



University Council

October 15, 2021

UNIVERSITY CURRICULUM COMMITTEE – 2021-2022

Susan Sanchez, Chair

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Veterinary Medicine – Shannon Hostetter

Graduate School – Wendy Ruona

Ex-Officio – Provost S. Jack Hu

Undergraduate Student Representative – Matthew Jue

Graduate Student Representative – Sarah Burns

Dear Colleagues:

The attached proposal from the Franklin College of Arts and Sciences to offer a new Area of Emphasis in Financial Mathematics under the major in Mathematics (B.S.) will be an agenda item for the October 22, 2021, Full University Curriculum Committee meeting.

Sincerely,

Susan Sanchez, Chair

University Curriculum Committee

cc: Provost S. Jack Hu
Dr. Rahul Shrivastav

PROPOSAL FOR AN AREA OF EMPHASIS

Date: October 6, 2021

School/College: Franklin College of Arts and Sciences

Department/Division: Mathematics

Program: Mathematics - (B.S.)

Area of Emphasis Title: Financial Mathematics

Which campus(es) will offer this program? Athens

Proposed Effective Date: Fall 2022

CIP: 27030500

Area of Emphasis Description:

The Area of Emphasis in Financial Mathematics will provide students with a broad foundation in both theoretical and applied mathematics, as well as specific knowledge of how advanced mathematics is applied to finance. This is intended to position graduates well for employment in highly quantitative areas of finance such as derivatives pricing. In the course of completing the major with this area of emphasis, students will:

- be able to apply the methods of calculus to set up and solve real-world problems in science and engineering;
- demonstrate mastery of the algorithmic side of linear algebra, as well as an understanding of the theory of linear algebra;
- demonstrate an understanding of the theoretical foundations of analysis;
- learn basic concepts in finance relating to risk and return, as well as more advanced concepts in portfolio management and valuation; and
- master core ideas in the theory of probability and learn to use these ideas in option pricing models.

Area of Emphasis Requirements:

The Area of Emphasis in Financial Mathematics requires 27-28 credit hours of 3000-4000-level coursework in Mathematics and Finance, with a grade of “C” (2.0) or better in each of the following courses:

FINA 3001, Financial Management (3 hours)

FINA 4310, Survey of Investments (3 hours)

MATH 3000*, Introduction to Linear Algebra (3 hours), **OR** MATH 3300, Applied Linear Algebra (3 hours)

MATH 3100, Sequences and Series (3 hours)
MATH 3200*, Introduction to Higher Mathematics (3 hours)
MATH 4500/6500, Numerical Analysis I (3 hours)
MATH 4600/6600, Probability (3 hours)
MATH 4790/6790, The Mathematics of Option Pricing (3 hours)

One additional three- or four-credit MATH course numbered 3000 or above, subject to the advisor's approval, not including any 5000/7000-level courses other than MATH 5200/7200 or MATH 5210/7210.

*Students may use MATH 3500, Multivariable Mathematics I, and MATH 3510, Multivariable Mathematics II, in place of MATH 3000, Introduction to Linear Algebra, and MATH 3200, Introduction to Higher Mathematics, to satisfy the area of emphasis requirements.

Documentation of Approval and Notification

Proposal: Area of Emphasis in Financial Mathematics under Mathematics (B.S.)

College: Franklin College of Arts and Sciences

Department: Mathematics

Proposed Effective Term: Fall 2022

Department:

- Mathematics Department Head, Dr. William Graham, 4/19/21

School/College:

- Franklin College of Arts and Sciences Associate Dean, Dr. Jean Martin-Williams, 9/9/21

Additional Notification:

- Financial Planning, Housing, and Consumer Economics Interim Department Head, Dr. Swarn Chatterjee, 10/6/21
- Finance Department Head, Dr. Jeffry Netter, 10/7/21