

MECHANICAL ENGINEERING, PH.D.

While pursuing a Doctor of Philosophy (PhD) degree in mechanical engineering, the student will take graduate-level courses and conduct research with a faculty advisor and observe how these studies will lead to key engineering innovations and societal impacts in the field of mechanical engineering. Equipped with complementary and state-of-the-art computational and experimental facilities, the Mechanical Engineering Department has active research programs in the following three disciplinary groups; Dynamic Systems & Control (DSC), ThermoFluids Science (TFS), and Materials Processing & Manufacturing (MPM). Faculty teach graduate-level courses and conduct research in cross-disciplinary research thrust areas that include: automotive systems, robotics and human systems, automation and mechatronic systems, energy and building efficiency, internal combustion engines, manufacturing systems, additive manufacturing, and materials processing and modeling. Graduate courses in these areas, in addition to the general core graduate courses, provide the foundation for earning a PhD degree in mechanical engineering. Additionally, the student demonstrates mastery of the selected study area through qualifying exams, the proposal of a research topic, and the defense of a research-based dissertation.

See the Admission Criteria section of this catalog for more information.

Students and faculty in the Department of Mechanical Engineering have access to state-of-the-art computational facilities and experimental capabilities. On-campus assets include numerous commercially available computational modeling software packages. In addition, high performance computing capabilities are accessible through The University of Alabama's Office of Information Technology. The department also has many state-of-the-art experimental facilities available for daily use by graduate students.

Many full-time PhD students seek some form of financial assistance in the form of a graduate assistantship or fellowship. Assistantships generally include a monthly stipend, tuition, and health insurance. Graduate Research Assistantships (GRAs) are awarded by individual professors with funded research. Applicants should communicate directly with a faculty member in the applicant's area of study interest concerning the availability of GRA positions and a potential match. The ME Department offers Graduate Teaching Assistantships (GTAs) for students assisting faculty members with undergraduate courses and laboratories. GTA awards are determined by the ME Department Head, with preference being given to PhD students. There are a very limited number of GTA positions each semester. There are also both internal and external fellowship opportunities available to applicants including, but not limited to, Graduate Council Fellowships (GCF) and Mechanical Engineering Fellowship.

Qualified students in the Mechanical Engineering undergraduate program at The University of Alabama are eligible for early admission into the PhD program through the Accelerated Masters Program (AMP). This program allows students to double-count up to 9 hours of graduate credit toward their undergraduate degree.

Admission Requirements

For admission to the PhD Program, a prospective graduate student should have:

- a Master's degree in Mechanical Engineering,
- a grade point average of at least 3.0 on a 4.0 scale

or

- a Bachelor's degree in Mechanical Engineering or related area (see below),
- a grade point average of at least 3.3 on a 4.0 scale, and
- a combined verbal and quantitative GRE requirement of 300 or greater.

There is no minimum score on the writing section of the GRE for admission to the PhD Program. The GRE requirement is automatically waived for those applicants holding an MSME degree from an accredited program. BSME applicants with 5 or more years of field-related work experience may contact the ME Graduate Program Director to inquire about a GRE waiver request. A short Statement of Purpose describing possible research/study interests and a Resume are required for each application. Applicants should also submit three letters of recommendation.

Current MSME students with a grade point average of at least 3.5 on 4.0 scale and 9 or more graduate credit hours may also apply for admission to the PhD program with the recommendation of his or her major advisor.

Applicants in related areas such as science and mathematics are encouraged to apply; however, prerequisite undergraduate courses will be required that will not apply for graduate credit.

International applicants whose first language is not English may be required to submit TOEFL scores of 92 or higher.

Accelerated Masters Program (AMP) – PhD Direct Admit

Current Mechanical Engineering (ME) undergraduate students at The University of Alabama with a 3.3 or higher GPA and 90 or more hours of undergraduate course credit are eligible to apply for the PhD direct admit program via the Accelerated Masters Program (AMP). AMP allows undergraduate students to earn admission to the PhD program and to simultaneously count up to 9 hours of graduate coursework toward both the undergraduate and graduate degrees. **The GRE test requirements are automatically waived for AMP applicants.**

Application Deadlines

There are no formal deadlines for graduate applications. Once an application is complete, the internal review process typically only takes a couple of weeks. However, **international applicants** should consider the time required to obtain any necessary travel documents. Only after the student has been accepted and the University has provided the appropriate paperwork can an applicant apply for appropriate travel documents. This process can take between two and six months, depending on the country of origin. Students must complete this process and arrive on campus prior to the first day of class. All of these steps should be considered by international students when planning to apply.

Degree Requirements

Graduate School Degree Requirements and College of Engineering PhD degree requirements are detailed below. Also refer to the online Graduate Handbook on the departmental homepage.

Doctor of Philosophy

The doctorate requires 48 credit hours of coursework beyond the Bachelor's degree, a comprehensive qualifying exam, and a dissertation. Students with a Master's degree will usually receive credit for 24 hours of course work. The dissertation must sufficiently document original

research that makes a significant contribution to the profession. Note that additional requirements may be stipulated by the UA Graduate School.

- A minimum of 48 semester hours (excluding ME 699 Dissertation Research) of approved courses that together satisfy all other course requirements for the degree
- A minimum of 24 semester hours of coursework in the major technical area, of which 9 hours may be in closely related supporting areas and of which 3 hours may be graduate research seminar
- A minimum of 12 semester hours in any minor technical areas included in the student's program of study
- The student must pass a qualifying examination and present a research proposal.
- An approved dissertation and a minimum of 24 semester hours of ME 699. Note that once ME 699 hours are started, there is a continuous registration requirement as described elsewhere in the graduate catalog.
- The student must provide a course portfolio to the dissertation committee. Refer to the online Graduate Handbook on the departmental web page for additional details.

Early in the graduate program, each student confers with a faculty adviser to select courses, discuss when and by which method the doctoral residency requirement will be completed, discuss research interests, and so forth. Then a Plan of Study is prepared and submitted to the Graduate School. The PhD Plan of Study is available at the Graduate School website under the forms section. All doctoral students must have a completed Plan of Study approved by the Graduate School no later than the semester during which the student will complete 30 semester hours of UA and/or transfer credit for the doctoral degree. Otherwise, a "hold" may be placed on future registration. If later there are changes in the Plan of Study, the student simply submits an amended PhD Plan of Study to the Graduate School at the time that the form for Admission to Candidacy for Doctoral Degree is submitted. A department-approved Admission to Candidacy for the Doctoral Degree is submitted to the Graduate School as soon as possible after passing the comprehensive (preliminary) examination.

See the online Graduate Catalog for details on Plan of Study, Admission to Candidacy, and all other Degree Requirements.

Doctoral Degrees

The University offers several types of doctorates, each of which is described below.

The minimum period in which a doctoral degree can be earned is three full academic years of graduate study after completion of a baccalaureate degree, although in most disciplines the period is longer. Graduate teaching assistants (GTA) or graduate research assistants (GRA) whose work assignments are 10 hours per week (i.e. the equivalent of 3 semester hours) or more should expect to take more than the minimum period of 3 academic years to earn a doctoral degree. The only exception to the three-year minimum is the practice-focused DNP.

Doctor of Philosophy Degree

The Doctor of Philosophy (PhD) degree is regarded as the researcher's degree. Program requirements include the acquisition of special skills for conducting independent, scholarly research of publishable quality. Requirements traditionally include a working knowledge of one or more foreign languages, but currently a number of foreign-language alternatives have been approved by departments. Through acquisition of these skills, PhD candidates demonstrate their potential for careers as

independent, publishing scholars. Refer to departmental sections of this Catalog for details on foreign-language requirements or alternatives.

The Doctor of Philosophy (PhD) degree is granted on the basis of scholarly proficiency, distinctive achievement in a special field, and capacity for independent, original investigation. The first two criteria are tested in coursework and a comprehensive examination, the last in a dissertation in which the student must present clearly and effectively the results of substantial research. A combination of these accomplishments, rather than the mere accumulation of residence and course credits, is the essential consideration in awarding the PhD degree. The PhD differs from the EdD in a number of ways, including the fact that the PhD Plan of Study and comprehensive examination demonstrate a higher-level research focus, and there is a greater number of dissertation hours and higher level of complexity and independent thought in a PhD-level dissertation.

Field of Specialization - A defined field of specialization is required of all candidates for the Doctor of Philosophy degree. A minimum of 48 semester hours of non-dissertation course credit is required. Candidates should consult their departments or the appropriate section of this Catalog for additional requirements. The doctoral course as a whole must be unified, and all its parts must contribute to an organized program of study and research. In addition, a student must complete a minimum of 24 hours of dissertation research.

Research skill/language requirements - There is no university wide foreign language/research skill requirement for doctoral students; each college or department offering the PhD degree may set its own requirements. This policy reaffirms the importance of research skills and foreign languages in the highest academic degree granted by American universities, but it also recognizes that the departments offering the degrees are in the best position to determine the number and nature of such requirements in the interests of their students. For further information about PhD foreign language/research skill requirements, students may contact their departments.

Interdisciplinary Studies

There is a PhD degree program in interdisciplinary studies, and it is administered by the Graduate School. In addition to the general requirements for the PhD degree, the program of study and the supervisory committee for the prospective interdisciplinary studies degree candidate must be approved by the dean of the Graduate School before the student is admitted to the program. See Interdisciplinary Studies (IDS) at the Graduate School's website for information on prerequisites, admission procedures, course of study, and other aspects of IDS programs.

Doctor of Education Degree

The Doctor of Education (EdD) requires a minimum of two years of graduate study beyond the master's degree for the completion of the EdD program. The student is required to complete 60 semester hours in approved graduate coursework research beyond the master's degree, or 90 semester hours of approved graduate courses, and to defend a dissertation. The student must complete a minimum of 12 hours of dissertation research. In the College of Education section of the Graduate Catalog, there are specific regulations governing the EdD program.

Doctor of Musical Arts Degree

The Doctor of Musical Arts (DMA) degree requires a minimum of 48 semester hours beyond the Master of Music degree, plus recitals and other examinations as determined by faculty of the School of Music.

Specific requirements for each major area are outlined in the School of Music section of the Graduate Catalog.

Doctor of Nursing Practice

The Doctor of Nursing Practice (DNP) is a joint program offered by the University of Alabama in Huntsville College of Nursing (UAHCON), the University of Alabama at Birmingham School of Nursing (UABSON), and The University of Alabama Capstone College of Nursing (UACCN). The DNP is a practice-focused degree that is detailed in the Nursing section of this Catalog.

Doctor of Social Work

A Doctor of Social Work (DSW) degree is a practice doctorate degree in social work. It provides coursework on theory and skills in social work practice that are more advanced than what one would typically experience in an MSW program for social work.

Admission to Doctoral Degree Programs

Admission to any doctoral program is limited to students whose scholastic records show distinct promise of success in doctoral study. Admission to the Graduate School and the earning of a master's degree from The University of Alabama does not guarantee acceptance into a doctoral program. Students in doubt about their acceptance into doctoral programs should consult with departmental advisors and the Graduate School, which makes the final decision about admission. A department may terminate a student's doctoral admission if there is documented unsatisfactory academic or other progress toward completion of the degree.

Residency Requirements

The University of Alabama recognizes that doctoral students should be immersed in advanced study and inquiry, interact extensively and meaningfully with faculty and peers, engage with the academic community in their field, and have access to the educational resources of the University. To achieve these goals, a minimum of 50 percent of coursework hours to be counted in a student's doctoral program must be from The University of Alabama (exclusive of dissertation research hours and subject to the Graduate Catalog's Transfer of Credit policies). Additionally, 100 percent of dissertation credit hours must be from The University of Alabama. Diverse academic traditions, rapidly changing instructional modalities, and new student populations are acknowledged and accommodated with this policy.

Graduate Credit

A student must be admitted to the Graduate School and must register as a graduate student in order to receive graduate credit. Approval for graduate registration must be obtained from program advisors prior to registration.

Graduate Credit for Noncredit Experiences

All course credit used toward a UA graduate degree must be taught at the graduate level. No graduate credit may be earned by correspondence study or for experiential learning not conducted under the direct supervision of graduate faculty of The University of Alabama. UA does not offer graduate credit for noncredit workshops, seminars, continuing education experiences, professional development, internships, work/life experience, and so forth.

Transfer of Credit

Graduate credit earned in the field of the doctoral degree from a regionally accredited institution in which the student was enrolled in the graduate school of that university may be considered for transfer and applied towards the requirements for a doctoral degree if approved by the

department and the Graduate School. Evaluation of credit for transfer will not be made until after the student has enrolled in the Graduate School of The University of Alabama.

In some cases, foreign educational credentials may not meet the Graduate School's criteria for transfer of credit. It may be necessary for students in this situation to secure an evaluation of their credentials from World Education Services Inc. (WES), an external foreign credential evaluation service. Additional information on their services can be found at their website.

There are two options for possible transfer of graduate credit at the doctoral level.

1. All doctoral programs: Up to one-half of the required coursework (exclusive of dissertation research hours) for a doctoral degree may be transferred from another institution if the credit was in-field and was earned during the six-year period (18 fall, spring and summer semesters) preceding the semester of admission to the UA doctoral program. Revalidation (recertification) of credits more than 18 semesters old at the time of admission to a doctoral program is not an option. Only courses in which a student earned a "B" grade or better may be transferred. Under this option, a Request for Transfer of Graduate Credit form must be submitted to and approved by the Graduate School.
2. PhD Programs Only: A student holding an earned, in-field master's degree may request approval for up to 24 hours of credit to be applied to the PhD. To do this, the student must have earned at least a "B" overall graduate GPA from the awarding institution. If approved for transfer, these hours would count toward the minimum 48 coursework hours required for the PhD degree. When exercising this option, a Request for Transfer of Graduate Credit form must be submitted to and approved by the Graduate School. The requested transfer credit hours must be listed on the PhD Plan of Study as MSC501 under the transfer credit section. If the in-field master's degree was awarded *more than six years prior to admission to the current doctoral degree program*, the graduate program director or department head/chair must also submit to the Graduate School for evaluation, a Field-Related Employment Since Earning Master's Degree form with the student's CV must be submitted by the department through the UA DocuSign system in myBama. In addition, the department is asked to provide the following, attached to the approved Plan of Study :
 - a. An annotated work history from the student. This history should include job titles and major duties for all positions since earning a master's degree.
 - b. A brief paragraph from the corresponding faculty member, attesting that he/she has reviewed the work history and how that work applies to the current Ph.D. degree program.

The Graduate School will make the final determination about whether up to 24 prior master's hours can be applied to the Ph.D. requirements.

PhD awarding departments that want to participate in offering Option 2 to their doctoral students, need to "opt in" by informing the graduate dean in writing that they wish to be among the approved departments.

Consideration of transfer of credit or the acceptance of an earned master's degree as credit toward a PhD program is subject to a final decision by the Graduate School. In either case the student must ensure that the Graduate School has an official transcript of all credit involved. This will ensure that the student and advisor are fully aware of course hours needed when submitting the required Plan of Study, which must be submitted by the time the student completes 30 hours of transfer plus UA

coursework. Planning to transfer courses in the final semester typically will delay graduation.

Please note that some departments allow fewer than 24 hours of graduate transfer credit. Be sure to check with your department's graduate coordinator regarding your department's transfer policy. Dissertation Research (699) may not be transferred in from an outside institution.

Time Limits

All requirements for the doctoral degree must be completed within nine years (27 fall, spring, and summer semesters) following admission to the doctoral program, with the following specific exception approved by the Graduate Council: Modern Languages and Classics (ten years if entering the doctoral program with a baccalaureate, not master's, degree).

Previous graduate credit may be applied to the doctoral degree if the credit was earned during the six-year period prior to admission to the doctoral program or accepted by the Graduate School as part of Option 2. Such credit must be identified clearly on the Outline of PhD Program (Plan of Study) and requires Graduate School approval. Only those students graduating within the time limit for their doctoral program may apply previously approved graduate credit to the doctoral degree. Revalidation (recertification) of any expired course credit is not an option.

Plan of Study

Early in the graduate program, each student must confer with the appropriate departmental advisor or major professor to select courses, discuss when and by which method the doctoral residency requirement will be completed, discuss research interests, and so forth. Then a Plan of Study must be prepared and submitted to the Graduate School by the time the student has completed 30 coursework hours.

The PhD Plan of Study and DMA Plan of Study are submitted by the department through the UA DocuSign system in myBama. The Plan of Study for other doctoral programs (Ed.D., DNP, DSW) are available from the student's department, college, or school. All doctoral students must have a completed Plan of Study approved by the Graduate School no later than the semester during which the student will complete 30 semester hours of UA and/or transfer credit toward the doctoral degree. Otherwise, a "hold" may be placed on future registrations.

A copy of the approved Plan of Study must be submitted to the Graduate School when the department submits the Admission to Candidacy for Doctoral Degree form through the UA DocuSign system in myBama.

Preliminary or Comprehensive Examination

A preliminary or comprehensive qualifying examination is required of all doctoral candidates. This examination is given after

- any foreign language/research skill requirements are met (PhD students only);
- two full years of graduate study are completed; and
- the supervisory committee deems the student to have adequate preparation in the major and minor fields of study.

The examination is conducted by the student's supervisory committee or other committee established in the program area. Whereas one of the purposes of the preliminary examination is to determine the student's research competence to begin work on a dissertation, the examination should be completed at least nine months before the degree is to be awarded. A student may take the oral or written examination only twice. Failing the examination twice results in dismissal from the degree program and the Graduate School.

Admission to Candidacy

The requirements for advancing to candidacy include passing the qualifying (major or preliminary) examination; completion of all coursework as listed on the approved program of study; receiving departmental approval of the dissertation subject (although some departments require the defense of a dissertation proposal and/or writing one or more preliminary sections of the dissertation as well); and having the committee recommend the student for Admission to Candidacy for the Doctoral Degree. The completed candidacy form is submitted to the Graduate School well in advance of the final semester.

Continuous Dissertation or Document Registration

Once a student has met the requirements for admission to candidacy, received approval for the dissertation research proposal, or initiated enrollment in 699 (dissertation/document research) or 739 (project research), the student must pursue completion of the dissertation without interruption by enrolling each fall and spring semester of the academic year

-PHD and EDD students are required to register for a minimum of 3 hours each semester.

-DMA and DNP students are required to register for a minimum of 1 hour each semester.

Summer enrollment is expected if the student is working on the dissertation/document/project and using any University facilities or resources, including faculty time. The only time summer registration is required for dissertation/document/project research is when a doctoral student is graduating in August or defending the dissertation/document/project during the summer semester. This is true whether or not the student has formally submitted an Application for Admission to Candidacy.

Each doctoral student must have completed the minimum number of dissertation research hours required for their degree program.

-PHD students must complete a minimum of 24 hours of dissertation research (699).

-EDD students must complete a minimum of 12 hours of dissertation research (699).

-DMA students must complete a minimum of 4 hours of document research (699).

-DNP students must complete a minimum of 7 hours of dissertation research (699).

The amount of dissertation/document/project research for which a student enrolls in any given semester should be commensurate with the progress a student is expected to make on the dissertation, as well as reflective of the extent to which University facilities and faculty time are invested in the proposed activities.

To assist faculty and students in determining the appropriate registration for doctoral research, the following guidelines are recommended:

Three semester hours. Little or no progress will be made on the dissertation, only minimal use of University facilities will be involved, and/or there will be only slight faculty contact with the student; the work and writing of the dissertation are complete and only final grammatical corrections and the oral examination on the dissertation remain to be accomplished.

Six semester hours. The student will be devoting approximately one-half of a full-time academic load to the dissertation. Moderate progress on the dissertation is expected of the candidate, only limited use of University

facilities will be involved, and/or faculty contact with the student will be limited.

Nine semester hours. The student will be devoting approximately three-fourths of a full-time load to the dissertation. Substantial progress on the dissertation is expected of the student, there will be major use of University facilities, and/or considerable faculty contact with the candidate is anticipated.

Twelve semester hours. The student will be working full-time on the dissertation. Extensive progress on the dissertation is expected, there will be considerable use of University facilities, and/or faculty contact with the student will be extensive.

Dissertation Proposal

The dissertation proposal aims to show the appropriateness, manageability, and significance of the projected research. The student formally presents the written proposal to the dissertation committee and defends it in a meeting with the committee. The proposal normally includes an introduction giving an overview and stating the significance of the proposed research, review of the literature, and methodology. Departments determine the details of the dissertation proposal's format with respect to such things as the length of the introduction and detail of the review of the literature.

Once the student and dissertation chair have developed a proposal, and the graduate dean has approved the dissertation committee, the student schedules the dissertation proposal meeting that includes all committee members. The student cannot propose a dissertation and have its final defense in the same semester.

Dissertation

A dissertation showing the ability to conduct independent research and skill in organization, writing, and presentation must be prepared on a topic in the major field. It must constitute an original contribution to knowledge. Early in the process, the subject of the dissertation must be approved by the dissertation committee of the major department or division and by the dean of the Graduate School.

A dissertation committee, with the director of the dissertation as its chairperson, supervises the preparation of the dissertation. The dissertation committee shall have not fewer than five members, all of whom are appointed by the dean of the Graduate School. Students may set up their committee through the Graduate Academic Activities portal on the Graduate School website.

All members of a dissertation committee must hold Graduate Faculty status at The University of Alabama and must represent at least two academic departments. The chair of the committee must be a full member of the Graduate Faculty, as described in the Catalog's section on Qualifications of the Graduate Faculty. A majority of the Dissertation Committee members must be full-time regular University of Alabama faculty. If the outside member is not a full or associate member of the UA Graduate Faculty (e.g., if s/he is a highly qualified person from another university, a business or industry), the graduate dean needs to appoint that member by approving Affiliate Graduate Faculty status for the specific purpose of serving on the student's dissertation committee.

The graduate dean's approval of the proposed dissertation committee is expected to be obtained before significant progress is made on the dissertation—typically just before or just after the dissertation proposal meeting. For this purpose, the student submits the Appointment/Change of a Doctoral Dissertation Committee through the Graduate Academic Activities portal on the Graduate School website.

The final oral dissertation defense is the culminating experience in the doctoral program. Once the dissertation committee has agreed that the student is prepared for the final oral dissertation defense, the student and committee members will set the defense date. As such, all members of the dissertation committee are expected to attend and participate in real time. Virtual attendance via interactive video or teleconference is permitted for off-campus external committee members, but the student and Tuscaloosa campus faculty should attend in person unless extraordinary circumstances dictate the need for virtual attendance. In circumstances where virtual participation is necessary, all participants must follow the Virtual Participation guidelines found below.

Virtual Participation

Scope and Goals

All members of a student's graduate committee are expected to attend and participate, usually in person, in any oral examination as part of the student's graduate (Master's or Doctoral) degree program. Traditionally, oral examinations are conducted with the student meeting their committee while gathered in one physical location on campus. However, the need occasionally arises for virtual participation in the oral examination. In these cases, graduate programs must ensure adherence to the following if any graduate-level oral examination involving the student's entire thesis/dissertation committee includes virtual participation.

- The student's consent must be sought and obtained in advance of conducting the oral examination with virtual participants.
- Virtual participation by committee members *must* include both audio and visual capability so that:
 - each committee member can hear the student and view the student, any presentation slides, and any demonstrations;
 - the student can hear and view each committee member.
- All committee members must participate interactively and in real-time for the *entire* examination, including any preparatory discussion leading up to it, the presentation itself, its discussion and evaluation.

The following sections provide detail on the technical and attendance requirements for an oral examination with virtual participation. Departments and programs may enforce stricter guidelines than those outlined, including an on-campus-only policy if deemed necessary and appropriate.

Technical Requirements

Real-time and fully interactive audio and video communications must be maintained throughout the examination and any related discussion. The audio/video communications facilities must allow the student and all committee members to see and hear each other during the entire examination. There must be adequate provision for the transmission of text, graphics, or writings referenced or generated during the examination (e.g., slides, whiteboard). The use of audio-only communications is not permitted.

In case of technical difficulties or technology failure, the committee will decide whether to continue the examination once the difficulty is resolved, or to cancel the examination and reschedule it for a later date, without prejudice to the student.

If the student or any committee member(s) have a disability that will be impacted by virtual participation, reasonable accommodations should be provided.

Attendance Requirements: campus-based programs

Programs should ensure that students are advised about virtual participation guidelines related to an oral examination, including reference to these guidelines as well as any other program-specific requirements.

It is generally expected that members of a graduate student's committee be physically present with the student for each oral committee examination. However, an oral examination may have virtually participating committee members according to the following rules:

- **Any one member** of the graduate student's committee (excluding the chair / advisor) can participate at a distance without seeking further authorization.
- The **committee chair** will be allowed to participate at a distance only if rescheduling the oral examination for a time when they are on campus would cause hardship to the student. In this case, the committee chair should submit a petition to the Dean of the Graduate School, outlining the reasons leading to the request.
- Similarly, a petition from the committee chair to the Dean of the Graduate School is also required if **more than one committee member** is to participate at a distance. Such petitions will only be considered if rescheduling the oral examination to a time when only one member of the committee would be participating at a distance would cause significant hardship to the student, as outlined in the petition.

All committee members participating virtually must be able to **fully interact** in the oral examination via audio and video capability; participation by viewing a recording of the oral examination is specifically prohibited. All members of the committee, on- or off-site, must participate in the evaluation of the examination; provisions must be made to record their vote and collect their signatures as necessary.

Student participation at a distance in graduate oral examinations involving their committee is generally not allowed for campus-based graduate programs. However, the committee chair and/or the graduate program director, in agreement with the student, may draft a petition to seek permission from the Dean of the Graduate School to conduct such an oral examination. This arrangement will only be considered if the committee chair agrees to it, and if rescheduling the oral examination for a time when the student is on campus would cause great hardship to the student; the petition should clearly outline the extenuating circumstances leading to this need.

Attendance Requirements: online or hybrid programs

An online graduate program is defined as a program in which no aspect of the degree program occurs on-campus, including oral examinations. A hybrid program is defined as a program which has both online and on-campus elements.

For online and hybrid programs that handle oral examinations in an online setting, all committee members as well as the student may participate virtually in the oral examination. However, these programs must fully adhere to the guidelines outlined in the Technical Requirements section above for any oral examination involving the entire committee.

Hybrid programs that require oral examinations to take place on campus must adhere to the guidelines set forth for campus-based programs.

Final-Semester Dissertation (699) Minimum Registration Hours

The dissertation must comply with the guidelines in A Student Guide to Preparing Electronic Theses and Dissertations. Graduate School deadlines, including each semester's dissertation deadline, are available at the Graduate School's homepage.

Consult the ETD website for details of ETD submission, including information on what needs to be submitted to the Graduate School. The graduate dean must approve the dissertation before the student can be cleared for graduation.

The Catalog section on Continuous Dissertation Registration for Doctoral Students states that once a student qualifies for doctoral candidacy, the student must enroll each semester for at least 3 hours of dissertation (699) research. If certain conditions are met for the student's final semester, the student may qualify to enroll for fewer than 3 hours of 699 dissertation research. A zero-hour or one-hour 699 registration is permitted only in the final semester. This exception applies only to students who registered for at least 3 hours of dissertation (699) research in the preceding semester and only under the conditions described in the table below:

| When was the *completed electronic dissertation submitted to ProQuest/the Graduate School? | Minimum hours of 699 registration required in the final semester |
|---|--|
| By 4:45 p.m. on the last-possible day for instructors to post grades for the semester before the student's final semester (date published in the ² University Academic Calendar) | 0 |
| After 4:45 p.m. on the last-possible day for instructors to post grades for the semester before the student's final semester, but before 4:45 p.m. on the last-possible day to register or add a course for the student's final semester (both dates published in the University Academic Calendar) | 1 |
| After 4:45 p.m. on the last-possible day to register or add a course for the student's final semester (date published in the University Academic Calendar) | 3 |

"Completed" means submitted to ProQuest after being successfully defended and carefully edited following the defense meeting. The dissertation chair or department designee must submit the Committee Acceptance Form (CAF) through the UA DocuSign system. The CAF is must be signed by all committee members, department chairperson, and graduate dean. The CAF is submitted by the department through the UA DocuSign system in myBama. At the time of ProQuest submission, the student also must submit the Survey of Earned Doctorates through the NORC website.

Footnotes

¹ International students on F-1 or J-1 student visas are not permitted to use the zero-credit hour exception above as the basis of maintaining minimum enrollment requirements as active students. Please see "USCIS" section under "Minimum Hours—Other Policies and Regulatory Bodies" on page 3 of this policy.

² The University Calendar is available at the Academics tab of the website of the University Registrar.

Article-Style Dissertations

This approach is intended for doctoral students whose dissertation will consist of a number of related manuscripts or articles that represent independent research or creative activity. It is an option available only

to students in certain fields in which the faculty have received Graduate Council approval from the Graduate Council. A complete list of these fields is below:

- Accountancy
- Aerospace Engineering and Mechanics
- Applied Statistics
- Biological Sciences
- Chemical Engineering
- Chemistry
- Civil Engineering
- Computer Science
- Economics
- Education (all departments)
- Electrical and Computer Engineering
- Finance
- Geological Sciences
- Health Education and Promotion
- Human Nutrition
- Interdisciplinary Studies
- Management
- Management Science
- Marketing
- Mechanical Engineering
- Metallurgical and Materials Engineering
- Physics
- Psychology

Article-style dissertations must be based upon research completed while the student is enrolled at The University of Alabama. For each article used, the student must be the first author, or equivalent, as defined by the discipline.

As with traditional dissertations, the article-style dissertation must be the student's original idea. It must be a unified work and include a sequence of articles of publishable quality around a cohesive theme, with a comprehensive review of literature demonstrating an in-depth understanding of the unifying framework.

- In article-style dissertations there will be introductory material to describe the studies, show how they are related, and explain their significance;
- connecting language to bridge each study to the next; and
- a summary making clear the importance of the studies, integrating the major findings, and discussing the implications for the overall topic.

These components do not have to be separate sections or chapters. They may be parts of the manuscripts or may be accomplished in an abstract.

All parts of both traditional and article-style dissertations must conform to the provisions set forth in A Student Guide to Preparing Electronic Theses and Dissertations, except when the circumstances of a specific project or discipline's style manual require deviation. Students considering the article-style approach should contact the Graduate School before beginning their work if they have questions concerning specific problems or deviations from traditional procedure.

All doctoral candidates must give members of the dissertation committee a minimum of two weeks to read the dissertation before the date of the required final oral examination.

Electronic submission of dissertations: August 15, 2009, is the date when electronic submission began to be required and paper submission no longer was accepted. Consult the ETD website for details of ETD submission, including information on what needs to be submitted to the Graduate School. The graduate dean must approve the dissertation before the student can be cleared for graduation.

Protection of Human Subjects for Research

Scientific research involving human subjects has produced substantial benefits for society, but it also has significant ethical questions. The mission of the University's Institutional Review Board (IRB) for Protection of Human Subjects is to ensure that research involving human subjects is conducted ethically. University and federal policies require that review and approval to use human subjects in research precede the research, no matter how great or small the involvement of the human subjects. In the case of dissertation research that involves the use of human subjects, the principal investigator is responsible for contacting the college Human Research Review Committee to obtain approval for the planned research. The University's IRB approval form is available at the IRB website.

Final Dissertation Defense

The final oral dissertation defense is the culminating experience in the doctoral program. Once all committee member are in agreement that the dissertation is ready for the final oral defense, the student and committee members will set a defense date. As such, all members of the dissertation committee are expected to attend and participate in real time. Virtual attendance via interactive video or teleconference is permitted for off-campus external committee members, but Tuscaloosa campus faculty should attend in person unless extraordinary circumstances dictate the need for virtual attendance. The dissertation must comply with the regulations in A Student Guide to Preparing Electronic Theses and Dissertations.

"Completed" means submitted to ProQuest after being successfully defended, carefully edited following the defense meeting, and having the Committee Acceptance Form (CAF) signed by all committee members, department chairperson, and graduate dean. A majority of the dissertation committee must approve the written dissertation and defense before submission to the Graduate School. The CAF is submitted by the department through the UA DocuSign system in myBama.

Graduate School deadlines, including each semester's dissertation deadline, are available at the Graduate School's homepage. Consult the ETD website for details of ETD submission, including information on what needs to be submitted to the Graduate School. The graduate dean must approve the dissertation before the student can be cleared for graduation.

Final Examinations

When the dissertation has been completed, the candidate will be given a final oral examination by a committee of not fewer than five members, one of whom must be from outside the student's major department or, for students in the College of Education, outside the student's program (not department), and appointed by the dean of the Graduate School. This examination will focus primarily on the candidate's research work, as embodied in the dissertation, and the field in which the dissertation lies, but it may encompass the complete program for the degree. The majority of the committee must approve that the student successfully defended the dissertation. The results of the examination must be

reported to the Office of the Graduate School at least six weeks before the commencement at which the degree is to be conferred.

Application for Graduation

Each candidate for a doctoral degree must submit an Application for Degree via myBama no later than the last day to register or add a course for the semester (or first term of the summer semester) in which requirements for the degree are to be completed. That specific date is published each semester at the Graduate School's website under Current Students/Deadlines for Graduate Students.

Withholding or Withdrawing an Advanced Degree

The University of Alabama reserves the right to withhold or withdraw an advanced degree on the recommendation of the graduate faculty.