# Mathematics, BA

## 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 11 or 12 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:** two or three 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, BA



### Program A

| Course | Title | Hours |
|---|---|---|
| **Academic Career** | | |
| **Any Semester** | | |
| Program A is primarily for students who plan to work in business or government or to pursue graduate study in mathematics. | | |
| Students must earn at least 15 s.h. in post-calculus mathematics courses offered by the Department of Mathematics or cross-referenced with a mathematics course at the University of Iowa. Post-calculus courses are numbered 2000 or above, excluding: MATH:3700 Introduction to Matrix Theory, MATH:3750 Classical Analysis, MATH:3995 Topics in Mathematics, MATH:3996 Individual Study & Honors in Mathematics, MATH:3997 Readings in Mathematics, MATH:4010 Basic Analysis, and MATH:4020 Basic Abstract Algebra. [a] | | |
| GE CLAS Core: Sustainability [b] | | |
| | **Hours** | **0** |
| **First Year** | | |
| **Fall** | | |
| MATH:1850 | Calculus I [c] | 4 |
| RHET:1030 or ENGL:1200 | Rhetoric or The Interpretation of Literature | 3 - 4 |
| GE CLAS Core: Values and Culture [d] | | 3 |
| Elective course [e] | | 2 |
| CSI:1600 | Success at Iowa | 2 |
| | **Hours** | **14-15** |
| **Spring** | | |
| MATH:1860 | Calculus II | 4 |
| ENGL:1200 or RHET:1030 | The Interpretation of Literature or Rhetoric | 3 - 4 |
| GE CLAS Core: Diversity and Inclusion [d] | | 3 |
| GE CLAS Core: Literary, Visual, and Performing Arts [d] | | 3 |
| Elective course [e] | | 2 |
| | **Hours** | **15-16** |
| **Second Year** | | |
| **Fall** | | |
| MATH:2700 | Introduction to Linear Algebra | 4 |
| MATH:2850 | Calculus III | 4 |
| GE CLAS Core: Social Sciences [d] | | 3 |
| GE CLAS Core: World Languages First Level Proficiency or elective course [f] | | 4 - 5 |
| | **Hours** | **15-16** |
| **Spring** | | |
| MATH:3600 | Introduction to Ordinary Differential Equations | 3 |
| MATH:3720 | Introduction to Abstract Algebra I | 4 |
| GE CLAS Core: Historical Perspectives [d] | | 3 |
| GE CLAS Core: World Languages Second Level Proficiency or elective course [f] | | 4 - 5 |
| | **Hours** | **14-15** |
| **Third Year** | | |
| **Fall** | | |
| MATH:3770 | Fundamental Properties of Spaces and Functions I | 4 |
| Major: required post-calculus math elective course [g] | | 3 |
| GE CLAS Core: Natural Sciences with Lab [d] | | 4 |
| GE CLAS Core: World Languages Third Level Proficiency or elective course [f] | | 4 - 5 |
| | **Hours** | **15-16** |
| **Spring** | | |
| Major: required post-calculus math elective course [g] | | 3 |
| GE CLAS Core: Natural Sciences without Lab [d] | | 3 |
| GE CLAS Core: World Languages Fourth Level Proficiency or elective course [f] | | 4 - 5 |
| Elective course [e, h] | | 3 |
| Elective course [e, h] | | 3 |
| | **Hours** | **16-17** |
| **Fourth Year** | | |
| **Fall** | | |
| Major: required upper-level math elective course [i] | | 3 |
| GE CLAS Core: International and Global Issues [d] | | 3 |

| | |
|---|---|
| Elective course [e, h] | 3 |
| Elective course [e, h] | 3 |
| Elective course [e, h] | 3 |
| **Hours** | **15** |

**Spring**

| | |
|---|---|
| Major: required post-calculus math elective course [g] | 3 |
| Elective course [e, h] | 3 |
| Elective course [e, h] | 3 |
| Elective course [e, h] | 3 |
| Elective course [e, h] | 3 |
| Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) [j] | |
| **Hours** | **15** |
| **Total Hours** | **119-125** |

a See General Catalog or consult an advisor for more information.

b Sustainability must be completed by choosing a course that has been approved for Sustainability AND for one of these General Education areas: Natural Sciences; Quantitative and Formal Reasoning; Social Sciences; Historical Perspectives; International and Global Issues; Literary, Visual, and Performing Arts; or Values and Culture.

c Enrollment in math courses requires completion of a placement exam.

d 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.

e 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.

f 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.

g At least two of the four major electives must have a prefix of MATH, including at least one upper-level math course. See General Catalog or consult an advisor for more information about appropriate elective courses.

h Electives may also be used to complete additional hours in the major up to a total of 56 s.h.

i Mathematical electives must include at least one upper-level math course. These include: MATH:3900 and math courses (MATH prefix) numbered 4000 and 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.

j 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.

## 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) BA, 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. | | |
| GE CLAS Core: Sustainability [a] | | |
| | **Hours** | **0** |
| **First Year** | | |
| **Fall** | | |
| MATH:1850 | Calculus I [b, c] | 4 |
| RHET:1030 or ENGL:1200 | Rhetoric or The Interpretation of Literature | 3 - 4 |
| GE CLAS Core: World Languages First Level Proficiency or elective course [d] | | 4 - 5 |
| CSI:1600 | Success at Iowa | 2 |
| | **Hours** | **13-15** |
| **Spring** | | |
| MATH:1860 | Calculus II [b] | 4 |
| RHET:1030 or ENGL:1200 | Rhetoric or The Interpretation of Literature | 3 - 4 |
| GE CLAS Core: World Languages Second Level Proficiency or elective course [d] | | 4 - 5 |
| Course(s) required for second degree - consult sample plan for BA in mathematics education | | 3 |
| 10-hour pre-admission school field experience [b, e] | | |
| | **Hours** | **14-16** |
| **Summer** | | |
| GE CLAS Core: International and Global Issues [f] | | 3 |
| GE CLAS Core: Natural Sciences without Lab [f] | | 3 |
| Prepare materials for Teacher Education Program application (e.g. essays, letters of recommendation) [g] | | |
| | **Hours** | **6** |
| **Second Year** | | |
| **Fall** | | |
| MATH:2700 | Introduction to Linear Algebra | 4 |
| MATH:2850 | Calculus III | 4 |
| GE CLAS Core: World Languages Third Level Proficiency or elective course [d] | | 4 - 5 |
| Course(s) required for second degree - consult sample plan for BA in mathematics education | | 3 |
| Admission Application: apply to the Teacher Education Program [g] | | |
| | **Hours** | **15-16** |
| **Spring** | | |
| MATH:2150 | Foundations of Geometry [h] | 3 |
| GE CLAS Core: Social Sciences [f] | | 3 |
| GE CLAS Core: World Languages Fourth Level Proficiency or elective course [d] | | 4 - 5 |

| | | |
|---|---|---|
| Course(s) required for second degree - consult sample plan for BA in mathematics education | | 6 |
| | **Hours** | **16-17** |
| **Summer** | | |
| GE CLAS Core: Natural Sciences with Lab [f] | | 4 |
| | **Hours** | **4** |
| **Third Year** | | |
| **Fall** | | |
| MATH:3720 | Introduction to Abstract Algebra I | 4 |
| MATH:4050 | Introduction to Discrete Mathematics [i] | 3 |
| GE CLAS Core: Historical Perspectives [f] | | 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 | | 6 |
| | **Hours** | **16** |
| **Spring** | | |
| MATH:3770 | Fundamental Properties of Spaces and Functions I | 4 |
| STAT:3120 | Probability and Statistics | 4 |
| 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 | | 6 |
| Apply for student teaching (see the College of Education website for application instructions and deadlines) | | |
| | **Hours** | **14** |
| **Fourth Year** | | |
| **Fall** | | |
| CS:1210 | Computer Science I: Fundamentals | 4 |
| Major: required post-calculus math elective course [j] | | 3 - 4 |
| GE CLAS Core: Literary, Visual, and Performing Arts [f] | | 3 |
| Course(s) required for second degree - consult sample plan for BA in mathematics education | | 7 |
| | **Hours** | **17-18** |
| **Spring** | | |
| Course(s) required for second degree - consult sample plan for BA in mathematics education | | 15 |
| Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) [k] | | |
| | **Hours** | **15** |
| | **Total Hours** | **130-137** |

a Sustainability must be completed by choosing a course that has been approved for Sustainability AND for one of these General Education areas: Natural Sciences; Quantitative and Formal Reasoning; Social Sciences; Historical Perspectives; International and Global Issues; Literary, Visual, and Performing Arts; or Values and Culture.

b Required for admission into the Teacher Education Program.

c Enrollment in math courses requires completion of a placement exam.

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 Complete the College of Education 10-hour pre-admission school field experience verification form available on the Teacher Education Program web page.

f 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.

g Please see the College of Education website for detailed application instructions and deadlines. Admission is selective and a priority deadline exists.

h Typically this course is offered in spring semesters only. Check MyUI for course availability since offerings are subject to change.

i Students must complete MATH:4050, a fall-only course, or MATH:4060, a spring-only course.

j Post-calculus courses are numbered 2000 or above, excluding: MATH:3700, MATH:3750, MATH:3995, MATH:3996, MATH:3997, MATH:4010, and MATH:4020.

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.