Computer Science, B.S. *major*

Required Credits: 61
Required GPA: 2.25

I REQUIRED CORE COURSES

Additional requirement: Successful completion of the degree requires students to earn 15 credits from areas I and II at the 3000/4000 level while in residence at BSU.

Complete the following courses:

- CS 1309 Problem Solving and Computation (3 credits)
- CS 2321 Computer Science I (4 credits)
- CS 2322 Computer Science II (4 credits)
- CS 2810 Computer Organization and Assembly Language Programming (3 credits)
- CS 3528 Data Structures and Algorithms (4 credits)
- CS 4390 Social, Ethical, and Professional Issues in Computing (3 credits)

II REQUIRED ELECTIVES

Select 21 credits from among the following courses, with at least 3 courses from Section A and 3 courses from Section B. Note: Courses may have prerequisites either not included or not required in this major.

A. Core Computer Science

- CS 3507 Introduction to Databases (3 credits)
- CS 3560 Data Communications and Networks (3 credits)
- CS 3752 Data Mining (3 credits)
- CS 4298 Compiler Construction (3 credits)
- CS 4410 Digital Image Processing (3 credits)
- CS 4627 Theory of Computation (3 credits)
- CS 4840 Operating Systems (3 credits)
- MATH 3720 Numerical Methods (3 credits)

B. Application Development Techniques

- CS 3270 Advanced Web Programming (3 credits)
- CS 3350 Event-Driven Programming in a Windows Environment (3 credits)
- CS 3360 Object-Oriented Software Development (3 credits)
- CS 3370 Mobile Application Development (3 credits)
- CS 3380 Game Development (3 credits)
- CS 4360 Software Engineering (3 credits)

III REQUIRED OUTSIDE COURSES

- COMM 1100 Public Speaking (3 credits)
  or COMM 2100 Career and Professional Communication (3 credits)
- MATH 1470 Precalculus (5 credits)
  or MATH 2471 Calculus I (5 credits)
- MATH 2210 Discrete Mathematics (4 credits)
- MATH 3310 Linear Algebra (4 credits)
  or STAT 2610 Applied Statistics (4 credits)
  or STAT 3631 Probability And Statistics I (4 credits)

Select one of the following courses:

- ENGL 2150 Technical Writing (3 credits)
- ENGL 3150 Writing In The Disciplines (3 credits)
- ENGL 3155 Professional Writing (3 credits)

Program Learning Outcomes | Computer Science, B.S.

1. Problem solving: Students will demonstrate understanding of multiple problem solving techniques and how to apply them algorithmically.

2. Core areas: Students will demonstrate knowledge of core areas and how to apply them towards solving problems in computer science and other disciplines.

3. Communication: Students will communicate effectively with a wide range of audiences.

4. Productive in teams: Students will work productively in teams.

5. Broad knowledge of field: Students will demonstrate a broad knowledge of the field through the different electives offered.

6. Professional and ethical: Students will develop a basis for making professional and ethical decisions that pertain to the software they are developing.

7. Programming languages: Students will demonstrate proficiency in a programming language and ability to learn new ones on their own.

Suggested Semester Schedule | Computer Science, B.S.

The following schedule identifies only courses that apply to the Computer Science major. Students should expect to complete most lcore curriculum requirements in their first three years. To complete requirements for graduation in four years (8 semesters), a Computer Science major must take CS 1309 in one of the first two semesters.

Freshman

- CS1309
- CS2321
- #MATH1170
- MATH1470
  or MATH2471
- COMM1100

Sophomore

- CS2322
- CS2810
- MATH2210
- MATH3310
  or STAT2610
  or STAT3631
- +ENGL2150

Junior

- CS3528
- Computer Science electives

Senior

- CS4390
- Computer Science electives

Mathematics requirements for the Computer Science major begin with MATH 1470 Precalculus, but some students will be initially placed into MATH

1170 College Algebra.
+ May be any of the following courses: ENGL 2150, ENGL 3150, ENGL 3155.