DOCTOR OF PHILOSOPHY IN INDUSTRIAL ENGINEERING

Program Requirements

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Student's Advisory Committee

After receiving admission to graduate studies and enrolling, the student will consult with the head of his or her major or administrative department (or chair of the intercollegiate faculty) concerning appointment of the chair of the advisory committee. The student's advisory committee will consist of no fewer than four members of the graduate faculty representative of the student's several fields of study and research, where the chair or co-chair must be from the student's department (or intercollegiate faculty, if applicable), and at least one or more of the members must have an appointment to a department other than the student's major department. The outside member for a student in an interdisciplinary degree program must be from a department different from the chair of the student's committee.

The chair, in consultation with the student, will select the remainder of the advisory committee. Only graduate faculty members located on Texas A&M University campuses may serve as chair of a student's advisory committee. Other Texas A&M University graduate faculty members located off-campus may serve as a member or co-chair (but not chair), with a member as the chair.

If the chair of a student's advisory committee voluntarily leaves the University and the student is near completion of the degree and wants the chair to continue to serve in this role, the student is responsible for securing a current member of the University Graduate Faculty, from the student's academic program and located near the Texas A&M University campus site, to serve as the co-chair of the committee. The Department Head or Chair of Intercollegiate faculty may request in writing to the Associate Provost and Dean of the Graduate and Professional School that a faculty member who is on an approved leave of absence or has voluntarily separated from the university, be allowed to continue to serve in the role of chair of a student's advisory committee without a co-chair for up to one year. The students should be near completion of the degree. Extensions beyond the one year period can be granted with additional approval of the Dean.

The committee members' signatures on the degree plan indicate their willingness to accept the responsibility for guiding and directing the entire academic program of the student and for initiating all academic actions concerning the student. Although individual committee members may be replaced by petition for valid reasons, a committee cannot resign en masse. The chair of the committee, who usually has immediate supervision of the student's research and dissertation or record of study, has the responsibility for calling all meetings of the committee. The duties of the committee include responsibility for the proposed degree plan, the research proposal, the preliminary examination, the dissertation or record of study and the final examination. In addition, the committee, as a group and as individual members, is responsible for counseling the student on academic matters, and, in the case of academic deficiency, initiating recommendations to the Graduate and Professional School.

Degree Plan

The student's advisory committee will evaluate the student's previous education and degree objectives. The committee, in consultation with the student, will develop a proposed degree plan and outline a research problem which, when completed, as indicated by the dissertation (or its equivalent for the degree of Doctor of Education or the degree of Doctor of Engineering), will constitute the basic requirements for the degree. The degree plan must be filed with the Graduate and Professional School prior to the deadline imposed by the student's college and no later than 90 days prior to the preliminary examination.

This proposed degree plan should be submitted through the online Document Processing Submission System located on the website http://ogsdpss.tamu.edu (http://ogsdpss.tamu.edu/). A minimum of 64 hours is required on the degree plan for the Doctor of Philosophy for a student who has completed a master's degree. A student who has completed a DDS/DMD, DVM or a MD at a U.S. institution is also required to complete a minimum of 64 hours. A student who has completed a baccalaureate degree but not a master's degree will be required to complete a 96-hour degree plan. Completion of a DDS/DMD, DVM or MD degree at a foreign institution requires completion of a minimum of 96 hours for the Doctor of Philosophy. A field of study may be primarily in one department or in a combination of departments. A degree plan must carry a reasonable amount of 691 (research). A maximum of 9 hours of 400-level undergraduate courses may be used toward meeting credit-hour requirements for the Doctor of Philosophy.

Additional coursework may be added by petition to the approved degree plan by the student's advisory committee if it is deemed necessary to correct deficiencies in the student's academic preparation. No changes can be made to the degree plan once the student's Request for Final Examination is approved by the Graduate and Professional School.

Approval to enroll in any professional course (900-level) should be obtained from the head of the department (or Chair of the intercollegiate faculty, if applicable) in which the course will be offered before including such a course on a degree plan.

No credit may be obtained by correspondence study, by extension or for any course of fewer than three weeks duration.

For non-distance degree programs, no more than four courses may be taken by distance education without approval of the Graduate and Professional School and no more than 50 percent of the non-research credit hours required for the program may be completed through distance education courses.

To receive a graduate degree from Texas A&M University, students must earn one-third or more of the credits through the institution's own direct instruction. This limitation also applies to joint degree programs.

Transfer of Credit

Courses for which transfer credits are sought must have been completed with a grade of B or greater and must be approved by the student's advisory committee and the Graduate and Professional School. These courses must not have been used previously for another degree. Except for officially approved cooperative doctoral programs, credit for thesis or dissertation research or the equivalent is not transferable. Credit for "internship" coursework in any form is not transferable. Courses taken in residence at an accredited U.S. institution or approved international institution with a final grade of B or greater will be considered for transfer credit if, at the time the courses were completed, the courses would be accepted for credit toward a similar degree for a student in degree-seeking status at the host institution. Credit for coursework taken by extension is not transferable. Coursework in which no formal grades are given or in which grades other than letter grades (A or B) are earned (for example, CR, P, S, U, H, etc.) is not accepted for transfer credit. Credit for coursework submitted for transfer from any college or university must be shown in semester credit hours, or equated to semester credit hours.

Courses used toward a degree at another institution may not be applied for graduate credit. If the course to be transferred was taken prior to the conferral of a degree at the transfer institution, a letter from the registrar at that institution stating that the course was not applied for credit toward the degree must be submitted to the Graduate and Professional School.

Grades for courses completed at other institutions are not included in computing the GPA. An official transcript from the university at which transfer courses are taken must be sent directly to the Office of Admissions.

Research Proposal

The general field of research to be used for the dissertation should be agreed on by the student and the advisory committee at their first meeting, as a basis for selecting the proper courses to support the proposed research.

As soon thereafter as the research project can be outlined in reasonable detail, the dissertation research proposal should be completed. The research proposal should be approved at a meeting of the student's advisory committee, at which time the feasibility of the proposed research and the adequacy of available facilities should be reviewed. The approved proposal, signed by all members of the student's advisory committee, the head of the student's major department (or chair of the intercollegiate faculty, if applicable), must be submitted to the Graduate and Professional School at least 20 working days prior to the submission of the Request for the Final Examination.

Compliance issues must be addressed if a graduate student is performing research involving human subjects, animals, infectious biohazards and recombinant DNA. A student involved in these types of research should check with the Office of Research Compliance and Biosafety at (979) 458-1467 to address questions about all research compliance responsibilities. Additional information can also be obtained on the website http:// (http://rcb.tamu.edu)rcb.tamu.edu.

Examinations

Preliminary Examination for Doctoral Students

The student's major department (or chair of the interdisciplinary degree program faculty, if applicable) and his or her advisory committee may require qualifying, cumulative or other types of examinations at any time deemed desirable. These examinations are entirely at the discretion of the department and the student's advisory committee.

The preliminary examination is required. The preliminary examination for a doctoral student shall be given no earlier than a date at which the student is within 6 credit hours of completion of the formal coursework on the degree plan (i.e., all coursework on the degree plan except 681, 684, 690, 691, 692, 693, 695, 697, 791, or other graduate courses specifically designated as S/U in the course catalog). The student should complete the Preliminary Examination no later than the end of the semester following the completion of the formal coursework on the degree plan.

Preliminary Examination Format

The objective of preliminary examination is to evaluate whether the student has demonstrated the following qualifications:

a. a mastery of the subject matter of all fields in the program;

b. an adequate knowledge of the literature in these fields and an ability to carry out bibliographical research;

c. an understanding of the research problem and the appropriate methodological approaches.

The format of the preliminary examination shall be determined by the student's department (or interdisciplinary degree program, if applicable) and advisory committee, and communicated to the student in advance of the examination. The exam may consist of a written component, oral component, or combination of written and oral components.

The preliminary exam may be administered by the advisory committee or a departmental committee; herein referred to as the examination committee.

Regardless of exam format, a student will receive an overall preliminary exam result of pass or fail. The department (or interdisciplinary degree program, if applicable) will determine how the overall pass or fail result is determined based on the exam structure and internal department procedures. If the exam is administered by the advisory committee, each advisory committee member will provide a pass or fail evaluation decision.

Only one advisory committee substitution is allowed to provide an evaluation decision for a student's preliminary exam, and it cannot be the committee chair.

If a student is required to take, as a part of the preliminary examination, a written component administered by a department or interdisciplinary degree program, the department or interdisciplinary degree program faculty must:

a. offer the examination at least once every six months. The departmental or interdisciplinary degree program examination should be announced at least 30 days prior to the scheduled examination date.

b. assume the responsibility for marking the examination satisfactory or unsatisfactory, or otherwise graded, and in the case of unsatisfactory, stating specifically the reasons for such a mark.

c. forward the marked examination to the chair of the student's advisory committee within one week after the examination.

Preliminary Examination Scheduling

Prior to commencing any component of the preliminary examination, a departmental representative or the advisory committee chair will review the eligibility criteria with the student, using the Preliminary Examination Checklist to ensure the student is eligible for the preliminary examination. The following list of eligibility requirements applies.

- Student is registered at Texas A&M University for a minimum of one semester credit hour in the long semester or summer term during which any component of the preliminary examination is held. If the entire examination is held between semesters, then the student must be registered for the term immediately preceding the examination.
- An approved degree plan is on file with the Graduate and Professional School prior to commencing the first component of the examination.
- Student's cumulative GPA is at least 3.000.
- Student's degree plan GPA is at least 3.000.
- At the end of the semester in which at least the first component of the exam is given, there are no more than 6 hours of coursework remaining on the degree plan (except 681, 684, 690, 691, 692, 693, 695, 697, 791, or other graduate courses specifically designated as S/U in the course catalog). The head of the student's department (or Chair of the Interdisciplinary Degree Program, if applicable) has the authority to approve a waiver of this criterion.

Report of Preliminary Examination

Credit for the preliminary examination is not transferable in cases where a student changes degree programs after passing a preliminary exam.

If a written component precedes an oral component of the preliminary exam, the chair of the student's examination committee is responsible for making all written examinations available to all members of the committee. A positive evaluation of the preliminary exam by all members of a student's examination committee with at most one dissension is required to pass a student on his or her preliminary exam.

The student's department will promptly report the results of the Preliminary Examination to the Graduate and Professional School via the Report of Doctoral Preliminary Examination form. The Preliminary Examination checklist form must also be submitted. These forms should be submitted to the Graduate and Professional School within 10 working days of completion of the preliminary examination.

The Report of the Preliminary Examination form must be submitted with original signatures of the approved examination committee members. If an approved examination committee member substitution (one only) has been made, that signature must also be included, in place of the committee member, on the form submitted to the Graduate and Professional School. The original signature of the department head is also required on the form.

After passing the required preliminary oral and written examinations for a doctoral degree, the student must complete the final examination within four years of the semester in which the preliminary exam is taken. Exams taken in between terms will expire at the end of the term that ended prior to the exam. For example, a preliminary exam taken and passed during the fall 2019 semester will expire at the end of the fall 2023 semester. A preliminary exam taken in the time between the summer and fall 2019 semesters will expire at the end of the summer 2023 semester.

Failure of the Preliminary Examination

First Failure

Upon approval of a student's examination committee (with no more than one member dissenting), and approval of the Department and Graduate and Professional School, a student who has failed a preliminary examination may be given one re-examination. In accordance with Student Rule 12.5, the student's department head or designee, intercollegiate faculty, or graduate advisory committee should make a recommendation to the student regarding their scholastic deficiency.

Second Failure

Upon failing the preliminary exam twice in a doctoral program, a student is no longer eligible to continue to pursue the PhD in that program/major. In accordance with Student Rule 12.5.3 and/or 12.5.4, the student will be notified of the action being taken by the department as a result of the second failure of the preliminary examination.

Retake of Failed Preliminary Examination

Adequate time must be given to permit a student to address inadequacies emerging from the first preliminary examination. The examination committee must agree upon and communicate to the student, in writing, an adequate time-frame from the first examination (normally six months) to retest, as well as a detailed explanation of the inadequacies emerging from the examination. The student and committee should jointly negotiate a mutually acceptable date for this retest. When providing feedback on inadequacies, the committee should clearly document expected improvements that the student must be able to exhibit in order to retake the exam. The examination committee will document and communicate the time-frame and feedback within 10 working days of the exam that was not passed.

Final Examination for Doctoral Students

The candidate for the doctoral degree must pass a final examination by deadline dates announced in the "Graduate and Professional School Calendar" each semester. The doctoral student is allowed only one opportunity to take the final examination.

No unabsolved grades of D, F, or U for any course can be listed on the degree plan. The student must be registered for any remaining hours of 681, 684, 690, 691, 692, 791 or other graduate courses specifically designated as S/U in the course catalog during the semester of the final exam. No student may be given a final examination until they have been admitted to candidacy and their current official cumulative and degree plan GPAs are 3.00 or better.

To be admitted to candidacy for a doctoral degree, a student must have:

1. completed all formal coursework on the degree plan with the exception of any remaining 681, 684, 690 and 691, 692 (Professional Study), or 791 hours,
2. a 3.0 Graduate GPA and a Degree Plan GPA of at least 3.0 with no grade lower than C in any course on the degree plan,
3. passed the preliminary examination,
4. submitted an approved dissertation proposal,
5. met the residence requirements.

The request to hold and announce the final examination must be submitted to the Graduate and Professional School a minimum of 10

working days in advance of the scheduled date. Any changes to the degree plan must be approved by the Graduate and Professional School prior to the submission of the request for final examination.

The student's advisory committee will conduct this examination. The final examination is not to be administered until the dissertation or record of study is available in substantially final form to the student's advisory committee, and all concerned have had adequate time to review the document. Whereas the final examination may cover the broad field of the candidate's training, it is presumed that the major portion of the time will be devoted to the dissertation and closely allied topics. Persons other than members of the graduate faculty may, with mutual consent of the candidate and the chair of the advisory committee, be invited to attend a final examination for an advanced degree. A positive vote by all members of the graduate committee with at most one dissension is required to pass a student on his or her exam. A department can have a stricter requirement provided there is consistency within all degree programs within a department. Upon completion of the questioning of the candidate, all visitors must excuse themselves from the proceedings.

Report of Final Examination

The student's department will promptly report the results of the Final Examination to the Graduate and Professional School via the Report of Doctoral Final Examination form. These forms should be submitted to the Graduate and Professional School within 10 working days of completion of the final examination. The Graduate and Professional School must be notified in writing of any cancellations.

A positive evaluation of the final exam by all members of a student's advisory committee with at most one dissension is required to pass a student on his or her final exam. The Report of the Final Examination Form must be submitted with original signatures of only the committee members approved by the Graduate and Professional School. If necessary, multiple copies of the form may be submitted with different committee member original signatures. If an approved committee member substitution (1 only) has been made, his/her signature must be included on the form submitted to the Graduate and Professional School.

Dissertation

The ability to perform independent research must be demonstrated by the dissertation, which must be the original work of the candidate. Whereas acceptance of the dissertation is based primarily on its scholarly merit, it must also exhibit creditable literary workmanship. The format of the dissertation must be acceptable to the Graduate and Professional School. Guidelines for the preparation of the dissertation are available in the *Thesis Manual*, which is available online at https://grad.tamu.edu.

After successful defense and approval by the student's advisory committee and the head of the student's major department (or chair of the intercollegiate faculty, if applicable), a student must submit his/her dissertation in electronic format as a single PDF file. The PDF file must be uploaded to the website, https://grad.tamu.edu. Additionally, a signed paper approval form with original signatures must be received by the Graduate and Professional School. Both the PDF file and the signed approval form are required by the deadline.

Deadline dates for submitting are announced each semester or summer term in the Graduate and Professional School Calendar (see Time Limit statement). These dates also can be accessed via the website https://grad.tamu.edu.

Each student who submits a document for review is assessed a one-time thesis/dissertation processing fee through Student Business Services. This processing fee is for the thesis/dissertation services provided. After commencement, dissertations are digitally stored and made available through the Texas A&M Libraries.

A dissertation that is deemed unacceptable by the Graduate and Professional School because of excessive corrections will be returned to the student's department head or chair of the intercollegiate faculty. The manuscript must be resubmitted as a new document, and the entire review process must begin anew. All original submittal deadlines must be met during the resubmittal process in order to graduate.