

# Department of Mathematics and Statistics

**Department Head: Mohsen Razzaghi**

**Associate Head and Graduate Coordinator: Corlis Johnson**

**Undergraduate Coordinator: Len Miller**

**Associate Undergraduate Coordinator for Advising: Robert Banik**

Office: 410 Allen Hall

The Department of Mathematics and Statistics offers a Bachelor of Arts degree and a Bachelor of Science degree. Both degrees are 124 hours. The department also offers undergraduate minors in mathematics and statistics which are described below.

Candidates for the Bachelor of Arts degree are required to complete a minimum of 36 hours of mathematics. Candidates for the Bachelor of Science degree are required to take a minimum of 42 hours of mathematics. Required courses for each degree are listed below. Students must also satisfy the General Education requirements and College Core requirements, including speech, computer literacy and writing requirements.

Mathematics courses below Calculus I (MA 1713), do not count toward a degree in mathematics. Entering freshmen who plan to major in mathematics but do not meet the prerequisites for are encouraged to take the necessary courses during the summer in order to avoid adding one or two semesters to their degree. Otherwise, students who wish to major in mathematics but who do not meet the prerequisites of MA 1713 should join the undeclared major until they are ready to take Calculus I. At that time, they will be assigned an advisor in the Department of Mathematics and Statistics.

For all degree programs, including minors, a student must have an overall C average and a C average in the math classes which count toward the degree. Moreover, students pursuing a B.A. or B.S. degree in mathematics must have at least a GPA of 2.5 in Calculus I-IV, Linear Algebra and Differential Equations (-MA 2743, MA 3113 and MA 3253). Students who fail to meet this requirement must withdraw from the B.A. and B.S. degree programs in Mathematics, subject to appeal to the department's undergraduate coordinator.

Regarding graduate study, the Department of Mathematics and Statistics offers a Master of Science in Mathematics, Master of Science in Statistics, and a Doctor of Philosophy in Mathematical Sciences. Major areas of study for the Doctor of Philosophy in Mathematical Sciences include applied and computational mathematics, ordinary and partial differential equations, functional analysis and operator theory, functional equations, graph theory, geometric combinatorics, topology and statistics. Please see the graduate coordinator for more details.

## B.A. in Mathematics

### General Education and College Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1163	Accelerated Composition I	

EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Foreign Language

3 semesters - one Foreign Language - see advisor	9
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#### Humanities

Literature - see University/A&S Core	3
History - see University/A&S Core	3
Philosophy - see University/A&S Core	3
From at least 2 different areas of Humanities	9

#### Math

See Major Core	6
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#### Fine Arts

See A&S Requirements	3
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#### Natural Sciences

BIO 1134	Biology I	4
or BIO 1144	Biology II	

#### AND

CH 1213	Chemistry I	3
CH 1223	Chemistry II	3
CH 1211	Investigations in Chemistry I	1

#### OR

PH 2213	Physics I	
PH 2223	Physics II	

#### Social Sciences Electives

Courses must spread over at least 4 disciplines with a max of one Economics and a max of 2 in each remaining discipline; 6 hours need to be from A&S requirements.	18
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#### Major Core

Students should check for prerequisites for all courses and consult their advisor.

MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 3053	Foundations of Mathematics	3
MA 3113	Introduction to Linear Algebra	3
MA 3163	Introduction to Modern Algebra	3
MA 3253	Differential Equations I	3
MA 4633	Advanced Calculus I	3
Math Elective - 3000+		3
Math Elective - 4000		3

#### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
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#### Writing Requirement

MA 4213	Senior Seminar in Mathematics	3
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#### Computer Literacy

CSE 1213	Computer Programming with Fortran	3
or CSE 1233	Computer Programming with C	

#### General Electives

Consult advisor	16-28
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<b>Total Hours</b>	<b>124</b>
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(31 hours must be 3000/4000 from A&S)

## B.S. in Mathematics

### General Education and College Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1163	Accelerated Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Foreign Language

2 semesters - one Foreign Language - see advisor	6
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#### Humanities

Literature - see University/A&S Core	3
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History - see University/A&S Core	3
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#### Math

See Major Core	6
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#### Fine Arts

See A&S Requirements	3
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#### Natural Sciences

Choose one of three options:	15-18
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##### Option 1

PH 2213	Physics I	
PH 2223	Physics II	
PH 2233	Physics III	
CH 1213	Chemistry I	
CH 1223	Chemistry II	
CH 1211	Investigations in Chemistry I	

##### Option 2

PH 2213	Physics I	
PH 2223	Physics II	
PH 2233	Physics III	

PLUS choose two of the following:

BIO 1134	Biology I	
BIO 1144	Biology II	
BIO 3103	Genetics I	

##### Option 3

BIO 1134	Biology I	
BIO 1144	Biology II	
BIO 3103	Genetics I	
CH 1213	Chemistry I	
CH 1223	Chemistry II	
CH 1211	Investigations in Chemistry I	

#### Social Sciences

See A&S Requirements	6
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#### Major Core

Students should check for prerequisites for all courses and consult their advisor.

MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 3053	Foundations of Mathematics	3
MA 3113	Introduction to Linear Algebra	3

MA 3163	Introduction to Modern Algebra	3
MA 3253	Differential Equations I	3
MA 4313	Numerical Analysis I	3
MA 4633	Advanced Calculus I	3
MA 4643	Advanced Calculus II	3
Math Elective (3000+)		3
Math Elective (4000)		3

#### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
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#### Writing Requirement

MA 4213	Senior Seminar in Mathematics	3
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#### Computer Literacy

CSE 1213	Computer Programming with Fortran	3
or CSE 1233	Computer Programming with C	

#### General Electives

Consult advisor	30-40
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<b>Total Hours</b>	<b>124</b>
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(31 hours must be 3000/4000 from A&S)

### Math Minor

A minor in mathematics consists of

MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 3113	Introduction to Linear Algebra	3
MA 3253	Differential Equations I	3

One additional math course at the 3000 level and one additional 4000-level math course

### Statistics (ST)

**Major Advisor: Associate Professor Janice DuBien**

Office: 448 Allen Hall

Courses in statistics are designed to satisfy two objectives. The first objective is to provide graduate training for those students wishing to pursue a career as professional statisticians. Both graduate and undergraduate courses are available for this purpose. The second is to provide minors for students from other disciplines. A minor in statistics consists of

MA /ST 3123	Introduction to Statistical Inference	3
ST 4111	Seminar in Statistical Packages	1
ST 4213	Nonparametric Methods	3
or ST 4313	Introduction to Spatial Statistics	
Choose one of the following:		3
MA /ST 4523	Introduction to Probability	
MA /ST 4543	Introduction to Mathematical Statistics I	
ST 4243	Data Analysis I	3
ST 4253	Data Analysis II	3

Please notice that MA 2743 and MA 3113 are prerequisites for ST 4243 and ST 4253.

Graduate study is offered in the Department of Mathematics and Statistics leading to the degree of Master of Science in Mathematics, Master of Science in Statistics, and a Doctor of Philosophy in Mathematical Sciences. Many applied statistics courses are offered which are suitable for a minor in statistics at the master's or doctoral level. Specific course requirements for the graduate minor in statistics may be obtained from the Graduate Coordinator of the Department of Mathematics and Statistics.

Admission to the master's program in statistics is open to graduates in all disciplines. The program of study is a blend of both statistical theory and statistical methods. In addition, there is ample flexibility in the non-thesis option to allow a graduate student with special interests in an area of statistical application to minor in that particular applied field. The department awards a limited number of teaching assistantships. For further details, consult the Graduate Coordinator of the Department of Mathematics and Statistics.