



University Council

April 12, 2024

UNIVERSITY CURRICULUM COMMITTEE – 2023-2024

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Graduate Student Representative – Kelsey Wohlford

Dear Colleagues:

The attached proposal from the Franklin College of Arts and Sciences for a new Area of Emphasis in Mathematics and Data Science under the major in Mathematics (B.S.) will be an agenda item for the April 19, 2024, Full University Curriculum Committee meeting.

Sincerely,

Susan Sanchez, Chair

cc: Provost S. Jack Hu

Dr. Marisa Pagnattaro

PROPOSAL FOR AN AREA OF EMPHASIS

Date: March 6, 2024

School/College: Franklin College of Arts and Sciences

Department/Division: Mathematics

Program (Major and Degree): Mathematics (B.S.)

Area of Emphasis Title: Mathematics and Data Science

CIP: 30700101

Which campus(es) will offer this program? Athens

Proposed Effective Date: Fall 2025

1. Area of Emphasis Description:

The Area of Emphasis in Mathematics and Data Science combines core mathematics courses, mathematics courses related to data science, and courses from statistics and computing about data science practice. Completion of the area of emphasis requires 22 credit hours.

Required Courses (13 hours):

CSCI 3360, Data Science I (4 hours)
MATH 4500/6500, Numerical Analysis I (3 hours)
STAT 4230/6230, Applied Regression Analysis (3 hours)
STAT 4365/6365, Modern Statistical Programming (3 hours)

Choose one of the following courses (3 hours):

MATH 4600/6600, Probability (3 hours)
STAT 4510/6510, Mathematical Statistics I (3 hours)

Choose two of the following courses (6 hours):

MATH 4510/6510, Numerical Analysis II (3 hours)
MATH 4740/6740, Optimization and Data Analysis (3 hours)
MATH 4750/6750, Matrix and Integral Transforms with Applications (3 hours)
MATH(BINF) 4780/6780, Mathematical Biology (3 hours)
MATH 4790/6790, The Mathematics of Option Pricing (3 hours)
MATH 4802/6802, Industrial Mathematics (3 hours)

2. Major Requirements:

Attach a list of requirements for the major. For undergraduate programs, attach a copy of the major requirements from the Bulletin. For graduate programs, provide a list of general requirements for the major.

Area VI

[MATH 2260](#) or [MATH 2310H](#) or [MATH 2410](#) or [MATH 2410H](#)
[MATH 2270](#) or [MATH 2500](#) (can be waived by [MATH 3510](#) or [MATH 3510H](#))
[MATH 2700](#)

Choose at least two courses from the following:*

[PHYS 1211-1211L](#) or [PHYS 1251](#) or [PHYS 1311-1311L](#)
[PHYS 1212-1212L](#) or [PHYS 1252](#) or [PHYS 1312-1312L](#) (or higher, except [PHYS 1990](#))
[CSCI 1301-1301L](#)
[CSCI 1302](#)
[CSCI 1360](#)
[CSCI 2670](#)
[CSCI 2720](#)
[STAT 2360-2360L*](#)
[STAT 4210*](#)
[STAT 4520/6520](#)

*Students pursuing the Area of Emphasis in Mathematics and Data Science should take [STAT 2360-2360L](#) and [STAT 4210](#).

Required Courses (24-28 hours)

(A minimum grade of "C" (2.0) or better must be earned in any upper-division [MATH](#) course.)

Required (9-10 hours)

[MATH 3000](#) or [MATH 3300](#) or [MATH 3510](#) or [MATH 3510H](#)
[MATH 3100](#)
[MATH 3200](#) (can be waived for students who complete [MATH 3510](#) or [MATH 3510H](#))

Students may either select an Area of Emphasis and complete the requirements corresponding to that area, or else complete the General Mathematics requirements listed below. [\[This is new phrasing, replacing a confusing paragraph in the current Bulletin.\]](#)

General Mathematics (15 hours)

[MATH 4000/6000](#)

Choose one of the following:

[MATH 4100/6100](#)
[MATH 4150/6150](#)
[MATH 4250/6250](#)

Three additional three-hour [MATH](#) courses at the 3000-level or above, subject to the advisor's approval. [STAT 4510/6510](#) may also satisfy this requirement, unless [MATH 4600/6600](#) was taken. [MATH 3220](#), [MATH 4801](#), [MATH 4950](#), [MATH 4960R](#), [MATH 4970R](#), [MATH 4980R](#), [MATH 4990R](#) do not satisfy this requirement. No 5000-level [MATH](#) courses, except [MATH 5200/7200](#) and [MATH 5210/7210](#), satisfy this requirement.

Area of Emphasis in Applied Mathematics (15 hours)

[MATH 4500/6500](#)

Choose two of the following:

[MATH 4600/6600](#) or [STAT 4510/6510](#)
[MATH 4700/6700](#)

MATH 4720/6720

Two additional three-hour MATH courses at the 3000-level or above, subject to the advisor's approval. STAT 4510/6510 may also satisfy this requirement, unless MATH 4600/6600 was taken. MATH 3220, MATH 4801, MATH 4950, MATH 4960R, MATH 4970R, MATH 4980R, MATH 4990R do not satisfy this requirement. No 5000-level MATH courses, except MATH 5200/7200 and MATH 5210/7210, satisfy this requirement.

Area of Emphasis in Financial Mathematics (18 hours)

FINA 3001

FINA 4310

MATH 4500/6500

MATH 4600/6600 or STAT 4510/6510

MATH 4790/6790

One additional three-hour MATH course at the 3000-level or above, subject to the advisor's approval. STAT 4510/6510 may also satisfy this requirement, unless MATH 4600/6600 was taken. MATH 3220, MATH 4801, MATH 4950, MATH 4960R, MATH 4970R, MATH 4980R, MATH 4990R do not satisfy this requirement. No 5000-level MATH courses, except MATH 5200/7200 and MATH 5210/7210, satisfy this requirement.

Area of Emphasis in Mathematics and Data Science (22 hours)

CSCI 3360

MATH 4500/6500

STAT 4230/6230

STAT 4365/6365

Choose one course from the following:

MATH 4600/6600

STAT 4510/6510

Choose two courses from the following:

MATH 4510/6510

MATH 4740/6740

MATH 4750/6750

MATH(BINF) 4780/6780

MATH 4790/6790

MATH 4802/6802

General Electives (28-36 ~~32-36~~ hours)

(Refer to College-wide requirements when selecting general electives.)

Upper division (12 hours - Area of Emphasis in Financial Mathematics) or (15 hours -General Mathematics or Area of Emphasis in Applied Mathematics) or (8 hours – Area of Emphasis in Mathematics and Data Science)

Any level (21 hours)

Documentation of Approval and Notification

Proposal: Area of Emphasis in Mathematics and Data Science under Mathematics (B.S.)

College: Franklin College of Arts and Sciences

Department: Mathematics

Proposed Effective Term: Fall 2025

School/College:

- Mathematics Department Head, Dr. William Graham, 2/6/24
- Franklin College of Arts and Sciences Associate Dean, Dr. Jean Martin-Williams, 3/19/24