

# Major Check-Off Form: Computer Science - BS Requirements

Name (Please Print): \_\_\_\_\_ Student Number: \_\_\_\_\_

Expected Graduation Date: **Month:** \_\_\_\_\_ **Year:** \_\_\_\_\_

- C average (2.0) required in courses fulfilling the CS majors and certificate.
- At least six Computer Science or Mathematics courses (four courses if the major was declared before 9/1/18) at the 300, 400 or 600 level must be taken at UMass Boston.
- \* Major declared prior to 1/27/03 may replace CS/IT285L/485 with any Computer Science elective from the list below
- No requirement for the CS major (BA or BS or Certificate) may be taken P/F.

## Required Computer Science

### Courses:

- |  |  |
|--|--|
| <input type="checkbox"/> CS110 Introduction to Computing (4cr.)                  | <input type="checkbox"/> CS210L Intermediate Comp Data Structure (4cr.)        |
| <input type="checkbox"/> CS240 Programming in C (3cr.)                           | <input type="checkbox"/> CS241/341 Computer Architecture & Organization (3cr.) |
| <input type="checkbox"/> *CS/IT285L/485 Social Issues in Computer Science (3cr.) | <input type="checkbox"/> CS310 Advance Data Structures & Algorithm (3cr.)      |
| <input type="checkbox"/> CS410 Introduction to Software Engineering (3cr.)       | <input type="checkbox"/> CS420 Introduction to Theory of Computation (3cr.)    |
| <input type="checkbox"/> CS444 Introduction to Operating System (3cr.)           | <input type="checkbox"/> CS450 Structure of Higher Level Languages (3cr.)      |
| <input type="checkbox"/> CS451 Compilers (3cr.)                                  |  |

## Required Mathematics Courses:

- |  |   |
|--|---|
| <input type="checkbox"/> MATH140 Calculus I (4cr.)                 | <input type="checkbox"/> MATH141 Calculus II (4cr.)                         |
| <input type="checkbox"/> MATH260 Linear Algebra (3cr.)             | <input type="checkbox"/> CS220/CS320L/MATH320L Applied Discrete Math (3cr.) |
| <input type="checkbox"/> MATH345 Probability & Statistics I (3cr.) |   |

## Required Science Courses

- |  |                  |   |
|--|------------------|---|
| <input type="checkbox"/> PHYSIC113 Physics I (4cr.)  | <b>-Co-req.-</b> | <input type="checkbox"/> PHYSIC181(LAB) (2cr.)  |
| <input type="checkbox"/> PHYSIC114 Physics II (4cr.) | <b>-Co-req.-</b> | <input type="checkbox"/> PHYSIC182 (LAB) (2cr.) |
| <input type="checkbox"/> One Science Elective        |                  |   |

## Two Computer Science Electives:

- |   |   |
|---|---|
| <input type="checkbox"/> CS411 Competitive Programming (3cr.)                 | <input type="checkbox"/> CS430 Database Management Systems (3cr.)       |
| <input type="checkbox"/> CS433 Big Data Analytics (3cr.)                      | <input type="checkbox"/> CS436 Database Application Development (3cr.)  |
| <input type="checkbox"/> CS437 Database-Backed Web Sites Services (3cr.)      | <input type="checkbox"/> CS438 Applied Machine Learning (3cr.)          |
| <input type="checkbox"/> CS442 Cybersecurity in the Internet of Things (3cr.) | <input type="checkbox"/> CS443 Mobile Applications (3cr.)               |
| <input type="checkbox"/> CS 446 Introduction to Internetworking (3cr.)        | <input type="checkbox"/> CS449 Introduction to Computer Security (3cr.) |
| <input type="checkbox"/> CS460 Graphics (3cr.)                                | <input type="checkbox"/> CS461 Computer Games Programming (3cr.)        |
| <input type="checkbox"/> CS470 Introduction to Artificial Intelligence (3cr.) | <input type="checkbox"/> Other CS:                                      |

Many graduate courses can be used as theoretical or applied electives.

- CS478 – Independent Study Course (must complete form at the back)  
 CS495 – Practicum in Computer Science (must complete form at the back)  
 CS498 – Honors Thesis (read requirements and procedure at the back)

DEPARTMENT USE: Date: _____ Advisor (Print name): _____ Advisor Signature: _____	(STAFF) Hold lifted by: _____ Date: _____ <input type="checkbox"/> DW <input type="checkbox"/> GG <input type="checkbox"/> Other: _____ Register: <input type="checkbox"/> GG <input type="checkbox"/> DW    Date: _____
--	--

# Major Check-Off Form: Computer Science - BS Requirements

## SCIENCE REQUIREMENT FOR THE BS PROGRAM (No science elective may be taken pass/fail)

All BS students must take PHYSIC113 and PHYSIC114

**Anthropology:** 105, 313, 317, 412, 413, 432

**Biology, Chemistry and Physics:** Any course that counts for a major in the department can be used as a science elective in Computer Science.

**Earth and Geographic Sciences:** The following courses may be used: 115, 120L, 225, 226, 260, 265, 295, 302, 312, 360, 370, 380, 381, 385, and 400 level

**Engineering:** Any course numbered 200 or higher can be used.

**Environmental Studies:** The following courses may be used: L111, L120, L226, and L260.

**Psychology:** The following courses may be used: 409, 466, 469, and 475.

## Computer Science Course Pre/Co-Requisites

<b>CS110</b>	MATH 140 or placement into Math 140 from the ALEKS test or co-requisite Math 130
<b>CS210L</b>	CS 110 or CS/IT 115L and MATH 130 or permission of instructor
<b>CS220/320L</b>	CS110 or CS115L and MATH 140 or permission of instructor
<b>CS240</b>	CS110 or CS/IT115L
<b>CS/IT285L</b>	No pre/co-requisites required
<b>CS310</b>	CS210 and CS240 and MATH140
<b>CS341/241</b>	CS240
<b>CS410</b>	CS310, CS220/320L and any 400 level Computer Science course
<b>CS411</b>	CS310 and CS220/320L
<b>CS420</b>	CS220/320L
<b>CS430</b>	CS240 and CS310
<b>CS433</b>	CS310, MATH260 and MATH345; or permission of the instructor
<b>CS436</b>	CS310 and CS430
<b>CS437</b>	CS310 and CS430 or permission of the instructor
<b>CS438</b>	CS310
<b>CS442</b>	CS310
<b>CS443</b>	CS310
<b>CS444</b>	CS310 and CS341
<b>CS446</b>	CS310 and CS341 and Co-requisite with CS444
<b>CS449</b>	CS310 and CS341
<b>CS450</b>	CS310 and CS220/320L
<b>CS451</b>	CS310 and CS420 or CS622
<b>CS460</b>	MATH260 and CS310
<b>CS461</b>	CS310
<b>CS470</b>	CS310 and CS220/320L
<b>CS498</b>	Overall of GPA of 3.0 and GPA of 3.5 in the major; CS310 and CS420 and permission of instructor and department chair. Students are encouraged to take CS478 the semester before CS498. Application form can be found in: <a href="http://www.cs.umb.edu/umbcs/documents/cs-honors-thesis-application.pdf">http://www.cs.umb.edu/umbcs/documents/cs-honors-thesis-application.pdf</a>
<b>MATH140</b>	MATH 130 with a grade of B or better in the previous semester, or appropriate scores on the Math Placement Test Note: Students with grades lower than B in the pre-requisite course will be dropped from the class.
<b>MATH141</b>	MATH 140 with grade of C- or better or MATH 145 with grade of C- or better
<b>MATH260</b>	MATH140 or permission of instructor
<b>MATH345</b>	MATH141
<b>PHYSIC113</b>	Co-Requisite MATH 140 and, for PHYSICS majors PHYSIC 181
<b>PHYSIC181</b>	Co-Requisite PHYSIC107 or PHYSIC113
<b>PHYSIC114</b>	PHYSIC 113 with grade of C- or better and pre-requisite/co-requisite: MATH 141. Note: Students with grades lower than C- in the pre-requisite course will be dropped from the class.
<b>PHYSIC182</b>	PHYSICS 181 with grade of C- or better and pre-requisite/co-requisite: PHYSICS 108 or 114. Note: Students with grades lower than C- in the pre-requisite course will be dropped from the class.

## Registering for CS478 – Independent Study CS495 Practicum in Computer Science (check which one)

Fill out the form below and get supervisor and CS Chair signature. Bring this form to a CS Staff for course enrollment.

Supervisor (print name): \_\_\_\_\_ Supervisor (Signature): \_\_\_\_\_

Select the semester and fill in the year you will be taking the course:

How many credits? (CS495 Practicum is only 1 credit)

Semester:  Spring  Summer  Fall Year: \_\_\_\_\_

1  2  3

**CS478 - Independent Study:** Do you intend to this course as an elective for the major?

Yes  No

Topic for the course:

\_\_\_\_\_

Brief description of required activity:

\_\_\_\_\_

Signature Requirement from Chair of CS Department: \_\_\_\_\_