# MATHEMATICS

## Plan of Study

*Below is a sample plan of study that illustrates one way to achieve the program requirements. Any given student's plan of study may differ based on a variety of factors (e.g., advanced credit, placement exams, adding a minor). Enrolled students will work with their academic advisor; utilize the degree audit/planner to create a specific plan of study.*

| Course | Title | Hours |
|---|---|---|
| **Freshman** | | |
| **Fall** | | |
| MA 111 | Calculus I | 5 |
| PH 111<br>or CHEM 111 | Physics I (including lab)<br>or General Chemistry I | 4 |
| PH 111L | Physics I Lab | 0 |
| Select one of the following: | | 4 |
| HUM H190 | First-Year Writing Seminar | |
| HSSA Elective | | |
| RHIT 100 | Foundations for Rose-Hulman Success | 1 |
| CSSE 120 | Introduction to Software Development | 4 |
| | **Hours** | **18** |
| **Winter** | | |
| MA 112 | Calculus II | 5 |
| PH 112<br>or PH 111 | Physics II (including lab)<br>or Physics I | 4 |
| PH 112L | Physics II Lab | 0 |
| Select one of the following: | | 4 |
| CHEM 111 | General Chemistry I (including lab) | |
| BIO 101 | Essential Biology | |
| or higher level BIO course | | |
| Select one of the following: | | 4 |
| HSSA Elective | | |
| HUM H190 | First-Year Writing Seminar | |
| | **Hours** | **17** |
| **Spring** | | |
| MA 113 | Calculus III | 5 |
| PH 113<br>or PH 112 | Physics III (including lab)<br>or Physics II | 4 |
| PH 113L | Physics III Lab | 0 |
| MA 190 | Contemporary Mathematical Problems | 2 |
| HSSA Elective | | 4 |
| | **Hours** | **15** |
| **Sophomore** | | |
| **Fall** | | |
| MA 221 | Matrix Algebra & Differential Equations I | 4 |
| MA 276 | Introduction to Proofs | 4 |
| Select one of the following: | | 4 |
| BIO 101 | Essential Biology | |
| or higher level BIO course | | |
| PH 113 | Physics III (including lab) | |
| CSSE 220 | Object-Oriented Software Development [1] | 4 |
| | **Hours** | **16** |
| **Winter** | | |
| MA 222 | Matrix Algebra & Differential Equations II | 4 |
| Science Elective | | 4 |
| Technical Elective | | 4 |
| HSSA Elective | | 4 |
| MA 200 | Career Preparation [2] | 1 |
| | **Hours** | **17** |
| **Spring** | | |
| MA 381 | Introduction to Probability with Applications to Statistics | 4 |
| MA 371 | Linear Algebra I | 4 |
| Technical Elective | | 4 |
| HSSA Elective | | 4 |
| | **Hours** | **16** |
| **Junior** | | |
| **Fall** | | |
| MA Elective | | 4 |
| Technical Elective | | 4 |
| Technical Elective | | 4 |
| Select one of the following: | | 4 |
| HSSA Elective | | |
| ENGL H290 | Technical & Professional Communication | |
| | **Hours** | **16** |
| **Winter** | | |
| MA 366 | Introduction to Real Analysis | 4 |
| MA Elective | | 4 |
| Technical Elective | | 4 |
| Select one of the following: | | 4 |
| HSSA Elective | | |
| ENGL H290 | Technical & Professional Communication | |
| | **Hours** | **16** |
| **Spring** | | |
| MA Elective | | 4 |
| MA Elective | | 4 |
| Technical Elective | | 4 |
| Select one of the following: | | 4 |
| HSSA Elective | | |
| ENGL H290 | Technical & Professional Communication | |
| | **Hours** | **16** |
| **Senior** | | |
| **Fall** | | |
| Select one of the following: | | 4 |
| MA 496 | Senior Capstone I | |
| MA 491<br>& MA 496 | Introduction to Mathematical Modeling<br>and Senior Capstone I | |
| Free Elective | | 4 |
| Free Elective | | 4 |
| HSSA Elective | | 4 |
| | **Hours** | **16** |
| **Winter** | | |
| MA 497 | Senior Capstone II | 2 |
| MA Elective | | 4 |
| Free Elective | | 4 |
| Free Elective | | 4 |
| Free Elective | | 4 |
| | **Hours** | **18** |
| **Spring** | | |
| MA 498 | Senior Capstone III | 2 |
| MA Elective | | 4 |
| Free Elective | | 4 |
| Free Elective | | 4 |
| | **Hours** | **14** |
| | **Total Hours** | **195** |

[1] MA 332 Introduction to Computational Science - may be taken instead of CSSE 220 Object-Oriented Software Development but then MA 332 Introduction to Computational Science cannot be counted towards the 63 hours of mathematics coursework

[2] MA 200 Career Preparation - may be taken in the winter quarter of the sophomore year

## Notes and Definitions

- The suggested four year plan is a guideline.
- Close consultation with the advisor on electives is required, especially for electives after the freshman year, or if a double major or minor is planned.

The following definitions of electives are specific to the Mathematics Department.

- **Math Elective:** A course either required by the concentration or a true math elective.
- **Science Elective:** Any Physical or Life Sciences elective (not Computer Science) at any level.
- **Technical Elective:** Non-mathematics courses numbered 200 or above in Engineering, Science or Economics; coursework in mathematics and biomathematics is not allowed.
- **Free Elective:** Any course.