

Major/Minor/Certificate (Plan) Information

Program Code

MATMS

Short Title

MathMS

Long title (as much of full title as possible)

Mathematics MS

Are you requesting a TITLE change to an existing major, sequence, minor or certificate?

Yes

If requesting a title change(s), provide the **CURRENT** and **NEW** titles, and an itemization of costs expected to be incurred by the department/school, college, or university if the proposed change(s) is approved.

Current Sequence Title: Elementary and Middle School Mathematics Education

New Sequence Title: Mathematics Teacher Education

Publication of Recruitment Material (by Department): \$400

Updates to Web Pages: \$0

Did a majority of your faculty approve this title change?

Yes

Are you requesting to add a NEW Sequence to an existing major?

No

Brief description/rationale for proposed changes.

The courses in this sequence are currently already covering material appropriate for the broader Mathematics Education community. With this change we hope this MS sequence will be able to recruit more broadly and increase participation (and enrollment) by those interested in Secondary Education.

Program Long Description / Plan Prospectus

-

Program Type

Major

Degree Designation

MS - Master of Science

Career (acadCareer) (Empty for majors and certificates)

-

Academic Program

Arts and Sciences Graduate

Department(s)

Mathematics

Are revisions being made to a major, or associated sequence(s), minor or certificate that lead to teacher certification/licensure?

No

Split Ownership

No

Department Percent Ownership

Mathematics - 100%

Is this undergraduate or graduate level?

Graduate

Total hours required for the major, minor, certificate or sequence(s) that you are requesting revisions to. If making revisions to more than one sequence, indicate total hours required for each sequence.

-

Undergraduate only: Provide justification if the Major (associated Sequences) you are revising require more than 72 hrs or more than 55 hrs in the major/sequence discipline.

-

Academic Planning

Requested starting catalog year for the revisions. Example: 2027-2028

2027-2028

Effective Start Date

May 17, 2027

Status

Active

First Term Valid

-

Last Admit Term (`ssrLastAdmTerm`)

-

Modality of major, minor or certificate. If major requires students to complete a Sequence, this field should be set to "Refer to individual sequences." Indicate changes to sequence(s) modality in Sequences section below.

On Campus (50% or more instruction is on campus)

Major/Minor/Certificate (Plan) Administration

Upload supporting files (pdfs). Example: if a major/sequence includes courses offered by a different department, an email of concurrence from department chair(s) is required.

Program Length Type (`ssrProgLenType`)

Years

Program Length Value (`ssrProgLength`)

2

Evaluate Plan Before Program

Last Prospect Date

No

-

Transcript Level
Print on Official

Print On Diploma
Yes

Print On Transcript
Yes

Diploma Description
Mathematics

Transcript Description
Mathematics

CIP Code
27.0101

HEGIS Code
-

SULA Special Program (`sfaSpecProgFlg`)
N - Not Applicable

NSC Classification (`ssrNscCrdLvl`)
M - Master's Degree

Requirement Term Default (`plnReqtrmDflt`)
Program's Requirement Term

Field Of Study
-

Allow Integration Sync To SIS
Yes

Advisement

Show in What-If Advisor
Yes

Show in What-If Pre-matriculated Student
Yes

Show in What-If Student
Yes

Report as NSC Classification Program
Yes

Sequences (Subplans)

ACTSCIENCE - Actuarial Science

Name
Actuarial

Long Name
Actuarial Science

Type Sequence	Status Active
CIP Code 27.0101	
Catalog Short Description (max of 500 characters with spaces) The Actuarial Science Program at Illinois State combines high quality education in all areas of actuarial theory with serious commitment to actuarial practice and professionalism. We offer two ways to complete the M.S. in Actuarial Science; traditional (on-campus) or online. The actuarial science program is designed to support you as you prepare to pass the professional exams set by the two major societies for Actuaries in the U.S. or to take similar exams from similar societies elsewhere.	Modality - One modality type per sequence is allowed On Campus (50% or more instruction is on campus)

ACTSCIONL - Actuarial Science Online**Name**

ActSciOnl

Long Name

Actuarial Science Online

Type

Sequence

Status

Active

CIP Code

27.0101

Catalog Short Description (max of 500 characters with spaces)

The Actuarial Science Program at Illinois State combines high quality education in all areas of actuarial theory with serious commitment to actuarial practice and professionalism. We offer two ways to complete the M.S. in Actuarial Science; traditional (on-campus) or online. The actuarial science program is designed to support you as you prepare to pass the professional exams set by the two major societies for Actuaries in the U.S. or to take similar exams from similar societies elsewhere.

Modality - One modality type per sequence is allowed

Online (no required courses or instructional experiences are in-person)

APPSTATS - Applied Statistics**Name**

AppStats

Long Name

Applied Statistics

Type

Sequence

Status

Active

CIP Code

27.0101

Catalog Short Description (max of 500 characters with spaces)

The Department of Mathematics offers graduate-level courses in statistics leading to a Master of Science degree in mathematics focusing on statistics. The graduate program offers students the opportunity for further training in Applied Statistics—training that positions them to pursue additional graduate studies or jobs in many fields.

Modality - One modality type per sequence is allowed

On Campus (50% or more instruction is on campus)

BIOMAT - Biomathematics**Name**

Biomathem

Long Name

Biomathematics

Type

Sequence

Status

Active

CIP Code

27.0101

Catalog Short Description (max of 500 characters with spaces)

The Biomathematics program at Illinois State University was developed to help students understand how biology and mathematics are intertwined and how a broad-based knowledge of each area will be critical for future graduate study and/or employment opportunities.

Modality - One modality type per sequence is allowed

On Campus (50% or more instruction is on campus)

EMSMATED - Elementary and Middle School Mathematics Ed**Name**

MatEd

Long Name

MS Math Education

Type

Sequence

Status

Active

CIP Code

27.0101

Catalog Short Description (max of 500 characters with spaces)

The Mathematics Education graduate sequence is fully online and designed for practicing K-12 teachers who wish to master their level of mathematics in the classroom. One year of teaching experience is recommended, although not required for the program.

Modality - One modality type per sequence is allowed

On Campus (50% or more instruction is on campus)

GENMATH - Mathematics**Name**

Math Seq

Long Name

Mathematics Sequence

Type

Sequence

Status

Active

CIP Code

27.0101

Catalog Short Description (max of 500 characters with spaces)

Because student needs and interests vary, there is flexibility in the Mathematics master's degree program at Illinois State University. In addition to allowing students to get a strong general background in mathematics, our program allows students to concentrate in: secondary mathematics education, preparation for teaching at a community college level, or preparation for continuing on to a Ph.D. program in mathematics or mathematics education, or computational or applied mathematics.

Modality - One modality type per sequence is allowed

On Campus (50% or more instruction is on campus)

Requirements

Simple Requirements

Sequences (subplans)

-

Mathematics Sequence - 30 Minimum Required Hours

Type

Completion Requirement

Required courses

-

Complete ALL of the following Courses:

- MAT436 - Advanced Abstract Algebra
- MAT437 - Advanced Linear Algebra
- MAT446 - Advanced Real Analysis

Elective courses

-

Complete 3 mathematics courses numbered 407 or above, excluding MAT 436 , MAT 437 , and MAT 446

Exit option

-

Compete Option I or II

Option I – Non-Thesis

This 32-hour option requires:

- 26 hours in mathematics
- 3 hours: culminating experience in the form of MAT 490 or MAT 498
- Electives as needed to reach required credit minimum

Option II – Thesis

This 30-hour option requires:

- 24 hours in mathematics
- Electives as needed to reach required credit minimum
- MAT 499 (4-6 hours)

Additional Comments:

Students with the following interests are advised to take the corresponding courses: (1) Doctoral study in mathematics: MAT 407, MAT 447; (2) Computational mathematics: MAT 459, MAT 461, MAT 463, MAT 471 ; (3) Applied mathematics: MAT 440, MAT 441, MAT 445, MAT 459, MAT 462, MAT 463, MAT 471 .

Actuarial Science Sequence - 30 Minimum Required Hours

Type

Completion Requirement

Required course

-

Complete at least 1 of the following courses:

- MAT436 - Advanced Abstract Algebra
- MAT437 - Advanced Linear Algebra
- MAT446 - Advanced Real Analysis

Actuarial modeling elective courses

-

Complete 3 or more course(s) and earn 12 or more credits from the following:

- MAT460 - Generalized Linear Models And Predictive Modeling
- MAT470 - Actuarial Models I
- MAT473 - Actuarial Models III
- MAT480 - Applications of Actuarial Principles
- MAT481 - Actuarial Models II
- MAT483 - Mathematical Models In Finance & Investments
- MAT484 - Actuarial Models IV
- MAT485 - Actuarial Models V

Elective courses

-

Complete 3 mathematics courses numbered 407 or above**Exit Option**

-

Compete Option I or II**Option I – Non-Thesis**

This 32-hour option requires:

- 26 hours in mathematics
- 3 hours: culminating experience in the form of MAT 490 or MAT 498
- Electives as needed to reach required credit minimum

Option II – Thesis

This 30-hour option requires:

- 24 hours in mathematics
- Electives as needed to reach required credit minimum
- MAT 499 (4-6 hours)

Additional Comments:

- The Department reserves the right to enforce professional standards of practice as specified by the Society of Actuaries and the Casualty Actuarial Society. These standards may be taken into consideration in program retention decisions.
- At least 3 courses need to be at MAT 407 or higher (excluding MAT 409, MAT 421, MAT 422, MAT 490, MAT 498, MAT 499)

Actuarial Science Online Sequence - 30 Minimum Required Hours**Type**

Completion Requirement

Option I – Non-Thesis

-

This 32-hour option requires:

- 1 course selected from: MAT 436, MAT 437, and MAT 446
- 12 hours: 3 courses selected from: MAT 460, MAT 470, MAT 473, MAT 480, MAT 481, MAT 483, MAT 484, MAT 485
- 3 hours: culminating experience in the form of MAT 490 or MAT 498
- 14 credit hours of electives:
 - Electives outside of the department are eligible to satisfy this requirement. A maximum of 6 credit hours can be taken outside of the department. No more than one graduate level course outside of mathematics allowed. Please see your academic adviser.

Option II – Thesis

-

This 30-hour option requires:

- 1 course selected from: MAT 436, MAT 437, and MAT 446
- 12 hours: 3 courses selected from: MAT 460, MAT 470, MAT 473, MAT 480, MAT 481, MAT 483, MAT 484
- 4-6 credit hours: MAT 499
- 11-13 credit hours of electives:
 - Electives outside of the department are eligible to satisfy this requirement. A maximum of 6 credit hours can be taken outside of the department. No more than one graduate level course outside of mathematics allowed. Please see your academic adviser.

Additional Comments:

- The Department reserves the right to enforce professional standards of practice as specified by the Society of Actuaries and the Casualty Actuarial Society. These standards may be taken into consideration in program retention decisions.
- At least 3 courses need to be at MAT 407 or higher (excluding MAT 409, MAT 421, MAT 422, MAT 490, MAT 498, MAT 499)

Applied Statistics Sequence - 30 Minimum Hours Required**Type**

Completion Requirement

Required courses

-

Complete ALL of the following Courses:

- MAT448 - Applied Probability Models
- MAT451 - Statistics And Data Analysis

Sequence electives

-

Complete at least 1 of the following courses:

- MAT436 - Advanced Abstract Algebra
- MAT437 - Advanced Linear Algebra
- MAT446 - Advanced Real Analysis

Elective courses

-

Complete at least 3 of the following courses:

- MAT443 - Statistical Learning and Data Mining
- MAT450 - Finite Sampling
- MAT453 - Regression Analysis
- MAT455 - Applied Stochastic Processes
- MAT456 - Multivariate Statistics
- MAT458 - The Design Of Experiments

Exit Option

-

Compete Option I or II**Option I – Non-Thesis**

This 32-hour option requires:

- 26 hours in mathematics
- 3 hours: culminating experience in the form of MAT 490 or MAT 498
- Electives as needed to reach required credit minimum

Option II – Thesis

This 30-hour option requires:

- 24 hours in mathematics
- Electives as needed to reach required credit minimum
- MAT 499 (4-6 hours)

Biomathematics Sequence - 30 Minimum Hours Required

Type

Completion Requirement

BioCore courses

-

Complete ALL of the following Courses:

- MAT440 - Differential Equations I
- MAT442 - Quantitative Biomathematics
- MAT448 - Applied Probability Models
- MAT451 - Statistics And Data Analysis
- BSC420A36 - Seminar In Biomathematics

Students must complete BSC 420A36 twice under different topics.

Biology elective courses

-

Complete 12 hours from the School of Biological Sciences

Elective courses

-

Complete 13 hours at the 400 level from outside of the BioCore

Exit Option

-

Students must complete Thesis Option II

This 30-hour option requires:

- 24 hours in mathematics
- Electives as needed to reach required credit minimum
- MAT 499 (4-6 hours)

Biomathematics is a cross-disciplinary program whose requirements are different from the other sequences. For more information, please consult the description of the Biomathematics Sequence.

Additional Comments:

An area of emphasis may be chosen from the following:

Emphasis in Biostatistics and Modeling

A choice of courses from MAT 450 , MAT 453, MAT 455, MAT 456 , MAT 457, MAT 458 , MAT 459, MAT 462 ; and BSC 443 , BSC 403, BSC 404, BSC 405, BSC 450.37, BSC 471, BSC 486.

Emphasis in Computation and Bioinformatics

A choice of courses from MAT 459, MAT 463, MAT 471 , MAT 461; and BSC 447, BSC 453, BSC 455 , BSC 415, BSC 419, BSC 467, BSC 470, BSC 471.

Mathematics Education Sequence - 30 Minimum Required Hours**Type**

Completion Requirement

Required courses

This program does not lead to licensure.

Complete ALL of the following Courses:

- MAT401 - Current Research In School Mathematics
- MAT402 - Instructional Strategies For The Middle School Teacher
- MAT403 - Theories Of Mathematics Learning
- MAT409 - Topics In Algebra & Combinatorics For K-8 Teachers
- MAT412 - Modern Geometry For Middle School Teachers

Exit Option

-

Complete Option I or II**Option I – Non-Thesis**

This 32-hour option requires:

- 26 hours in mathematics
- 3 hours: culminating experience in the form of MAT 490 or MAT 498
- Electives as needed to reach required credit minimum

Option II – Thesis

This 30-hour option requires:

- 24 hours in mathematics
- Electives as needed to reach required credit minimum
- MAT 499 (4-6 hours)

Sample Plans of Study (Degree Maps)

Dependencies

Coursedog Only Catalog Fields

Catalog Display Name

Mathematics - Master of Science

Catalog Short Description (Major, Minor, Certificate level)

The Department of Mathematics at Illinois State University offers a master degree in the following sequences: Actuarial Science, Biomathematics, Mathematics Education, Applied Statistics, and Mathematics.

Catalog Full Description

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Read Only Catalog Fields

Program Level

Graduate

Learning Outcomes

Learning Outcomes

Learning outcomes are not integrated with Peoplesoft and exist as a "Coursedog Only" element.

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Instructional Methods (this card is hidden and should NOT be displayed)