SUNY Oswego, College of Liberal Arts and Sciences
Mathematics Department
Proposed Revisions to Applied Mathematics (BS) Major
April 2015

Revision 1: Capstone requirement clean-up

Justification: Current description is confusing.

Overview: Core now includes a new 1-credit hour course MAT496: Capstone Project. (The course was approved by UCC on 2/25/15.) The requirements for this course are a paper and a talk. This allows us to remove the phrase "Includes a written and oral report" from the program description, as those are the requirements for MAT 496. Originally we required students to register for 1 hour of MAT499 with some of the options.

Changes in resources: None, as this is only a change in description, not in the actual requirements.

Revision 2: Approved electives instead of Excluded electives

Justification: Recently we have developed several new courses that serve as mathematics requirements for other programs (such as Mat 318, Mat 339, etc.) Because these courses duplicate material covered in other mathematics courses, we do not want them to count as electives for mathematics majors. Up till now, the program had a list of Excluded electives, but this had to be updated each time a new course was developed. It will be easier to add a new course to the list when appropriate. In addition, an elective that is not yet on the list can be approved by a program deviation.

Overview:

a) Delete the sentence *Excluded mathematics courses are: MAT 304, 306, 307, 318, 339, and 392.*
b) Insert:

Approved electives: MAT 300, 303, 310, 320, 330, 332, 335, 348, 351, 353, 357, 358, 373, 379, 399, 409, 420, 430, 442, 447, 448, 454, 499

Changes in resources: None

Revision 3: Sequences become Tracks

Justification: Many students need program deviation because many courses in those sequences are offered infrequently. We would like to give our students greater flexibility while keeping the standards high. Also, we would like to have a Statistics option that should have different requirements from the current ones.

Overview:

a) "Sequences" become "Tracks" and now have names: Applications, Statistics, and Foundations.
b) Two of the tracks will have "choose 3 out of 4 courses, which allows students greater flexibility.
c) The options to satisfy each track have changed slightly.

Changes in resources: None

Applied Mathematics (BS)

Current   (51-56 cr)

A. Core Requirements (27-32 cr)
MAT 210 - Calculus I credit: 4
MAT 215 - Intro to Discrete Mathematics credit: 3
MAT 220 - Calculus II credit: 4
MAT 230 - Matrix Algebra credit: 3
MAT 240 - Multivariable Calculus credit: 4
MAT 347 - Analysis A credit: 3
MAT 354 - Mathematical Statistics A credit: 3

Select one option from the following:
Includes written and oral reports
Option 1.
MAT 498 - Internship in Mathematics credit: 0 to 12
MAT 499 - Independent Study credit: 1 to 3
Option 2.
ADO 420 - Student Teaching Grades 7-12 credit: 6
MAT 499 - Independent Study credit: 1 to 3
Option 3.
MAT 499 - Independent Study credit: 1 to 3
Option 4
MAT 499 - Independent Study

An additional 400-level mathematics course (instructor and advisor approval needed)

B. Elective Requirements (12 cr)

One 300- or 400-level mathematics course. (3 cr)
Excluded mathematics courses are: MAT 304, 306, 307, 318, 339, and 392.

Select one sequence from the following:

Sequence 1.
MAT 348 - Ordinary Differential Equations credit: 3
MAT 442 - Complex Analysis credit: 3
—OR—
MAT 447 - Analysis B credit: 3
MAT 448 - Partial Differential Equations and Orthogonal Functions credit: 3

New (52-55 cr)

A. Core Requirements (28-31 cr)
MAT 210 - Calculus I credit: 4
MAT 215 - Intro to Discrete Mathematics credit: 3
MAT 220 - Calculus II credit: 4
MAT 230 - Matrix Algebra credit: 3
MAT 240 - Multivariable Calculus credit: 4
MAT 347 - Analysis A credit: 3
MAT 354 - Mathematical Statistics A credit: 3
MAT 496 – Capstone Project credit: 1, taken concurrently with one of the following courses:

- MAT 498 - Internship in Mathematics credit: 3
- ADO 420 - Student Teaching Grades 7-12 credit: 6
- MAT 499 – Independent study credit:3
- An additional 400-level mathematics course (instructor and advisor approval needed) credit: 3

B. Elective Requirements (12 cr)

One 300- or 400-level mathematics course from the approved electives list below. (3 cr)

Approved electives: MAT 300, 303, 310, 320, 330, 332, 335, 348, 351, 353, 357, 358, 373, 379, 399, 409, 420, 430, 442, 447, 448, 454, 499

Select one track.

Track 1: Applications. Select 3 courses from the following list.
MAT 320 - Numerical Analysis I credit: 3
MAT 348 - Ordinary Differential Equations credit: 3
MAT 448 - Partial Differential Equations and Orthogonal Functions credit: 3
MAT 454 - Mathematical Statistics B credit: 3

Sequence 2.
MAT 351 - Introduction to Forecasting credit:
MAT 357 - Applied Regression Analysis credit: 3
MAT 454 - Mathematical Statistics B credit: 3

Track 2: Statistics
MAT 357 - Applied Regression Analysis credit: 3
MAT 358 – Design and Analysis of Experiments credit: 3
MAT 454 - Mathematical Statistics B credit: 3

Sequence 3.
MAT 310 - Introduction to Linear and Integer Programming credit: 3
MAT 320 - Numerical Analysis I credit: 3
MAT 454 - Mathematical Statistics B credit: 3

Track 3: Foundations. Select 3 courses from the following list.
MAT 330 – Introduction to Algebra credit: 3
MAT 373 – Number Theory credit: 3
MAT 442 - Complex Analysis credit: 3
MAT 447 - Analysis B credit: 3

C. Cognate Requirements (12 cr)
An advisor approved program of three electives in one academic area (9 cr).
The courses should contain significant applications of mathematics. Suggested areas include biology, chemistry, computer science, earth sciences, economics, management science, physics, or statistics

CSC 212 - Principles of Programming credit: 3

Note: A C- grade or better must be earned in all 200-level mathematics courses credited to the major.

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