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| **Catalog Year 2022-2023**BS, Computer Science | ***(For internal use only)***[ ]  *No change*[ ]  *UCC proposal* |

A Major Academic Plan (MAP) is one way to complete a degree in a set number of semesters. The *example* below is an efficient strategy only. Actual plans for individual students will vary based on advisor recommendations and academic needs. Official Program Requirements including Major, General Education, Elective, and university requirements (see pg.2) are based on Catalog Year.

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| **Course Subject and Title** | **Cr.**  | **Min.** **Grade** | **\*GE,** **UU or UM** | **\*\*Sem. Offered** | **Prerequisite** | **Co Requisite** |
| Semester One |
| GE Objective 1: ENGL 1101 Writing and Rhetoric I | 3 |  | GE | F, S, Su | Appropriate placement score |  |
| GE Objective 7: CS 1181 Intro to Computer Programming | 3 | C- | GE | F,S | MATH 1143 or MATH 1147 |  |
| GE Objective 3: MATH 1170 Calculus I | 4 | C- | GE | F, S, Su | MATH 1144 or MATH 1147 |  |
| GE Objective 6 | 3 |  | GE |  |  |  |
| GE Objective 4 | 3 |  | GE |  |  |  |
|  Total | 16 |  |  |  |  |  |
| Semester Two |
| GE Objective 1: ENGL 1102 Writing and Rhetoric II | 3 | C- | GE | F, S, Su | ENGL 1101 or equivalent |  |
| GE Objective 2: COMM 1101 Fundamentals of Oral Comm.  | 3 |  | GE | F, S, Su |  |  |
| MATH 1175 Calculus II | 4 | C- |  | F, S, Su | MATH 1170 |  |
| CS 2235 Data Structures and Algorithms | 3 | C- |  | F,S | CS 1181/INFO 1181 |  |
| CS/MATH 1187 Applied Discrete Structures | 3 | C- |  | S | CS 1181/INFO 1181 |  |
|  Total | 16 |  |  |  |  |  |
| Semester Three |
| CS 1337 Systems Programming and Assembly | 3 | C- |  | F | CS 1181/INFO 1181 |  |
| Either MATH 3350 Statistical Methods or | 3 | C- | UM | F,S | MATH 1160 or MATH 1170  |  |
| MATH 4450 Mathematical Statistics | UM | F | MATH 3326 and MATH 3352 |  |
| GE Objective 5: PHYS 2211 Engineering Physics | 4 | C- | GE | F | MATH 1175 | MATH 1175 |
| GE Objective 6 | 3 |  | GE |  |  |  |
| Math or Science Elective 2000 level or higher  | 3 | C- |  |  |  |  |
|  Total | 16 |  |  |  |  |  |
| Semester Four |  |  |  |  |  |  |
| CS 2263 Advanced Object-Oriented Programming | 3 | C- |  | S | CS 2235  |  |
| Either ENGL 3307 Professional and Technical Writing or ENGL 3308 Business Communication | 3 | C- | UM | F, SF, S, Su | 45 Credits and ENGL 1102 or60 Credits and ENGL 1102 |  |
| GE Objective 4 | 3 |  | GE |  |  |  |
| GE Objective 5: with lab | 4 |  | GE |  |  |  |
| Math or Science Elective 2000 level or higher | 3 | C- |  |  |  |  |
|  Total | 16 |  |  |  |  |  |
| Semester Five |  |  |  |  |  |  |
| CS 3305 Introduction to Computational Theory | 3 | C- | UM | F | CS 1187/MATH 1187 |  |
| CS 3321 Introduction to Software Engineering | 3 | C- | UM | F | CS 2263 |  |
| CS 3316 Social Issues and Professional Practices in Computing | 3 | C-  | UM | F,S | ENGL 3307 or ENGL 3308 |  |
| MATH 2240 Linear Algebra | 3 | C- |  |  F, S, Su | MATH 1170 |  |
| GE Objective 9 | 3 |  | GE |  |  |  |
|  Total | 15 |  |  |  |  |  |
| Semester Six |  |  |  |  |  |  |
| CS 3337 Advanced Systems Programming | 3 | C- | UM | S | CS 1337 |  |
| CS 4412 Advanced Algorithms | 3 | C- | UM | S | CS 3305, CS 2263, and MATH 1175 |  |
| INFO 4407 Database Design and Implementation | 3 | C- | UM | D | CS/INFO 1181 |  |
| CS 4461 Secure Operating Systems | 3 | C- | UM | S | CS 2263, CS 1337 |  |
| Free Electives | 3 |  |  |  |  |  |
|  Total | 15 |  |  |  |  |  |
| Semester Seven |  |  |  |  |  |  |
| CS 4416 Foundations in Cybersecurity and Resilience | 3 | C- | UM | F | CS 2235, CS 1337 |  |
| CS Upper Division Elective | 3 | C- | UM | D |  |  |
| CS Upper Division Elective |  3 | C- | UM | D |  |  |
| Math or Science Elective | 4 | C- |  |  |  |  |
| Free Elective | 1 |  |  |  |  |  |
|  Total  | 14 |  |  |  |  |  |
| Semester Eight |   |  |  |  |  |  |
| CS 4488 Capstone Project | 3 | C- | UM | S | INFO 4407, CS 3321, CS 4412 | CS 3337 |
| CS Approved Upper Division Elective | 3 | C- | UM | D |  |  |
| Free Electives | 9 |  |  |  |  |  |
|  Total  | 15 |  |  |  |  |  |
| \*GE=General Education Objective, UU=Upper Division University, UM= Upper Division Major \*\*See Course Schedule section of Course Policies page in the e-catalog (or input F, S, Su, etc.)  |

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| BS, Computer Science Pages 2 |
| **2022-2023 Major Requirements** | **CR** | **GENERAL EDUCATION OBJECTIVES****Satisfy Objectives 1,2,3,4,5,6 (7 or 8) and 9** | **36 cr. min** |
| **MAJOR REQUIREMENTS** |  | 1. Written English (6 cr. min) ENGL 1101 | 3 |
| **MATH and Science Core Requirements** |  |  ENGL 1102 | 3 |
| MATH 1170 Calculus I (included in General Education) | 2. Oral Communication (3 cr. min) COMM 1101 | 3 |
| MATH 1175 Calculus II | 4 | 3. Mathematics (3 cr. min) MATH 1170 | 4 |
| MATH 2240 Linear Algebra | 3 | 4. Humanities, Fine Arts, Foreign Lang. **(2 courses; 2 categories; 6 cr. min)** |
| PHYS 2211 Engineering Physics (included in General Education) |  |  |
| \*Math or Science Electives | 10 |  |  |
| **Select one course from the following triple:** |  | 5. Natural Sciences **(2 lectures-different course prefixes, 1 lab; 7 cr. min)** |
| Either MATH 3350 Statistical Methods, MATH 4450  | 3 | PHYS 2211 Engineering Physics | 4 |
| Mathematical Statistics I  |  |  |
| **Technical Communication Courses** |  |  |  |
| Either ENGL 3307 Professional and Technical Writing, or | 3 | 6. Behavioral and Social Science **(2 courses-different prefixes; 6 cr. min)** |
| ENGL 3308 Business Communications |  |  |
| **Required Computer Science Courses** |  |  |  |
| CS 1181 Intro to Computer Programming (included in General Ed) | One Course from EITHER Objective 7 OR 8 **(1course; 3 cr. min)** |
| CS 1187/MATH 1187 Applied Discrete Structures | 3 | 7. Critical Thinking | INFO/CS 1181 | 3 |
| CS 1337 Systems Programming and Assembly | 3 | 8. Information Literacy  |
| CS 2235 Data Structures and Algorithms | 3 | 9. Cultural Diversity **(1 course; 3 cr. min)** |
| CS 2263 Advanced Object-Oriented Programming | 3 |  |  |
| CS 3305 Introduction to Computation Theory | 3 | General Education Elective to reach 36 cr. min. **(if necessary)** |
| CS 3316 Ethics and Computers in Society | 3 |  |  |
| CS 3321 Introduction to Software Engineering | 3 | Total GE | 39 |
| CS 3337 Advanced Systems Programming | 3 | Undergraduate Catalog and GE Objectives by [Catalog Year](https://www.isu.edu/advising/academic-support/general-education/)  |
| CS 4412 Advanced Algorithms | 3 | *http://coursecat.isu.edu/undergraduate/programs/* |
| CS 4461 Secure Operating Systems | 3 |  |
| CS 4488 Capstone Project | 3 |  |
| INFO 4407 Database Design and Implementation | 3 | **MAP Credit Summary** | **CR** |
| **Approved 4000-level CS electives** | **9** | Major  | 68 |
|  |  | General Education  | 39 |
|  |  | Upper Division Free Electives to reach 36 credits | 0 |
|  |  | Free Electives to reach 120 credits | 13 |
|  |  |  TOTAL | 120 |
|  |  |  |
|  |  | **Graduation Requirement Minimum Credit Checklist** | **Confirmed** |
|  | Minimum 36 cr. General Education Objectives (15 cr. AAS) | X |
|  |  | Minimum 15 cr. Upper Division in Major (0 cr. Associate) | X |
|  |  | Minimum 36 cr. Upper Division Overall (0 cr. Associate) | X |
|  |  | Minimum of 120 cr. Total (60 cr. Associate) | X |
|  |  |  |
|  |  | ***MAP Completion Status (for internal use only)*** |
|  |  |  | *Date* |
|  |  |  |  |
| **Advising Notes** | *CAA or COT:* |  |
| **\***10 additional credits from math, biological science, chemistry,  |  |  |
| geoscience, or physics including at least 6 credit hours of 2000 level or  | **Complete College American Momentum Year****Math and English course in first year-Specific GE MATH course identified****9 credits in the Major area in first year****15 credits each semester (or 30 in academic year)****Milestone courses** |
| higher |
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 Form Revised 9.10.2019