Current Catalog-

CGS Agenda Item: 16-40
Effective Fall 2016

Program Mission for the Master of Arts in Mathematics:
The major in mathematics provides a solid background in basic graduate-level mathematics. It prepares students for advanced graduate study, post-secondary teaching, or work in industry or government. Elective courses allow specialized study in areas such as pure mathematics, applied mathematics and computer sciences.

Admission Requirements:
To be eligible for degree candidacy, applicants must meet all of the requirements for admission to the Graduate School (see "Admission to Graduate Degree and Certificate Programs"). Additionally, all candidates must submit scores from the General GRE.

Degree Audit:
The graduate plan of study is the EIU Degree Audit, which is generated automatically in the Degree Audit Reporting System (DARS) at the time of degree or certificate candidacy. Modifications of the standard EIU Degree Audit are submitted by the graduate coordinator to the certification officer in the Graduate School at the time modifications are approved. The Degree Audit serves as an unofficial summary of requirements for the program. Degree and certificate candidates are advised to review the comprehensive summary of the Degree Audit process specified on the "Requirements for All Degree and Certificate Candidates" section of the Graduate Catalog. Individual programs may require candidates to submit plans of study in addition to the Degree Audit, candidates should consult with the program coordinator.

Degree Requirements

Degree requirements Master of Arts in Mathematics include those outlined for the master's degree by the Graduate School (see "Requirements for the Master's Degree"). The requirement for the Master of Arts Degree in Mathematics is 34 semester hours (32 if a thesis is written) of graduate level courses as approved by the Graduate Committee of the Mathematics Department. Each program must include MAT 5100 and either MAT 5301 or 5330. If the student did not complete MAT 4760 and 4860 or their equivalents as an undergraduate, they must be included. The program may include up to 8 semester hours of courses in related areas, and include at least 24 semester hours of courses numbered 5000 and above.

Rationale for changes to catalog description
The Department of Mathematics and Computer Science Graduate Committee met over the Fall semester to discuss the vagueness of the current degree requirements in the catalog. We concluded the following list of items should be included in the new degree requirement.

- There are four standard courses that all M.A. in mathematics students should have knowledge of: MAT 5100 Abstract Algebra, MAT 5220 Topology, MAT 5301 Real Variables, and MAT 5330 Complex Variables. Currently, students are only required to take MAT 5100 and either MAT 5301 or MAT 5330.
- Currently, the list of approved mathematics courses is not included. We would like the list to be included in the description.
- As an informal rule, students were required to enroll in the one credit hour graduate seminar each semester for a minimum of three semesters. In order to avoid any misunderstandings, we include it as part of the new degree requirement.
- In order for our program to be as rigorous as and comparable to other M.A. programs in mathematics, we include the requirement that students must either complete a thesis or pass comprehensive exam(s) on the four standard courses listed in the first bullet.

New Catalog- (additions are highlighted in yellow; exclusions are strikethrough)

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- MAT 5000 – Graduate Seminar Credits: 1 (repeatable, 3 hours required)
- MAT 5100 - Abstract Algebra Credits: 4
- MAT 5220 - Topology Credits: 4
- MAT 5301 - Real Variables Credits: 4
- MAT 5330 - Complex Variables Credits: 4

If the student did not complete ~~MAT 4760 and 4860~~

- MAT 4760 - Linear Algebra Credits: 4
- MAT 4860 - Mathematical Analysis Credits: 4

or their equivalents as an undergraduate, they must be included. The program may include up to 8 semester hours of courses in related areas. The program must include at least 24 semester hours of courses numbered 5000 and above. In addition to coursework, students are required to complete either a thesis or comprehensive exam(s) covering MAT 5100, 5220, 5301, and 5330. Below are the approved courses to choose from.

- MAT 4750 - Linear Programming Credits: 3
- MAT 4760 - Linear Algebra Credits: 4
- MAT 4780 – Mathematics of Credits: 3
- MAT 4830 - Introduction to Complex Analysis with Applications Credits: 3
- MAT 4850 - Operations Research Credits: 3
- MAT 4855 - Introduction to Topology Credits: 3
- MAT 4860 - Mathematical Analysis Credits: 4
- MAT 4870 - Data Structures and Algorithm Analysis Credits: 3
- MAT 4873 – Introduction to Cryptography Credits: 3
- MAT 4880 – Design and Analysis of Algorithms Credits: 3
- MAT 4885 – Theory of Computation Credits: 3
- MAT 4900 - History of Mathematics Credits: 3
- MAT 4910 - Number Theory Credits: 3
- MAT 4970 - Principles of Operating Systems Credits: 3
- MAT 5035 - Topics in Computer Science Credits: 4

- MAT 5100 - Abstract Algebra Credits: 4
- MAT 5151 - Probability Credits: 4
- MAT 5152 - Statistics Credits: 4
- MAT 5200 - Higher Geometry Credits: 4
- MAT 5210 - An Introduction to Differential Geometry Credits: 4
- MAT 5220 - Topology Credits: 4
- MAT 5301 - Real Variables Credits: 4
- MAT 5330 - Complex Variables Credits: 4
- MAT 53351 - Topics in Mathematics I Credits: 2 to 4
- MAT 53352 - Topics in Mathematics II Credits: 2 to 4
- MAT 53353 - Topics in Mathematics III Credits: 2 to 4
- MAT 59501 – Thesis I Credits: 3 to 6
- MAT 59502 – Thesis II Credits: 3 to 6
- MAT 59901 – Independent Study I Credits: 1 to 6
- MAT 59902 – Independent Study II Credits: 1 to 6

Effective Date: Fall 2016
Date approved by the department: 1/22/2016
Date approved by college curriculum committee: 2/19/16