

Computer Science

University Requirements (20)

| | |
|-----------------------------------------------|---|
| Writing, Rhetoric and American Cultures (WRA) | 4 |
| Integrative Studies in Humanities (IAH) | 8 |
| Integrative Studies in Social Sciences (ISS) | 8 |

Bioscience

Select one course from Group A and one course from Group B.
A selection of BS 110 satisfies both Group A and Group B.

Group A

| | | |
|---------|------------------------------|---|
| BS 110 | Organisms & Populations | 4 |
| BS 111 | Cells & Molecules | 3 |
| ENT 205 | Pests, Society & Environment | 3 |
| MMG 205 | Allied Health Microbiology | 3 |
| PLB 105 | Plant Biology | 3 |
| PSL 250 | Introductory Physiology | 4 |
| ZOL 141 | Introductory Human Genetics | 3 |

Group B

| | | |
|---------|----------------------------------------|---|
| BS 110 | Organisms & Populations | 4 |
| BS 111L | Cells and Molecular Biology Laboratory | 2 |
| CEM 161 | Chemistry Laboratory I | 1 |
| CEM 162 | Chemistry Laboratory II | 1 |
| MMG 206 | Allied Health Microbiology Laboratory | 1 |
| PHY 191 | Physics Laboratory for Scientists I | 1 |
| PHY 192 | Physics Laboratory for Scientists II | 1 |
| PLB 106 | Plant Biology Laboratory | 1 |

College Requirements (32)

| | | |
|----------|---------------------------------------|---|
| CSE 231 | Introduction to Programming I | 4 |
| *EGR 100 | Introduction to Engineering Design | 2 |
| MTH 132 | Calculus I | 3 |
| MTH 133 | Calculus II | 4 |
| MTH 234 | Multivariable Calculus | 4 |
| PHY 183 | Physics for Scientists & Engineers I | 4 |
| PHY 184 | Physics for Scientists & Engineers II | 4 |

Major Requirements (41)

| | | |
|---------|--------------------------------------------|---|
| CSE 100 | Computer Science as a Profession | 1 |
| CSE 232 | Introduction to Programming II | 4 |
| CSE 260 | Discrete Structures in Computer Science | 4 |
| CSE 320 | Computer Organization | 3 |
| CSE 331 | Algorithms and Data Structures | 3 |
| CSE 335 | Object-Oriented Software Design | 3 |
| CSE 410 | Operating Systems | 3 |
| CSE 498 | Collaborative Design | 4 |
| STT 351 | Probability and Statistics for Engineering | 3 |

*EGR 100 is required for all students matriculating at MSU beginning Fall Semester, 2008.

Some courses may have prerequisites, which are not otherwise required in the program. Students should check course descriptions to ensure they are aware of prerequisites.

Select five of the following courses:

Students may substitute two of the five courses with mathematics or statistics courses. All substitutions must be preapproved by the student's academic adviser.

| | | |
|---------|-------------------------------------------|---|
| CSE 420 | Computer Architecture | 3 |
| CSE 422 | Computer Networks | 3 |
| CSE 425 | Introduction to Computer Security | 3 |
| CSE 435 | Software Engineering | 3 |
| CSE 440 | Introduction to Artificial Intelligence | 3 |
| CSE 450 | Translation of Programming Languages | 3 |
| CSE 452 | Organization of Programming Languages | 3 |
| CSE 460 | Computability and Formal Language Theory | 3 |
| CSE 471 | Media Processing & Multimedia Computing | 3 |
| CSE 472 | Computer Graphics | 3 |
| CSE 475 | Introduction to Computational Linguistics | 3 |
| CSE 480 | Database Systems | 3 |
| CSE 484 | Information Retrieval | 3 |

Required Cognate (15)

A minimum of four courses outside of the College of Engineering totaling fifteen or more credits. The academic adviser of the Department of Computer Science & Engineering must approve both the cognate and the related courses. The cognate should enhance the student's ability to apply analytic procedures in a specific subject area.

Option A

At least 6 of the 15 credits must be in 300- or 400-level courses.

Option B

A four-course sequence in a foreign language.

Option C - Business

| | | |
|---------|-------------------------------|---|
| ACC 230 | Survey of Accounting Concepts | 3 |
| FI 320 | Introduction to Finance | 3 |
| GBL 323 | Introduction to Business Law | 3 |
| MSC 327 | Introduction to Marketing | 3 |

Select one of the following:

| | | |
|------------|-------------------------------------|---|
| EC 210 | Economics Principles Using Calculus | 3 |
| OR | | |
| EC 201 | Introduction to Microeconomics | 3 |
| AND | | |
| EC 202 | Introduction to Macroeconomics | 3 |

Other Electives (Variable)

Total Credits Required for Degree

120

The requirements listed above apply to students admitted to the major of Computer Science in the Department of Computer Science and Engineering beginning Fall 2008. The Department of Computer Science and Engineering (CSE) constantly reviews program requirements and reserves the right to make changes as necessary. Consequently, each student is strongly encouraged to consult with his/her advisor to obtain assistance in planning an appropriate schedule of courses. Students who have questions about Computer Science should contact the Computer Science and Engineering Department Advising Office, 3115 Engineering Building, phone (517) 353-3148.

Computer Science

Sample Program

| Freshman Year | | | | Sophomore Year | | | |
|---------------|-----------|--------------|-----------|----------------|-----------|---------------|-----------|
| Fall | Credits | Spring | Credits | Fall | Credits | Spring | Credits |
| CSE 100 | 1 | WRA 1XX | 4 | IAH 20X | 4 | CSE 320 | 3 |
| CSE 231 | 4 | CSE 232 | 4 | CSE 260 | 4 | CSE 335 | 3 |
| EGR 100 | 2 | MTH 133 | 4 | MTH 234 | 4 | Elec./Cognate | 3 |
| ISS 2XX | 4 | Elec./Cog. | 3 | PHY 183 | 4 | Elec./Cognate | 3 |
| MTH 132 | 3 | | | STT 351 | | | 4 |
| Total | 14 | Total | 15 | Total | 16 | Total | 16 |

| Junior Year | | | | Senior Year | | | |
|--------------|-----------|--------------|-----------|---------------|-----------|--------------|-----------|
| Fall | Credits | Spring | Credits | Fall | Credits | Spring | Credits |
| CSE 331 | 3 | Bioscience | 4 | Elec./Cognate | 3 | CSE 4XX | 3 |
| CSE 410 | 3 | Cognate | 3 | CSE 4XX | 3 | CSE 498 | 4 |
| IAH 2XX | 4 | CSE 4XX | 3 | CSE 4XX | 3 | Elec./Cog | 3 |
| PHY 184 | 4 | CSE 4XX | 3 | Elec./Cognate | 3 | Elec./Cog | 3 |
| | | ISS 3XX | 4 | Elec./Cognate | 3 | | |
| Total | 14 | Total | 17 | Total | 15 | Total | 13 |

Program Objectives

A graduate of the MSU Computer Science Program should be prepared to:

1. apply fundamental computing principles and software development skills to the design and implementation of systems that meet specifications.
2. use computing to solve complex problems.
3. be successful in a computing-related profession or graduate study .
4. communicate effectively with a range of audiences .
5. be an effective team member.
6. act professionally and ethically in the global workplace.
7. be actively engaged in learning and applying new ideas and technologies as the field evolves.