

# Major Check-Off Form: Computer Science – BA / Certificate Requirements

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

Student Number: \_\_\_\_\_

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

**CHECK ONE:**  BA in Computer Science  
 Certificate in Computer Science

C average (2.0) required in courses fulfilling the CS majors and certificate.

**BA Requirement:** 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.

**Certificate Requirement:** At least three 300 or 400 level Computer Science or Mathematics courses must be taken at UMass/Boston. No requirement for the CS major (BA or BS or Certificate) may be taken P/F.

**BA program complete all 7 courses || Certificate program complete: CS110 (CS114L and CS115L), CS210L, CS240, CS310**

- |   |   |
|---|---|
| <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"/> CS 241/341 Computer Architecture & Organization (3cr.) |
| <input type="checkbox"/> CS310 Advance Data Structures & Algorithm (3cr.) | <input type="checkbox"/> CS420 Introduction to Theory of Computation (3cr.)     |
| <input type="checkbox"/> CS450 Structure of Higher Level Languages (3cr.) |   |

**BA program complete all mathematics courses || Certificate program complete: MATH140**

- |  |   |
|--|---|
| <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.) |

**BA program complete two applied computer science electives: One of these choices must be CS 444 or CS4 51  
 Certificate program complete one Computer Science Elective (can include CS 260 or CS 341)**

- |  |   |
|--|---|
| <input type="checkbox"/> CS410 Intro Software Engineering (3cr.)       | <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"/> CS444 Introduction to Operating Systems (3cr.)       |
| <input type="checkbox"/> CS446 Introduction to Internetworking (3cr.)  | <input type="checkbox"/> CS449 Introduction to Computer Security (3cr.)       |
| <input type="checkbox"/> CS451 Compilers (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"/> CS Other:                                     | <input type="checkbox"/>  |

**BA program complete one theoretical elective from (but not limited to):**

- |  |  |
|--|--|
| <input type="checkbox"/> MATH345 Probability and Statistics I (3cr.) | <input type="checkbox"/> MATH360 Abstract Algebra (3cr.) |
| <input type="checkbox"/> MATH425 Numerical Analysis (3cr.)           | <input type="checkbox"/> MATH458 Number Theory (3cr.)    |
| <input type="checkbox"/> MATH470 Mathematical Logic (3cr.)           | <input type="checkbox"/> Other:                          |

**BA program complete one additional elective (either theoretical, applied or CS260)**

**Certificate program complete one application elective** \_\_\_\_\_

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)

<b>DEPARTMENT USE: Date:</b> _____ <b>Advisor (Print name):</b> _____ <b>Advisor Signature:</b> _____	<b>(STAFF) Hold lifted by: Date:</b> _____ <input type="checkbox"/> DW <input type="checkbox"/> GG <input type="checkbox"/> Other: _____ <b>Register:</b> <input type="checkbox"/> GG <input type="checkbox"/> DW <b>Date:</b> _____
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# Major Check-Off Form: Computer Science – BA / Certificate Requirements

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>CS220L/320L</b>	CS110 or CS115L and MATH 140 or permission of instructor
<b>CS/IT285L</b>	No pre/co-requisites required
<b>CS310</b>	CS210 and CS240 and MATH140
<b>CS240</b>	CS110 or CS/IT115L
<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>	CS 310 and MATH 260 and MATH 345 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

## Registering for CS478 – Independent Study or CS495 Practicum in Computer Science

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: \_\_\_\_\_