

**Program Requirements for a  
B.S. Degree in Computer Science - Theory and Analysis  
(Including General Education Requirements)**

This program has been accredited by the Computing Accreditation Commission  
of the Accreditation Board for Engineering and Technology

**Computer Science Core                      44 Hrs.**

CS 1110 Computer Science I.....	4
CS 1120 Computer Science II .....	4
CS 2230 Computer Organization & Assembly Language .....	3
CS 2240 System Programming Concepts .....	3
CS 3310 Data and File Structures.....	3
CS 4310 Design and Analysis of Algorithms .....	3
CS 4540 Operating Systems .....	3
CS 4800 Theory of Computation I .....	3
CS 4850 Programming Languages .....	3
CS 4900 Software Systems Development I: Requirements & Design <sup>1</sup> .....	3
CS 4910 Software Systems Development II: Implementation & Testing.....	2
CS 4980 The Computer Science Profession .....	1
Three Approved Non-Language Electives See Advisor .....	9
Electives (to be approved by Advisor) can be chosen from the following:	
CS 3400 Graphical User Interface Development .....	3 hrs.
CS 4990 Undergraduate Research .....	1-3 hrs.
CS 5180 Introduction to Computer Modeling & Simulation.....	3 hrs.
CS 5250 Computer Architecture .....	3 hrs.
CS 5260 Parallel Computations I .....	3 hrs.
CS 5270 Theory of Computer Graphics .....	3 hrs.
CS 5300 Artificial Neural Systems.....	3 hrs.
CS 5400 Designing of User Interfaces .....	3 hrs.
CS 5410 Game Programming .....	3 hrs.
CS 5430 Principles of Database Management Systems ....	3 hrs.
CS 5550 Computer Networks .....	3 hrs.
& Distributed Systems.....	3 hrs.
CS 5600 Software Requirements & Design	3 hrs.
CS 5700 Computer Security & Information Assurance .....	3 hrs.
CS 5800 Theory of Computation II .....	3 hrs.
CS 5810 Compiler Design & Implementation .....	3 hrs.

<sup>1</sup> CS 4900 Software Systems Development I satisfies the computer science baccalaureate-level writing requirement.

CS 5820 Introduction to Artificial Intelligence Techniques .	3 hrs.
CS 5950 Advanced Topics .....	3 hrs.
CS 5990 Independent Study .....	1-3 hrs.

**Mathematics Minor                      19 Hrs.**

MATH 1220 Calculus I .....	4
MATH 1230 Calculus II.....	4
MATH 1450 Discrete Structures .....	3
MATH 2300 Elementary Linear Algebra .....	4
STAT 3640 Statistical Methods.....	4

**Engineering & Science Cognates 18 Hrs.**

ECE 2500 Digital Logic .....	3
ECE 3570 Computer Architecture .....	3

**Science Sequence with Labs (pick one sequence)**

- BIOS 1500 Molecular & Cellular Biology (4)  
    and BIOS 1510 Organismal Biology (4)
- CHEM 1100-1110 Gen. Chemistry I w/ Lab (4)  
    and CHEM 1120-1130 Gen. Chemistry II w/ Lab (4)
- GEOS 1300 Physical Geology (4)  
    and GEOS 1310 Historical Geology (4)
- PHYS 2050-2060 Mechanics and Heat (5)  
    and PHYS 2070-2080 Electricity and Light (5)

**Additional Science Courses with Lab (pick one)**

Select one science course with lab from the **WMU General Education Distribution Area VI – Natural Science with Lab**. The discipline must be different from the discipline of the sequence used above. You can also use the first course from one of the science sequences listed above to meet this additional science course with lab requirement.

**Other Requirements                      30 Hrs.**

These program requirements can usually be met with 23 credits of non-science and non-mathematics courses taken for the WMU General Education Requirements. These hours must be taken from arts, humanities, and the social sciences. Requirements for the remaining 7 hours must include the following two courses:

COM 1040 Public Speaking .....	3
PHIL 4100 Professional Ethics.....	3

See a departmental advisor to confirm that appropriate courses are being taken to satisfy these 30 required hours.

