Department of Computer & Information Science - College of Engineering - UMass Dartmouth

Requirements for Bachelor of Science in Computer Science* (updated: 9/15/2021 jm)

Student Name: _____ Date: _____

Student ID: _____ 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

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 360, CIS 370)
- _____ 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)

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

- _____ 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)

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

- _____ 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

_____ _____ (3)

Comment Box

*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.