



THE UNIVERSITY OF ARIZONA
ELLER COLLEGE OF MANAGEMENT

Finance

**Ph.D. Program in Finance
(Ph.D. in Management)**

Department of Finance

Eller College of Management
University of Arizona
Tucson, Arizona

April 2017

Summary of Program

Important Deadlines

- Summer before first year
 - SAS workshop at end of July
 - Econ “boot camp” in August
 - Online TATO (Teaching Assistants Teaching Orientation) required for all GAs
- First year
 - Fall/spring – complete required course work
 - June – Economics qualifying exam
 - Summer – select major advisor, write proposal for second-year paper by the first Friday in August
- Second year
 - Fall/spring – complete required course work
 - Fall – submit Plan of Study to Grad College
 - By November 1st students need to have conducted the main empirical tests of their second-year paper and to have reported to the faculty member supervising their paper what they have found
 - February – second year paper presentation
 - June - Finance comprehensive exam
 - Summer – present final version of second-year paper to faculty
- Third year
 - Complete any coursework necessary to satisfy Grad College requirements
 - Summer – Dissertation Proposal/Oral Exam

Student in Good Standing

- Performance will be evaluated every semester based on (1) grades, (2) research progress, and (3) work as RA/TA.
- Grades – 3.0 in **each** class and cumulatively
 - A ‘C’ is a failing grade in graduate school
- RA/TA – faculty members will evaluate
 - Timely, high quality work is important not only in evaluations, but more than likely, the faculty member you work for will be on your dissertation committee and will be writing you a letter of recommendation. Even if they aren’t, other faculty members’ impressions of you will be largely based on what this person says about you!
- **Attendance at regular Friday seminars (as well as meetings with outside speakers) and scheduled brown bag seminars is required.**
- Poor performance will result in a warning, removal or reduction of one’s assistantship, or removal from the program
- **Plagiarism on the part of doctoral students will not be tolerated and may result in dismissal from the doctoral program. Further, the creation of fictional empirical results in class homework assignments or a student’s research paper will result in immediate dismissal from the doctoral program.**
- We highly recommend that students spend the majority of their summers in Tucson working on their research projects.

Ph.D. Program in Finance University of Arizona

The Ph.D. program in Management with a concentration in Finance offered by the University of Arizona is designed to lead to a career of scholarly research and teaching in finance. Finance is a growing and exciting field, with graduates having job opportunities in both academia and industry.

The duration of the program is approximately four years, depending on an individual's background and on his/her progress. The first two years of the program are taken up by coursework and mastery of the broad areas of finance and economics. During this time, students should be formulating research projects of their own and demonstrate their research skills by presenting a research proposal for their second year paper to the faculty in February of their second year. The student will present the completed second year paper to faculty in the summer of their second year. The emphasis during the third and fourth years of the program is primarily on writing a dissertation and coursework in a more narrow area of interest. The dissertation must demonstrate to the faculty the student's ability to produce advanced research in finance.

Admission to the Doctoral Study Program depends on the student's ability to complete the program as evidenced by his/her undergraduate record, GMAT and/or GRE scores, and letters of recommendation. Research and teaching assistantships, which provide a stipend to help defray the student's expenses, are available and are awarded by the Department. These stipends are available on an annual basis for up to five years of study. Award of an assistantship for study beyond five years will be granted only in rare cases.

Student in Good Standing

The director of the Ph.D. program, in conjunction with the faculty of the Finance Department, will review each student's performance to ensure that he/she has demonstrated an aptitude for and an ability to study the material required to develop skills as a solid financial researcher. The decision by the faculty to allow a student to continue in the program and be considered a *Student in Good Standing* will be made on a semester-by-semester basis. Students must be considered to be in good standing to progress to the next semester and to the next examination required in the Ph.D. program.

To be in good standing, students must maintain a grade of 3.0 in each *class* and cumulatively in the Ph.D. Program. (Note that grades earned in other graduate degree programs, including the Master of Science in Management with a Concentration in Finance or Master of Science in Finance, are not considered in the calculation of the Ph.D. Program GPA.) Grades below a 3.0 are considered failing grades. Students must also pass the required examinations and research requirements at the specified time in the program, as described later in this document.

Unsatisfactory performance in coursework, research requirements, or a required examination may result in immediate removal of the student's assistantship and the student may be formally dismissed from the program. In addition, students are expected to attend all finance seminars and meet with the seminar speakers during the time slot assigned to Ph.D. students.

Students who have completed their formal coursework must be making satisfactory progress on their dissertation to remain in good standing. Students who are not making satisfactory progress on their dissertations will be given a warning and deadline, at the end of which the faculty expects to see significant progress on the dissertation. Failure to show progress in the proscribed time frame will result in removal of a student's assistantship, and the student may be formally dismissed from the program.

In addition to evaluating students based on grades and progress on the dissertation, faculty members will evaluate their TA/RAs each semester, and submit a written copy of this evaluation to the program director. Students whose performance as a TA/RA is unsatisfactory will be given a warning. If students who received warnings of unsatisfactory work fail to improve in the proscribed time frame, their assistantship may be removed, or the student may be formally dismissed from the program.

Coursework and Related Examinations

The following is an outline of the coursework students can expect to complete during the Finance Ph.D. program. The coursework is subject to change due to the availability of classes. Exhibit A provides a sample schedule for an entering student.

During the last week of July, the first-year students will be required to complete a SAS workshop taught by the accounting department. Three weeks prior to the first semester of study (generally starting the first Monday in August), entering Finance Ph.D. students will also be required to take Economics 519, Math for Economists, a boot camp designed to help prepare students for the mathematical rigors of the program. The current textbook for this class is "Mathematics for Economists," by Carl P. Simon and Lawrence Blume.

To do well in the required first-year courses, students should be very comfortable with calculus and the principles of optimization, as well as know some linear algebra and statistics. **Students with below this level of mathematics background are strongly encouraged to plan to attend courses at the University of Arizona in the summer prior to their enrollment to cover the necessary mathematics topics.**

In the student's first year, the Ph.D. Coordinator serves as advisor. By the summer after their first year, the student will arrange for another faculty member to serve as "major professor" and provide advice and guidance on the second year paper. The Ph.D. Coordinator and major professor are jointly responsible for approving the student's Plan of Study (to be submitted to the Graduate College no later than the third semester). Eventually, the student will arrange for a tenure-track faculty member to serve as dissertation supervisor. The student and dissertation supervisor work together to form a dissertation or examining committee, which provides timely input to the student and ultimately is responsible for approving the dissertation. The dissertation committee should be formed no later than the end of the third year.

First Year

The *First Year* focus is on developing a foundation in economics and on acquiring the necessary skills to be a first-rate finance scholar. Students who do not have an MBA degree are encouraged to also take master's level classes during their first year in the program.

The first semester courses students take include:

Economics 501A, Microeconomic Theory I. A Ph.D. level microeconomics course focusing on individual and firm-level optimization.

Economics 501B, Microeconomic Theory II. An economics course focusing on general equilibrium and competitive analysis as well as market failure. These subjects are becoming increasingly important in the study of finance.

Economics 519A, Mathematical Economics. Introduction to the theory and methods of mathematical economics and its applications. Designed primarily for entering graduate students majoring in economics.

Economics 520, Theory of Quantitative Methods in Economics. A statistics course designed to prepare students to study econometrics.

The second semester courses will include:

Finance 601, Financial Decision Making. An introductory course to Finance that is taught at a higher level than a typical MBA course.

Finance 695A, Investments. The exchange of scholarly information and/or secondary research, usually in a small group setting. Instruction often includes lectures by several different persons. Research projects may or may not be required of course registrants.

Economics 522A, Econometrics I. The first course in the econometrics sequence studying the theory of econometric estimation of single and simultaneous equation models.

Accounting 682, Advanced Financial Accounting. This course surveys the literature in financial accounting research, and requires students to conduct their own archival data analysis.

One or two other finance, economics, or accounting electives, total of four courses-12 units*.

Required Economics Minor

Each student is required to meet the requirements of a *minor in Economics*, which includes the required first year coursework in economics as listed above (ECON 501A, ECON 501B, ECON 520, ECON 522A), an ECON 696 field course during the second or third year, and passing the first year written qualifying examination administered by the Economics Department faculty.

*See list of possible electives on p. 6.

Qualifying Examination

The *Qualifying Examination* is taken by Ph.D. students at the *end of the first year* in the program, typically in early June. It is a written examination in either theory or quantitative methods and is based on the material taught in the Economics courses taken during the first year of the program. The theory examination covers the material in the microeconomic core courses (ECON 501A and 501B). The quantitative examination covers the material in the statistics and econometrics courses (ECON 520 and 522A). Students can choose which exam to take, based upon the field of finance in which they are interested. Copies of the questions on earlier preliminary exams can be obtained from the Economics Department Graduate Coordinator.

The goal of the exam is to ensure that students have developed an appreciation for how all of the material fits together in a broader framework of economic reasoning. In addition, the exam will help students solidify their knowledge about the core of economics. The qualifying examination is a requirement for continuation in the program.

If the student does not *pass* the exam at the end of the first year of the program, the department may elect to dismiss the student from the Ph.D. program, withdraw financial assistance, or allow the student to retake the exam in August (around the start of Fall semester of the second year of study, per the Economics Department schedule) at which time the first year qualifying examination must be completed with a passing grade in order for the student to continue in the program.

Second Year

During the ***Second Year*** of the program, courses tend to be more specialized and are designed to introduce students to a number of different areas in which they potentially could do research. In the second year, courses will include:

Economics 522B, Econometrics II. The second course in the econometrics sequence studying the theory of econometric estimation of single and simultaneous equation models.

Economics 597C, Teaching Methods in Economics. The purpose of this workshop is to familiarize graduate students with the key skills and understandings that are important in being an effective teacher.

Finance 602, Dynamic Asset Pricing. Financial models and empirical tests: asset pricing models, financial behavior; corporate financial decisions.

Finance 620A, Financial Markets and Corporate Finance. The development and exchange of scholarly information related to corporate finance, usually in a small group setting. The scope of work shall consist of research by course registrants, with the exchange of the results of such research through discussion, reports, and/or papers.

Other courses that could be taken include:

Finance 696H, Research Methods. A course designed for the practical application of theoretical learning within a group setting and involving an exchange of ideas and practical methods, skills, and principles.

Finance 699, Independent Study

Econ 549/AREC 549, Applied Econometric Analysis. A course designed to provide students with hands on experience in econometric modeling (using SAS).

Economics 696A, Experimental Economics. The development and exchange of scholarly information, usually in a small group setting.

Economics 696E, Econometric Modeling I. The development and exchange of scholarly information, usually in a small group setting.

Economics 696F, Econometric Modeling II. The development and exchange of scholarly information, usually in a small group setting.

Economics 696I, Labor Economics II. The development and exchange of scholarly information, usually in a small group setting.

Economics 696P, Industrial Organization and Regulation I. The development and exchange of scholarly information, usually in a small group setting.

Economics 696Q, Industrial Organization and Regulation II. The development and exchange of scholarly information, usually in a small group setting.

Economics 696W, Environmental and Energy Economics-Empirical. The development and exchange of scholarly information, usually in a small group setting.

Economics 697B, Applied Economic Analysis. The practical application of theoretical learning within a group setting and involving an exchange of ideas and practical methods, skills, and principles.

Math 522, Advanced Applied Analysis. Review of multivariable calculus, series solutions of differential equations, Laplace transforms, Fourier series, introduction to partial differential equations.

There are also accounting doctoral seminars that depend on faculty availability that may be taken.

NOTE: FIN696H, Research Methods is not intended to replace credit hours required for the degree. If registration of a student is requested by the department, the course may be taken no more than four times for credit towards the required unit hours for a Ph.D. degree. Grading is S/P/C/D/E; only grades of C/D/E are used in the calculation of GPA.

Summer Funding

Additional summer funding **may** be available to Ph.D. students on a competitive basis. This may take the form of summer teaching opportunities, guidance of MSF projects, or competitive research grants.

Plan of Study

“In conjunction with his/her major professor or advisor, each student is responsible for developing a Plan of Study during their first year in residence, to be filed with the Graduate College no later than the student's **third semester** in residence. The Plan of Study identifies (1) courses the student intends to transfer from other institutions [and approved at the time of application to the PhD program]; (2) courses already completed at The University of Arizona which the student intends to apply toward the graduate degree; and (3) additional course work to be completed in order to fulfill degree requirements. The Plan of Study must have the approval of the student's major professor and department head (or Director of Graduate Studies) before it is submitted to the Graduate College.” (<http://grad.arizona.edu/gsas/degree-requirements/important-degree-dates-and-deadlines> and <https://finance.eller.arizona.edu/academic-programs/doctoral-program/curriculum/plan-study>)

Second Year Paper

In addition to completing their coursework and qualifying examinations, all students must submit a second-year paper to continue in the program. This second year paper could be a follow up study to a paper discussed in FIN 601, FIN695A or ACCT 682, a seminar paper presented during the first year, a paper that the student has independently read, or a faculty member's current research. A proposal for the second-year paper must be approved by the Ph.D. coordinator and the student's "major professor" by the first Friday in August during the summer after the first year. The proposal to the first-year paper should be 5-10 pages in length and include a literature review, hypothesis development and motivation for the research questions to be answered in the paper, discussion of the proposed main tests that will be conducted in the paper (i.e., discussion of specific regression models), and a description of the data that will be used in the paper's

analyses. By November 1st the student needs to report back to their major professor on the results for the paper's main tests (i.e., what are the results for the main tests of the paper that were outlined in the proposal to the paper). The preliminary second year paper must be presented to the faculty in February of the second year. At this time, the student must have a written document that at a minimum includes (1) a thorough literature review, (2) hypotheses, (3) data and methodology, and (4) tables. Satisfactory progress on the second year paper is required for a student to take their written comprehensive exam. The completed paper must be presented to the faculty in the summer following their second year. The completed paper must be given to the faculty at least one week prior to the presentation of the paper, and must be a complete paper with an introduction, literature review, hypotheses, data and methodology, results, and a conclusion. The completed paper must be a polished paper that resembles the working papers presented by seminar speakers during Friday seminars.

Failing to meet the second year paper requirements may result in immediate removal of the student's assistantship and the student may be formally dismissed from the program.

Comprehensive Written Examination

In the beginning of the summer following the second year (usually in June, shortly after classes end), students will take the *comprehensive written examination* covering the entire field of finance. Students are expected to be able to answer questions from all areas of finance, although the emphasis will be on topics discussed in the finance courses the students have taken during the first two years of the program and department seminars the students have attended during the same time.

Students who do not pass the comprehensive examination may, at the discretion of the faculty, be given a second chance to pass the exam prior to the start of the following fall semester, be awarded an MS degree if they have satisfied the Master's requirements, and/or be dismissed from the Ph.D. program.

The Graduate Council and the Faculty Senate require that students must complete their degree within 5 years of passing the Comprehensive Examination. Should a student not finish within that time period, he or she may be allowed to re-take the Comprehensive Examination with permission of the program.

***Third and Fourth Years:
Dissertation Proposal (Comprehensive Oral Examination) and Related Topics***

During the third and fourth years of the Ph.D. program, students will complete the required coursework for the degree, including 18 units of dissertation as required by the UA Graduate College. The Ph.D. in Management with a major in Finance will require not less than 66 total credit hours, including 18 hours of dissertation credit.

No later than the September of their fourth year, students are required to successfully complete the ***dissertation proposal and comprehensive oral examination on related topics***. The typical dissertation proposal defense and oral exam starts with extensive questioning on the student's dissertation proposal and related research and then expands over time into the fundamentals of finance and economics that the student must know to complete their research and also to be considered a good finance researcher. In addition, the comprehensive oral examination will test a student's ability to understand at a deeper level the state of the knowledge on a particular topic, and his/her ability to formulate and defend a research proposal on this topic.

Under the supervision of one or more Finance faculty members (the dissertation chair(s)), students are expected to prepare and submit a research proposal at least one month prior to the date of the *dissertation proposal* for review by the Finance faculty members. After consulting with the Ph.D. Coordinator and the dissertation chair(s), the student chooses a *dissertation committee*. The dissertation committee typically consists of three members of the Finance faculty and one member from the department of the student's minor field. The examining committee members are appointed by the Dean of the Graduate College upon the recommendation of the heads of the academic departments involved.

The dissertation research proposal should demonstrate an understanding of the literature in an area of the student's choosing and should contain a research strategy that has the potential to advance knowledge in the area. This document should contain:

- 1) An introduction, overview, and outline of the entire dissertation;
- 2) A relatively polished chapter with results; and,
- 3) A second chapter in-process and demonstrating that the student is relatively far along in the research.

The oral examination typically starts with a 10 to 15 minute presentation and overview of the dissertation proposal that briefly touches on all aspects of the thesis, including overheads for key tables as appropriate. The focus during the examination will be on the student answering the committee's questions, first concentrating on the student's dissertation proposal and the financial and economic issues related to the proposal. The questioning will expand to address the fundamental knowledge that the student must have mastered to complete their research in the field and the general knowledge that professional researchers in finance should know. This is the occasion when faculty committee members have both the opportunity and obligation to require the student to display a broad knowledge of the chosen field of study and sufficient depth of understanding in areas of specialization. The examining committee must attest that the student has demonstrated the professional level of knowledge expected of a junior academic colleague.

At least three members of the faculty dissertation committee (and a faculty member from the minor field) must be in attendance for the entire exam, which should be at least one hour in length, but not exceed three hours. If three members are present, all must approve in order for the student to pass; if four members are present, at least three must approve. Students should expect the typical length to be roughly an hour and a half to two hours. If a student fails the oral exam on the first try, a reexamination may be given in certain circumstances. However, any reexamination must be recommended by the examining committee, endorsed by the major department, and approved by the Graduate College. The Graduate College allows no more than one retake of the oral exam.

Additionally, if the student does not *pass* the comprehensive oral examination by the start of the fourth year of the program, the department may elect to dismiss the student from the Ph.D. program, withdraw financial assistance awarded in prior semesters, and/or set a date (before the end of the Fall semester of the fourth year of study) by which time the comprehensive oral examination must be completed with a passing grade.

If a student does not *take* the comprehensive oral examination before the Fall semester of the fourth year, the Department may elect to dismiss the student from the Ph.D. program, withdraw financial assistance awarded in prior semesters, and/or set a date (before the end of the Fall semester of the fourth year of study) by which time the comprehensive oral examination must be completed and passed.

Comprehensive Examination for Advancement to Candidacy and Dissertation of Defense

Satisfaction of the course requirements and passing all examinations advances the student to the *candidacy for the Ph.D. degree*.

“When the student has an approved doctoral Plan of Study on file with the Graduate Degree Certification Office, has satisfied all course work, language, and residence requirements, and passed the written and oral portions of the Comprehensive Examination their bursar account will be billed the [fee for candidacy, dissertation processing, and archiving](#). This is a one-time fee and the student will not be billed again if they change their anticipated graduation date. Copyrighting is optional and carries an additional fee.

<http://grad.arizona.edu/gsas/degree-requirements/doctor-philosophy#comprehensive-exam>)

Following the oral portion of the Comprehensive Examination, “the student must file a Committee Appointment form. This application must be submitted to the Graduate Degree Certification Office as soon as requirements are met. In most cases that should be no later than six months before the Final Oral Defense Examination is scheduled. Deadlines for the submission of paperwork pertaining to doctoral programs are available online at [Deadlines for Completion of Degree Requirements](#).” The “Committee Appointment Form” is available through UAccess Student under GradPath forms.”

<http://grad.arizona.edu/gsas/degree-requirements/doctor-philosophy#committee-appointment-form>)

The Ph.D. degree is awarded upon satisfactory completion of the dissertation. An acceptable dissertation is one that the faculty judges to make sufficient contribution to financial knowledge that, with minor revisions, will be publishable in a top academic journal.

A *Final Oral Defense examination* of the dissertation (dissertation defense) in the major subject is schedule upon completion. Faculty committee members will require the student to display a broad knowledge of the chosen field of study and sufficient depth of understanding in areas of specialization. The examining committee must attest that the student has demonstrated the professional level of knowledge expected of a junior academic colleague.

The exact time and place of this examination must be scheduled with the Graduate Degree Certification Office at least 7 working days in advance, and announced publicly in *Lo Que Pasa* at least one week in advance. Final Oral Examinations should be scheduled during days when the university is in session and during normal business hours. Permission to hold examinations during University holiday closures or outside of normal university business hours may be granted by Graduate College.

The dissertation director presides over the examination. The initial seminar portion during which the student presents the dissertation and entertains questions is open to the public. The committee's deliberation is closed to the public.

There is no minimum time limit for the Final Oral Examination, but the entire proceedings may not exceed three hours. Members of the committee must be present for the entire examination.” More instructions and links to forms are available on the Graduate College website (<https://arizona.app.box.com/v/grad-gsas-finaldefnsinstr>). A Ph.D. student’s dissertation represents him or her, the department, and the University of Arizona in the international scholarly community. The work is important and worthy of professional presentation. Therefore, The UA Graduate College publishes a manual detailing the required format of the dissertation to ensure it meets these high standards. The manual is available at <https://arizona.app.box.com/v/grad-gsas-dissformat>. Please refer to this manual for specifications on the type, title page, table of contents, references and more.

When a student has reached this point, the degree requirements have been completed and hearty congratulations are given and well deserved.

Exhibit A
Course Sequence for Finance Department Ph.D. Students

	Fall	Spring	Summer
Pre-Fall Session (end of July, first 3 weeks of August)	ECON 519, Math for Economists		
	SAS workshop		
First Year (24 units)	ECON 501A, Microeconomic Theory I	FIN 601, Financial Decision Making	<i>June: Qualifying Examination in Economics</i>
	ECON 501B, Microeconomic Theory II	FIN 695A, Investments	<i>Early August: Proposal due for second-year paper</i>
	ECON 520, Theory of Quantitative Methods in Economics	ECON 522A, Econometrics I	
	ECON 519, Math for Economists (continued from pre-semester)	Accounting 682, or a Finance, Economics, or Math elective	
Second Year (18 units)	ECON 522B, Econometrics II	Finance, Economics, Math or Accounting elective	<i>November 1st: Students needs to have conducted the main empirical tests of their second-year paper</i>
	FIN 602, Dynamic Asset Pricing	Finance, Economics, Math or Accounting elective	<i>June: Comprehensive Finance Exam</i>
	FIN 620A, Financial markets and Corporate Finance	Finance, Economics, Math or Accounting elective	
	ECON 597C , Teaching Methods in Economics	<i>February: Present second year paper proposal to faculty</i>	<i>August / September: Present completed second year paper to faculty</i>
Third Year* (12 units)	Finance, Economics, Math or Accounting elective	Finance, Economics, Math or Accounting elective	<i>Dissertation proposal/Oral exam</i>
	Dissertation (3 units)	Dissertation (3 units)	
Fourth Year* (12 units)	Dissertation (6 units)	Dissertation (6 units)	

*Students receiving financial aid or not receiving a graduate assistantship may be required to take nine hours per semester to be considered full-time.