

## B.S. Degree in Mathematics

Iowa State University College of Liberal Arts and Sciences

### 2011-2012 Mathematics Major Requirements

Requirements, under the 2011-2012 Iowa State University Catalog, for the Bachelor of Science Degree in the Liberal Arts and Sciences Curriculum with a major in Mathematics

For more detail, consult the printed catalog and online information.

Total Credits: 120, with the last 32 credits earned in residence at ISU, and with 45 credits from four-year institutions in courses at the 300 level or above

Grade point average at least 2.00 in courses at ISU

#### English proficiency

English 150 and 250 with C- or better

English 302, 305, or 314, or JL MC 201 with C- or better, or acceptable thesis (Math 491)

#### Library 160

General education: 12 credits Arts and Humanities, 8 credits Natural Sciences, 9 credits Social Sciences in courses outside the primary major, not used for foreign language requirement. See details and list of approved courses on the web:

<http://www.las.iastate.edu/academics/generaleducation/20092011.shtml>. For students with a AA degree from an Iowa community college, the General Education Requirement is waived.

U.S. Diversity and International Perspectives: Three credits each, from lists of approved courses:

<http://www.registrar.iastate.edu/courses/div-ip-guide.html>. For international students, the International Perspectives Requirement is waived.

World Languages: Complete second course (102) or three years in high school or test out. For students for whom English is a second language, the requirement is English 150, 205 with C- average or better. There are further details in the catalog recommendations from mathematics department below.

Mathematics courses: (taken with at least a C average, and with C or better in at least 8 credits taken at ISU in courses numbered 300 or higher)

(a) 165, 166, 201, 265, 301, 317, 414, and either 266 or 267

(b) 15 additional credits in mathematics courses numbered 300 or higher

(c) Include in (a), (b): one of the sequences 301, 302; 414, 415; 435, 436

(d) In addition to (a), (b): 492 or (for students seeking secondary teaching certification) 2 credits of CI/LAS 480C

Math Plus alternatives: Students with another major or a strong background in an area of application have briefer alternatives to the Mathematics course requirements above. See

<http://www.math.iastate.edu/For/UG/UGradBSAppl.html>

#### Recommendations of Mathematics Department (not required):

(a) Substantial supporting work in areas of application. Particularly helpful are Com S 207 208; Phys 221, 222; and Math/Stat 341, 342. Depending upon career goals: engineering, business, education, biology, or economics courses. Consult academic advisers.

(b) The two sequences 301-302 and 414-415 are valuable preparation for graduate work, since progress to higher levels in the specialized branches of mathematics requires deep understanding of the central topics: algebra and analysis.

(c) Foreign language: Chinese, French, German, or Russian for mathematics research; Spanish for secondary teaching.

June, 2011

**Plan One: Without Teacher Certification**

Semester 1	FRESHMAN YEAR		Semester 2
ENGL 150 – Communication	3	MATH 166 – Calculus II	4
LIB 160 – Library Instruction	0.5	Humanities Choice	3
MATH 165 – Calculus I	4	Natural Sciences Choice	3
Humanities Choice	3	Elective	3
Social Science Choice	3	Elective	3
MATH 101 – Mathematics Orientation	<u>R</u>		
	13.5		<u>16</u>

Semester 3	SOPHOMORE YEAR		Semester 4
ENGL 250 – Communication	3	MATH 267 – Differential Equations	4
MATH 265 – Calculus III	4	MATH 317 – Linear Algebra	4
MATH 201 - Introduction to Proofs	3	Humanities Choice	3
Elective	3	Natural Sciences Choice	5
Elective	<u>3</u>		
	16		<u>16</u>

Semester 5	JUNIOR YEAR		Semester 6
MATH 301 – Abstract Algebra I	3	MATH 302 <sup>1</sup> – Abstract Algebra II	3
300/500 Level – Mathematics Choice	3	300/500 Level – Mathematics Choice	3
Social Science Choice	3	Social Science Choice	3
Foreign Language/Elective	3	Foreign Language/Elective	3
ENGL 302, 305, 314, or JL MC 201 – English Proficiency Requirement	<u>3</u>	Humanities Choice	<u>3</u>
	15		15

Semester 7	SENIOR YEAR		Semester 8
MATH 414 – Analysis I	3	MATH 415 <sup>1</sup> – Analysis II	3
300/500 Level – Mathematics Choice	3	MATH 492 – Undergraduate Seminar	2
Electives	<u>9</u>	Electives	<u>9</u>
	15		14

Students in all ISU majors must complete a three-credit course in U.S. diversity and a three-credit course in international perspectives. See <http://www.iastae.edu/~registrar/courses/diviuptuide.html> for a list of approved courses. These courses may also apply to the General Education requirements (Social Sciences, Arts and Humanities, Natural Sciences).

LAS majors require a minimum of 120 credits, including a minimum of 45 credits at the 300/400 level. Three of the required 45 300+ level credits must be earned in a general educational group outside the group of the major. You must also complete the LAS foreign language requirement and any high school unmet admission requirements.

<sup>1</sup> Or, for one of the courses Math 302 or Math 415, substitute another mathematics choice at the 300+ level.