requirements under bachelor of science graduation requirements for further information.
- Thirty total hours in humanities, social science, or other nontechnical disciplines that serve to broaden the background of the student. This may include all English classes, 2 credits of physical education, and those courses used to meet requirement (1) above.
- A minimum of 3 computer science elective courses numbered 400 or above must be taken. A 3-credit Co-op may be substituted for one computer science elective. Special topics and independent study courses may not be used to satisfy the computer science elective requirement.
- Eleven credits of science. Students must take three science courses that count toward the major in that discipline, with two accompanying labs. These courses must be selected from at least two different disciplines, and one science course must be PHYS 211.

Course Offering Schedule

In an attempt to help students plan their future semesters, the following information is presented. This reflects the best available knowledge at the time of the preparation of this document. This is not meant as a guarantee of when classes will be offered. Students concerned about when classes will be offered should contact the department head for any changes to the following. Courses not listed below have no defined rotation and will be offered contingent on demand and staff. Most computer science courses are not suitable to offering in an eight-week Summer session. Students should not expect computer science offerings in the summer.

Classes that are typically offered every semester include CSC 105, CSC 150, CSC 250, CSC 251, CSC 314, and CSC 300.

Classes that are typically offered every fall semester include CSC 372, CSC 415/515, CSC 421/521, CSC 465, and CSC 484.

Classes that are typically offered every spring semester include CSC 317, CSC 416/516, CSC 447/547, CSC 461, CSC 456, CSC 467, CSC 470, and MATH 315.

Classes that are typically offered in the fall semester of even numbered years, for example fall 2010, include CSC 433/533 and CSC 449/549.

Classes that are typically offered in the spring semester of odd numbered years, for example spring 2011, include MATH 463.

Classes that are typically offered in the fall semester of odd numbered years, for example fall 2009, include CSC 445/545, and CSC 464/564.

Classes that are typically offered in the spring semester of even numbered years, for example spring 2010, include CSC 410/510.

