

GRADUATE STUDENT MANUAL

Agricultural and Biological Engineering Department

Degrees through the College of Engineering

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Contact Information

Throughout this manual, references will be made to several people by their position names. The following is current contact information for those positions:

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Introduction

This Graduate Student Manual is for the use of graduate students, **who entered the ABE graduate program in Fall 2019 or later**, and faculty in the Agricultural and Biological Engineering Department of the University of Florida. It contains policies, regulations and suggestions applicable to making students' graduate programs mutually beneficial to the students and to the department. Our department offers graduate degrees in two colleges, the College of Engineering and the College of Agricultural and Life Sciences. This volume of the manual covers degrees offered through the Herbert Wertheim College of Engineering (HWCOE).

The graduate programs offered through the HWCOE for Agricultural and Biological Engineering (ABE) majors lead to the Master of Engineering, Master of Science, and Doctor of Philosophy degrees. The Master of Engineering and Master of Science degrees are intended for students who have completed an undergraduate degree and desire to further their technical and analytical skills. The Ph.D. degree is an advanced graduate degree for engineering students who wish to pursue a career in education or research. The department offers a combination B.S. and M.S. degree program, which allows qualified students to earn both a bachelor's degree and a master's degree with a savings of one semester. Qualified students can begin their master's program while a senior and count up to 12 hours of graduate courses for both bachelor's and master's degree requirements.

The Graduate Catalog (The University Record, University of Florida, Graduate Catalog, <http://gradcatalog.ufl.edu/index.php?catoid=4>) contains additional applicable information. This department manual is intended to supplement rather than duplicate the *Graduate Catalog*. The student should rely on the *Graduate Catalog* as a final authority except where a more stringent requirement may be imposed by the college or department. Students may graduate under the requirements of any one catalog in effect during their enrollment. The requirements stated in the catalog constitute a contract between the university and the student.

An exception or exemption from the policies stated in this manual may, in certain cases, be appropriate. Requests for exception or exemption will be reviewed by the graduate committee when submitted in writing, after approval has been granted by the Supervisory Committee.

Admissions Policy

General

Admission to a master's degree program requires a 3.00 upper division grade point average (GPA) (based on a 4.00 system) and submission of scores from the Graduate Record Examination (GRE). The minimum requirements for admission into the Ph.D. degree program are a 3.00 upper division undergraduate GPA, 3.25 graduate GPA and submission of scores from the GRE. No student who has failed a Qualifying Exam or final graduate exam at another University of Florida department will be admitted for graduate study in the Agricultural and Biological Engineering Department.

International students whose native tongue is not English must submit TOEFL (Test of English as a Foreign Language) or IELTS (International English Language Testing System) scores. A minimum score of 80 on the internet-based version, 213 on the computer-based or 550 on the paper-based TOEFL is required. The minimum score for the IELTS is 6.0. Conditional admission may be offered by the departmental graduate committee to students who do not satisfy the admission criteria including the cases of a deficiency in the GRE, TOEFL, IELTS or GPA requirements. A conditionally-admitted student must meet the conditions set forth in his/her admission letter in order that subsequent registration may be allowed.

International students who have spent at least 1 academic year in a baccalaureate or post-baccalaureate degree program at a college or university in a country where English is the official language, are exempt from taking the TOEFL exam if their attendance was in the year immediately prior to UF admission. Students from countries where English is widely spoken are exempt from taking the TOEFL exam. A list of exemptions is on the Graduate School's web site <https://admissions.ufl.edu/apply/international/countries.html>.

The entire application packet of students is considered when admission decisions are made; however, the GRE Score is a factor in most admission decisions. English is not the first language of many of our graduate students, so Verbal GRE scores of our graduate students range from 140 to 168. Quantitative GRE scores of students enrolled in master's programs in the COE range from 149 to 166 with an average of 154. Quantitative GRE scores of students enrolled in Ph.D. programs in the COE range from 152 to 169 with an average of 160.

The deadlines for applying for admission to the ABE graduate program are December 5th for applications for the Fall semester and July 15th for applications for the Spring semester. All scores and materials must be received by the stated deadline. Apply as soon as possible to receive full consideration for assistantships and fellowships. Students submitting by December 5th will be considered for funding in the following Fall semester. ***Note that departmental funding is generally awarded to highly qualified students beginning their graduate program in the Fall semester.***

Post-baccalaureate study

Post-baccalaureate study is for students who have already received a bachelor's degree from an ABET accredited institution. Students interested in post-baccalaureate study typically take undergraduate courses to fulfill requirements for professional school, teacher certification, prerequisites for graduate study, or licensure/certification. Because UF has limited space available for post-baccalaureate studies, applicants should communicate intentions with their proposed department before applying. Applicants will be considered on an individual basis.

Post-baccalaureate admission differs from standard graduate admissions. In the post-baccalaureate application process, the Office of Admissions must complete the following review before your application is referred to our department:

- Validation of transcripts and degrees
- Receipt of official test scores from the testing agency
- Determination of satisfactory conduct record
- Application fee payment of \$30

The Office of Admissions cannot forward an application to a post-baccalaureate program to the department until all materials and transcript(s) have been received.

B.S./M.S. Combination Degree Program

We offer a combination B.S./M.S. or M.E. degree through which up to 12 credits of graduate courses may be double-counted toward credit fulfillment of the B.S. and M.S./M.E. degrees. To qualify, the following requirements must be met:

1. Senior status (4EG)
2. Minimum upper division GPA of 3.3
3. Completion of pre-engineering coursework and 20 credit hours of the HWCOE and ABE Department core
4. Acceptable Verbal, Quantitative and Analytical Writing GRE Scores.

It may be possible to substitute required ABE courses with graduate courses; however, the ABE Undergraduate Coordinator must approve such substitutions. Replacement of elective credit within the B.S. option should be considered first. Please check the undergraduate catalog or contact the ABE Undergraduate Coordinator for qualifications and details.

Admission to the ABE Master of Engineering and Master of Science programs through the HWCOE generally requires a B.S. degree in Agricultural and Biological Engineering, or related engineering specialty, from an undergraduate program accredited by ABET (Accreditation Board for Engineering and Technology). If a student desires a master's degree with a major in Agricultural and Biological Engineering but does not have an undergraduate degree that has an ABET-equivalency, then articulation course work should be completed prior to or as early as possible in the student's graduate program. The current ABET requirements are given in Appendix A of this manual. As part of the ABET design requirement, the student will be required to take a minimum of 12 credits of Agricultural and Biological Engineering (ABE) design courses. A student may not be required to meet every requirement; however, exceptions will be made only after a review by the departmental graduate committee. The required articulation work for any graduate degree must be completed with a GPA of at least 3.00.

Admission to the Ph.D. degree program in Agricultural and Biological Engineering requires a B.S. degree in Agricultural and Biological Engineering or related engineering discipline from an ABET accredited undergraduate program or its equivalent. The student may have earned a master's degree in Agricultural and Biological Engineering or related engineering field or in other physical or life sciences. Exceptional students may be allowed to pursue an engineering Ph.D. directly after the completion of the B.S. degree.

Semester Evaluation Process and Individual Development Plan (IDP)

Each graduate assistant will be evaluated by his/her faculty advisor based upon performance of assigned duties; compliance with department requirements such as maintenance of office hours, regular visits with faculty advisor, academic progress; and meeting the requirements of the Supervisory Committee, department, college, and graduate school relating to the timely execution of required documents such as plan of study, Supervisory Committee appointment form, etc. Evaluation forms can be accessed on the ABE website at <https://abe.ufl.edu/graduate/resources/>. Graduate students are encouraged to discuss this process with their advisor.

All Ph.D. students will be required to create and update an IDP on an annual basis, in consultation with their advisors. M.S. students may be asked to complete an IDP at the discretion of their advisor. The IDP is intended to be a working document, to guide new and continuing Ph.D. students in identifying, pursuing, and meeting their professional and personal goals. The IDP is found on each student's Canvas e-learning page. Assignments should be completed in a timely manner. Students working on their Individual Development Plan are encouraged to access this CALS web site (<https://cals.ufl.edu/current-students/studentresources/idp/>). There they will find specific resources to help them gain skills in the IDP core competencies of Research Skills & Knowledge, Communication, Management and Leadership Skills, Effectiveness/Purpose, Professionalism, and Career Advancement.

Information about the IDP can be found at <https://cals.ufl.edu/current-students/studentresources/idp/>.

Academic Advisor and Supervisory Committee

Most students will be admitted only after a faculty advisor has been identified to serve as Major Professor and Chair of the student's Supervisory Committee. Students receiving external funding (example: NSF Fellowship) must select an advisor by the end of the first semester. Prospective students are encouraged to contact ABE faculty in their area of interest. In addition to the advisor, the student is required to have a Supervisory Committee consisting of approved graduate faculty members. The advisor will serve as Supervisory Committee Chair. Purposes of the student's Supervisory Committee are: 1) to guide, inform, and counsel the student; 2) to discuss and approve a plan of study; 3) to discuss and approve a thesis or dissertation topic and research project proposal; 4) to review progress and provide advice during the student's research; and 5) to conduct the Qualification (for Ph.D. students) and final examinations.

The Graduate School and the Agricultural and Biological Engineering (ABE) Department require that all Ph.D. Supervisory Committees be comprised of at least four faculty members, all with Graduate Faculty status. At least two members must be tenure-accruing or tenured faculty in UF Agricultural and Biological Engineering faculty and one must be from a different department within the University (the "external" member). Engineering Ph.D. committees must also include a member from another UF HWCoe department who may also serve as the external member. Special member status may be granted to non-University of Florida Ph.D. scientists who can contribute significant expertise to the student's committee, but a Special member cannot count as one of the four required members. If the student declares a minor (not required), at least one committee member must be from the minor department.

The Supervisory Committee must approve the dissertation topic and the plans for carrying out the research. In addition, the committee should meet with the student at about the mid- point of the research to review procedures, progress, and expected results, and to make suggestions for completion of the program. Students are encouraged to meet with individual committee members for advice outside of regular committee meetings.

Graduate School Policy on Ph.D. Supervisory Committees:

Roles and Responsibilities of the Doctoral Supervisory Committee

Supervisory committees for graduate degree programs are nominated by the respective academic units, approved by the college dean, and appointed by the Dean of the Graduate School. Staff entering supervisory committee data into

GIMS (Graduate Information Management System <http://gradschool.ufl.edu/gimsportal/gatorlink/portal.asp>), do so with the approval of the student's committee chair, the chair/director of the academic unit, and the college dean. At least four members of the Graduate faculty are required for all doctoral supervisory committees. A Special member will not count as one of four required committee members but must be an additional member. More members may be added by agreement of the chair and candidate. It is acceptable for departments to require more than four members on supervisory committees. All members must participate in the examinations, but electronic presence (video conference, phone) is allowed. The student and the chair must be physically in the same room during exams.

1. Chair

- Must have graduate faculty status in the student's department/major and be tenure-accruing or tenured Agricultural and Biological Engineering faculty.
- Cannot be a Special Appointment.
- Serves as the candidate's mentor.
- Assists the candidate with all committee appointments and has primary responsibility for the conduct of all examinations.
- Must escort the candidate at commencement or find an appropriate substitute.
- Is responsible for annual review and discussion of the student's Individual Development Plan and any required evaluations.

2. Co-chair

- Is required to have Graduate faculty status in the ABE department.
- May substitute for the chair at any examination, but only if the co-chair is tenured or tenure-accruing faculty in the ABE department
- Must have affiliate status in the department if not a member of the ABE faculty with graduate faculty status in both their UF tenure department and the ABE department.

3. Members

- Must include at least one other member from the student's degree program, in addition to the chair.
- Other members can be from the program recommending the degree or from a different educational discipline.
- Must include one member with graduate faculty status in another UF Engineering program for PhD HWCOE committees. May serve as the external member.
- Serve to assist the student and chair with the research/scholarship of the dissertation and all examinations.

4. External Member

- Must be outside the student's major.
- May also serve as the HWCOE representative for PhD committees in that college (see above).
- Has the primary responsibility to represent the interests of the student, and the policies and practices established by the Graduate School.
- Cannot be a Special Appointment.
- May represent minor areas of study as long as they do not have Graduate Faculty status in the student's major.

Students are encouraged to develop a close working relationship with their advisor and Supervisory Committee members and to communicate academic and department interests and concerns to them. Each student should schedule at least a one-hour meeting with his/her advisor each week to insure adequate communication.

An effective graduate degree program requires that course work, research and assistantship duties all reinforce the student's educational objectives. To facilitate this coordination, the Supervisory Committee should be formulated and submitted to the departmental graduate committee for approval as listed ([see Appendices E and F](#)). **A registration hold will be placed on all students not completing their committee as required.**

Master's students should submit a Supervisory Committee by the end of their 2nd semester of study.
Ph.D. students should submit a Supervisory Committee by the end of their 3rd semester of study.

Plan of Study

Each plan of study is unique to the individual student and should meet the student's goals and career objectives as well as being cohesive and concentrated in an area of study. Graduate students and their Supervisory Committees

are expected to complete a plan of study by the designated time ([see Appendices E and F](#)). A plan of study must be submitted to the graduate committee no later than the end of the 2nd semester of study for master's and by the end of the 3rd semester of study for Ph.D. students. Each student's plan of study must satisfy all requirements of the Graduate School and the Department as stated in the *Graduate Catalog* and this manual. **A registration hold will be placed on all students not completing their plan of study as required.**

Graduate credit is awarded for courses numbered 5000 and above. The work in the major field must be in courses numbered 5000 or above. For work outside the major, courses numbered 3000 or above, not to exceed 6 credits, may be taken provided they are part of an approved plan of study. None of the courses below the 5000 level with an ABE, AOM or PKG prefix may be used toward meeting the minimum requirements. No required courses for the B.S. degree in Agricultural and Biological Engineering may be counted as part of the minimum requirements for students earning a Master of Engineering or Ph.D. degree. Courses in the Agricultural and Biological Engineering Department below the 5000-level and courses required for undergraduate degrees should be included on a plan of study as articulation courses in excess of the minimum requirements.

Templates are available to assist the student in developing a plan of study. The required Supervisory Committee and plan of study templates can be accessed through are available on the department's website pages <https://abe.ufl.edu/graduate/resources/> After a plan of study has been approved by the student's Supervisory Committee, a copy must be submitted with the student's advisor's signature to the Staff Academic Advisor for submission to the departmental graduate committee for final approval.

Since a Supervisory Committee and plan of study are formulated early in the program, it is likely that a student may wish to change a plan of study, committee, or even an advisor. There should be no hesitancy to make changes that are recognized to be educationally sound. If it becomes necessary to amend an approved plan of study, changes must be approved by the Supervisory Committee chair and the departmental graduate committee representative.

Non-Thesis Master's Option

Ph.D. students can obtain a non-thesis master's if they have completed 30 or more hours of coursework that satisfies the math, seminar, supervised teaching and the 15-hour Major course requirements of their college. The non-thesis master's program requires a Supervisory Committee and plan of study. The Supervisory Committee and plan of study must be approved by the Graduate Committee no later than the semester prior to the term in which the degree is awarded. **Students must be registered in at least 3 hours of graduate level coursework** related to the M.S. degree during the semester of graduation. Students may not be registered only in Ph.D. research.

Transfer of Credit

Courses Taken as a Graduate Student at another institution:

Courses open only for graduate credit (5000 and above) earned with a grade of A, A-, B+, or B may be transferred from an institution approved for this purpose by the Graduate School. Acceptance of transfer credit requires approval of the student's Supervisory Committee Chair or the Graduate Coordinator, the college dean, and the Graduate School. Transfer of credit may be considered from course work taken after completion of the undergraduate degree. Transfer coursework must be taken within the 7 years immediately preceding the date that the degree is to be awarded. Courses with "P" or "S" grading cannot be transferred. Transfer hours cannot be split (e.g. 9 hours taken, 8 transferred). A maximum of 9 credit hours may be transferred under the above guidelines as part of a master's program.

For Ph.D. programs, a maximum of 24 course credits and a maximum of 6 research credits can be transferred from a master's program into the Ph.D. plan of study. The course credits transferred must be appropriate to the Ph.D. and be an integral part of the student's plan of study. An **official final** transcript from the previous institution(s) must be on file with the UF Admissions Office.

For a Ph.D. program, a maximum of 15 credit hours beyond the master's degree may be transferred in addition to the 30 credit hours allowed for the Master's degree.

Note: As in all cases, how a general policy line affects a specific student will be unique, so transfer of credit is never automatic or guaranteed for any graduate student. Requests for transfer credit from a non-ABE MS program (i.e. ‘Out of Major’’) will require a justification statement from the student’s faculty advisor.

Courses Taken as an Undergraduate student at UF:

University of Florida undergraduates who subsequently enroll in Graduate School may transfer a maximum of 15 credits of 5000 or 6000 level courses, earned with a grade of A, A-, B+, or B, taken as an undergraduate, provided (1) the courses to be transferred are in excess of the undergraduate degree requirements, and (2) the student had a 3.0 GPA at the time the courses were taken.

Courses Taken as a Graduate student at UF:

For Ph.D. programs, a maximum of 24 course credits and a maximum of 6 research credits can be transferred from a master’s program into the Ph.D. plan of study. The course credits transferred must be appropriate to the Ph.D. and be an integral part of the student's plan of study.

For a Ph.D. program, a maximum of 15 credit hours taken at UF beyond the master’s degree may be transferred in addition to the 30 credit hours allowed for the Master’s degree.

Transfer of Credit Request:

If a student meets all requirements, the student must submit the [ABE Transfer Credit Request Form](#) to the Staff Academic Advisor to begin the process. *An official, final transcript of the student’s master’s program must be on file at the UF admissions office or the transfer of credit will not be processed.*

All courses to be transferred must be graduate-level, letter-graded with a grade of B or better and must be demonstrated to relate directly to the degree being sought. All such transfer requests must be made no later than the third term of Ph.D. study. *Note that transfer of credit (or TOC) requests will take several months to process and may take up to 8 months for credit transfers from accredited international institutions.*

The total number of credits (including 30 for a prior master’s degree) that may be transferred cannot exceed 45, and in all cases the student must complete the Qualifying Examination at the University of Florida. In addition, any prior graduate credits earned at UF (e.g., a master’s degree in the same or a different discipline) may be transferred into the doctoral program at the discretion of the Supervisory Committee and by petition to the Graduate School. **The petition must show how the prior course work is relevant to the current degree.**

Concurrent Graduate Programs:

ABE students interested in pursuing a second master's degree from another department or pursuing a second Master's degree from the ABE Department (AOM) concurrently must obtain written approval from each academic unit and the Graduate School Dean. The student must be officially admitted to both programs through regular procedures. No more than 9 credits from the first program may be applied toward the second. Contact the academic unit(s) for details.

Students currently enrolled in a graduate degree in another department at UF can pursue a concurrent master's degree in the ABE Department. Students must apply for admission to the ABE graduate program and be admitted. Students must have the first department forward the student's application materials to ABE and the student must fill out and obtain appropriate signatures on the Graduate School Concurrent Degree Program Form <http://graduateschool.ufl.edu/media/graduate-school/pdf-files/concurrent-degree-program-form.pdf>.

Time Limitation

All work, including transferred credits, counted toward the Master's degree must be completed during the 7 years immediately preceding the date on which the degree is awarded. All Master's degrees counted in the minimum course requirements for a Ph.D. degree must have been earned in the last 7 years.

Research Project Proposal

Graduate students are expected to submit an initial research proposal to their Supervisory Committee Chair ([see Appendices E and F](#)) no later than the end of the 2nd semester of study for Master's and by the end of the 3rd semester of study for Ph.D. students. This initial proposal should identify the research topic, state the proposed objective of the research project and present a time line for the student's graduate program:

1. Cover page with proposed thesis or dissertation topic or title, student's name, degree objective, and names of Supervisory Committee members. The cover page must be signed by the Supervisory Committee Chair indicating approval of the proposed research by all Supervisory Committee members.
2. Objectives - should be concise and logical.
3. Timetable - should indicate anticipated deadlines for completing various aspects of the research project.

Requirement	Semester	Year
Admission to ABE Graduate Program		
Completion of Coursework		
Qualifying Exam (for PhD students)		
Final Exam		
Expected Graduation Date		
End of Assistantship Funding (<i>as stated on original Letter of Offer</i>)		

The initial research proposal should be brief (1-2 pages text, plus 1 page for timetable). The student should continue to develop the initial research proposal into a full research proposal under the guidance the student's Supervisory Committee.

Ph.D. and Master's students (thesis option) are expected to develop a full research proposal for approval by their Supervisory Committee. The research proposal serves as a guideline for the student's research program. All graduate research projects are expected to include both analytical and experimental components. Electronic copies should be provided to each member of the Supervisory Committee.

Requirements for Master of Engineering and Master of Science Degrees

Each plan of study for Master's degree with thesis must have a minimum of 24 course credits plus up to 6 hours of thesis research for a total of 30 hours. For a non-thesis degree, the minimum requirement is 30 hours of course work. Each plan of study must include a minimum of 12 credits of AOM, ABE or PKG courses at the 5000 level or higher. (Non-Thesis programs must include 15 hours of departmental coursework). The plan also must include a minimum of 3 credits of mathematics at the 5000 level or higher. A list of approved math courses is provided in [Appendix C](#). *(Students wishing to use credit from a graduate math course not listed in the ABE Graduate Manual or from another institution must provide a copy of the syllabus for approval by the ABE Graduate Committee).*

A Master's degree with thesis must include a minimum of 3 credits of thesis research. Additional thesis research credits may be taken to meet minimum registration requirements; however, the additional credits will not count toward meeting the credit hour requirements of the degree. **Students are required to take research credits during their semester of graduation (3 in Fall/Spring, 2 in Summer).** Work in the major field must be in courses numbered 5000 or above. *Courses in the minor field cannot be substituted for departmental major courses (ABE/AOM/PKG).* For work outside the major, courses numbered 3000 or above, not to exceed 6 credits, may be taken provided they are part of an approved plan of study.

A maximum of 3 credits of AOM/ABE/PKG 6905 may be applied toward the minimum requirements for any single Master's degree. These credits will be considered for approval only when a description of the course content is filed with the plan of study. The student must obtain advisor approval before taking the course.

Master's students are allowed to take a maximum of 3 credits of supervised teaching (ABE 6940). Typically, 30-40 hours of work is required to support 1 hour of supervised teaching. Students will be placed in assignments that best fulfill the needs of the ABE Department with priority given to undergraduate courses with significant enrollments or graduate courses with a minimum of 10 students. Exceptions must be approved by the ABE Department Chair. *All graduate students are required to take the [on-line FERPA training \(PRV802\)](#) prior to enrollment in ABE6940.*

Students entering an ABE Graduate program in Fall 2017 and beyond must also complete the core activities portion of <https://teach.ufl.edu/grow-your-teaching/certificates/> (Great Teaching Certificate: TA Edition) prior to registering for credits in ABE6940.

Non-Thesis Option

Master's degree students may choose a non-thesis 30 credit coursework only degree option. Normally, graduate assistantships will not be available to students pursuing non-thesis degrees. The non-thesis plan of study must include a minimum of 15 credits of major courses at the 5000 level or above that defines a meaningful, integrated area of academic concentration. Students may include a design or analysis project in their plan of study by enrolling in a maximum of 3 credits of ABE6905.

All students pursuing non-thesis degrees are required to present a written or oral final exam presentation to their Supervisory Committee in the final semester of their graduate program. The topic should be related to the student's area of interest.

Major Area

The plan of study must include a minimum of 12 credits (15 credits for a nonthesis degree) of ABE major courses at the 5000 level or above which defines a meaningful, integrated area of academic concentration (excluding ABE 6910 and ABE 6971.) One hour of Seminar (ABE 6931) and one hour of Supervised Teaching (ABE 6940) must be included in the major.

Minor Area (optional) – MS-ME

For the Masters degree, a minimum of 6 credits at the 5000 level or higher is required for a minor in a certain department or program area as approved by the minor department or program area representative(s) on the Supervisory Committee. Course work in the minor is not limited to the course offerings of one department, provided that the minor has a clearly stated objective. The combination of courses selected for the minor needs to be as part of

the plan of study. A graduate faculty member must be included on the Supervisory Committee who clearly represents the interdisciplinary minor and must approve the minor coursework.

Special Minor in ABE (for students outside the ABE Department)

Please note that there is no approved minor in the ABE Department. Special minors must be formally petitioned for approval to the Graduate School. It should be submitted as a formal graduate school petition with all requisite signatures. It should also include the title of the special minor and courses that will be contributing to the minor credit.

For Masters students, a minimum of 6 credits of ABE department coursework at the 5000 level or higher is required for a minor in ABE. No coursework from the major department can contribute to the ABE minor. The combination of courses selected for the minor needs to be as part of the plan of study. An ABE graduate faculty member must be included on the Supervisory Committee who clearly represents the minor and must approve the minor coursework.

Requirements for the Doctor of Philosophy Degree

The Ph.D. degree in Agricultural and Biological Engineering is an advanced engineering degree. Accordingly, the plan of study must include a concentration of advanced level engineering courses in a fundamental area of engineering. For example, an appropriate concentration of course work might consist of a sequence of graduate level courses in advanced fluid mechanics and sediment transport, or a conduction-convection-radiation, advanced thermodynamics sequence, or chemical engineering transport phenomena sequence, or advanced machine dynamics and control systems, etc. The plan of study should be developed to include courses that will benefit the student's research project and prepare the student for a professional career. Sufficient course work in advanced level engineering courses from the Agricultural and Biological Engineering and other engineering departments must be included in the Ph.D. plan of study to insure that the graduate will be adequately prepared to successfully pursue advanced engineering practice or research/teaching in the field of interest.

A Ph.D. degree plan of study is based on all work completed beyond the baccalaureate, with a required minimum of 48 credits of course work and a total of 90 credits including both course work and research credits. **Students are required to take research credits during their semester of graduation (3 in Fall/Spring, 2 in Summer).** Graduate credit is awarded for courses numbered 5000 and above for coursework in the major field. *Courses in the minor field cannot be substituted for departmental major courses (ABE/AOM/PKG).* For work outside the major, courses numbered 3000 or above, not to exceed 6 credits, may be taken provided they are part of an approved plan of study. Each plan of study for the Ph.D. must include at least 9 hours of mathematics (including Master's course work) at the 5000 level or higher ([See Appendix C](#)) and 3 hours of graduate level data analytics (STA 6166 or equivalent). ***(Students wishing to use credit from a graduate statistics or math course not listed in the ABE Graduate Manual or from another institution must provide a copy of the syllabus for approval by the ABE Graduate Committee).***

A maximum of 3 credits of AOM/ABE/PKG 6905 may be applied toward the minimum requirements for any single Ph.D. degree. These credits will be considered for approval only when a description of the course content is filed with the plan of study.

Ph.D. students are required to include a minimum of three hours of Supervised Teaching (ABE 6940) in their Plans of Study. A maximum of 5 credits of ABE 6940 may be included in the student's plan of study. This maximum limit cannot be waived, and it applies to the entire graduate career. Typically, 20 to 30 hours of work is required to support 1 hour of supervised teaching. Students will be placed in assignments that best fulfill the needs of the ABE Department with priority given to undergraduate courses with significant enrollments or graduate courses with a minimum of 10 students. Exceptions must be approved by the ABE Department Chair. *All graduate students are required to take the [on-line FERPA training \(PRV802\)](#) prior to enrollment in ABE6940.*

Students entering an ABE Graduate program in Fall 2017 and beyond must also complete one of the following two courses prior to registering for credits in ABE6940:

- The core activities portion of <http://teach.ufl.edu/teaching-assistants/>
- [EGS6056 - Learning and Teaching in Engineering](#)

The plan of study may include a maximum 6 hours of research credit transferred from the master's degree. Additional dissertation research credits may be taken to meet minimum registration requirements. No student can enroll for dissertation research credits (ABE 7980) before the student has passed the Ph.D. Qualifying Examination. Students may enroll in ABE7979 prior to passing the Qualifying Exam.

Major Area

The plan of study must include a minimum of 18 credits of ABE major courses at the 5000 level or above that define a meaningful, integrated area of academic concentration (excluding ABE 6971, ABE 7979, and ABE 7980). Students who fulfilled the ABE6931 Seminar requirement during an ABE Master's program are not required to take it again. A maximum of 3 hours of ABE6940 may be counted toward the 18 hours of ABE required coursework.

Minor Area (optional)

For the Ph.D. degree, a minimum of 12 credits at the 5000 level or higher is required for a minor in a certain department or program area as approved by the minor department or program area representative(s) on the Supervisory Committee. If two minors are selected, then each minor must consist of at least 8 credits. Course work in the minor is not limited to the course offerings of one department, provided that the minor has a clearly stated objective. The combination of courses selected for the minor needs to be as part of the plan of study. A graduate faculty member must be included on the Supervisory Committee who clearly represents the interdisciplinary minor and must approve the minor coursework.

Special Minor in ABE (for students outside the ABE Department)

Please note that there is no approved minor in the ABE Department. Special minors must be formally petitioned for approval to the Graduate School. It should be submitted as a formal graduate school petition with all requisite signatures. It should also include the title of the special minor and courses that will be contributing to the minor pool of credit.

For Ph.D. students, a minimum of 12 credits at the 5000 level or higher is required for a minor in ABE. Course work in the minor is not limited to the course offerings of one department, provided that the minor has a clearly stated objective, but must include a minimum of 9 credits of coursework from the ABE Department. No coursework from the major department can contribute to the minor. The combination of courses selected for the minor needs to be as part of the plan of study. An ABE graduate faculty member must be included on the Supervisory Committee who clearly represents the minor and must approve the minor coursework.

Grade Point Requirements for Graduation

The appropriate grade point requirements for graduation are:

1. A minimum 3.00 GPA in all graduate level courses at the University of Florida.
2. A minimum 3.00 GPA in all courses that comprise the major (ABE, AOM, PKG)

Registration

Registration for course work each term is the responsibility of the student. Course registration should conform to the student's plan of study, and the minimum and maximum hours of registration as stated in Table 1. Course selection for each term should be made in close consultation with the student's advisor. A student must be registered for an appropriate load during the term in which the student graduates ([see Table 1](#)). Students not registered by the end of the Drop/Add period each semester must be dropped from their assistantship or fellowship.

Students who neglect to register on time will be responsible for personally paying the late registration fee. The ABE department WILL NOT pay this fee for students out of departmental funding.

Graduate Assistants: The full-time registration requirement is reduced for students who are graduate assistants, based on the appointment's FTE. The most common assistantships have an FTE of 0.25 - 0.74 and require the following registration: 9 credits for fall and 9 credits for spring. Summer A appointees must be registered for 3 credits, and Summer B appointees must be registered for 3 credits. For students on appointment for Summer C, registration must equal 6 credits. [Table 1](#) provides additional details regarding appropriate registration for various circumstances.

Students on appointment are financially liable for credits in excess of the required number. If a student on appointment drops below the required registration at any time in the semester, the student becomes financially liable for the entire registration. Students who do not register properly are not permitted to remain on appointment.

Dropping Courses

The Graduate School has no rigid policy concerning graduate students dropping courses other than each graduate student must maintain a minimum registration in order to continue receiving assistantship or fellowship support. After the normal drop/add period, each request for a schedule change must be approved by the chair of the student's Supervisory Committee. International students may need clearance from the UF International Center to process a late drop/add. Instructor permission may be required to add a course after the drop/add period.

After Drop/Add, students must obtain approval from their faculty advisor for all schedule changes.

If a student obtains approval to change their schedule

- The change is processed as individual actions, a drop and/or an add.
- The student will be fee liable for any course dropped and any course added to his/her schedule.

If there is no university or departmental error and the student believes the fees for the dropped course should be waived due to an extenuating circumstance, the student must submit a petition to the University Petitions Committee. The petition must be signed by the ABE Graduate Coordinator.

TABLE 1. Minimum Registration Requirements

Most ABE graduate students fall into one of the following categories.

[Click](#) here select the link to graduate student registration requirements:

Note: For students on appointment for the full summer, registration must total that specified for C term. Registration may be in any combination of A, B, or C terms. However, courses must be distributed so that the student is registered during each term on appointment.

	Fall & Spring	Summer		
		A	B	or C
Full-Time Graduate Students not on Appointments	9-12	4	4	8
Assistants on .25 - .74 and/or 1/4, 1/3, & 1/2-Time Assistants	9	3	3	6
Graduate students not on appointment but using University facilities and/or faculty time	3	1	& 1	or 2
Graduate Students not on Appointment during Final Term	3	1	& 1	or 2

Tuition and Financial Aid

Payment of fees by the [dates](#) listed in the *Graduate Catalog* is an integral part of the registration process. For students classified as non-Florida residents, the tuition charges are considerably higher than for Florida residents. See the *Graduate Catalog* for [State residency requirements](#). Normally, students on graduate assistantships of 1/4 time or greater will be issued tuition waivers subject to availability of funds. All students are responsible for paying their required fees and any remaining tuition regardless of the value of fee waivers.

A graduate student with an assistantship, fellowship, or traineeship must not accept other aid without Graduate School permission and must be registered in accordance with the schedule shown in Table 1.

All non-Florida students who are U.S. citizens or permanent residents may be eligible for out-of-state fee waivers the year after they have filed for Florida residency status. **It is the student's responsibility to file for Florida residency status when they first enroll at UF.** The detailed procedures and requirements are outlined in the [Graduate Catalog](#).

Financial aid in the form of scholarships and loans may be available to highly qualified graduate students. In general, such awards are available to students pursuing either Master's or Ph.D. degrees. For information concerning availability of scholarships and loans and the necessary qualifications, students should contact the Dean's Office in the College of Agricultural and Life Sciences and the Office for Student Financial Affairs.

Normal Progress

Students in pursuit of the Master of Engineering, Master of Science, and Doctor of Philosophy degrees are expected to complete at least the minimum hourly requirement each term and to maintain an acceptable academic grade point average. An acceptable GPA is understood to mean 3.00. Students who fall below these standards will be considered to be on academic probation. Students who remain below this standard for two consecutive terms are subject to termination.

A Master's degree is expected to be completed within two years and a Ph.D. degree within four calendar years of study. The student's progress will be formally assessed by the Supervisory Committee Chair at the end of each term to determine whether the student should be continued in the program and whether the student should continue receiving financial assistance from the department, pending available funds.

Graduate Seminar Course

All graduate students attending classes on the UF campus are required to register for 1 credit of ABE 6931. Master's students are encouraged to take it no later than their 3rd semester.

Students who will not be on campus for most of their academic program and who are located at Research Units can satisfy seminar requirements by

- Coordinating with the faculty instructor for ABE 6931
- Enrolling in ABE 6931 (distance section)
- Participating in center seminar series under supervision of their major professor

REC students must contact the Staff Academic Advisor to have a special section created for this course.

Students pursuing additional ABE degrees are not required to take a second seminar class.

All graduate students are required to present a seminar to the department as part of their final defense. This presentation is open to the public. Non-thesis master's students should present a presentation related to their area of study to their Supervisory Committee.

Thesis and Dissertation

Students begin work toward a thesis or dissertation from the time they enter Graduate School. Careful planning and a timetable will help avoid delays as well as give the student valuable training.

Resources for preparation of theses and dissertations are available at the Graduate School Editorial Office and also online <http://graduateschool.ufl.edu/about-us/offices/editorial/thesis-and-dissertation/> For technical support in creating an electronic thesis or dissertation, see <https://helpdesk.ufl.edu/application-support-center/etd-technical-support/>

The thesis or dissertation is to be developed by the student with the supervision and criticism of his/her advisor. The student and his/her advisor may agree to prior review of the thesis, either section-by-section or in its entirety or both. When the advisors are satisfied that the document is ready for review by the Supervisory Committee, they will authorize distribution. Student should expect several major changes and corrections in their thesis or dissertation as required by the Supervisory Committee. Therefore, the student must allow enough time to make required changes. The student must submit the final draft of the thesis or dissertation to members of the Supervisory Committee at least 10 working days prior to the date of the final exam. The final draft should be complete in every respect including figures, tables, and bibliography, but in a form to allow for incorporation of editorial and/or substantive changes with minimal expense or inconvenience to the student. Turn-around time for thesis reviews can often be considerably reduced if the graduate student notifies the committee members in advance of the date when draft copies will be submitted for review.

The thesis or dissertation must be defended in time to meet Graduate School Deadlines. The Graduate School requires that Master's theses be defended before first submission to the Graduate School. The first submission for Ph.D. dissertations can be before the dissertation defense. Note that a 'Transmittal Letter' must be signed and submitted into GIMS prior to the Ph.D. 'first submission'. Notify the Staff Academic Adviser prior to the submission deadline if you plan to submit so the transmittal letter can be sent to your committee chair.

Guidelines for submission of theses and dissertation to the Graduate School can be found at: <http://graduateschool.ufl.edu/graduation/checklists>

The student is required to distribute final copies of the thesis or dissertation to appropriate offices and faculty members. In addition, students should send an electronic final copy to their advisor and Supervisory Committee members.

Thesis and Dissertation Deadlines

Deadlines for the submission of original signature pages with theses or dissertations are published by the Graduate School each term <http://graduateschool.ufl.edu/editorial/deadlines>. The deadline for submission of signature pages for theses or dissertations is the same as the deadline for submission of the final exam form. In all cases, the student must schedule the oral examination prior to the deadline to allow time for corrections, since corrections are to be completed before final signatures. The department Staff Academic Adviser must be notified of the examination time, date, location and dissertation or thesis title at least 10 days before the date of the examination.

The final oral examination is open to all interested graduate faculty. An announcement will be sent via email to departmental faculty and graduate students. The defense of the thesis or dissertation should be well prepared including any supporting visual materials. One of the aims of the preparation should be to synthesize the important conclusions in a time-efficient presentation, on the order of 30 to 40 minutes, leaving ample time for questions and discussion.

Normally 3 hours should be scheduled for the final oral examination.

Qualifying Examination for PhD Degree

Qualifying Exams are taken by all Ph.D. students in the department. A Qualifying Exam's topic areas include coursework, knowledge, and synthesis of the student's research topic. The Qualifying Exam should include a written portion and an oral portion. The topic areas of the written portion of the Qualifying Exam is determined by the student's advisor and committee. The oral portion of the Qualifying Exam should consist of oral evaluation of coursework, knowledge, and synthesis of the student's research topic.

Graduate students should schedule their Qualifying Exam at or near the end of their coursework.

The graduate student's research proposal can be presented at any time during their graduate program. It is recommended that the oral Qualifying Exam and the proposal presentation be conducted separately. However, if the Committee collectively decides to combine them on the same day, the candidate must pass the oral Qualifying Exam before proceeding to the proposal presentation.

The student must be registered in research in the term the final examination is given. Exams may not be taken in the breaks between semesters with this exception:

On rare occasion by virtue of scheduling conflicts beyond the control of the student, examinations may occur on days between terms (break period) with the approval of the supervisory committee. This approval does not, by any means, replace existing requirements to meet published registration and deadlines for degree certification in a particular term.

Qualifying Examinations and Final Examinations administered during a break period are only valid if the student was enrolled in at least one of the terms on either side of the break. The examination will always be associated with the term immediately preceding the break, provided the student was enrolled for that term. Otherwise, the examination will be associated with the term immediately following the break.

The written Qualifying Exam is to be coordinated and administered by the student's faculty advisor. The written portion of the Ph.D. Qualifying Exam will include individual tests from members of the student's graduate advisory committee. The committee chair (advisor) will develop a schedule for these tests with input from the student and the committee. Typically, each individual test should be developed such that it can be reasonably completed in one day. For example, for a 5-member committee, with each member providing a test, the written portion would take 5 days. However, with the approval of the main advisor, there are circumstances where a test may take longer given the potential contribution to the student's research program objectives. The entire written portion of the Qualifying Exam must be passed prior to taking the oral portion of the Qualifying Exam. The oral portion of the Qualifying Exam typically occurs 1 to 2 weeks after the written portion is completed.

Except for allowed substitutions, all members of the Supervisory Committee must attend the oral part of the exam. The Qualifying Examination may be conducted using video and/or telecommunications. However, the student and chair or co-chair must be in the same physical location. All other members may participate from remote sites via technological means. There may be one substitute participant who is not the chair or external member in special circumstances with prior approval.

Normally 3 hours should be scheduled for the oral portion of the Qualifying Examination.

At this time, the Supervisory Committee is responsible for deciding whether the student is qualified to continue work toward a Ph.D. degree.

If a student fails the Qualifying Examination, a re-examination may be requested, but it must be recommended by the Supervisory Committee. At least one term of additional preparation is needed before re-examination. If the student fails the written or oral examination, it is the committee's responsibility to decide when the student can retake another Qualifying Examination. Normally, a student will not be permitted to take either the written or oral Qualifying Examination more than two times.

Following successful completion of both written and oral Qualifying Examinations, the student is eligible for Ph.D. candidacy. In addition to successfully completing the Qualifying Examinations, the student must have chosen his/her dissertation topic and must have a minimum of 3.0 GPA both in the major and in all work attempted in the graduate program.

Between the oral part of the Qualifying Examination and the date of the degree there must be at least 2 terms. The term the Qualifying Examination is passed is counted if the examination occurs before the midpoint of the term.

Information including the thesis title, exam date, time and location should be provided to the Staff Academic Advisor at least 10 days prior to the exam.

Time Limitation: All work for the doctorate must be completed within 5 calendar years after the Qualifying Examination, or this examination must be repeated.

Final Examinations

The comprehensive oral examinations and the oral defense of a thesis, project or dissertation may be conducted using video and/or telecommunications. However, the student and chair or co-chair must be in the same physical location. All other members may participate from remote sites via technological means. There may be one substitute participant who is not the chair or external member in special circumstances with prior approval.

Master of Engineering and Master of Science, Thesis Option

The examination covers the thesis research and may also cover academic preparation and basic principles and applications. A final exam can be taken no sooner than two semesters after approval of a student's plan of study and research proposal.

Information including the thesis title, exam date, time and location should be provided to the Staff Academic Advisor at least one week prior to the exam.

The student must be registered in research in the term the final examination is given. Exams may not be taken in the breaks between semesters with this exception:

On rare occasion by virtue of scheduling conflicts beyond the control of the student, examinations may occur on days between terms (break period) with the approval of the supervisory committee. This approval does not, by any means, replace existing requirements to meet published registration and deadlines for degree certification in a particular term.

Qualifying Examinations and Final Examinations administered during a break period are only valid if the student was enrolled in at least one of the terms on either side of the break. The examination will always be associated with the term immediately preceding the break, provided the student was enrolled for that term. Otherwise, the examination will be associated with the term immediately following the break.

Master of Engineering and Master of Science, Non-Thesis Option

All students pursuing non-thesis degrees are required to present a written or oral final exam presentation to their Supervisory Committee in the final semester of their graduate program. The topic should be related to the student's area of interest.

Ph.D. Degrees

After submission of the dissertation and the completion of all other prescribed work for the degree, but in no case earlier than six months before the conferring of the degree, the candidate will be given a final examination, oral or written or both, by the Supervisory Committee meeting on campus. The examination will cover the dissertation research, and it may also cover academic subjects and basic principles and application of the principles to the dissertation subject. A final exam can be taken no sooner than two semesters after passing the qualifying exam.

Exams may not be taken in the breaks between semesters with this exception:

On rare occasion by virtue of scheduling conflicts beyond the control of the student, examinations may occur on days between terms (break period) with the approval of the supervisory committee. This approval does not, by any

means, replace existing requirements to meet published registration and deadlines for degree certification in a particular term.

Qualifying Examinations and Final Examinations administered during a break period are only valid if the student was enrolled in at least one of the terms on either side of the break. The examination will always be associated with the term immediately preceding the break, provided the student was enrolled for that term. Otherwise, the examination will be associated with the term immediately following the break.

Information including the thesis title, exam date, time and location should be provided to the Staff Academic Advisor at least 10 days prior to the exam.

Foreign Language Requirements

There is no foreign language requirement for any degree; however due to the international nature of Agricultural and Biological Engineering the students are encouraged to take advantage of the language courses offered at the University of Florida.

Administrative Policies

Policy on Graduate Student Support

Regardless of whether a graduate student is supported with state or grant funds, the purpose of these policies is to encourage timely progress toward completion of degree requirements and to make optimal use of available funding and other resources (e.g., space, faculty time, equipment). It is expected that graduate students' assistantships will be supported with grant and /or state funds.

Length of Support

Graduate students on financial support (grant or state funds) may receive support for up to two years at the Master's level and up to four years at the Ph.D. level. Information specific to each student is contained in the student's Letter of Offer. Continuation beyond these periods for exceptional cases will be subject to review on a case by case basis

In all cases, a Funding Extension Form detailing the source of the funding must be completed prior to each additional semester and submitted to ABE Human Resources Support for review by the Department Chair. ***Students who do not receive an approved funding extension are to be considered self-funded for the duration of their program unless additional funding becomes available.***

Assistantship Responsibilities

Assistantship requirements normally include thesis or dissertation activities but can include other tasks assigned by the faculty advisor or listed in the student's Letter of Appointment.

All students must participate in the Department's teaching and/or extension education programs by developing new lecture, online resource, distance education and laboratory material for courses or by conducting lectures or laboratories. Master's students must include a minimum of one hour of ABE 6940 Supervised Teaching in their Plans of Study and Ph.D. students must include at least three hours of ABE 6940 Supervised Teaching in their Plans of Study. Up to 5 hours of credit for ABE 6940 Supervised Teaching can be included in Ph.D. Plans of Study.

A score of 55 on a UF SPEAK test (<http://ase.ufl.edu/testing.html>) or a score of 28 on the Speaking portion of a TOEFL iBT test is required of all graduate students whose native language is not English before they can lecture in courses. UF permits provisional teaching assignments for students scoring 45 or 50 on a UF SPEAK test or 23 - 27 on the Speaking portion of the TOEFL iBT if they concurrently enroll in EAP 5836 Academic Spoken English 2 <https://ase.ufl.edu/ASEcourses.html>.

In order to remain on assistantship a student must be registered for the appropriate number of credit hours each term ([see Table 1](#)).

Student Evaluations & Individual Development Plan (IDP)

Each graduate assistant will be evaluated by his/her faculty advisor based upon performance of assigned duties; compliance with department requirements such as maintenance of office hours, regular visits with faculty advisor, academic progress; and meeting the requirements of the Supervisory Committee, department, college, and graduate school relating to the timely execution of required documents such as plan of study, Supervisory Committee appointment form, etc. Evaluation forms can be accessed on the ABE website at <https://abe.ufl.edu/graduate/resources/>. Graduate students are encouraged to discuss this process with their advisor.

All Ph.D. students will be required to create and update an IDP on an annual basis, in consultation with their advisors. The IDP is intended to be a working document, to guide new and continuing Ph.D. students in identifying, pursuing, and meeting their professional and personal goals. The IDP is found on each student's Canvas e-learning page. Assignments should be completed in a timely manner. Although not required for MS students, an IDP may be required at the discretion of the student's committee chair. Students in MS programs should inquire with their committee chair during the first semester of their program to determine if an IDP should be developed. Students working on their Individual Development Plan are encouraged to access this CALS web site (<https://cals.ufl.edu/current-students/studentresources/idp/>). There they will find specific resources to help them gain skills in the IDP core competencies of Research Skills & Knowledge, Communication, Management and Leadership Skills, Effectiveness/Purpose, Professionalism, and Career Advancement.

More information on UF IDP policies can be accessed at <http://graduateschool.ufl.edu/faculty--staff/resources/individual-development-plan-idp-policy/>

Vacation and Sick Leave

- A. The current UF Graduate Student Bargaining Agreement provides 5 days of leave per semester for each student. Graduate students should request leave from their faculty advisor prior to taking leave as able.
- B. Vacation leave may be taken by the graduate assistant with the approval of his/her advisor.
- C. Please note that all graduate assistants, regardless of percent employment or actual hours worked, are expected to be on duty at least part of every working day not taken as vacation or sick leave, including the period between academic terms. Official state holidays are not considered to be working days.

Office Assignments

Office space is assigned to graduate students on a space-available, priority basis. Office assignments are made by the department Staff Academic Advisor and other department staff. ***All changes to office assignments must be approved in advance by the Staff Academic Advisor.*** Most office space is in conventional offices shared by multiple graduate students, and some desks are in laboratories. Access to the building and office space (e.g., keys and door codes) is managed by the ABE Facilities Coordinator.

All office space, laboratories, and other university property are a privilege provided to UF employees. With the previous, responsible care is expected. Office and lab spaces should be maintained appropriately, and access keys and codes should not be shared.

Graduate students must turn in any keys assigned to them upon completion of their graduate program. **Keys are not to be loaned to non-departmental personnel. It is unlawful to duplicate these keys.**

Research involving Data Collection using Human or Animal Subjects

If your research involves data collection using animals or humans, you must be familiar with the University of Florida procedures that ensure that the rights and welfare of the animals and people are adequately monitored and protected. All research projects involving human or animal subjects, even if it is purely observational, must be

approved before the project begins by one of three boards outside of the department. Federal regulations prohibit retroactive approval and any research results obtained without approval cannot be used.

Before you begin any such research, it is critical that you obtain approval from the appropriate UF committee: the Institutional Review Boards or the Institutional Animal Care and Use Committee. Information regarding these committees is found in the UF Graduate Student Handbook

Research Data, Software, Designs and Manuscripts

All research data, patents, designs, computer software, creations, etc. obtained by graduate students on assistantship support, or obtained through the use of University assets are the property of the State of Florida. All such research data and other requested materials must be submitted to the advisor before the student leaves the University of Florida. If any patents or copyrights are awarded to the inventions or designs of any graduate student's thesis or dissertation research, then both the student and his/ her advisor are credited. They can receive a percentage of the profits or royalties realized from the patents or copyrights.

Graduate students are strongly encouraged to submit manuscripts for publication of their findings. The advisor and others involved directly with the research project are to be listed as co-authors. It is recognized that graduate students may leave the University without preparing a manuscript to submit for publication and may or may not do so within a reasonable time. Twelve months after the student leaves the University, the advisor can use the thesis and research data to prepare a manuscript for publication if the student has not already done so. Under this arrangement, the advisor would be the senior author and the former student would be a co-author.

Computer Access

All student offices, classrooms, and laboratories have internet access via Gatorlink credentials.

The departmental computer teaching lab is available to all students at times when classes are not scheduled for the lab. Students working on class assignments in this lab are given priority over students working on research assignments.

All use of departmental computers must comply with University of Florida Information Technology Acceptable Use Policy (<http://it.ufl.edu/policies/aupolicy.html>)

Purchases and Support

Requests for staff support should be channeled through the student's advisor. Services are restricted to work in support of research activities with the approval of the advisor. Under no circumstances will these services be available for activities related to course work or thesis or dissertation preparation. Expenses related to the preparation of required reports or publications based on theses and dissertations are legitimate departmental expenses.

All purchases made for extension, research and teaching activities, whether related to thesis research or not, must receive prior approval of the student's advisor. Details for making purchases are available from the departmental fiscal office.

Use of State Vehicles

State vehicles are for **OFFICIAL USE ONLY**. Operators of state vehicles must abide by all state laws as specified in "Rules of the Road" available from any Florida Highway Patrol Office. Special courtesy to other drivers should be exercised at all times, since one is representing the department, university, and state when driving a state vehicle.

A valid Florida driver's license is required to operate state vehicles and must be on file with the Facilities Coordinator prior to use of the departmental fleet. As required by the State of Florida, a commercial driver's license may be required for operation of certain vehicles. Caution: Only persons employed by the university are covered by state insurance while operating a university-owned vehicle. A graduate student on an assistantship meets the employment criterion.

Students operating state vehicles should check with their advisors and the ABE Facility Coordinator concerning current procedures for signing out vehicles, purchase of fuel, maintenance of vehicle logbook, etc.

Use of Shop Facilities and Services

Graduate students are generally expected to fabricate experimental equipment needed for their thesis or dissertation research that is not otherwise available. Students must follow all policies and regulations regarding the use of shop facilities. The policies and rules are:

- A. These shops are intended only for research, teaching and extension activities.
- B. The precision machine shop can only be accessible to persons obtaining permission from the Facilities Coordinator.
- C. During the Monday through Friday work week the general shop is accessible to faculty, graduate students, and staff from 8 A.M. to 5 P.M. During the Monday through Friday work week the teaching shop is available to faculty, graduate students, and staff if their activities do not interfere with classroom instruction.
- D. To ensure safety, all persons using the shop facilities must work only when another person is within the same laboratory area during its use. In cases of extensive or complex fabrication, shop personnel may help with the work. Use of shop personnel must be arranged by the student's advisor in advance. Graduate students should not use general shop supplies (steel, plastic, pipe, etc.) without prior approval of the Facilities Coordinator and faculty advisor.

Laboratory Safety Procedures

Graduate students are generally required to perform chemical or biological experimental research to obtain data for their thesis or dissertation.

Before beginning work in any Agricultural and Biological Engineering (ABE) laboratory students are required to:

1. Read and understand all Safety and/or Biological manuals and attend required Safety, Biological and Hazardous Waste training.
2. Submit a Standard Operating Procedures (SOP) for each procedure to the Lab Manager or PI prior to beginning any experiments.
3. Wear Personal Protective Equipment (PPE) (ANSI approved goggles, long pants, closed toed shoes-required in all laboratories, appropriate gloves, and laboratory coats.)
4. Label all liquids in glassware with proper names. Avoid using chemical abbreviations. Labels should include the name of the user and the date.
5. No eating or drinking is permitted in the laboratory. The break room should be used for eating and drinking.
6. To ensure safety, never begin an experiment alone in the laboratory, and never work without the *Principal Investigator* and Lab Manager's knowledge. In addition, when you are working in the laboratory outside of your regular lab time, you must inform your PI and/or other lab members.

APPENDIX A

ABET - Equivalency Requirements for Agricultural and Biological Engineering

Note: Required articulation courses do not count toward the credit hours of coursework required for a graduate program of study. Students may have to pay for articulation courses out-of-pocket as they may not be included in assistantship funding.

	Semester Credits
<u>One Year of Mathematics & Basic Sciences</u>	
Analytic Geometry and Calculus	12
Elementary Differential Equations	3
General Physics with Calculus	6
Physics Laboratory	2
General Chemistry and Qualitative Analysis	6
General Chemistry Laboratory	2
Biological Science Requirement	3
<u>One Year of Engineering Sciences and Analyses</u>	
Numerical Methods & Computer Programming for Engineers	2
Statics	3
Computer Assisted Drafting	3
Dynamics	2
Engineering Materials	3
Mechanics of Materials	3
Fluid Mechanics or Hydrodynamics	3
Thermodynamics	3
Other Engineering Sciences and Electives	7
<u>½ Year of Engineering Design</u>	
Agricultural Engineering Design Courses	12
Engineering Design Electives	4

APPENDIX C

Mathematics Requirement and Data Analytics Requirement

Aims and Scope of the ABE Quantitative (MATH and DATA ANALYTICS) Requirements

The aim of “MATH” course requirement is to equip ABE students with analytical and quantitative skills to solve problems. A math course for this purpose should cover some of the following topics:

- Linear algebra
- Differential equations
- Deterministic mechanistic simulations
- Dynamical systems modeling and stability analysis
- Probability and stochastic systems theory, including stochastic simulation
- Mathematical statistics
- Time series analysis
- Complex analysis
- Numerical analysis and algorithms

The aim of “DATA ANALYTICS” course requirement (formerly “applied statistics”) is to equip our students with ability to apply statistical analyses and empirical modeling techniques to infer insights from data. For a course to fall under the “DATA ANALYTICS” list, the course must include a substantial applied statistics component (data analysis, application of statistical concepts) and handling of data.

To fulfill the ABE Quantitative Requirements, the student is required to take 9 MATH course credits, at least 6 of which must come from the list below. If the remaining 3 credits are to come from a course not on the approved list, the student’s PhD dissertation committee Chair must submit a brief justification of the alternative course to the Graduate Programs Administrator, that explicitly documents what MATH topics (see above) are covered in the course and explicitly states that the course has been approved by the student’s doctoral committee. This justification will be filed with the student’s Plan of Work and no further action or approval is needed.

The list of courses may be extended by petition of the student’s graduate committees. Petitions for new course approvals will be processed in bulk once (twice) per year and need to be submitted two calendar weeks in advance of a new Fall (and Spring) semester.

The two lists are not mutually exclusive. Some courses may fall under both math and data analytics, but each course can be used to fulfill EITHER "MATH" OR "DATA ANALYSIS" requirement, but NOT BOTH. No course will double count to fill 2 requirements.

Lists of Courses for Mathematics and Data Analytics Requirements

Course name	Credit	Math	Data
ABE 6933 Bayesian Statistics	3	X	
ABE 6933 Fundamental Probability & Mathematical Statistics	3	X	
ABE 6933 Spatial Statistics	3	X	
ABE 6933 Statistical Machine Learning (SML)	3	X	X
ABE5643C/6649C Biological Systems Modeling	3	X	
ABE 5648 Modeling Coupled Natural-Human Systems	3	X	
ABE 6017 Stochastic Modeling in Ecology and Hydrology	3	X	
ABE 6840 Nonlinear Data Diagnostics	3	X	X
ABE 6986 Applied Mathematics in Agricultural Engineering	3	X	
BME 6522 Biomedical Multivariate Signal Processing	3		X
CAP 6610 Machine Learning	3	X	X
CAP 6617 Advanced Machine Learning	3	X	
COT 5405 Analysis of Algorithms	3	X	
COT 5615 Math for Intelligent Systems	3	X	
COT5615 Mathematics for Intelligent Systems	3	X	
EEE 5544 Noise in Linear Systems	3	X	
EEE 6504 Machine Learning for Time Series	3	X	X
EEL 5840 Foundations of Machine Learning	3	X	X
EEL 6532 Information Theory	3	X	
EEL 6533 Data Analytics and Decision Sciences	3	X	X
EEL 6825 Pattern Recognition and Intelligent Systems	3	X	X
EGM 6321 Principles of Engineering Analysis I	3	X	
EGM 6322 Principles of Engineering Analysis I	3	X	
ENG 6XXX* Math Foundations for Applied Data Science	3	X	
ESI 6417 Linear Programming and Network Optimization	3	X	
ESI 6420 Fundamentals of Mathematical Programming	3	X	
ESI 6448 Discrete Optimization Theory	3	X	
ESI 6449 Integer Programming	3	X	
ESI 6492 Global Optimization	3	X	
MAP 5304 Intermediate Differential Equations	3	X	
MAP 5489 Mathematical Modeling in Biology	3	X	
PHC6092 - Introduction to Biostatistical Theory	3	X	
STA 5325 Fundamentals of Probability	3	X	
STA 5328 Fundamentals of Statistical Theory	3	X	
STA 5503 Categorical Data Methods	3		X
STA 5507 Applied Nonparametric Methods	3		X
STA 5701 Applied Multivariate Methods	3		X
STA 5856 Applied Time Series Methods	3		X
STA 6093 Introduction to Applied Statistics*	3		X
STA 6166 Statistical Methods in Research I*	3		X
STA 6167 Statistical Methods in Research II	3		X

STA 6177 Applied Survival Analysis	3		X
STA 6207 Regression Analysis	3	X	X
STA 6208 Design and Analysis of Experiments	3	X	X
STA 6246 Theory of Linear Models	3	X	
STA 6326 Introduction to Theoretical Statistics I	3	X	
STA 6327 Introduction to Theoretical Statistics II	3	X	
STA 6329 Matrix Algebra and Statistical Computing	3	X	
STA 6505 Analysis of Categorical Data	3		X
STA 6707 Analysis of Multivariate Data	3	X	X
STA 6866 Monte Carlo Statistical Methods	3	X	
STA 7249 Generalized Linear Models	3	X	

*** Note: Only one of STA 6093 or STA 6166 (but not both) may be applied towards any plan of study (since they cover essentially the same material). If one's program requires STA 6167, the student is encouraged to take STA 6166 (which is the official prerequisite) or obtain advance permission from the STA 6167 instructor to enroll in STA 6167 without STA 6166.**

A compilation of UF Statistics courses can be found at
https://ufstatscourses.shinyapps.io/shiny_tutorial/

APPENDIX E

Summary of Procedures for Master's Degree

It is the student's responsibility to ascertain that all requirements have been met and that every deadline is observed.

Refer to the following graduate school checklists to obtain current information.

Graduation Checklist: <http://graduateschool.ufl.edu/graduate-life/graduation/graduation-checklist/>

Deadline Dates: <http://graduateschool.ufl.edu/about-us/offices/editorial/editorial-deadlines/>

<u>Requirement</u>	<u>Person Responsible</u>	<u>Completion Date</u>
Work with Advisor to begin formation of Supervisory Committee	Student	Middle of First Term
Transfer of Credit from other Undergraduate, Postbaccalaureate and Graduate Programs	Faculty Advisor Student	End of First Term. Submit request form to Staff Academic Advisor
Submit Approved plan of study to Staff Academic Advisor	Faculty Advisor Student	End of Second Term
Submit Approved Research Project Proposal to Supervisory Committee Chair	Faculty Advisor Student	End of Second Term
Submit major and minor degree choices to Graduate Coordinator	Faculty Advisor Student	End of second Term
Submit signed Supervisory Committee form to Staff Academic Advisor.	Faculty Advisor Student	Before completion of 24 credits, but not later than second term
Notify Staff Academic Advisor of intended graduation date. Check plan of study to ensure that all course requirements will be met. Check deadlines!	Student	Term <u>prior</u> to intended graduation term
Petition to transfer specific non-dept.course credits to major courses (note...this requires substantial justification).	Faculty Advisor	4:00 PM of last day of classes in term preceding the term in which the degree is to be awarded
Final Term Registration	Student	3-Credit Minimum (ABE 6971), (2-Credit during Summer). Graduate coursework required for non-thesis.
Apply for graduation in ONE.UF	Student	Prior to published deadline in Deadline Dates
Notify Staff Academic Advisor of Final Exam date, time, place & thesis title.	Faculty Advisor Student	Not later than 10 working days before examination
Final Examination – required for ALL M.S./M.E. degrees (thesis and non-thesis).	Faculty Advisor Student	Prior to published deadline. Submitted electronically to the Graduate School
First Submission of Thesis to Graduate School Editorial Office	Student	Prior to published deadline in Deadline Dates
Pay all related submission charges listed on ONE.UF	Student	Prior to final submission to Graduate School
Refer to Grad School ETD checklist for required final paper submission items.	Student	Prior to published deadline in Deadline Dates
Return office key, desk key and all equipment	Student	Prior to departure

APPENDIX F

Summary of Procedures for PhD Degree

It is the student's responsibility to ascertain that all requirements have been met and that every deadline is observed.

Refer to the following graduate school checklists to obtain current information.

Dissertation Checklist: <http://graduateschool.ufl.edu/graduate-life/graduation/graduation-checklist/>

Deadline Dates: <http://graduateschool.ufl.edu/editorial/deadlines>

<u>Requirement</u>	<u>Person Responsible</u>	<u>Completion Date</u>
Work with Faculty Advisor to begin formation of Supervisory Committee	Student	Middle of First Term
Request Transfer of Credit from other Undergraduate, Postbaccalaureate, or Graduate Programs	Faculty Advisor Student	End of First Term. Submit request form to Staff Academic Advisor
Submit signed Supervisory Committee form to Staff Academic Advisor	Faculty Advisor Student	End of third term
Submit approved plan of study to Graduate Committee	Faculty Advisor Student	End of third term
Submit approved Research Project Proposal to Supervisory Committee Chair	Faculty Advisor Student	End of third term
Written and Oral Qualifying Examinations	Faculty Advisor Send details to Staff Academic Advisor	Normally taken after completion of at least two terms of PhD study. There must be a minimum of two terms between the successful completion of the exam and the graduation date.
Submit Admission to Candidacy Form	Staff Academic Advisor prepares DocuSign	Submitted electronically to the Graduate School upon satisfactory completion of Qualifying Exam
Registration in doctoral research	Student	Register in ABE 7979 before admission to candidacy. Register in ABE 7980 after admission to candidacy.
Review deadline dates and notify Staff Academic Advisor for final review of degree/Plan of study requirements.	Student	Term <u>prior</u> to intended graduation term
Petition to transfer specific non-dept. course credits to major courses (note...this requires substantial justification).	Academic Services Coordinator	In term preceding the term in which the degree is to be awarded
Final term registration Student	Student	3-Credit minimum (ABE 7980), (2-Credit during Summer)

Apply for graduation on ONE.UF	Student	Prior to published deadline in Deadline Dates
First submission of dissertation and related forms to Graduate School Editorial Office	Student	Prior to published deadline in Deadline Dates
Notify Staff Academic Advisor of Final Exam date, time, place & dissertation title.	Faculty Advisor Student	Not later than 10 working days before examination.
Prepare and send exam forms via Docusign	Staff Academic Advisor	Day of Exam
Final Examination	Faculty Advisor Student Acad. Coordinator	Prior to published deadline. Submitted electronically to the Graduate School upon satisfactory completion of Final Exam
Pay all related submission charges listed on ONE.UF	Student	Prior to dissertation submission to Graduate School
Refer to Grad School ETD checklist for required final submission items.	Student	Prior to published deadline in Deadline Dates
Return office key, desk key and all equipment to Department Facilities Coordinator	Student	Prior to departure

APPENDIX G

Minimum Requirements for ENG Graduate Degrees

MST/MET=Thesis, MSN/MEN=Non-Thesis

Degree	Total credits	Total Research Credits	Total course credits	Total includes these Required Credits				
				*Dept (min)	Math	Data Analy	ABE6940	ABE6931
MET	30	6	24	12	3	0	1	1
MST	30	6	24	12	3	0	1	1
MEN	30	0	30	15	3	0	1	1
MSN	30	0	30	15	3	0	1	1
PhD	90	42 (or # to reach 90 credits)	48	18	9	3	3	1

In addition to ABE6940 and ABE6931, note that some departmental courses also fulfill approved Math or Data Analytics requirements. Plan of study should indicate which courses fulfill these requirements. (See appendices of approved courses). Total course credits must still add up to required number.

Graduate degrees require 30 total hours for Master's Degrees and 90 total hours for PhD degrees.

*Number of total course hours in Plan of study that must have ABE, AOM, or PKG prefix.

APPENDIX H

Graduation Checklist

- ___ E-mail the Staff Academic Advisor the semester prior to graduation to do a requirements check.
- ___ Have all grade changes for I, N grades submitted. DO NOT DELAY THIS!
- ___ IMPORTANT...if you made changes to any coursework for a concurrent or non-traditional degree you must resubmit a corrected, signed program of study to the graduate school.
- ___ If you are getting a minor you must send the Staff Academic Advisor the list of courses for the minor to be submitted to the graduate school.
- ___ Confirm on your transcript that courses did transfer (TOC) from a former master's program if you are including them in your Ph.D. program of study. This will appear as a block of credit, not individual courses.
- ___ The graduate school requires 12 hours of dept. coursework in the major for a master's program (15 for non-thesis). I may have to petition to have non-ABE/AOM/PKG courses counted, so let me know a full semester before you graduate so I can review your transcript/POS and petition if necessary. This is a petition that is rarely used. Students are expected to take the required coursework in the department. Ph.D. students must take a minimum of 18 hours of departmental coursework as part of the 48-hour course requirement.
- ___ Schedule a conference room for your defense. They book up early so do not wait.

Semester of graduation:

___ **Register for required number of research hours (DO NOT FORGET THIS RULE!).**

3 hours in Fall or Spring 2 hours in Summer (Note: Non-Thesis M.S. or M.E. must be in coursework, not research!)

___ Register for required number of total hours if you are on an assistantship or Fellowship (even in your final semester).

Spring/Fall=9 assistantship/12 Fellowship Summer=6 assistantship/8 Fellowship

- ___ Apply for graduation On ONE.UF
- ___ Reserve regalia for ceremony Registrar's website – graduation checklist
- ___ Guide for Preparing Theses & Dissertation ETD - Grad School Editorial Site

<http://graduateschool.ufl.edu/about-us/offices/editorial/editorial-deadlines/>

___ Deadline dates list Grad school website

<http://graduateschool.ufl.edu/graduate-life/graduation/deadlines/>

___ Schedule defense date Provide to Staff Academic Advisor with date, time, place, title and summary of thesis or dissertation research (1-2 paragraphs) at least 10 working days prior to defense.

___ Final exam forms (Dissertation, MS Thesis and non-thesis) Forms are prepared and sent via Docusign by Staff Academic Advisor.

___ Complete Qualtrics Exit Survey Sent directly to students

___ Exit Interview with Department Chair Schedule with Education Coordinator

___ Forwarding email & postal address Provide in Exit Survey

___ Turn in desk, office key To Department Facilities Coordinator, prior to graduation