

Program Change Request

New Proposal

Date Submitted: 04/21/25 11:07 am

Viewing: : **Finance: Quantitative Finance, MS**

Last edit: 10/07/25 10:57 am

Changes proposed by: Hanna Richmond

In Workflow

1. U Program Review
2. 1260-FIN
Committee Chair
3. 1260-FIN Head
4. KM Committee
Chair
5. KM Dean
6. University Librarian
7. Grad_College
8. COTE Programs
9. Provost
10. Senate EPC
11. Senate
12. U Senate Conf
13. Board of Trustees
14. IBHE
15. HLC
16. DOE
17. Catalog Editor
18. DMI

Approval Path

1. 02/27/25 11:32 am
Donna Butler
(dbutler): Approved
for U Program
Review
2. 03/24/25 2:44 pm
Martin Widdicks
(widdicks):
Approved for 1260-
FIN Committee
Chair
3. 03/31/25 1:47 pm
Louis Chan (l-
chan2): Approved

- for 1260-FIN Head
4. 04/07/25 9:48 am
Abhijeet Ghoshal
(abhi): Approved for
KM Committee
Chair
 5. 04/14/25 8:14 am
Nerissa Brown
(nerissab):
Approved for KM
Dean
 6. 04/18/25 2:36 pm
Tom Teper (tteper):
Rollback to Initiator
 7. 04/18/25 3:49 pm
Emily Stuby
(eastuby): Rollback
to Initiator
 8. 04/22/25 10:44 am
Donna Butler
(dbutler): Approved
for U Program
Review
 9. 05/02/25 1:37 pm
Martin Widdicks
(widdicks):
Approved for 1260-
FIN Committee
Chair
 10. 05/02/25 1:46 pm
Louis Chan (l-
chan2): Approved
for 1260-FIN Head
 11. 05/02/25 2:27 pm
Abhijeet Ghoshal
(abhi): Approved for
KM Committee
Chair
 12. 05/03/25 11:04 am
Nerissa Brown
(nerissab):
Approved for KM

- Dean
13. 05/05/25 9:55 am
Tom Teper (tteper):
Approved for
University Librarian
14. 09/08/25 3:26 pm
Allison McKinney
(agrindly): Approved
for Grad_College
15. 09/08/25 4:46 pm
Suzanne Lee
(suzannel):
Approved for COTE
Programs
16. 09/17/25 12:35 pm
Brooke Newell
(bsnewell):
Approved for
Provost

Proposal Type

Proposal Type: Concentration (ex. Dietetics)

Administration Details

Official Program Name Finance: Quantitative Finance, MS

Diploma Title Master of Science in Finance

Sponsor College Gies College of Business

Sponsor Department Finance

Sponsor Name Martin Widdicks

Sponsor Email widdicks@illinois.edu

College Contact Nerissa Brown

nerissab@illinois.edu

College Budget Gina Oleynichak

College Contact
Email

Officer

College Budget goleynic@uillinois.edu

Officer Email

If additional stakeholders other than the Sponsor and College Contacts listed above should be contacted if questions during the review process arise, please list them here.

Does this program have inter-departmental administration?

No

Effective Catalog Term

Effective Catalog Fall 2025
Term

Effective Catalog 2025-2026

Proposal Title

Proposal Title (either Establish/Revise/Eliminate the Degree Name in Program Name in the College of XXXX, i.e., Establish the Bachelor of Science in Entomology in the College of Liberal Arts and Sciences, include the Graduate College for Grad Programs)

Establish the Concentration in Quantitative Finance in the Master of Science in Finance in the Gies College of Business and the Graduate College

Does this proposal have any related proposals that will also be revised at this time and the programs depend on each other? Consider Majors, Minors, Concentrations & Joint Programs in your department. Please know that this information is used administratively to move related proposals through workflow efficiently and together as needed. Format your response like the following "This BS proposal (key 567) is related to the Concentration A proposal (key 145)"

Program Justification

Provide a brief justification of the program, including highlights of the program objectives, and the careers, occupations, or further educational opportunities for which the program will prepare graduates, when appropriate.

For many years we have been running a large number of elective classes in the field of quantitative (or mathematical) finance. Additionally, we have been awarding a 'specialization' within the program to students who complete four classes from within this area. Therefore, we would like to formalize this by allowing students to complete a graduate concentration in the field.

The objective would be to educate the students in the key theories and practice of quantitative finance. This would cover areas of financial derivative pricing theory, financial risk management, complex securities valuation as well as other topics such as high frequency and algorithmic trading.

There are many possible career paths for students trained in the area of quantitative finance some possible areas include:

- The typical entry point is that of an analyst or associate in a trading or risk management firm.
- Investment banks, commercial banks, and other large corporations have their own risk management teams and seek employees with knowledge in this area.
- Financial institutions, especially venture capitalists and accounting firms, have a need for complex securities valuation experts for funding and financial reporting purposes.

"Quants" are expected to have strong quantitative and programming skills; however, communication skills are becoming increasingly important for successful job placement, as well as being detail oriented and having intellectual curiosity with a knowledge of fundamental finance concepts.

Instructional Resources

Will there be any reduction in other course offerings, programs or concentrations by your department as a result of this new program/proposed change?

No

Does this new program/proposed change result in the replacement of another program?

No

Does the program include other courses/subjects outside of the sponsoring department impacted by the creation/revision of this program? If Yes is selected, indicate the appropriate courses and attach the letter of support/acknowledgement.

No

Program Features

Academic Level Graduate

Is this program part of an ISBE approved licensure program?

No

Will specialized accreditation be sought for this program?

No

Additional concentration notes (e.g., estimated enrollment, advising plans, etc.)

Does this program prepare graduates for entry into a career or profession that is regulated by the State of Illinois?

No

Program of Study

Attach Program of Study related [Sample Sequence_Quant.docx](#)
information here.

Catalog Page Text - Overview Tab

Catalog Page Overview Text

The Quantitative Finance Concentration is open to students enrolled in:
Finance, MS

The Quantitative Finance Concentration is designed to develop graduates who understand:

The fundamental characteristics of exchange traded and over-the-counter financial derivatives;
understand the mathematical theorems and numerical algorithms required to value these
financial securities; and,
be able to assess the riskiness of these positions and be able to design trading strategies that
include financial derivatives.

This concentration will not only provide a strong technical knowledge of data analytics topics,
but also provide students multiple opportunities to apply this knowledge via valuation and
analysis of real world products.

Admission

Candidates will apply to the Department of Finance for admission into the concentration.
Students wishing to be admitted to the concentration should consult with their program
advisor before applying.

Statement for
Programs of Study
Catalog

Required

<u>FIN 512</u>	Financial Derivatives	4
<u>FIN 513</u>	Advanced Financial Derivatives	4
Choose up to four credit hours from the following:		
<u>FIN 514</u>	Valuation of Complex Derivative Securities	2
<u>FIN 515</u>	Fixed Income Portfolios	2 or 4
<u>FIN 516</u>	Term Structure Models	2
<u>FIN 517</u>	Advanced Term Structure Models	2
<u>FIN 537</u>	Financial Risk Management	4
<u>FIN 554</u>	Algorithmic Trading Systems Design and Testing	4
<u>FIN 556</u>	Algorithmic Market Microstructure	4

Total Hours

12

Program Relationships

Corresponding

Program(s):

Corresponding Program(s)
Finance, MS

Program Regulation and Assessment

Plan to Assess and Improve Student Learning

Illinois Administrative Code: 1050.30(b)(1)(D) Provision is made for guidance and counseling of students, evaluations of student performance, continuous monitoring of progress of students toward their degree objectives and appropriate academic record keeping.

Student Learning Outcomes

As the concentration will be part of the Masters in Finance then the learning objectives would be closely linked to the overall learning objectives for the program. These relevant objectives for this concentration would be:

- Students should be able to apply core knowledge to new and unfamiliar circumstances and unpredictable environments.
- Ability to perform quantitative analysis and use mathematical and statistical analysis in finance problems.
- Students should be able to work effectively on team projects with people from a variety of professional and cultural backgrounds.
- Students will demonstrate effective oral and written communication skills

Describe how, when, and where these learning outcomes will be assessed.

Describe here:

Students should be able to apply core knowledge to new and unfamiliar circumstances and unpredictable environments.

This is assessed in what we call the 'capstone' classes on the program, this is typically taken in the final semester of study. One such capstone class will be included in quantitative finance specialization: FIN 514 Valuation of Complex Derivatives Securities. This class consists of three real world valuations on different products each semester.

In this class at the end of the semester the professor will evaluate each student's work on the following three criteria:

- 1.How successful was the student at applying their knowledge to a new situation not directly covered in class
- 2.How successful was the student at applying their knowledge to an unfamiliar scenario or unfamiliar data
- 3.How successful was the student at applying their knowledge to an unexpected or unpredictable problem

The aim is that 75% of students in this class would be classified as competent at applying knowledge to the cases provided.

Results are assessed on an annual basis and any possible changes to the curriculum are then discussed at MS Finance committee meetings that occur each semester.

Identify faculty expectations for students' achievement of each of the stated student learning outcomes. What score, rating, or level of expertise will signify that students have met each outcome? Provide rating rubrics as necessary.

Ability to perform quantitative analysis and use mathematical and statistical analysis in finance problems.

This is assessed by performance in two tests that assess ability in statistics and the python programming language. The tests are first administered before the students begin the program and then again in the relevant statistics and python courses at the end of the first semester of study. This enables to assess whether students have achieved the objectives as well as whether there has been a substantial improvement in their first semester of study.

The aim is 75% of students achieve a score of 70% or better on both the Statistics and Python test. Additionally, qualitatively, professors in more advanced classes (FIN503 and FIN550) believe that 75% of students exhibit proficiency at statistical analysis.

Results are assessed on an annual basis and any possible changes to the curriculum are then discussed at MS Finance committee meetings that occur each semester.

Explain the process that will be implemented to ensure that assessment results are used to improve student learning.

Students should be able to work effectively on team projects with people from a variety of professional and cultural backgrounds.

This learning objective is assessed by the feedback from our clients on our real world practicum project. In these projects students work on a semester long project for a real client. They are assigned teams and a mentor and have to work together to produce a deliverable by the end of the semester. It is envisaged that specific projects will be offered to students from within the Quantitative Finance concentration and so learning objectives can be measured just for students within the concentration or across the whole MS Finance program.

At the end of the semester, clients are asked to rank how satisfied they were with the performance of the teams. The aim is to achieve an average satisfaction score above 4 in practicum feedback.

Each year the practicum co-ordinator reports back to the program as to any issues from the client feedback and appropriate changes are made to the practicum.

Students will demonstrate effective oral and written communication skills:

Across the program this is assessed by performance by students in program wide case competitions. During these competitions, we have a panel of judges that consists of faculty members and industry professionals that are asked to rank students on their ability to communicate financial ideas to an audience.

Currently, we do not have a quantitative finance case competition. It is hoped that the introduction of the concentration may lead to the introduction of a new case competition. The aim is that 80% of students will demonstrate high ability in communication of financial ideas.

Scores are reported to the MS Finance committee who can make appropriate adjustments to the program.

Program

Description and

Requirements

Attach Documents

Delivery Method

This program is
available:

On Campus - Students are required to be on campus, they may take some online courses.

Enrollment

Number of Students in Program (estimate)

Year One Estimate

45

5th Year Estimate (or when fully implemented)

50

Budget

Will the program or revision require staffing (faculty, advisors, etc.) beyond what is currently available?

No

Additional Budget
Information

Attach File(s)

Financial Resources

How does the unit intend to financially support this proposal?

Current academic and administrative staff in the Department of Finance and the Gies College of Business office have the capacity to serve as advisors, maintain records, and process student registration in the concentration and related coursework.

Current instructional staff in the Department of Finance will offer and instruct the courses. No other additional/incremental resources are necessary for this concentration. If there are unforeseen demands for extra capacity, some existing faculty can be shifted out of relatively low-demand electives, with minimal disruption to overall learning outcomes of students.

No other additional / incremental resources are necessary for this concentration. We do not anticipate having to shift or otherwise alter existing capacity. No additional campus or external resources are needed for this concentration.

Will the unit need to seek campus or other external resources?

No

Attach letters of
support

Is this program requesting self-supporting status?

No

Faculty Resources

Please address the impact on faculty resources including any changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc.

Current instructional staff in the Department of Finance will offer and instruct the courses. No other additional/incremental resources are necessary for this concentration. If there are unforeseen demands for extra capacity, some existing faculty can be shifted out of relatively low-demand electives, with minimal disruption to overall learning outcomes of students.

Library Resources

Describe your proposal's impact on the University Library's resources, collections, and services. If necessary please consult with the appropriate disciplinary specialist within the University Library.

The department confirmed with Becky Smith that we will use existing resources and will not need any additional library resources to accommodate this proposal. The proposal consists of already existing classes. If additional resources are necessary, the department will work in tandem with the library for new materials.

HLC Section

Credit Hours

Existing or repackaged curricula (Courses from existing inventory of courses):	Number of Credit Hours:	12 100	Percent of Total:
Revised or redesigned curricula (Courses for which content has been revised for the new program):	Number of Credit Hours:	0 0	Percent of Total:
New curricula (Courses developed for the new program that have never been offered):	Number of Credit Hours:	0 0	Percent of Total:
Total Credit Hours of the Program:	Number of Credit Hours:	12 100	Percent of Total:

New Faculty Required

Will new faculty expertise or new faculty members be needed to launch this program?

No

Please explain
existing coverage:

Current instructional staff in the Department of Finance will offer and instruct the courses. No other additional/incremental resources are necessary for this concentration. If there are unforeseen demands for extra capacity, some existing faculty can be shifted out of relatively low-demand electives, with minimal disruption to overall learning outcomes of students.

Additional Funds

Will the proposed program require a large outlay of additional funds by the institution?

No

Institutional Funding

Please explain institutional funding for proposed program:

The MSF program is a self-supporting program. Tuition generated by the program is used to fund the existing programs and will be used for this as well as it will not require new courses or new faculty.

EP Documentation

EP Control Number EP.26.025

Attach Rollback/
Approval Notices

Non-EP Documentation

U Program Review
Comments

Rollback [Library Statement - Proposed New Concentration.pdf](#)
Documentation and
Attachment

DMI Documentation

Attach Final
Approval Notices

Banner/Codebook
Name

Program Code:

Minor	Conc	Degree	
Code	Code	Code	Major
			Code

Senate Approval
Date

Senate Conference
Approval Date

BOT Approval Date

IBHE Approval Date

HLC Approval Date

DOE Approval Date

Effective Date:

Program Reviewer **Tom Teper (tteper) (04/18/25 2:36 pm):** Rollback: There must be a copy/paste error or
Comments something in the section on Library impact. Becky Smith and/or Carissa Phillips can likely assist
 with any assessment of potential impact.
 Emily Stuby (eastuby) (04/18/25 3:49 pm): Rollback: Mary Lowry will be connecting with
 Hanna and Lorena.