

# Computer Science

Accredited by the Computing Accreditation Commission of ABET, [www.abet.org](http://www.abet.org)

## 1. University Requirements: (20)

Writing, Rhetoric and American Cultures (WRA)	4
Integrative Studies in Humanities (IAH)	8
Integrative Studies in Social Sciences (ISS)	8
Bioscience (See 3A Below)	

## 2. College Requirements (25)

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

## 3. Major Requirements (66-68)

### A. Bioscience: (4-6)

Select one course from Group 1 and one course from Group 2.

#### Group 1

BS 161	Cell and Molecular Biology	3
ENT 205	Pests, Society & Environment	3
MMG 201	Fundamentals of Microbiology	3
PLB 105	Plant Biology	3
PSL 250	Introductory Physiology	4
ZOL 141	Introductory Human Genetics	3

#### Group 2

BS 171	Cell and Molecular Biology Laboratory	2
CEM 161	Chemistry Laboratory I	1
CEM 162	Chemistry Laboratory II	1
PHY 191	Physics Laboratory for Scientists I	1
PHY 192	Physics Laboratory for Scientists II	1
PLB 106	Plant Biology Laboratory	1

### B. Complete all of the following: (32)

CSE 100	Computer Science as a Profession	1
CSE 231	Introduction to Programming I	4
CSE 232	Introduction to Programming II	4
CSE 260	Discrete Structures in Computer Science	4
CSE 320	Computer Organization and Architecture	3
CSE 331	Algorithms and Data Structures	3
CSE 335	Object-Oriented Software Design	3
CSE 410	Operating Systems	3
CSE 498	Collaborative Design (W)	4
STT 351	Probability and Statistics for Engineering	3

### C. Select five of the following courses: (15)

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 & 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)

Cognates in the following areas are available to students in Computer Science: business, communication arts and sciences, foreign language, mathematics, the natural sciences, philosophy, psychology, the social sciences, and telecommunication. Students may complete cognates in other areas with the approval of the Department of Computer Science and Engineering academic adviser. The cognate should enhance the student's ability to apply analytical procedures in a specific subject area

The cognate requires a minimum of four courses totaling 15 or more credits outside the College of Engineering selected from (1) or (2) below. The academic adviser of the Department of Computer Science and Engineering must pre approve both the cognate and the cognate courses..

#### Cognate 1

At least 6 of the 15 credits must be in courses at the 300-400 level. The cognate in The Eli Broad College of Business requires a specific set of courses: ACC 230, EC 210, FI 320, GBL 323, and MKT 327.

#### Cognate 2

A sequence of at least four courses in a foreign language.

### 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.

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.

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## Sample Program

Freshman Year				Sophomore Year			
Fall	Credits	Spring	Credits	Fall	Credits	Spring	Credits
CSE 100	1	CSE 231	4	CSE 232	4	CSE 320	3
EGR 100	2	Elect/Cog	3	CSE 260	4	CSE 335	3
Elect/Cognate	3	MTH 133	4	IAH 201-210	4	MTH 234	4
ISS 2XX	4	WRA 1XX	4	PHY 183	4	PHY 184	4
MTH 132	3						
<b>Total</b>	<b>13</b>	<b>Total</b>	<b>15</b>	<b>Total</b>	<b>16</b>	<b>Total</b>	<b>14</b>

  

Junior Year				Senior Year			
Fall	Credits	Spring	Credits	Fall	Credits	Spring	Credits
CSE 331	3	Bioscience	4	CSE 4XX	3	CSE 4XX	3
CSE 410	3	Elect/Cog	3	CSE 4XX	3	CSE 498	4
IAH 211 or higher	4	CSE 4XX	3	Elect/Cog	3	Elect/Cog	3
Elect/Cognate	3	CSE 4XX	3	Elect/Cog	3	Elect/Cog	3
STT 351	3	ISS 3XX	4	Elect/Cog	3		
<b>Total</b>	<b>16</b>	<b>Total</b>	<b>17</b>	<b>Total</b>	<b>15</b>	<b>Total</b>	<b>13</b>

## 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.