

**STUDENT GUIDE TO THE ECONOMICS Ph.D. PROGRAM**  
(updated July 2017)

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**TABLE OF CONTENTS**

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1. Introduction .....	1
2. Faculty Research Interests .....	2
3. Financial Aid .....	3
4. Academic Integrity .....	4
5. Satisfactory Progress Toward the Degree .....	5
a. Grades .....	5
b. Timely Completion of Courses .....	6
c. Timely Completion of Non-Course Requirements .....	7
• First Year .....	7
• Second Year .....	7
• Third Year .....	8
• Fourth Year .....	8
• Fifth Year .....	9
d. Workshop Requirements .....	9
6. Details of Non-Course Requirements .....	11
a. Economic Theory Qualifying Examination (“Theory Prelim”) .....	11
i. Written Exam Format .....	11
ii. Timing .....	11
iii. Grading of the Written Exam .....	12
iv. Outcome of the Written Exam .....	12
v. Oral Exam Preparation and Format .....	13
vi. Limits on Retaking Exam .....	14
vii. Access to Exams .....	14
b. Provisional Thesis Committees and Area Prelim Exams .....	15
i. Provisional Thesis Committee .....	15
ii. The Area Preliminary Exam .....	15
c. Thesis Committee and Ph.D. Plan of Study .....	17
d. Job Market .....	18
7. Master of Science Degree in Economics .....	20
8. Master’s Degree or Graduate Certificate Outside Economics .....	21

Descriptions of offered core and field courses in Economics each year will be presented to students in the spring prior to registration for classes the next academic year. A list of faculty publications may be obtained by selecting the desired faculty on the Economics Department website.

**Current Holders of Positions Important to Economics Ph.D. Students (September, 2017)**

**ECONOMICS**

Economics Department Head	Justin Tobias
Director of Graduate Studies in Economics	Brian Roberson
Director of Undergraduate Program	Kevin Mumford
Director of MS Program	Jack Barron
Placement Director	Tim Cason
Theory Prelim Chairperson	Bill Novshek

**KRANNERT**

Director of Economics Graduate Programs	Jack Barron
Associate Director of Administration for Doctoral Programs	Kelly Felty

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# 1. Introduction

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The Department of Economics at Purdue University's Krannert Graduate School of Management offers a doctoral program that prepares economists for careers in research, teaching, business and government. The graduate program in economics has a strong quantitative and analytical orientation. It is designed to provide a working knowledge of basic research skills and to broaden the students' understanding of economic institutions.

## *Degree Requirements*

- **To be awarded a Ph.D. degree in Economics a student must:**

1. Successfully complete a minimum of 52 credit hours of work in core courses, field sequences and electives, including:
  - a) 18 credit hours in economic theory (plus qualifying requirements).
  - b) 10 credit hours in econometrics (plus qualifying requirements).<sup>1</sup>
  - c) 6 credit hours in a methodological sequence (4 credit hours beyond the 10-credit-hour core Econometrics sequence for Econometrics). The methodology sequence may come from one of the approved combinations, Econometrics or Experimental Economics, or from an alternative combination of methodological courses. Any methodological sequences other than the two approved combinations requires prior approval by the Director of Graduate Studies in Economics.
  - d) 6 credit hours in a primary field offered in the Economics Department (4 for Econometrics), plus an area examination. Possible fields include, but are not limited to: Econometrics, Experimental Economics, Labor Economics, Macroeconomics, Industrial Organization and International Economics.
  - e) 6 credit hours in a secondary field (4 for Econometrics). The field sequence may come from within the Economics Department, in a methodological or non-methodological area, or from other departments. The fields of specialization available from other areas include accounting, e-commerce, finance, management science, marketing, mathematics, operations management, statistics, strategic management, and organizational behavior and human resource management. Field sequences taken outside of the Economics Department must have prior approval of the Economics Policy Committee. In addition, students have the option to construct individual programs with the permission of the faculty. Students interested in such programs should consult with the departmental director of graduate studies and his/her thesis committee.
  - f) 6 elective credit hours.
  - g) 1 workshop each semester (second year and higher students).
2. Maintain satisfactory progress (see Section 5).
3. Write and successfully defend a dissertation of scholarly content and scope that demonstrates ability to carry out a substantial independent research project.

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<sup>1</sup> If a graduate student chooses Econometrics as his or her primary field, the requirement to complete this field is 4 credit hours of advanced Econometric courses beyond the 10-credit-hour core Econometrics sequence. Note that these advanced Econometric courses cannot also be counted toward meeting the methodology requirement.

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## 2. Faculty Research Interests

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*Area: Associated Faculty*

Antitrust/Competition Policy and Regulation: Cason, Martin, Mazur, Siebert

Applied Microeconomics: Barron, Carr, Cason, Gill, Hummels, Martin, Mazur, Mumford, Prowse, Roberson, Rosokha, Siebert, Sarzosa, Soderbery, Umbeck, Van Kammen, Vargas, Xiang

Computational Economics:\*\* Gallen, Mumford, Rosokha, Tobias

Econometrics: Bao, Kejriwal, Mumford, Siebert, Tobias

Economic Development & Growth: Hummels

Economic Education:\*\* Lynch

Economics of Uncertainty and Information: Barron, Cason, Novshek

Environmental/Resource Economics:\*\* Cason

Experimental Economics: Calford, Cason, Gill, Prowse, Raymond, Rosokha, Siebert, Zhang

Financial Economics:\*\* Bao, Hoelle

Game Theory & Applications: Calford, Cason, Mazur, Novshek, Raymond, Roberson, Siebert

Industrial Organization: Barron, Cason, Gill, Martin, Mazur, Novshek, Siebert, Soderbery, Umbeck, Xiang

International Economics: Hertel<sup>^</sup> (AgEcon), Hummels, Kejriwal, Soderbery, Xiang, Zhang

Labor Economics: Barron, Bond, Carr, Gallen, Gill, Kim, Mumford, Prowse, Sarzosa, Tobias, Van Kammen, Vargas

Macro/Monetary Economics: Bao, Barron, Gallen, Hoelle, Kejriwal, Kim, Zhang, Lynch

Mathematical Economics: Novshek, Raymond, Roberson

Microeconomic Theory: Hoelle, Novshek, Roberson

Organizational Economics: Barron, Bond

Political Economy:\*\* Roberson

Public Economics & Policy: Bond, Carr, Cason, Gallen, Gill, Kim, Mumford, Prowse, Vargas

See the department web site for more detailed information about faculty members' research interests.

\*\*Policy Committee approval is needed to use this as the field for an area examination.

<sup>^</sup>These faculty members have a courtesy appointment with the Economics department. Their department is in parentheses.

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### 3. Financial Aid

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Most Ph.D. students are awarded graduate teaching/research assistantships or research grants. These awards are accompanied by substantial university tuition and fee remissions, significantly reducing the cost of pursuing a doctoral degree. Graduate assistants engage in assignments that involve approximately 20 hours per week. Assignments vary according to a student's professional aspirations, performance in prior assignments, and progress in the Ph.D. program, and are made by the Area Coordinator for Economics.

A limited number of fellowships are also available to entering students. In addition, it is common for fourth year students to receive dissertation fellowships to work exclusively on their dissertations. Those who are accepted to the program with funding will receive funding, according to the terms outlined in their admission offer / assistantship letter, and as long as the student remains in good standing within the program. (See Section 5.)

For a student admitted without aid, it is possible to receive aid at some time. The aid is on a semester-by-semester basis. That is, each semester the Economics Policy Committee makes a determination as to whether aid will be granted for the following semester. Continued funding depends on both performance and the availability of funds. Financial need is not a consideration. Funding decisions are based on the research and teaching needs of the department as well as the records of the students and whether they are certified in spoken English. The number of assistantships is set by the school, and it is not within the power of the Policy Committee to extend the number of stipends beyond that.

RA and TA assignments are an integral part of assistantships, and a key part of the training for future academic and research positions for all funded students. The department keeps copies of student teaching evaluations, teaching awards, and other comments received from course coordinators or students. Evaluations on RA assignments are collected from all faculty members who have doctoral students assigned as RAs at the end of each regular semester and the summer term, and are also saved in your file. If a pattern of unsatisfactory evaluations is noted, or if egregious problems in fulfilling RA or TA assignments are observed even in one semester, this can lead to a review by the Policy Committee and possibly to termination of funding. All of the RA/TA evaluation information is treated as confidential, and is not sent by the department to prospective employers or to other offices at Purdue. You have a right to see the evaluations, and you will receive an email at the end of each term reminding you that the evaluations are being collected and placed in your file.

Funding is also sometimes available from sources outside the control of the Economics Policy Committee. Unfunded students should be alert for information about possible positions funded by CEER, CIBER, DCMME, and KEEP within the Krannert School, as well as possible positions in departments outside Krannert.

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## 4. Academic Integrity

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One of the most important characteristics of an economist is academic integrity. When reading another economist's work one must be confident that the work is original, correct, and properly represented. Any breakdown in academic integrity affects the entire community of economists.

As Ph.D. students in economics you must maintain strict standards of academic integrity. In your first few semesters this will consist mainly of requiring absolute honesty in homework and exams. When you begin writing class papers, your area exam, and your dissertation, the proper attribution of sources will also become important.

In homework and exams, academic integrity requires that you "play by the rules" so all work can be evaluated on an equal basis. Assume you are not allowed to collaborate on homework unless informed to the contrary by the instructor. If you are in doubt, ask. In any exam, only material explicitly permitted should be used. Unless stated otherwise, this means nothing but pens, pencils, erasers, and paper. If you have any question (e.g., whether a calculator may be used), ask it before the exam.

*Black's Law Dictionary* defines plagiarism as "the act of appropriating the literary composition of another, or parts or passages of his writings, or the ideas or language of the same, and passing them off as the product of one's own mind." In your papers and dissertation, you must be careful to attribute any words or ideas to their appropriate sources. All quotes, whether direct or indirect, must be properly attributed. Direct quotes should appear in quotation marks with a footnote acknowledging the source. Indirect quotes should be in your own words, with a footnote acknowledging the source of the idea. This is true whether the source is written or verbal (e.g., a conversation with a fellow student). Your writing should also present your results accurately.

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## 5. Satisfactory Progress Toward the Degree

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All students must maintain satisfactory progress to remain in the program. In addition, funded students must maintain satisfactory performance in their RA or TA assignments. The Economics Policy Committee makes the determination as to whether a problem exists. Performance that is not satisfactory results in an initial warning letter from the PhD Program Director. Continued unsatisfactory performance may lead to termination of funding or termination from the program.

The Economics Policy Committee meets each December and May to check each student's progress and advise the student of any problems. A student whose performance is deemed unsatisfactory may submit a written appeal to the Policy Committee explaining any deficiencies in progress and the reasons why funding should be continued. The committee must receive this appeal within three weeks of the original notification of the student's problem.

Satisfactory progress towards the degree is determined by:

- a) grades,
- b) timely completion of courses, and
- c) timely completion of non-course requirements.

These categories are discussed in detail in the next three subsections.

### 5a: Grades

Grades with +/- modifiers are used to determine whether grades are acceptable. For first-year students, the average of core course grades is the primary metric. An average of 3.0 or above is definitely acceptable, an average below 2.8 is not acceptable, and an average between 2.8 and 3.0 will be examined on a case-by-case basis for funding support. For students beyond the first year, any course grade of B- or below (or N or U for courses without the usual A-B-C grading) will trigger a review. In addition, the Graduate School requires the department to evaluate any student with an unsatisfactory grade (U) in Econ 699 for two semesters.

## 5b: Timely Completion of Courses

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FALL SEMESTER

SPRING SEMESTER

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### First Year

Mod 1	Econ 600 <sup>1</sup> Econ 606 Econ 608 Econ 615	Econ 610 Econ 612 Econ 671
Mod 2	Econ 607 Econ 611 Econ 670	Econ 609 Econ 614 Econ 672

### Second Year

Mod 1	Econ 674 Field #1/Field#2/Methodology <sup>4</sup> Field #1/Field#2/Methodology <sup>4</sup> Workshop <sup>3</sup>	Econ 673 Field #1/Field#2/Methodology <sup>4</sup> Field #1/Field#2/Methodology <sup>4</sup>
Mod 2	Field #1/Field#2/Methodology <sup>4</sup> Field #1/Field#2/Methodology <sup>4</sup> Elective <sup>2</sup> Workshop <sup>3</sup>	Field #1/Field#2/Methodology <sup>4</sup> Field #1/Field#2/Methodology <sup>4</sup> Elective <sup>2</sup>

### Third Year

Mod 1	Methodology Elective <sup>2</sup> Econ 699 (Dissertation Research) Workshop <sup>3</sup>	Econ 699 (Dissertation Research)
Mod 2	Econ 699(Dissertation Research) Workshop <sup>3</sup>	Econ 699 (Dissertation Research)

### Fourth Year

Mod 1	Econ 699(Dissertation Research) Workshop <sup>3</sup>	Econ 699 (Dissertation Research)
Mod 2	Econ 699(Dissertation Research) Workshop <sup>3</sup>	Econ 699 (Dissertation Research)

### Fifth Year

Mod 1	Econ 699(Dissertation Research) Workshop <sup>3</sup>	Econ 699 (Dissertation Research)
Mod 2	Econ 699(Dissertation Research) Workshop <sup>3</sup>	Econ 699 (Dissertation Research)

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<sup>1</sup> This course provides an introduction to the teaching of Principles of Economics.

<sup>2</sup> The required 6 credit hours of elective courses may be taken at any time after the first two semesters and before the fourth year.

<sup>3</sup> In spring and fall of years 2, 3, 4 (and 5 if funded) all students must be enrolled in one of the workshops.

<sup>4</sup> By the end of the second year, 12 credit hours of field courses must be completed. Ordinarily two fields should be completed by this time.

Students may not take more than one course outside Krannert in any spring or fall semester and may not take more than 15 credits in any semester (8 credits in summer session).

## 5c: Timely Completion of Non-Course Requirements

The table below provides a graphical summary of key program requirements and expectations surrounding when those requirements are to be completed. Cells in red indicate a deadline; failure to meet such deadlines implies that the student will not remain in good standing within the program. Cells in orange indicate times when the given requirements are expected to be completed. Cells in gray indicate optional extensions of those times (e.g., if a student does not meet quantitative course requirements in the second year, those requirements may be met by auditing the courses in the third year. Furthermore, some methodology / elective requirements may also be taken in the student's third year).

Please note that the table below is intended to serve as a quick guide; it is incomplete and lacking detail. Students must also read the text below for more information regarding the items enumerated in the table, and to find details on additional program requirements.

Requirement	First Year			Second Year			Third Year			Fourth Year			Fifth Year		
	F	Sp	Su	F	Sp	Su	F	Sp	Su	F	Sp	Su	F	Sp	Su
PhD Coursework															
Pass ETQE <sup>2</sup>															
Satisfy CQR <sup>3</sup>															
Area Exam Field <sup>4</sup>															
Prov. Committee <sup>5</sup>															
Area Examination <sup>6</sup>															
Oral Thesis Proposal <sup>7</sup>															
Plan of Study <sup>8</sup>															
Workshops <sup>9</sup>															
Thesis Research															
Thesis Defense															

### • First Year

#### *Fall Semester*

- Submit transcript showing previous degree conferred (if a condition of admission)
- Satisfy all other conditions of admission

#### *June (with a second chance in July if necessary)*

- Economic Theory Qualifying Examinations over 12 core credit hours of classes. These exams test material covered in Econ 606/Econ 607/Econ 609, and Econ 608/Econ 611/Econ 612. See Section 6a for details.

### • Second Year

<sup>2</sup> ETQE refers to the Economic Theory Qualifying Examination.

<sup>3</sup> CQR refers to Core Qualifying Requirements. See the description below for details.

<sup>4</sup> By March 15 of the second year of study, the student must declare his / her field for the Area Examination.

<sup>5</sup> The student must form a provisional thesis committee by May 15 of the second year.

<sup>6</sup> The area examination must be completed by the end of the Spring semester of the student's third year.

<sup>7</sup> A workshop presentation of proposed thesis research is required by the end of the Spring semester of the student's third year. This presentation is expected to summarize completed work on the area examination.

<sup>8</sup> The Thesis Committee and PhD Plan of Study form must be completed by September 15 of the third year.

<sup>9</sup> Starting in year 2, students must attend at least 11 workshops / seminars each semester.

***Throughout the year*** (timing dependent on the course)

- Core Qualifying Requirements: In each core course that is not covered in the Economic Theory Qualifying Examination, a student's performance must meet a qualifying standard. Course grades of A- or above automatically meet that standard. Performance below a grade of A- will be judged on a case-by-case basis by the course instructor and students will be informed whether their performance met the qualifying standard. This requirement applies to the required Econometric courses (Econ 670/Econ 671/Econ 672/Econ 673/Econ 674) and Econ 614.

A student who does not meet the qualifying standard in a required course must audit ("retake") that course the next time it is offered. For each audit, the student is expected to participate in course activities as required by the instructor of the course, taking exams (and possibly completing problem sets). Performance in such activities must demonstrate to the instructor that the student meets the qualifying standard. Initial grades in the required courses will not be changed as a result of the audits.

The student is afforded only one opportunity to audit ("retake") the required core courses. If, after a second attempt, performance in any of these courses does not meet the qualifying standard, this will be treated equivalently to a failure of the Economic Theory Qualifying Examination - that is, treated as if the student had failed the first try, re-take and oral Qualifying Examinations. (See Section 6a of this document for further details.) At this point the student is entitled to submit in writing an appeal to the Economics Policy Committee, which may consider outside information that would be to the benefit of the student.

***March*** (by March 15)

- Declaration of Field for Area Preliminary Examination: By March 15 of the second-year, each student must declare the 6-credit hour field sequence (4 for Econometrics) that will form the basis of his/her area examination. This area examination is restricted to field course sequences taken in the second year and taught by the economics department. (See Section 6b for details.)

## ***May***

- Form provisional thesis committee (See Section 6b for details.)
- Area Preliminary Examination (See Section 6b for details.)

## • **Third Year**

### ***August*** (by first day of fall semester)

- Submit "*Take-Home*" portion of Area Preliminary Examination
- Re-take "*In-Class*" portion of Area Preliminary Examination (if necessary)

### ***September*** (before September 15)

- Formation of Thesis Committee and Submission of Ph.D. plan of study (see Section 6c for details)

### ***November*** (by November 1)

- Re-submit "*Take-Home*" portion of Area Preliminary Examination (if necessary)

## ***December***

- Grant Proposals: Submissions of Purdue Research Foundation grant proposals are due in December. Grant proposals fund students during their fourth year so that they can devote themselves more completely to their dissertation research. All funded students are expected to apply for some source(s) of support. In preparing these grant proposals, a student should consult extensively with his/her thesis committee during the fall semester of the third year.

## ***January***

- Submit proposals for Krannert, CIBER and/or DCMME Research Grant competitions

## ***February or March***

- Thesis Proposal Defense: Each student must present a thesis proposal to his/her thesis committee during an economic workshop. The proposal must demonstrate that the student (a) has in-depth knowledge of the relevant literature, (b) has a specific, well-defined research question or questions and understands the significance of the question(s), (c) has a detailed research plan, (d) has successfully completed at least the initial stages of the research plan. Also, it must appear likely that the proposed research plan will be completed successfully within two years and will yield an acceptable dissertation.

## ***April*** (by April 30)

- Re-present oral and written thesis research proposal to Advisory Committee and to an Economics Research Workshop (if necessary).

## • **Fourth Year**

- During the fourth year of study, the student is expected to continue to work on his / her thesis research, keeping in close contact with his/her thesis advisor and thesis committee members to ensure timely and sufficient progress. The student is expected to have at least two polished papers by the start of their fifth year in the program. The student will continue attending workshops and, if funded, meet all requirements of his / her TA/RA assignments.

### ***November or Earlier***

- A fourth-year student is required to present his / her job market paper at a Purdue University Economics Department workshop. We strongly encourage that this presentation take place during the Fall semester of the 4<sup>th</sup> year in the program.

### ***January or Earlier***

- A complete draft of the job market paper must be submitted to the student's thesis committee by the end of January of his or her 4<sup>th</sup> year in the program. To remain in good standing the draft must be judged "acceptable" by at least three members of the thesis committee. Students with papers that are not ultimately judged to be "acceptable" will not be eligible for funding during the 5<sup>th</sup> year of the program.

## **• Fifth Year**

### ***October***

- Job Market (see Section 6d for details)

### ***June***

- Thesis defense: if all goes according to plan, the thesis should be completed and defended by the summer of the fifth year.

## **5d. Workshop Requirements**

In spring and fall of years 2, 3, 4 (and 5 if funded), each student must be enrolled in one of the workshops, Econ 613, 618, 668 or 690. The workshops typically are scheduled over the lunch hour, from 11:45 to 1:00. The workshops are important in terms of providing examples of the research process and different presentation skills, as well as providing exposure to topics and research methods outside one's immediate interests. Enrollment in a workshop involves meeting the following requirements and responsibilities:

- All students registered in a workshop must attend at least 11 seminars each semester. This total includes seminars by outside speakers sponsored by the Economics department, by speakers sponsored by the Management Department, by Economics students, and by approved seminars outside of Economics/Management. There are no exceptions. Of these 11 seminars, at least 7 must be speakers sponsored by the Economics department and at least 2 seminars must be Economics students. Approval of seminars outside of MGMT / the Department of Economics means that at least one Economics faculty member (typically the student's advisor) concludes, and then informs the seminar coordinator in writing, that the talk in question is appropriate for counting toward the 11-seminar requirement. Students MUST receive such permission from the faculty member(s) before the seminar has been given; credit sought after-the-fact will not be granted. The endorsing faculty member will also be responsible for verifying seminar participation. Students who do not meet these minimum requirements will receive an incomplete for their course grade.

Students should plan ahead so that conflicts or seminar cancellations do not prevent them from meeting this requirement. If you happen to have a teaching conflict, be sure to sit down with the faculty member running the workshop you have registered for at the start of the semester to discuss your options. Students receiving an incomplete will be required to make up their requirement, with two seminars required for each seminar they fall below the requirement.

- **All students** are expected to have coffee and visit with some of our outside speakers during the day of the seminar. This is an opportunity to discuss the presented paper as well as other research including student research. Coffee sessions will be held in the PhD student Basement lounge. To sign up to attend the coffee sessions, contact Matt Pavey (KRAN 407). Each student must attend at least 2 coffee sessions over the semester and at least 3 students should attend each coffee session.
- **All students** attending a seminar should act professionally. Students should arrive on time, pay attention, and not leave until the seminar has concluded. Doing homework, grading, or reading a newspaper is inappropriate. Students should never use laptops, phones, or other electronic devices during the seminar.
- **All third and fourth year students** must write a referee report on a paper presented by an outside speaker. The referee report must be given to the workshop coordinator before the seminar in which the outside speaker is presenting the paper. To write the report, the student will need to read the paper in advance of the seminar. Thus, referee reports will be limited to workshops when the outside speaker has made a paper available ahead of the seminar. Students who do not fulfill this requirement will receive an incomplete for their course grade. Students should plan ahead so that conflicts or seminar cancellations do not prevent them from meeting this requirement.
- **Third year students** must present a thesis prospectus seminar during fall or spring semester. You should discuss the timing of your thesis prospectus seminar with your committee members. You should confirm a date with the appropriate workshop coordinator.
- **Fourth year students** must present a paper during the fall semester in order to remain in good standing in the Ph.D. program in economics. The paper must present the student's own research results. In order to avoid end-of-semester bottlenecks, early in the semester you should discuss the timing of your talk with your committee members. You should confirm a date with the appropriate workshop coordinator by **September 30**. The paper must be presented before the end of regular classes, not during exam week. If you plan to be on the job market in your fourth year, you should plan to present your paper by **October 15**.
- **Fifth year students** must present their job market paper by **October 15** in preparation for the job market. Presenting the job market paper earlier provides more time for revision, so you should discuss the timing of your job market presentation with your committee members starting Sept. 1. You should confirm a date with the appropriate workshop coordinator as soon as possible.

### **Helpful Suggestions on How to Prepare a Referee Report:**

Start by reading the paper quickly so as to get the key ideas. Take notes about what the authors are trying to convey to the reader and the literature context of the paper. Consider how successful the authors are at their approach. Write down any major concerns that you had on this first reading.

Then, read the paper carefully and prepare the report. Reports should be written in a neutral and polite tone, one you might use if one of the senior professors asked your opinion of their latest book or working paper. Reports have three sections:

**Summary:** All reports should begin with a brief statement of the author's central thesis and should place it in the correct context. Write neutrally as you might if you were recording information for a senior professor. Answer the question, "what did the authors of this paper view themselves as doing?" Your

summary of the paper is a way of establishing your credibility with the authors who want to know if you have carefully studied the paper. This section is generally a paragraph or two in length.

**Evaluation:** In this section, you should answer the question, “has this paper made an important contribution to the literature?” Comparisons with similar papers are an appropriate way to place the contribution of the paper in context. You should describe any critical problems with the paper including places where the logical argument is not tight, the econometric tools are inappropriate, the conclusions are incorrect, or the contribution is inaccurately described. Consider if there is an alternative theory that is better suited that the author has ignored. If the work is empirical, comment on whether you found it convincing. You should not include a recommendation about whether the editor should reject the paper in the referee report. This is done in a letter to the editor not provided to the authors. This section is generally less than a page in length.

**Information for the Author:** The author should benefit from the referee report. You should comment on areas where the paper was hard to follow, derivations were obscure, or empirical work was incompletely described. Most referees divide this into two subsections. In the first, describe larger issues and what could be done to resolve them. In the second, list smaller problems (typos, spelling errors, grammatical issues) by page number. Look for references to the literature that are incorrect. Your writing should be polite; your goal is to provide helpful advice which would make the paper easier to understand.

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## 6. Details of Non-Course Requirements

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### 6a. Economic Theory Qualifying Examination (“Theory Prelim”)

This section explains the general policy concerning the Economic Theory Qualifying Examination and is meant to make the process more comprehensible – if not less painful – for participants. However, explicit rules governing the Examining Committee may change from time to time. In mid-January, the Krannert PhD Office will provide each first-year Econ PhD student with copies of the exams from previous years. Note the exam format changed after summer 2017.

Economic Theory Qualifying Exams are not intended purely as reviews of corresponding course material. While fairly direct questions on standard course material are possible, questions might also cover either unfamiliar applications of basic principles and techniques or topics that are important as theoretical tools but which might have been omitted in coursework. The purpose of the exam is to yield information (a) as to whether it is in the best interests of both student and department to permit a student to continue progress to the thesis stage, and – given a positive answer to (a) – (b) how best to help/encourage the student to have a strong foundation prior to embarking on a thesis. Thus the written exams are intended to reveal breadth and depth of theoretical foundations and economic intuition (both by covering core course material and by introducing variations on core material), and to give information about other skills (such as flexibility, care and organization of exposition, confidence) that are valuable in undertaking a thesis.

#### *i. Written Exam Format*

The Qualifying Examination consists of two parts, each 4.5 hours long. Each part covers three courses.

- Part 1 covers the Microeconomic Theory Core and includes the material from Econ 606, 607, and 609.
- Part 2 covers the Macroeconomic Theory Core and includes the material from Econ 608, 611, and 612.

Each part of the exam will consist of three sections, with each section based on one of the courses covered in that part. A section might consist of a single multi-part question or several separate questions. Each section of a part of the exam carries equal weight in the grading of that part.

#### *ii. Timing*

The initial Qualifying Examination is given during the fourth week of the twelve-week summer session. For those who do not pass the initial exam, the retake exam is given during the twelfth week of the summer session. The two parts of the Qualifying Examination are given on Monday and Friday from 9:00 AM to 1:30 PM. The standard order of the parts is: Monday Econ 606, 607, 609; Friday Econ 608, 611, 612.

The target for completion of all grading and final decisions on outcomes is Thursday of the week following the exam. If any oral examinations are necessary, they will typically be held the Monday after final outcomes for the retake are available.

#### *iii. Grading of the Written Exam:*

Each of the three sections of a part of the exam carries equal weight in the grading of that part. Each exam section is graded, independently, by the faculty member who wrote the questions in that section and by one other faculty member. This grading is done “blind” – i.e., with students

identified only by number. Scores for individual sections are on a scale from 0.0 to 4.0 (in tenths) and are based on the following criteria:

- 4.0 An excellent answer.
- 2.7 A “good” answer for the purpose specified below.
- 2.0 A minimally acceptable answer.
- 1.0 An unacceptable answer, but not a total loss.
- 0.0 An answer with no redeeming features or an egregious error.

*iv. Outcomes of the Written Exam:*

For the initial Qualifying Examination (the June exam), possible outcomes are "pass both parts," (recalling that Microeconomic Theory and Macroeconomic Theory represent the two parts), "pass one part and fail the other," and "fail both parts." Unless a student's scores indicate a clear pass the student will be asked to retake the exam in July. The Examining Committee feels that even for a student “close” to a passing result on the first attempt, the extra month of studying the core theory material covered on the exam will help to develop a strong foundation for thesis work.

For the retake Qualifying Examination, a student need only take those parts of the exam that were not passed in June.

After graders' decisions have been made, students' identities are revealed. Decisions made prior to this point are never altered. Students will be informed of the results by email as soon as all decisions have been made. Any student who fails will be provided with information regarding the general quality of answers in each section. [No information about scores will be provided.] Any student who must take an oral will be provided with the necessary information regarding scheduling of the oral.

**June Outcome Criteria:**

- *Pass Both Parts:* An average score of 2.0 or above on each of the two parts of the exam and, in each part of the exam, a score of 2.7 or above from at least one grader on at least one section.
- *Pass One Part and Fail the Other Part:* For the passing part, an average score of 2.0 or above on that part and a score of 2.7 or above from at least one grader on at least one section of that part. For the other part, an average score of 1.7 or above.
- *Fail:* All students not in either of the first two categories must retake both parts of the exam.

**July/August Outcome Criteria if Retaking Only One Part:**

- *Pass:* An average score of 2.0 or above and a score of 2.7 or above from at least one grader on at least one section.
- *Fail:* Not meeting the above criteria. If a student has not passed a part of the qualifying examination after a second attempt, the qualifying examination committee *may* afford the student the opportunity to take an oral examination in that part. Such a decision is at the discretion of the committee, and will only be granted in cases where performance was

very close to passing and there is reason to believe that the student will perform at a passing level during an oral examination. Students should regard the outcome where an oral examination is offered as unlikely, and expect that it will be necessary to pass both parts within two attempts in order to continue on toward the PhD degree. All decisions surrounding the possibility of an oral exam are final and will be communicated to the student along with his/her retake grade.

### **July/August Outcome Criteria if Retaking Both Parts:**

- *Pass Both Parts:* An average score of 2.0 or above on each of the two parts of the exam and, in each part of the exam, a score of 2.7 or above from at least one grader on at least one section.
- *Pass One Part:* For the passing part, an average score of 2.0 or above on that part and a score of 2.7 or above from at least one grader on at least one section of that part. For the other part, an average score of 1.7 or above.
- *Fail:* All students not in either of the first two categories are considered to have failed both portions of the qualifying examination.
- *Oral Examination Possibility:* If a student retakes both parts of the qualifying examination and receives either a “pass one part” or “fail” grade, the qualifying exam committee *may* afford the student the opportunity to take an oral examination in either the part that was failed (in the case of a “pass one part” grade) or in both parts (in the case of a “fail” grade). Such a decision is at the discretion of the committee, and will only be granted in cases where performance was determined to be very close to passing and there is reason to believe that the student will perform at a passing level during an oral examination. Students should regard the outcome where an oral examination is offered as unlikely, and expect that it will be necessary to pass both parts within two attempts in order to continue on toward the PhD degree. All decisions surrounding the possibility of an oral exam are final and will be communicated to the student along with his/her retake grade.

### *v. Oral Exam Preparation and Format:*

It is the student’s responsibility to prepare for the oral. Oral exams, when granted, take place a week or more after the written exam [see the Timing section], so any student who is not confident of having passed the retake and anticipates that an oral examination may be possible should use the time to prepare for an oral. Prelim Committee members will not answer any questions about the written exam before the oral examination.

At the oral, the student should be well prepared with both the mechanics and the economic intuition for the answers to all the questions on the written exam, especially those the student did not answer well. Also, students should have thought of potential modifications to exam questions or related questions because they may arise at the oral.

Oral exams last 90 – 120 minutes. Three to six faculty members from the Prelim Committee will be asking the student questions. The student being examined should bring copies of the written exam questions because the oral exam questions will start from there. No notes or answers should be brought to the oral. The student will use the white board in the examination room to write whatever is necessary to work through the questions that are asked, though some questions might

not require any board work. In a typical oral, questions start with ones from the written exam. As the question is being answered, features of the question might be modified to explore related topics or to check whether the student's understanding of the material is broader than one that relies on special features of the original problem. Questions completely unrelated to those on the written exam may also be asked at the oral.

Each student taking an oral exam will be informed of the outcome by email after the Examining Committee has had time to evaluate the performance of all students taking orals. Possible outcomes are pass, and fail.

*vi. Limits on Retaking the Exam*

There is a formal rule that, without special exemption from the Economics Policy Committee, a student may not continue to the thesis-writing stage of the program unless the student has passed the Economic Theory Qualifying Examination (on the first try, the retake, or the oral) before the start of the second year of the program. Thus, failing the retake (and oral exam, if offered) is prima facie a signal of impending departure from the Ph.D. program. If the final outcome is failure, the student may submit in writing an appeal to the Economics Policy Committee, which may consider outside information that would be to the benefit of the student. In any case, the student will be allowed to complete a master's degree in the fall semester of the second year.

*vii. Access to Written Exam Answers*

Solutions to the written exam questions will not be posted and graders will not comment on the grades given or solutions to the problems. It is solely up to the student to determine any errors made in his/her written exam answers and to discover the correct answers.

The Doctoral Office will return copies of a student's exam answers to the student only after receiving a written request from the Theory Prelim Chairperson. Such written requests will be made under the following limited circumstances:

- a. Only for students who have failed the exam for the first time and who ask for a copy;
- b. Only for "clean" copies of the original exam answers with no grader marks or comments;
- c. Only for personal use by the student.

The graders have been instructed not to comment on the grades given to any question. Only a designated Theory Prelim Chairperson can provide information to the student regarding the general quality of answers [and this is done as part of the notification of failure on the written exam]. The student cannot refer to any portion of his or her exam in any appeal procedure to either the Examining Committee or the Economics Policy Committee.

## **6b. Provisional Thesis Committees and Area Exams**

In March, each second year Ph.D. student must specify the (typically three-course) economics department field in which he/she will take the area exam. In May, each second year Ph.D. student must form a two-person provisional thesis committee.

*i. Provisional Thesis Committee*

During May, each student must form a provisional thesis committee consisting of either (a) one committee chairperson and at least one member or (b) two committee co-chairpersons. The

provisional thesis committee must have at least two members within the Department of Economics; forming a committee with more than two faculty members is fine, and perhaps desirable, but not required. This provisional committee should consist of the faculty members with whom the student expects to pursue thesis research. In most cases, the provisional committee members will form the core of the actual thesis committee, and the student should craft the committee with an eye toward his/ her intended thesis research.

To form a provisional thesis committee, students should discuss their research interests with the prospective committee members and obtain each faculty member's agreement to serve on the committee. Faculty members are not obligated to serve on any particular committee, so it is wise to be well prepared before meeting with any faculty member. In particular, a student needs to consider the match between his/her interests and the faculty member's areas of interest. A provisional committee form will be distributed in May.

The faculty members associated with each area are listed in Section 2. The areas include not only the usual fields offered, but also additional areas that might be the focus of a student's thesis. This should aid in the formation of provisional thesis committees.

## *ii. The Area Preliminary Exam*

The field chosen for the area exam must reflect an approved sequence of field courses taught in the economics department. In special circumstances a student may petition to have economics courses that do not form a regular field combined to form a field for the area exam. If you are considering doing this you must discuss the idea with the Director of Graduate Studies in Economics and receive support for doing so from your provisional committee chairperson / chairpersons.

The area exam consists of two parts, an "in-class" part and a "take-home" part. Both must be completed successfully in order to pass the exam.

### *-- The "in-class" exam*

The "in-class" part of the exam consists of a written examination similar to the theory qualifier, but on the course material covered in the field courses comprising the area. It is administered by the faculty members who taught the courses used to make up the field. *A student is exempt from the "in-class" part if grades for at least 4 credit hours of the courses are A- or higher and no grade is B- or lower.* If the "in-class" exam is unsatisfactory, it may be re-taken, subject to constraint that it must be passed by the end of Spring semester of the third year of study.

Please note that it is our expectation that the "in-class" portion of the area exam will be waived, as we expect that the student will have earned satisfactory grades in the field courses. Failing to meet the grade requirements within the field courses may provide a signal that the particular field of study may not be ideal for further inquiry.

### *-- The "take-home" exam*

The area examiners for the "take-home" exam are chosen by the student, and will be selected among members of the provisional thesis committee. If a single chairperson is identified when the provisional thesis committee is formed, that person must serve as an area examiner. When the provisional thesis committee has co-chairs, at least one of the chairs must serve as area examiner. A student may decide to use a single area examiner, although involvement of and feedback from several members of the provisional thesis committee would seem desirable.

Students must discuss their area exams with potential "take-home" examiners; we assume this discussion would take place in concert with discussions surrounding the formation of the provisional thesis committee. Once faculty members agree to serve as area examiners, they indicate their participation by signing the field declaration form submitted by the student.

In May, in consultation with his/her area examiner(s), each student should choose an area of literature to investigate in the "take-home" part of the area exam. The precise format of the "take-home" exam will depend on the student and faculty members involved. Most "take-home" exams are set up as papers that include a literature survey containing a synthesis of the papers reviewed, an examination of some potential research questions relating to this literature, and a simple model or empirical framework that could be used to investigate one of the questions. If the "take-home" paper is unsatisfactory, only one round of revisions is allowed. Students are, therefore, encouraged to begin work early in their second year on the area examination, thus allowing adequate time to revise and refine the work, as needed.

Although discouraged, students may also change fields and provisional thesis committee members / area examiners as part of this process. However, the "take-home" and "in-class" portions of the area exam MUST be completed by the end of the Spring semester of the student's third academic year. Failure to complete these requirements by the end of Spring semester, third year, will serve as grounds for dismissal from the program.

In order to pass, the "take-home" portion of the area exam a student must:

1. identify a viable thesis topic;
2. provide initial analytical work (e.g., a simple model) or an empirical framework (e.g., a data source and an outline of the procedures to be carried out on it) for analysis of that topic;
3. demonstrate the ability to provide a coherent, connected account of the work completed and
4. receive faculty approval (by the area examiners) that these conditions have been satisfied.

-- *Area exam schedule*

## **6c. Thesis Committee and Ph.D. Plan of Study**

A draft of your Ph.D. plan of study is due before September 15 of your third year in the Ph.D. program in Economics. You should work closely with your major professor(s) in deciding on courses to include and on the composition of the thesis committee (four faculty members are required). Faculty members are not obligated to serve on any particular committee, so it is wise to be well prepared before meeting with any faculty member. In particular, a student needs to consider the match between his/her interests and the faculty member's areas of interest.

Not all courses you have taken may be listed on the plan and there are some specific requirements, so please read this information carefully before completing your draft plan of study.

### *i. What to List on Your Draft Ph.D. Plan of Study and How to List it*

Your Ph.D. plan of study must include a minimum of 52 credit hours of courses you have taken, are taking now, or will take, in the approved Ph.D. program in Economics. Unless you have prior approval, no more than 3 of those 52 hours may be independent study (ECON 690) course credits. (Note that regular courses with number 690 are not included in this limit.) Only courses taken for a letter grade ("A", "B", "C") and for which you have earned/will earn at least a "C" may be included on the plan of study. Courses taken for "Pass/No Pass" are not acceptable. Economics Department workshops, for example, 613, 618, and 668, and Thesis Research, 699, cannot be listed. With prior approval of the Economics Policy Committee, your plan may include

500-numbered courses offered by the Economics Department or non-Economics courses. If you were allowed to waive a course, such as ECON 615, and obtained the appropriate signatures on an official waiver form, then you may list the equivalent course you took elsewhere in place of the waived course. Be sure to indicate it is a transfer course.

Courses should be listed under four or five groups/headings: the "Primary" groups of Economic Theory (ECON 606, 607, 608, 609, 610, 611, 612, 614, and 615), and Quantitative Economics (ECON 670, 671, 672, 673, and 674), along with two or three "Related" groups each consisting of field courses. Your elective courses may be placed under a separate heading of "Elective" or "Other," or included in an appropriate group.

The "Area of Specialization," and the title of the first set of "field" courses usually match.

If you received or will receive a Master's degree in Economics from Purdue, then all the courses you listed on (the final version of) your Master's Plan of Study should indicate "master's" registration.

Your plan of study must also include an advisory committee that consists of four members of the faculty from Economics or other departments. Students must discuss their research interests with the prospective committee members and obtain each faculty member's agreement to serve on the committee before including the names on the draft plan of study.

You do not need to list every course you will take as long as your listed plan meets the requirements. In particular, if you are uncertain about any courses you might take in the future, don't list them unless necessary. This reduces the chance that you will need to file an official revision to your Plan of Study.

Prepare your draft plan carefully. Please make certain that you list course titles **exactly** as they appear on your grade record, and that you list suffixes on those 690 courses that were not independent studies (e.g., 690M). Also, correctly list the date on which you completed/will complete each course.

Be sure to include the names of four faculty members who will serve as your Ph.D. advisory committee. If two faculty members will serve as major professors, be sure to label each one as a co-chair.

## *ii. Timetable*

Before September 15 of your third-year of graduate study, you must submit the draft version of your plan of study electronically, using Plan of Study Generator (POSG) via SSINFO. Kelly Felty will provide access details. If changes are needed, you will be informed of the necessary changes. Once your draft meets the requirements, you will be told to continue with the final submission. Signatures will be collected electronically. You and your committee members will receive a copy of the plan after it is approved in the Graduate School. (You must meet the conditions that were imposed on you and stated in your letter of admission from the Purdue Graduate School before the Graduate School will approve your plan of study.)

To receive your degree, you must achieve a cumulative grade point average of at least 3.0 in all of your graduate courses, and you must not have any remaining incompletes.

## *iii. Revisions*

Should you have committee or course changes later, or decide not to take a course listed on your Plan of Study, the plan must be revised, again electronically. See Kelly Felty for details of the process.

## **6d. Job Market**

By October of the fifth year of residence, the student should be ready to enter the job market. The first step to take in job search is to contact prospective employers. Application letters should be mailed no later than the first week of November. Job information is available from the October and November issues of Job Openings for Economists (JOE) published by the American Economic Association. The student should consult with the Economics Placement Director when preparing a resume and mailing list.

On the basis of his/her qualifications and field of specialization, the student may receive invitations for interviews at the Allied Social Science Associations (ASSA) meeting, which is typically held in early January. Before entering the job market, the student should have several research papers in hand to send to prospective employers. At least one of the papers should indicate substantive progress on the student's dissertation topic as well as his/her future research agenda. According to a survey reported in a recent issue of the Journal of Economic Perspectives, the research papers, together with the candidate's field of specialization and recommendation letters, are the most important factors influencing prospective employers' decisions to schedule an interview. Unless the student is exceptional, previous teaching experience and evidence of excellence in teaching are also important. This is especially true if the student's native language is not English. However, reputation cannot be built overnight. In this sense, the first time the student steps into classroom teaching, he/she begins accumulating capital for the job market.

An interview at the meetings usually lasts 30 minutes. Interviewers look for the candidate's ability to explain his/her current research, quality of his/her future research agenda and ability to respond to questions. In order to help the student prepare for these interviews as well as provide the faculty with a chance to evaluate his/her dissertation research and ability to teach before they write recommendation letters, the Economics Department requires the student to present his/her job market paper. In addition, the Economics Placement Director will schedule a mock interview prior to the ASSA meeting.

If, after the ASSA meeting, the student has made the "second cut," campus visits typically begin in January and may last until April. The evaluation process will again concentrate on the clarity of presentation, demonstrated teaching ability, knowledge of the literature, ability to explain technically difficult subjects, and ability to answer questions. At the margin, personality and social skills also affect prospective employers' decisions to extend an offer.

Not all positions are filled through the ASSA meeting. The unsuccessful student should investigate other placement activities in the "secondary market." The Midwest Economics Association meeting, which typically takes place in early April, provides one more chance to meet prospective employers. The student may also consider applying for a visiting position.

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## 7. Master of Science Degree in Economics

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A student who is enrolled in the Economics Ph.D. program is eligible to apply for, and receive, a non-thesis Master of Science degree in Economics upon completion of a minimum of 30 credit hours of courses in the doctoral program.

1. The student must declare his/her intention to earn the M.S. degree and file a formal M.S. plan of study in the Purdue University Graduate School prior to the start of the semester or summer session in which the degree is to be conferred.
2. The student's M.S. plan of study must include a minimum of 30 credit hours of approved courses. The twelve 2-credit first-year courses provide 24 of the 30 required credit hours. The remaining 6 credit hour requirement can be met by taking any Ph.D. level Economics or Management courses. The plan typically cannot include courses offered by the Krannert Graduate School with a number below 600. It may include approved courses numbered 500 or above taken in another department of the University. Check with the Director of Graduate Studies in Economics for course approval. A maximum of 9 credit hours of Purdue coursework used to satisfy the requirements of another Purdue master's degree may be used on the plan of study. Courses taken to fulfill a Master's degree program at another school may not be included.
3. The Director of Graduate Studies in Economics should be listed as the advisor on the M.S. plan of study. (A separate plan of study/advisory committee will be filed for the Ph.D. degree.)
4. Only grades of "A", "B", or "C" (including minuses) are acceptable in the courses listed on the student's plan of study; "Pass/No Pass" grades are not acceptable. The student must achieve a graduation index of at least 3.0 on a 4.0 scale in all courses taken in his/her graduate program.

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## 8. Master's Degree or Graduate Certificate Outside Economics

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Economics Ph.D. students with guaranteed departmental funding wishing to pursue a master's degree outside of the Krannert School are encouraged to take a one year leave of absence and to obtain funding from the degree-granting department. Any student in good standing who (1) has guaranteed departmental funding at the time that he or she enters the outside degree program and (2) remains in good standing in the outside degree program shall be readmitted into the economics Ph.D. program and shall be entitled to the unused portion of his or her funding guarantee, subject to the standard rules applicable to that guarantee.

Economics Ph.D. students wishing to obtain a Graduate Certificate in Applied Statistics may do so while enrolled in the economics Ph.D. program as long as no more than one course is taken outside Krannert in any spring or fall semester. The graduate certificate program requires 12 credit hours of statistics courses taken from a specified list. Check with the Statistics Department for details.