Mathematics, B.S.

Academic Plans

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. Courses in the major are those required to complete the major; they may be offered by departments other than the major department.

Many mathematics courses must be taken in sequence, so students must begin major requirements as early as possible, and individual plans of study must be constructed carefully. The major typically requires 13 or 14 courses. Students must choose Program A, B, or C by the end of the third semester and must remain in their chosen program until they graduate in order to stay on track for the four-year graduation plan.

Before the third semester begins: coursework in the major through second-semester calculus.

Before the fifth semester begins: three or four more courses in the major.

Before the seventh semester begins: three or four more courses in the major and at least 90 s.h. earned toward the degree.

Before the eighth semester begins: two or three more courses in the major.

During the eighth semester: enrollment in all remaining coursework in the major, all remaining GE CLAS Core courses, and a sufficient number of semester hours to graduate.

Sample Plans of Study

Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, see MyUI.

Mathematics, B.S.

- Program A [p. 1]
- Program B [p. 2]

Program A

<table>
<thead>
<tr>
<th>Course</th>
<th>Academic Career</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
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</table>

Any Semester

Program A is primarily for students who plan to work in business or government or to pursue graduate study in mathematics.

First Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>ENGL:1200 or RHE:1030</td>
<td>The Interpretation of Literature or Rhetoric</td>
<td>3 - 4</td>
</tr>
<tr>
<td></td>
<td>MATH:1850</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GE CLAS Core: Values and Culture</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>CSI:1600</td>
<td>Success at Iowa</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Elective course</td>
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<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>14-15</td>
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Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
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Second Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>GE CLAS Core: World Languages First Level Proficiency or elective course</td>
<td>4 - 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH:3600</td>
<td>Introduction to Ordinary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MATH:2850</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GE CLAS Core: Social Sciences</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective course</td>
<td></td>
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Hours: 15-16

Third Year

<table>
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<th>Semester</th>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>GE CLAS Core: World Languages Second Level Proficiency or elective course</td>
<td>4 - 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH:3770</td>
<td>Introduction to Abstract Algebra I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GE CLAS Core: Historical Perspectives</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective course</td>
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<td>2</td>
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Hours: 16-17

Fourth Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>GE CLAS Core: World Languages Fourth Level Proficiency or elective course</td>
<td>4 - 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Major: required upper-level math elective course</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Major: required post-calculus math elective course</td>
<td></td>
<td>3 - 4</td>
</tr>
<tr>
<td></td>
<td>GE CLAS Core: Natural Sciences without Lab</td>
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<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective course</td>
<td></td>
<td>3</td>
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Hours: 16-18

Spring

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Notes:

1. Some courses may satisfy both the major and GE requirements. Check with an academic advisor.
2. Three or four courses must be completed to ensure degree readiness.
3. An academic career course may be used to fulfill GE LHL requirements.
4. An academic career course must be completed to fulfill GE LHL requirements.
5. Major: required post-calculus math elective course
6. Major: required upper-level math elective course
7. An academic career course may be used to fulfill GE LHL requirements.
8. An academic career course must be completed to fulfill GE LHL requirements.
9. Major: required post-calculus math elective course
10. Major: required upper-level math elective course

Elective courses must be chosen to fulfill the degree requirements and must be approved by an academic advisor.
Program B

Course Title Hours Academic Career
Any Semester Program B is intended for students seeking secondary school teaching licensure.
Completion of mathematics (program B) BS, Teacher Education Program, and all general education requirements exceeds the minimum 120 s.h. required for graduation. Students should expect to take higher than average number of semester hours per term, take summer classes, and/or extend graduation time frame beyond four years.
Admission to the Teacher Education Program, College of Education, is by competitive application. For information about application requirements, process, and deadlines, please consult an advisor for the College of Education.

First Year Hours 0

Fall RHET:1030 Rhetoric 3 - 4
or ENGL:1200 or The Interpretation of Literature
MATH:1850 Calculus I a, b 4
GE CLAS Core: World Languages First Level Proficiency or elective course c 4 - 5
GE CLAS Core: Historical Perspectives e 3
Course(s) required for second degree - consult sample plan for BA in mathematics education
10-hour pre-admission school field experience a, d

Second Year Hours 6

Fall MATH:2700 Introduction to Linear Algebra 4
MATH:2850 Calculus III 4
GE CLAS Core: World Languages Second Level Proficiency or elective course c 4 - 5
Course(s) required for second degree - consult sample plan for BA in mathematics education
Admission Application: apply to the Teacher Education Program

Third Year Hours 4

Fall MATH:3720 Introduction to Abstract Algebra I 4
MATH:4050 Introduction to Discrete Mathematics h 3
GE CLAS Core: Historical Perspectives e 3
Course(s) required for second degree, including a course that satisfies the GE CLAS Core Diversity and Inclusion area - consult sample plan for BA in mathematics education

Spring Hours 16

Spring MATH:3770 Fundamental Properties of Spaces and Functions I 4
STAT:3120 Probability and Statistics 4
Major: required post-calculus math elective course i 3 - 4

Summer Hours 14-16

Summer GE CLAS Core: International and Global Issues e 3
GE CLAS Core: Natural Sciences without Lab e 3
Prepare materials for Teacher Education Program application (e.g. essays, letters of recommendation)

GE CLAS Core: Natural Sciences with Lab e 4

Elective course c 3

Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall)

Hours 15

<table>
<thead>
<tr>
<th>Hours</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>123-131</td>
<td></td>
</tr>
</tbody>
</table>

Notes:

a Enrollment in math courses requires completion of a placement exam.
b GE CLAS Core courses may be completed in any order unless used as a prerequisite for another course. Students should consult with an advisor about the best sequencing of courses.
c Students may use elective courses to earn credit towards the total s.h. required for graduation or to complete a double major, minors, or certificates.
d Students who have completed four years of a single language in high school have satisfied the GE CLAS Core World Languages requirement. Enrollment in world languages courses requires a placement exam, unless enrolling in a first-semester-level course.
e Students must earn at least 15 s.h. in post-calculus mathematics courses offered by the University of Iowa. Post-calculus courses are numbered 2000 or above, excluding: MATH:3700, MATH:3750, MATH:3995, MATH:3996, MATH:3997, MATH:4010, and MATH:4020. Required mathematical electives must include at least three upper-level math courses (prefix MATH). Some statistics, actuarial science and computer sciences courses can be included among post-calculus electives only. See advisor for list of acceptable courses in MATH, STAT, ACTS, and CS.
f Required mathematical electives must include at least three upper-level math courses. These include: MATH:3900 and math courses (MATH prefix) numbered 4000 or higher, but not MATH:4010, MATH:4020 and MATH:4120. Each upper-level math course is offered at most once per year; choose when to complete the upper-level requirement according to spring or fall offerings for desired courses.
g Please see Academic Calendar, Office of the Registrar website for information about application requirements, process, and deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor or Graduation Services.

Spring

RHET:1030 Rhetoric 3 - 4
or ENGL:1200 or The Interpretation of Literature
MATH:1860 Calculus II a 4
GE CLAS Core: World Languages Second Level Proficiency or elective course c 4 - 5
Course(s) required for second degree - consult sample plan for BA in mathematics education
10-hour pre-admission school field experience a, d
Course(s) required for second degree, including a course that satisfies the GE CLAS Core Values and Culture area - consult sample plan for BA in mathematics education

Apply for student teaching (see the College of Education website for application instructions and deadlines)

### Hours 17-18

#### Fourth Year

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS:1210 Computer Science I: Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>Major: required upper-level math elective course</td>
<td>3 - 4</td>
</tr>
<tr>
<td>Major: required upper-level math elective course</td>
<td>3 - 4</td>
</tr>
<tr>
<td>GE CLAS Core: Literary, Visual, and Performing Arts</td>
<td>3</td>
</tr>
</tbody>
</table>

Course(s) required for second degree - consult sample plan for BA in mathematics education

#### Hours 16-18

#### Spring

Course(s) required for second degree - consult sample plan for BA in mathematics education

Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall)

Exam: edTPA

#### Hours 15

#### Total Hours 132-141

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- **a** Required for admission into the Teacher Education Program.
- **b** Enrollment in math courses requires completion of a placement exam.
- **c** Students who have completed four years of a single language in high school have satisfied the GE CLAS Core World Languages requirement. Enrollment in world languages courses requires a placement exam, unless enrolling in a first-semester-level course.
- **d** Complete the College of Education verification of 10 hour field experience form available on the Office of Student Services web page.
- **e** GE CLAS Core courses may be completed in any order unless used as a prerequisite for another course. Students should consult with an advisor about the best sequencing of courses.
- **f** Please see the College of Education website for detailed application instructions and deadlines. Admission is selective and a priority deadline exists.
- **g** Typically this course is offered in spring semesters only. Check MyUI for course availability since offerings are subject to change.
- **h** Students must complete MATH:4050, a fall-only course, or MATH:4060, a spring-only course.
- **i** Post-calculus courses are numbered 2000 or above, excluding: MATH:3700, MATH:3750, MATH:3995, MATH:3996, MATH:3997, MATH:4010, and MATH:4020.
- **j** Upper-level electives include MATH:3900 or any MATH prefix courses numbered 4040 or higher.
- **k** Please see Academic Calendar, Office of the Registrar website for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor or Graduation Services.
- **l** As a requirement for completion of an approved Teacher Education Program for initial teaching licensure, the state of Iowa requires a passing score on this exam. The assessment is required before recommendation for licensure or certification to any state.