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| **Catalog Year 2019-2020**BS, Physics | ***(For internal use only)***[x]  *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 | C- | GE | F, S, Su | Appropriate placement score |  |
| GE Objective 3: MATH 1170 Calculus I | 4 | C- | GE | F,S,Su | MATH 1147 or 1144 or appropriate placement score |  |
| GE Objective 5: CHEM 1111 & 1111L General Chemistry I | 5 |  | GE | F,S,Su | MATH 1143 or 1147 or appropriate placement score |  |
| GE Objective 4 | 3 |  | GE | F,S,Su |  |  |
|  Total | 15 |  |  |  |  |  |
| Semester Two |
| GE Objective 1: ENGL 1102 Writing and Rhetoric II | 3 | C- | GE | F, S, Su | ENGL 1101 or equivalent |  |
| MATH 1175 Calculus II | 4 | C- |  | F,S,Su | MATH 1170 |  |
| CHEM 1112 & 1112L General Chemistry II & Lab | 4 |  |  | F,S | CHEM 1111 & 1111L, MATH 1143 or 1147 |  |
| GE Objective 6 | 3 |  | GE | F,S,Su |  |  |
| Free Electives | 1 |  |  |  |  |  |
|  Total | 15 |  |  |  |  |  |
| Semester Three |
| GE Objective 2: Principles of Speech | 3 |  | GE | F,S,Su |  |  |
| GE Objective 5: PHYS 2211 Engineering Physics I /2213 lab | 5 |  | GE | F,S |  | MATH 1175 |
| MATH 2275 Calculus III | 4 | C- |  | F,S | MATH 1175 |  |
| GE Objective 4 | 3 |  | GE | F,S,Su |  |  |
|  Total | 15 |  |  |  |  |  |
| Semester Four |  |  |  |  |  |  |
| MATH 3360 Differential Equations | 3 | C- | UM | F,S | MATH 1175, MATH 2275 recommended |  |
| PHYS 2212 Engineering Physics II | 4 |  |  | F,S,Su | PHYS 2211 |  |
| PHYS 2214 Engineering Physics II Lab | 1 |  |  | F,S | PHYS 2213 | PHYS 2212 |
| GE Objective 6 | 3 |  | GE | F,S,Su |  |  |
| Free Electives  | 4 |  |  |  |  |  |
|  Total | 15 |  |  |  |  |  |
| Semester Five |  |  |  |  |  |  |
| PHYS 3301 Modern Physics | 3 |  | UM | F | PHYS 2212 | MATH 3360 |
| PHYS 3313 Intermediate Laboratory | 2 |  | UM | F |  | PHYS 3301, MATH 3360 |
| PHYS 4461 Introductions to Mathematical Physics I ^ | 3 |  | UM | F | PHYS 2212, MATH 3360 |  |
| GE Objective 7 or 8 | 3 |  | GE | F,S,Su |  |  |
| Free Electives | 4 |  |  |  |  |  |
|  Total | 15 |  |  |  |  |  |
| Semester Six |  |  |  |  |  |  |
| PHYS 4403 Advanced Modern Physics I | 3 |  | UM | S | MATH 3360 or equivalent, PHYS 3301 |  |
| PHYS 4414 Electronic Instrumentation & Measurement | 3 |  | UM | S | PHYS 2212,PHYS 2214, MATH 3360 |  |
| PHYS 4462 Intro to Mathematical Physics II^ | 3 |  | UM | S | PHYS 4461 |  |
| PHYS 4415 Statistical Physics | 3 |  | UM | S | PHYS 2212, MATH 3360 |  |
| GE Objective 9 | 3 |  | GE | F,S,Su |  |  |
|  Total | 15 |  |  |  |  |  |
| Semester Seven |  |  |  |  |  |  |
| PHYS 4404 Advanced Modern Physics II | 3 |  | UM | F | PHYS 4403 |  |
| PHYS 4421 Electricity and Magnetism I | 3 |  | UM | F | PHYS 2212, MATH 3360 |  |
| PHYS 4483 Theoretical Mechanics | 4 |  | UM | F | PHYS 2212,MATH 3360 |  |
| 4000 level Physics electives (consult with advisor) | 3 |  | UM | F | See catalog |  |
| Free Electives | 2 |  |  |  |  |  |
|  Total | 15 |  |  |  |  |  |
| Semester Eight |  |  |  |  |  |  |
| 4000 level Physics electives (consult with advisor) | 2 |  | UM | S | See catalog |  |
| PHYS 4492 Colloquium in Physics | 1 |  | UM | F,S | Open to Upper Division students; may be repeated for up to 4 cr. |
| PHYS 4422 Electricity and Magnetism II | 3 |  | UM | S | PHYS 4421 |  |
| 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, Physics |
| **2019-2020 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** | **59** | 1. Written English (6 cr. min) ENGL 1101 | 3 |
| CHEM 1111 & 1111L General Chemistry I & Lab (Counted in Objective 5) |  ENGL 1102 | 3 |
| CHEM 1112 & CHEM 11112L General Chemistry II & Lab | 4 | 2. Oral Communication (3 cr. min) COMM 1101 | 3 |
| MATH 1170 Calculus I (Counted in Objective 3) | 3. Mathematics (3 cr. min) MATH 1170 | 4 |
| MATH 1175 Calculus II | 4 | 4. Humanities, Fine Arts, Foreign Lang. **(2 courses; 2 categories; 6 cr. min)** |
| MATH 2275 Calculus III | 4 |  |  |
| MATH 3360 Differential Equations | 3 |  |  |
| MATH 4421 & 4422 Advanced Engineering Mathematics I & II | 6 | 5. Natural Sciences **(2 lectures-different course prefixes, 1 lab; 7 cr. min)** |
|  OR PHYS 4461 & 4462 Intro to Mathematical Physics I & II  | CHEM 1111 and CHEM 1111L | 5 |
| PHYS 2211 & PHYS 2213 Engineering Physics I & Lab (Counted in Obj. 5) | PHYS 2211 and PHYS 2213 | 5 |
| PHYS 2212 & PHYS 2214 Engineering Physics II & Lab | 5 |  |  |
| PHYS 3301 Modern Physics | 3 | 6. Behavioral and Social Science **(2 courses-different prefixes; 6 cr. min)** |
| PHYS 3313 Intermediate Laboratory  | 2 |  |  |
| PHYS 4403 Advanced Modern Physics I | 3 |  |  |
| PHYS 4404 Advanced Modern Physics II | 3 | One Course from EITHER Objective 7 OR 8 **(1course; 3 cr. min)** |
| PHYS 4414 Instrumentation and Measurement | 3 | 7. Critical Thinking |  |  |
| PHYS 4415 Statistical Physics | 3 | 8. Information Literacy  |
| PHYS 4421 Electricity & Magnetism I  | 3 | 9. Cultural Diversity **(1 course; 3 cr. min)** |
| PHYS 4422 Electricity & Magnetism II | 3 |  |  |
| PHYS 4483 Theoretical Mechanics | 4 | General Education Elective to reach 36 cr. min. **(if necessary)** |
| PHYS 4492 Colloquium in Physics | 1 |   |  |
| 4000 level Physics Electives | 5 |  |  |
|  |  |  Total GE | 41 |
|  |  | Undergraduate Catalog and GE Objectives by [Catalog Year](https://www.isu.edu/advising/academic-support/general-education/)  *http://coursecat.isu.edu/undergraduate/programs/* |
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|  |  | **MAP Credit Summary** | **CR** |
|  |  | Major  | 59 |
|  |  | General Education  | 41 |
|  |  | Upper Division Free Electives to reach 36 credits | 0 |
|  |  | Free Electives to reach 120 credits | 20 |
|  |  |  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)*** |
| **Advising Notes** |  | *Date* |
|  | *Department:*  |  |
|  | *CAA or COT:* |  |
|  | *Registrar:*  |  |
|  | **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** |
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 Form Revised 9.10.2019