

Doctoral Program in Finance

Kellogg School of Management

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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 span 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

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:

www.kellogg.northwestern.edu/finance/curriculum/doctoral.htm

The First Year

In their first year students take required courses, electives, and pass a Microeconomics requirement, according to the schedule below.

First year				
	(1)	(2)	(3)	(4)
fall	Micro I	Econometrics I	Macro I	elective
winter	Micro II	Econometrics II	Macro II	elective
spring	Micro III	Choose two from Econometrics III Macro III and Financial Econometrics I		elective
Prelim Exam (Currently in July)				
summer	RA work			

Required Courses: All first-year students must complete the Microeconomics sequence offered by the Economics department. In the fall and winter they take Econometrics I/II and Macro I/II offered by the Econ department. In the Spring of their first year, they need to take at least two of the following three classes: Macro III, Econometrics III and Financial Econometrics I.

Electives: In addition to the three classes listed above, students can take additional classes. For instance, students can choose to take the Econometrics sequence within the Kellogg School, which offers a more basic introduction to Econometrics.

If the student wants to take additional elective courses in the first year, these will be selected in consultation with the PhD coordinator and the Academic Advisor, based on each student's background and objectives. The Ph.D. coordinator must approve all first-year coursework.

Economics 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, *or* by passing the prelim exam in Micro that is offered by the Economics Department in mid- to late-July. If students do not pass the microeconomics requirement under either of these two criteria, they do not qualify to continue in the Ph.D. program. In this case, the student obtains an MS Degree in Economics. Last, students are required to maintain a 3.0 GPA average across all economics classes.

Academic Advisor: Upon entry into the program all students are assigned an Academic Advisor. The advisor will be selected by the PhD coordinator, 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. Normally, students work as a research assistant to Faculty during the summer. This is a good opportunity for the student to explore the research resources available at Kellogg and begin reading research papers in Financial Economics. If the student wishes to work as a research assistant, the Ph.D. coordinator will help match them to faculty depending on their research interests.

MS Economics Degree Option: For students who do not qualify to continue in the Ph.D. program after the end of their first year, the department offers the option to earn an MS degree in Economics, assuming the student satisfies the Finance Department and Graduate School requirements. Principally, if the student fails the Microeconomics competence requirement and has not achieved a 3.0 GPA in microeconomics, but has overall satisfactory performance in classes, the student can graduate with an MS in Economics. In this case, the student will receive financial support until the end of the Spring quarter, at which point the student will graduate.

The Second Year

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

Second year				
	(1)	(2)	(3)	(4)
fall	Corp. Finance Theory	Asset Pricing I	elective	elective
winter	Fin. Econometrics II	Asset Pricing II	elective	elective
spring	Corp. Finance, Empirical	Topics	elective	elective
Finance Prelim Exam (early June)				
Research Paper Presentation (early September)				

Required Courses: Students are required to take nine courses in their second year. Six of these courses are doctoral classes offered by the Finance department: Asset Pricing I and II, Corporate Finance Theory, Empirical Corporate Finance, Financial Econometrics II, and a Topics class whose content varies from year to year.

In addition to the required courses above, students are required to take three additional classes. Typically, students select these classes from the second year economics classes. Examples of such classes include Labor Economics, Advanced Macro, Econometrics, Information Economics and Industrial Organization. At the discretion of the Ph.D coordinator and the Academic Advisor, the student can substitute these classes with other fields depending on their research interests.

Electives: If the student wants to take additional elective courses in the first year, these will be selected in consultation with the PhD coordinator and the Academic Advisor, based on each student's background and objectives. The Ph.D. coordinator must approve all second-year coursework.

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

Finance Competence Requirement: Students must pass a Finance Competence Requirement. This can be done by achieving a 3.6 GPA across the six finance doctoral courses, *or* by passing a comprehensive Finance exam. The Exam takes place at the beginning of the summer quarter, typically in June.

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 Ph.D. coordinator 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.

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 Ph.D. coordinator can help match them to faculty according to their research interests.

The Ph.D. coordinator needs to approve all TA and RA assignments, including any teaching for executive or Economics Department classes.

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 Ph.D. candidacy.

MS Finance Degree Option: For students who do not qualify to continue in the PhD program at the end of the second year, 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 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 Spring quarter, at which point the student will graduate.

The 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. In addition, depending on their number of transfer credits, students may also need to complete additional course credits in their third year, as required by The Graduate School. All coursework must be approved by a faculty advisor and the Ph.D. Coordinator.

Dissertation Committee: Students are expected to choose a dissertation chair in the Fall and report their choice to the Ph.D. coordinator 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, four, and five. 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, discusses how these results contribute to existing research, and outlines future work. The student should provide an outline of future work.

Students who fail to satisfactorily complete this requirement may not be allowed to continue in the PhD program and may instead opt for the MS degree (as described above).

Fourth Year and Beyond

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. 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. In addition to the main paper, the student should present plans for future work and attempt to articulate a broader research agenda.

Students need to complete their dissertation proposal by August 31 following their fourth year. The proposal must be approved by the Finance Department. Students that do not pass their PhD proposal graduate with an MS degree, instead.

Coursework: Depending on their research objectives, students are encouraged – but not required – to take additional classes in their third year. In addition, depending on their number of transfer credits, students may also need to complete additional course credits in their third year, as required by The Graduate School. All coursework must be approved by a faculty advisor and the Ph.D. Coordinator.

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, four, and five. 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.

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 computing can be found at:

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

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.