

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.

**Catalog Year 2018.2019**

B.S., Computer Science

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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 English Composition | 3 | | C- | GE | F, S, Su | Appropriate placement score | |  |
| GE Objective 7: CS/INFO 1181 Computer Science & Prgm I | 3 | | C- | GE | F, S | MATH 1143 or 1147 | |  |
| INFO 1150 Software And Systems Architecture | 3 | | C- |  | D |  | | CS/INFO 1181 |
| GE Objective 6: | 3 | |  | GE | F, S, Su |  | |  |
| GE Objective 4: | 3 | |  | GE | F, S, Su |  | |  |
| Total | 15 | |  |  |  |  | |  |
| Semester Two | | | | | | | | |
| GE Objective 1: ENGL 1102 Critical Reading and Writing | 3 | | C- | GE | F, S, Su | ENGL 1101 or equivalent | |  |
| GE Objective 3: MATH 1170 Calculus I | 4 | | C- | GE | F, S, Su | MATH 1144 or 1147 or equivalent | |  |
| CS/INFO 1182 Computer Science and Programming II | 3 | | C- |  | S | CS/INFO 1181 | |  |
| Either CS/MATH 1187 Applied Discrete Structures |  | |  |  | S | CS/INFO 1181 | |  |
| Or MATH 2287 Foundations of Mathematics | 3 | | C- |  | D | MATH 1170 | |  |
| CS 2275 Comp Org and Assembly | 3 | | C- |  | D | INFO 1150, CS/INFO 1182 | (INFO 1150, CS/INFO 1182) | |
| Total | 16 | |  |  |  |  | |  |
| Semester Three | | | | | | | | |
| CS 3308 Data Structures and Programming | 3 | | C- | UM | D | CS/INFO 1182 | |  |
| MATH 2240 Linear Algebra | 3 | | C- |  | F, S, Su | MATH 1170 | |  |
| Either INFO 3307 Systems Analysis and Design |  | |  |  | D | INFO/CS 1181 or INFO 3303 | |  |
| Or CS 3321 Software Engineering | 3 | | C- | UM | D | CS 3308 | |  |
| Either MATH 3350 Stat Methods |  | |  |  | F, S | MATH1160 or 1170 | |  |
| OR MATH 4450 Math Statistics I OR MGT 2216 Bus. Stats | 3 | | C- | UM | F//F,S | MATH 3326, 3352//ENGL 1101, MATH 1108 | |  |
| MATH 1175 Calculus II | 4 | | C- |  | F, S, Su | MATH 1170 | |  |
| Total | 16 | |  |  |  |  | |  |
| Semester Four |  | |  |  |  |  | |  |
| CS 3385 Data Structures and Algorithms | 3 | | C- | UM | D | CS 2275, 3308, MATH 1175, 2240, 1187 or 2287 | | (1187 or 2287) |
| Either MATH 3352 Introduction to Probability |  | |  |  | F, S | MATH 1175, or permission | |  |
| Or MGT 2217 Adv. Business Statistics | 3 | | C- |  | F, S | MGT 2216; MATH 1108 | |  |
| Either Physics 2211 Engineering Physics I |  | |  |  | F, S |  | | MATH 1175 |
| Or MATH 3360 Differential Equations | 3 or 4 | |  |  | F, S | MATH 1175; MATH 2240 or 2275 recommended | |  |
| GE Objective 2: COMM 1101 Principles of Speech | 3 | |  | GE | F, S, Su |  | |  |
| Either CS 4451 Data Theory Design and Programming  OR INFO 4407 Data Design and Implementation | 3 | | C- | UM | D  D | CS 3385  INFO 3307 and (INFO 1182 or CS 1182) | |  |
| Free Electives | 0 or 1 | |  |  |  |  | |  |
| Total | 16 | |  |  |  |  | |  |
| Semester Five |  | |  |  |  |  | |  |
| CS 4471 Operating Systems | 4 | | C- | UM | D | CS 2275, 3308 | |  |
| MATH 2275 Calculus III | 4 | | C- |  | F, S | MATH 1175 | |  |
| GE Objective 5: | 4 | |  | GE | F, S, Su |  | |  |
| Total | 12 | |  |  |  |  | |  |
| Semester Six |  | |  |  |  |  | |  |
| CS 4481 Compilers | 3 | | C- | UM | D | CS 3385 | |  |
| CS Approved Upper Divisions Electives | 3 | | C- | UM | F, S, Su |  | |  |
| GE Objective 9: | 3 | |  | GE | F, S, Su |  | |  |
| GE Objective 5: | 3 | |  | GE | F, S, Su |  | |  |
| INFO 4411 Intermediate Information Assurance | 3 | | C- | UM | D (fall) | INFO 1150 or CS 2275 or INFO 3310 | |  |
| Total | 15 | |  |  |  |  | |  |
| Semester Seven |  | |  |  |  |  | |  |
| CS 4488 Advanced Software Engineering and Project | 3 | | C- | UM | D | CS 3385 and (3321 or INFO 3307) and (CS 4451 or INFO 4407) | | |
| CS Approved Upper Divisions Electives | 3 | | C- | UM |  |  | |  |
| INFO 3380 Networking and Virtualization | 3 | | C- | UM | D | INFO 1150 or CS 2275 or INFO 3303 | |  |
| Objective 4: | 3 | |  | GE | F, S, Su |  | |  |
| GE Objective 6: | 3 | |  | GE | F, S, Su |  | |  |
| Total | 15 | |  |  |  |  | |  |
| Semester Eight |  | |  |  |  |  | |  |
| Free Electives | 15 | |  |  |  |  | |  |
| 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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| **2018-2019 Major Requirements** | **CR** | **2018-2019 GENERAL EDUCATION OBJECTIVES**  **Satisfy Objectives 1,2,3,4,5,6 (7 or 8) and 9** | | | | **36 cr. min** | |
| **MAJOR REQUIREMENTS** | **66 or 67** | 1. Written English (6 cr. min) ENGL 1101 | | | | 3 | |
| **MATH and SCIENCE CORE** | **23 or 24** | ENGL 1102 | | | | 3 | |
| MATH 1170 Calculus I (counted in GE requirements) | | 2. Spoken English (3 cr. min) COMM 1101 | | | | 3 | |
| MATH 1175 Calculus II | 4 | 3. Mathematics (3 cr. min) MATH 1170 | | | | 4 | |
| MATH 2275 Calculus III | 4 | 4. Humanities, Fine Arts, Foreign Lang. **(2 courses; 2 categories; 6 cr. min)** | | | | | |
| MATH 2240 Linear Algebra | 3 |  | | | |  | |
| Select one course from pair or triple: | 12 or 13 |  | | | |  | |
| Either CS/Math 1187 Applied Discrete Struc. OR MATH 2287 Found. of Math  Either PHYS 2211 Engineering Physics I OR MATH 3360 Differential Equations  Either MATH 3350\* Stat Mtd OR MATH 4450 Math Stat I OR MGT 2216 Bus Stat  Either MATH 3352\* Intro to Probability or MGT 2217 Adv. Business Statistics | | 5. Natural Sciences **(2 lectures-different course prefixes, 1 lab; 7 cr. min)** | | | | | |
|  | | | |  | |
|  | | | |  | |
|  | | | |  | |
| **Required Computer Science and Related Courses** | **37** | 6. Behavioral and Social Science **(2 courses-different prefixes; 6 cr. min)** | | | | | |
| CS/INFO 1181Computer Science and Prog I  *(counted in GE)* | |  | | | |  | |
| CS/INFO 1182 Computer Science & Programming II | 3 |  | | | |  | |
| CS 2275 Comp Org and Assembly | 3 | One Course from EITHER Objective 7 OR 8 **(1course; 3 cr. min)** | | | | | |
| CS 3308 Data Structures and Programming | 3 | 7. Critical Thinking CS 1181 Computer Sci. & Programming | | | | 3 | |
| CS 3385 Data Structure and Algorithms | 3 | 8. Information Literacy | | | |
| CS 4471 Operating Systems | 4 | 9. Cultural Diversity **(1 course; 3 cr. min)** | | | | | |
| CS 4481 Compilers | 3 |  | | | |  | |
| CS 4488 Advanced Software Engineering and Project | 3 | General Education Elective to reach 36 cr. min. **(if necessary)** | | | | | |
|  |  |  | | | |  | |
|  |  | Total GE | | | | 38 | |
| INFO 1150 Software and Systems Architecture | 3 | Undergraduate Catalog and GE Objectives by [Catalog Year](https://www.isu.edu/advising/academic-support/general-education/) | | | | | |
| INFO 3380 Networking and Virtualization | 3 |
| INFO 4411 Intermediate Information Assurance | 3 |  | | | |  | |
|  |  | **MAP Credit Summary** | | | | **CR** | |
| Select one course from each pair: | 6 | Major | | | | 66 or 67 | |
| Either CS 3321 Software Engineering or INFO 3307 Systems Analysis and Design | | General Education | | | | 38 | |
| Either CS 4451 Data Theory Design & Prog. or INFO 4407 Data Design & Imple. | | Free Electives to reach 120 credits | | | | 15 or16 | |
| **CS Approved Upper Division ELECTIVES (below)** | **6** | TOTAL | | | | 120 | |
| Any 4000 level Computer Science course | |  | | | | | |
| INFO 4412 Systems Security for Senior Management | |
| INFO 4413 Systems Security Administration | | **Graduation Requirement Minimum Credit Checklist** | | | **Confirmed** | | |
| INFO 4414 Systems Security Management | | Minimum 36 cr. General Education Objectives (15 cr. AAS) | | | Yes | | |
| INFO 4415 System Certification | | Minimum 16 cr. Upper Division in Major (0 cr. Associate) | | |  | | Yes |
| INFO 4416 Risk Analysis | | Minimum 36 cr. Upper Division Overall (0 cr. Associate) | | |  | | Yes |
| INFO 4430 Web Application Development | | Minimum of 120 cr. Total (60 cr. Associate) | | |  | | Yes |
| INFO 4482 Systems Development & Implement. Methodologies | |  | |  | | | |
| INFO 4484 Secure Software Life Cycle Development | | ***MAP Completion Status (for internal use only)*** | | | | | |
| MATH 4406 Advanced Linear Algebra | |  | *Date* | | | | |
| MATH 4407 Modern Algebra I | | *Department:* |  | | | | |
| MATH 4408 Modern Algebra II | | *CAA or COT:* | 3.29.2018 SF jh | | | | |
| MATH 4441 Introduction to Numerical Analysis I | | *Registrar:* |  | | | | |
| MATH 4442 Introduction to Numerical Analysis II | |  | | | | | |
| MATH 4451 Mathematical Statistics II | |
| PHIL 4470 Symbolic Logic & Foundations of Mathematics | |
| Other electives may be approved by the CS program director. | |
| **Advising Notes** | |
| All courses & prerequisites applying to the CS major or minor must be passed with a grade of C- or better. | |