

Kellogg School of Management

Doctoral Program in Finance

The Finance doctoral program provides students with a rigorous background in finance, both theoretical and empirical, economics, mathematics and statistics. These tools, plus opportunities for supervised independent research, enable students to make their own contributions to the understanding of financial markets and institutions. Doctoral students are trained to be future faculty members at leading research universities.

Current theoretical and empirical research in the Department of Finance broadly spans the areas of asset pricing and corporate finance. Active current research topics include macro-finance, financial crises, international finance, market microstructure, regulation, and financial econometrics. Moreover, PhD candidates have the opportunity to interact with the broader research community at the Kellogg School and the adjacent Economics Department of Northwestern University.

Requirements and Main Events

The Finance Department's doctoral program is designed to prepare researchers and teachers who can perform at the top of their profession. Since Finance is a discipline of Economics, all PhD students are expected to develop solid foundations in Microeconomics, Macroeconomics, and Econometrics, prior to starting work in Finance. The PhD program's overall main emphasis is on research and original thought. Students are expected to write a research paper in their second and third years, and to make regular research presentations to the department.

While students can enter the program from a variety of disciplines, they must show an appreciation for and willingness to learn economic principles, and they must have developed a certain level of mathematical maturity that includes real analysis, linear algebra, and probability theory at an advanced undergraduate level.

The Finance department's requirements for a PhD degree that apply in addition to Northwestern's graduate school requirements are outlined below. Additional information on the Finance department is available at:

http://www.kellogg.northwestern.edu/departments/finance/programs/phd_program.aspx

Residency Requirements

Doctoral students are expected to be on campus full time and involved in the research and teaching activities of the department throughout the year, including summer quarter, to qualify for continued funding. **Students who will be away from campus for more than two (2) weeks during an academic quarter need the approval of their director of graduate study (DGS) and dissertation advisor, if students have a dissertation advisor at this point in their studies.** Unexcused absences may disqualify students from receiving financial aid from the Kellogg School of Management and/or Northwestern University.

Additionally, doctoral students who are conducting research off campus or who are hired as interns for professional development purposes are required to report these activities to the Kellogg School of Management. Before a student engages in research off campus or accepts an internship, approval must be granted by the student's DGS and dissertation advisor. Also, a description of the research project or the terms of the internship must be provided, along with the timeframe the student will be away from campus. If an internship is paid, an adjustment to the student's financial aid package may be made in consultation with the Senior Associate Dean for Faculty and Research.

The First Year

In their first year students take required courses, electives, and a comprehensive Microeconomics exam. There is no first-year work requirement. The schedule below is the typical workload.

| first year – typical suggested course load | | | | |
|--|-------------------------------|-----------------|-------------------|---------------------|
| fall | Microeconomics I | Econometrics I | Macroeconomics I | Elective (optional) |
| winter | Microeconomics II | Econometrics II | Macroeconomics II | Elective |
| spring | Microeconomics III | Elective | Elective | Elective |
| Microeconomics Exam (Currently in June) | | | | |
| summer | data training/reading/RA work | | | |

Required Courses: All first-year students must complete the Microeconomics sequence and the first two courses of the Macroeconomics sequence offered by the Economics department. Also required is a three-course Econometrics sequence. Students typically take the Econometrics sequence offered by the Economics Department. Students interested in Asset Pricing may take Financial Econometrics in the spring quarter instead or in addition to the third Econometrics class. Other options available may be Macroeconomics III and Introduction to Applied Econometrics III: Research Design for Casual Inference. The directors of graduate study will advise each student depending on their background and interest. All first year students are expected to take three courses every quarter.

Electives: Elective courses are selected in consultation with the director of graduate study (DGS), based on each student's background and objectives. The DGS must approve all first-year coursework.

Microeconomics Competence: First-year students are required to establish competence in

Microeconomics. This can be done by achieving a 3.6 GPA across the three microeconomics courses, **or** by passing a prelim exam that is offered by the Economics Department in mid-to-late-July. If a student does not maintain the 3.0 GPA and fails the microeconomics prelim offered in the first-year summer, the student will not qualify to continue in the PhD program. In this case, a student may qualify for the one-year MS degree in Managerial Economics and Strategy to be awarded in summer quarter. (see below).

Academic Advisor: Upon entry into the program all students are assigned an Academic Advisor. The advisor will be selected by the director of graduate study, based on each student's background and stated interests. The role of the academic advisor is to provide guidance to the PhD student, especially in their first and second year. The Academic Advisor does not need to be part of the student's Dissertation Committee later on.

Summer Quarter: Students are expected to spend the summer of their first year in residence in the department. This is a good time to begin exploring data sources available at Kellogg, begin a research project, or to begin reading Finance research papers under the direction of a Kellogg faculty. A student will work as a research assistant for 10 hours a week during the months of July and August.

Managerial Economics and Strategy Master's Option: For students who do not qualify to continue in the Finance PhD program at the end of year one, the department offers a MS degree in Managerial Economics & Strategy. Students must complete a minimum of nine (9) graded courses, maintain an overall minimum 3.0 GPA, and achieve a minimum "MS Pass" on the qualifying ("preliminary") exam in microeconomics. No master's thesis is required.

Candidates for the MS degree are required to satisfy:

- 3 courses/credits of Microeconomics
- 3 courses/credits of Econometrics
- 3 doctoral courses/credits from an approved list of courses within Macroeconomics and Econometrics.

To qualify for the MS degree, the student must have the approval of the Department Chair and Director(s) of Graduate Study based on a review of the student's overall performance in the PhD program. The Department Chair (MS chair) and Director(s) of Graduate Study (committee members) will also form the student's MS committee. The student will receive the MS degree upon satisfactory completion of Finance Department and Graduate School requirements.

The Second Year

In their second year students take required courses, electives, a comprehensive Finance exam, and they complete a research paper, according to the schedule below. Students are also expected to participate in the weekly Finance research seminar, and to complete a work requirement.

| |
|-------------|
| second year |
|-------------|

| | | | | |
|---|-----------------------|-------------------|----------|----------|
| fall | Corporate Finance I | Asset Pricing I | elective | elective |
| winter | Corporate Finance II | Asset Pricing II | elective | elective |
| spring | Corporate Finance III | Asset Pricing III | elective | elective |
| Finance Prelim Exam (early June) | | | | |
| Presentation of Research Papers (early September) | | | | |

Required Courses: The required courses in the second year are six doctoral classes offered by the Finance department: Asset Pricing I, II and III, and Corporate Finance I, II and III.

Electives: Students are required to take an additional course every quarter during their second year. Students are encouraged to select second year Elective courses from the Economics Department. Examples of such classes include Labor Economics, Advanced Macro, Econometrics, Information Economics and Industrial Organization. All elective courses need to be approved by the DGS.

Finance Comprehensive Exam: A comprehensive Finance exam must be passed at the beginning of the summer quarter, typically in June. In case of poor performance, a student may be asked to retake the exam in the middle of the summer quarter, typically in July. The exam covers the material of the six Finance PhD classes.

Research Paper and Advisors: Students need to complete a research project to be presented to the department in the first week of September following the summer quarter of the second year. The research project must be supervised by an individual faculty advisor (who can be the same as, or distinct from, the Academic Advisor) selected by the end of the winter quarter. The second-year advisor need not be the same person as the eventual main dissertation advisor.

Students need to inform the director of graduate study of their choice for the second-year advisor by June 15.

The second-year project serves as an introduction to research in finance and as an evaluation of the candidate's aptitude for performing original research that can eventually be transformed into a publishable paper. The **primary metric** for evaluating the second year project is whether it asks an interesting research question. Along these lines, the student should formulate the research question in clear economic terms, explain why it is important to provide an answer in connection to the existing research, and make some progress towards providing an answer. Examples of sufficient progress are: 1) identifying and assembling a new dataset, along with the documentation of some stylized facts; 2) a novel identification strategy that provides an estimate of an interesting causal effect; or 3) formulating a new model -- or extending an existing model -- together with some indication of progress towards characterizing the solution. Students are expected to answer faculty questions about the existing literature and their chosen line of research and future plans. The second-year project often forms the basis for a thesis topic, but it is not necessary that it does so.

The student should demonstrate mastery of the literature on a specialized topic and should be able to explain the broader significance of the chosen topic. Further, the student should formulate an interesting question that addresses a gap in the existing literature, and offer some initial

proposal on how to go about answering this question. Sufficient progress could consist of initial steps of assembling a new dataset and/or the documentation of some stylized facts. In the case of theoretical research, the formulation of a new model or extension of an existing model together with some indication of progress toward solving the model would constitute sufficient progress.

Weekly Finance Seminars: External speakers, and occasionally internal ones, present research papers at the department's weekly seminar series. PhD students are expected to attend those presentations.

Work Requirement: The second-year work requirement is about 10 hours per week, including the summer quarter. During the Fall, Winter and Spring quarters, the work typically involves assistance with the teaching of Kellogg classes. During the Summer, students work as Research Assistants to faculty. Students can choose the faculty they will work for, or the director of graduate study can help match them to faculty according to their research interests.

The director of graduate study needs to approve all TA and RA assignments, including any teaching for executive or Economics Department classes beyond the 10 hour requirement. Students should request permission from the director of graduate study for any compensated job outside or inside the University.

Second-Year Evaluation: The department meets at the end of the summer quarter and performs a comprehensive evaluation of every second-year PhD student, taking into account exam performance, the research paper, coursework grades, performance in the work requirement, and participation in weekly seminars. Following this evaluation, all students receive feedback on their strengths and weaknesses. Students with satisfactory evaluations are deemed to have passed all of their qualifying exams and are admitted to candidacy. Students that do not successfully pass the second year evaluation can appeal this decision directly to The Graduate School (TGS). The Finance department does not have a formal appeals process. Here's the link to TGS for your reference:

<http://www.tgs.northwestern.edu/about/policies/satisfactory-academic-progress.html>

Finance Master's Degree Option: For students who do not qualify to continue in the PhD program at the end of year two, the department offers the option to earn an MS degree in Finance. The student will receive the MS degree upon satisfactory completion of Finance Department and Graduate School requirements. If the student passes the first year exam but fails to be admitted to candidacy in the second year, the student can receive the MS degree, subject to satisfactory performance in classes. In the latter case, the student will receive financial support until the end of the summer quarter, at which point the student will graduate.

Third Year

Following admission to Ph.D. candidacy, students work on research toward a thesis, under the direction of one or more faculty advisors. The main goal of the third year is producing a research

paper that is of publishable quality.

Coursework: Depending on their research objectives, students are encouraged -- but not required -- to take additional classes in their third year. All coursework must be approved by a faculty advisor and the director of graduate study.

Dissertation Committee: Students are expected to choose a dissertation chair in the Fall and report their choice to the directory of graduate study by November 15 in their third year. This choice is not final; students can change their dissertation supervisor later, but this is uncommon.

Department Presentations: During their third and fourth year in the program, students are required to present their work in progress to the department twice per year, once in the Fall and once in the Spring departmental seminar. The students need to schedule these presentations at the beginning of the year with the faculty member who is coordinating the departmental brownbag seminar.

Finance Seminar: Students are required to continue attending the weekly Finance seminars, and to participate in group discussions of the research papers presented.

Work requirement: The second-year work requirement remains the same for years three and four. RA or TA opportunities exist for qualifying students whose research takes them beyond their fifth year. Students are expected to be in campus full time in the quarters that they work as teaching assistants.

Third Year Paper Requirement: At the end of the third year, students are required to present a completed research paper to the department by the end of June of their third year. The research paper has to be sufficiently advanced that it is part of the student's dissertation -- though it need not be the first chapter.

In addition to fulfilling the requirements of the second-year paper, the third-year paper should demonstrate substantial progress toward an original piece of research. The paper could be an advance of the second-year paper or it can tackle a new topic. In either case, the paper should address an economically interesting question, and should provide a clearly identifiable contribution to the literature. The paper needs to introduce and motivate the main research question, outline data (for empirical work) or a model (for theoretical work), present new results, discuss how these results contribute to existing research, and outlines future work. The student should provide an outline of future work.

Students' performance towards this requirement may count towards their fourth year evaluation (see below).

Fourth Year

The main activity in the third year and beyond is research toward a thesis, under the direction of one or more faculty advisors. In the third year, students need to satisfy a Proposal Requirement.

Fourth Year Thesis Proposal: By the fourth year, the student is expected to have settled on a thesis topic. Students need to complete their dissertation proposal by August 31 following their fourth year.

The purpose of the dissertation proposal defense is to present a well worked out dissertation plan to the committee. The committee must be able to evaluate with confidence whether the dissertation as proposed meets quality standards and can be successfully executed by the student. The dissertation proposal should articulate a plan through three papers, one of which should be at an advanced stage.

The main component of the proposal is an original research paper. The paper can be distinct from the second-year project or the third-year paper. In addition to the requirements for the second- and third-year papers above, the paper needs to be sufficiently well developed as to have a clear path towards eventual publication in a peer-reviewed journal. If the student enters the academic job market in the fourth year, this paper will be the student's job market paper.

The student's dissertation committee must approve the proposal. To grant approval the committee should believe that the candidate will be able to produce papers publishable in a top field journal. The meeting with the dissertation committee is open to the Northwestern academic community. Students may and should attend other students' proposal defenses. When evaluating the student, the committee will take into account the student's previous efforts during the third year.

Students have only one opportunity to pass their proposal. Students that do not do so successfully can appeal this decision directly to TGS. The Finance department does not have a formal appeals process. Students that do not pass their PhD proposal graduate with an MS degree.

Department Presentations: During their third and fourth year in the program, students are required to present their work in progress to the department twice per year, once in the Fall and once in the Spring departmental seminar. The students need to schedule these presentations at the beginning of the year with the faculty member who is coordinating the departmental brownbag seminar.

Finance Seminar: Students are expected to continue attending the weekly Finance seminars, and to participate in group discussions of the research papers presented.

Work requirement: The second-year work requirement remains the same for years three and four. RA or TA opportunities exist for qualifying students whose research takes them beyond their fifth year.

Job Market and Thesis Defense: The dissertation, which consists of three separate chapters, should make a well-motivated and original contribution to the finance and economics literature. In the dissertation defense, the candidate should be able to explain the contribution relative to the literature in clear terms, defend the significance of the contribution, and offer a broader vision

of a research agenda.

Typically, students enter the job market in their fifth year, although completion of the program in four years is possible. On rare occasions, a thesis advisor may decide that the student is making good progress but a sixth year would be beneficial in producing the best quality outcome. On such occasions, and provided suitable funding arrangements can be made, a student can stay in the program for a sixth year. As a general rule, however, a student should not count on spending a sixth year in the program. The PhD degree is awarded following a successful thesis defense in accordance with The Graduate School requirements.

Funding and Research Support

Stipend: Finance doctoral students are typically funded for 5 years through a combination of sources: stipends, teaching and research appointments, and in some cases teaching appointments. Tuition and health insurance coverage are also provided to the student. Funding is renewable each year and is contingent upon satisfactory academic performance. Additional funding opportunities are available for students in good standing in their 6th year. Funding is provided from the Graduate School (scholarships), the Deans Office, the Finance Department, and through teaching/research assignments.

Research and academic support: The Finance Department strives to provide PhD students with the resources necessary for a successful academic career. Each PhD student is provided with a workspace, a personal computer with office software and access to the university mainframe, including all major statistical packages, library access, online academic journal access and e-mail. More information on Research Support can be found at:

<http://www.kellogg.northwestern.edu/rs/>

The Department provides additional financial support for miscellaneous research and academic expenses such as: research software, research expenses, etc. All students are encouraged to participate and present their research at academic conferences. For students who are presenting (or who are co-authors on a paper being presented) at a major finance or economics conference, the Department will provide financial support to cover travel, hotel, and conference registration fees. This travel allowance is subject to approval by the student's main advisor.

Applying to the Finance PhD Program

Our program focuses on creating scholars who have the desire and capacity to contribute to the academy for many years through the dissemination of knowledge. Our alumni actively publish in top journals, and many continue relationships that began in the doctoral program at the Kellogg School.

The Department seeks students with backgrounds in finance or economics. This may include undergraduate or graduate degrees in economics or finance, or work/research experience in finance or economics. Finance is a quantitative and rigorous discipline. As such, the Finance Department also looks for students with solid quantitative backgrounds, including coursework in mathematics, statistics, or a related quantitative field.

Applications to doctoral programs at the Kellogg School must be submitted through The Graduate School and coordinated with the Kellogg Doctoral Program. The Department accepts the GRE only; the GMAT test is not accepted.

Further Information

If you have any questions about the Kellogg School's doctoral programs, please contact Susan Jackman, the Administrative Director at the Kellogg Doctoral Program office.