

Department of Computer & Information Science - College of Engineering - UMass
Dartmouth Requirements for Bachelor of Science in Computer Science* (updated: 6/6/2023

Student Name: _____
Student ID: _____

jm) Date: _____
Advisor: _____

| CIS Core Courses (Grade of "C" or better) - 44 Credits | |
|--|---|
| _____ | CIS 180 - Object-Oriented Programming I (4) |
| _____ | CIS 181 - Object-Oriented Programming II (4) (Pre: CIS 180) |
| _____ | CIS 190 - Introduction to Procedural Programming (4) (Pre: CIS 180) |
| _____ | CIS 272 - Introduction to Computing Systems (4) (Co: CIS 190, MTH 181) |
| _____ | CIS 273 - Computer Organization and Design (3) (Pre: CIS 272) |
| _____ | CIS 280 - Software Specification and Design (4) (Pre: CIS 181) |
| _____ | CIS 360 - Algorithms and Data Structures (4) (Pre: CIS 181, CIS 190, MTH 181) |
| _____ | CIS 361 - Models of Computation (3) (Pre: CIS 181, MTH 182) |
| _____ | CIS 370 - Design of Operating Systems (4) (Pre: CIS 272) |
| _____ | CIS 481 - Parallel and Distributed Software Systems (3) (Pre: CIS 280, CIS 370) |
| _____ | CIS 498 - Software Engineering Project I (4) (Pre: CIS 280, CIS 362) |
| _____ | CIS 499 - Software Engineering Project II (3) (Pre: CIS 498) - USC 5A + 5B |

| Mathematics Requirements - 17 Credits | |
|---------------------------------------|---|
| _____ | MTH 153 (or MTH 151) - Calculus I (4) - USC 1D |
| _____ | MTH 154 (or MTH 152) - Calculus II (4) (Pre: MTH 153 or 151) |
| _____ | MTH 181 - Discrete Structures I (3) |
| _____ | MTH 182 - Discrete Structures II (3) (Pre: MTH 181) |
| _____ | Math Elective: MTH 211 or MTH 213 or MTH 221 or MTH 331 - (3) (Pre: MTH 154 or 152) |

| Science/Quantitative Requirements - Minimum 14 Credits | |
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| _____ | PHY 113 - BIO 121/131 - CHM 151/161 (4) (Circle one) |
| _____ | PHY 114 - BIO 122/132 - CHM 152/162 (4) (Must be continuation of above) |
| _____ | _____ Science Elective (Must satisfy USC 2A if CHM Track) (3) |
| _____ | CIS 362 - Empirical Methods for Computer Science (3) (Pre: CIS 280) |

| CIS Elective, 4 courses required, (Grade of "C" or better) - Minimum 12 Credits | |
|---|---|
| _____ | CIS 402 - Special Topics in Computer & Information Science (3) (depends on topic) |
| _____ | CIS 410 - Programming Language Design (3) (Pre: CIS 360) |
| _____ | CIS 412 - Artificial Intelligence (3) (Pre: CIS 360) |
| _____ | CIS 430 - Data Mining and Knowledge Discovery (3) (Pre: CIS 360) |
| _____ | CIS 431 - Human Computer Interaction (3) (Pre: CIS 362) |
| _____ | CIS 433 - Mobile Application Development with Android (3) (Pre: CIS 360) |
| _____ | CIS 434 - Mobile Application Development with iOS (3) (Pre: CIS 360) |
| _____ | CIS 440 - Software Process and Project Management (3) (Pre: CIS Jr/Sr) |
| _____ | CIS 442 - Digital Forensics (3) (Pre: CIS 272) |
| _____ | CIS 443 - Applied Cryptography (3) (Pre: CIS 360) |
| _____ | CIS 444 - Cyber Defense and Operations (3) (Pre: CIS 360) |
| _____ | CIS 446 - Secure Software Development (3) (Pre: CIS 280) |
| _____ | CIS 447 - Network Security & Data Assurance (3) (Pre: CIS 360) |
| _____ | CIS 452 - Database Systems (3) (Pre: CIS 280) |
| _____ | CIS 454 - Computer Graphics (3) (Pre: CIS Jr/Sr) |
| _____ | CIS 455 - Bioinformatics (3) (Pre: CIS 360) |
| _____ | CIS 461 - Formal Methods in Software Engineering (3) (Pre: MTH 182) |
| _____ | CIS 463 - Game Engine Design (3) (Pre: CIS 360) |
| _____ | CIS 464 - Computer Game Design (3) (Pre: CIS 280, MTH 154 or 152) |
| _____ | CIS 465 - Topics in Computer Vision (3) (Pre: CIS 360) |
| _____ | CIS 466 - Introduction to Mobile Robotics (3) (Pre: CIS 360) |
| _____ | CIS 467 - Image Analysis and Processing (3) (Pre: CIS 360) |
| _____ | CIS 468 - Data Visualization (3) (Pre: CIS 360) |
| _____ | CIS 469 - Web Software Development (3) (Pre: CIS 360) |
| _____ | CIS 471 - Compiler Design (3) (Pre: CIS 361) |
| _____ | CIS 475 - Computer Networks (3) (Pre: CIS 370) |
| _____ | CIS 476 - Network Programming (3) (Pre: CIS 370) |
| _____ | CIS 477 - Computer and Information System Security (3) (Pre: CIS 360, CIS 370) |
| _____ | CIS 490 - Machine Learning (3) (Pre: CIS 360) |

| English Requirements/Foundations for Engagement - 9 Credits | |
|---|---|
| _____ | ENL 101 - Critical Writing and Reading I (3) - USC 1A |
| _____ | ENL 102 - Critical Writing and Reading II (3) (Pre: ENL 101) - USC 1B |
| _____ | ENL 266 - Technical Communications (3) (Pre: ENL 102) - USC 1C |

| Ethics and Social Responsibility/Science in the Engaged Community - 3 Credits | |
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| _____ | CIS 381 - Social and Ethical Aspects of Computing (3) - USC 2B |

| University Studies** - 18 Credits | |
|-----------------------------------|---|
| _____ | EGR 111 (3) - USC 1E(Transfer student: CIS 200 level or above, or equivalent _____) |
| _____ | _____ Literature (3) - Choose from USC 3A |
| _____ | _____ Visual and Performing Arts (3) - Choose from USC 3B |
| _____ | _____ Human Questions and Contexts (3) - Choose from USC 4A |
| _____ | _____ Nature of US Society (3) - Choose from USC 4B |
| _____ | _____ Nature of the Global Society (3) - Choose from USC 4C |

| Free Electives - A single course or combination that adds up to 3 Credits | |
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| _____ | _____ (3) |

| Comment Box |
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*A minimum 2.00 GPA in the major, a minimum 2.00 cumulative GPA, and a minimum 120 earned credits to graduate.
 **USC -University Studies Cluster; A preapproved list can be found at: <http://www.umassd.edu/universitystudies/approvedcourses/>
 Note: Any CIS core course or technical elective that is a prerequisite to another CIS course, must be passed with a grade of C or better in order to satisfy the prerequisite.