



Georgia Tech College of Engineering

Daniel Guggenheim School
of Aerospace Engineering



AE

Graduate Student Handbook



Handbook Change Log

Version	Date	Approved By	Comments
v2025.01	10/15/2025	J. Christian	Introduced change log, introduced version numbers, added header, updated associate chair name, added ECE 7750 to math list

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1. General Information

1.1 Foreword

On behalf of the entire AE Graduate Programs faculty, staff, and students, we are pleased that you have joined the AE community and wish you success in your graduate studies.

This handbook summarizes academic requirements, policies, and procedures for graduate degrees administered by the Daniel Guggenheim School of Aerospace Engineering (AE). It is intended to be used by current AE graduate students for planning a program of study and completing the necessary administrative procedures dictated by the degree requirements, but prospective students also should find it helpful.

Many of the requirements stated herein are in addition to degree requirements described in the Georgia Institute of Technology General Catalog (<https://catalog.gatech.edu/rules/>), but they are not intended to contradict Institute policies and regulations. The statements outlined in this handbook are for informational purposes only and should not be construed as the basis of a contract between a student and the Institute. It is the responsibility of each student to know and understand the information in this handbook and the General Catalog.

1.2 The Current Graduate Faculty and Staff

General inquiries regarding the Graduate Program can be made at ae-graduate-info@aerospace.gatech.edu. Contact information for the faculty and staff listed below can be found at <https://ae.gatech.edu/browser-directory>.

Dr. **Mitchell L. R. Walker** is the William R. T. Oakes Chair of the School of Aerospace Engineering and oversees all aspects of our undergraduate and graduate programs. He is interested in your comments and suggestions for improving the program.

Dr. **John A. Christian** is the Associate Chair for Graduate Programs. Dr. Christian can answer questions you may have about admission into our graduate program, school policies, graduate fellowships, advising, degree requirements, and general graduate program questions.

Ms. **Ryan Sanders** is the Academic Program Manager for Graduate Programs in the AE Academic Office serves as the main point of contact for all graduate students and handles all the administrative processes and logistics.

Ms. **Adrienne Durham** is the Academic Program Manager for students working in the Aerospace Systems Design Lab (ASDL). She serves as the main point of contact for ASDL graduate students.

Ms. **Ajee Houston** is the Academic Program Coordinator in the AE Graduate Office. She is the main point of contact for graduate recruitment visits, graduate teaching and research assistant waivers, qualifying exams, and program paperwork.

Mrs. **Tasha Koon** is the Admissions Coordinator in the AE Graduate Office. She serves as the admission officer for graduate programs.

Ms. **Juliet Ramirez-Thomas** is the Academic Advisor for Distance Learning (DL) students in the AE Graduate office. She serves as the main point of contact for all DL Master's students and handles all DL administrative processes and logistics.

1.3 Academic Procedures

The AE website (<http://ae.gatech.edu/>) serves as a means by which students may obtain information about graduate degree requirements, policies, and procedures. Frequently used forms for both faculty and students are all available on the forms resource page <https://ae.gatech.edu/helpful-forms>. Students should consult this manual and the AE Graduate Office staff for policy, procedure, and advisement information. The guidance provided by fellow students may not be the most up to date and may be unreliable.

All new students should create an AE student record for themselves using the [AE Student Intake Form](#). The School will update this record as you make progress through the degree.

All new students will be added to the AE Graduate Programs Canvas page. This page serves as a convenient means of organizing information and communication.

1.3.a Academic Advisement

Academic advisement for graduate students comes from the Graduate Programs Staff, AE Associate Chair for Graduate Studies, and individual faculty advisors. Faculty advisors are discussed in 1.3.b-c below. The Graduate Program Staff are available to help you with:

- Registration each semester
- Interpretation of academic regulations
- Transfer credit procedures
- General academic problems (grades, withdrawal, etc.)
- Any matter which influences academic performance
- Graduation procedures

The Academic Advisor for students enrolled in the Distance Learning program (Video Campus) is Ms. Juliet Ramirez Thomas. The Academic Advisor for students working in the Aerospace Systems Design Lab is Ms. Adrienne Durham. All other graduate students should contact Ms. Ryan Sanders.

1.3.b Faculty Advisors for Ph.D. Students

Every incoming AE Ph.D. is assigned to a faculty member, who will be available for advisement throughout the student's tenure at Georgia Tech. These assignments are made based on matching the faculty member's technical specialty with the interests of the student. In virtually all cases, the Faculty Advisor will also serve as the student's research advisor.

The student is expected to consult with the assigned Faculty Advisor on such matters as:

- Designing a program of study
- Registration each semester
- Interpretation of academic regulations

- Transfer credit procedures
- General academic problems (grades, withdrawal, etc.)
- Any matter which influences academic performance
- Graduation procedures
- Career planning

1.3.c Faculty Advisors for M.S. Students

Atlanta campus M.S. students who are receiving financial aid through a Graduate Research Assistantship (GRA) or Graduate Teaching Assistant (GTA) are assigned to a faculty member, who will be available for academic advisement throughout the student's tenure at Georgia Tech. Please see Section 1.3.b for further details.

All other Atlanta campus M.S. students are not assigned a faculty advisor upon enrollment. Various resources are available to help with course selection, including sample Programs of Study (see Section II.4), consultation with an Academic Advisor (see 1.3.a), and consultation with the Associate Chair.

M.S. students wishing to pursue the Thesis option must have a faculty advisor and should reach out to potential advisors within their first 1-2 semesters at Georgia Tech. The AE Graduate Office can assist in finding thesis advisors as needed. M.S. students who are not pursuing a thesis do not require a formal faculty advisor. If a non-thesis student wishes to include a Special Problem (AE8900) in their degree plan, they should reach out to potential faculty advisors in the first 1-2 semesters to start arranging a project. Many faculty advisors have specific coursework they expect students to complete before taking a Special Problem.

1.3.d Registration

Current students may register for classes during either Phase I registration (early November for spring semester, early April for summer and fall semesters) or Phase II registration (the week before and the first week of each semester). However, since course sections (on campus and DL) with little to no registration may be canceled prior to Phase II, current students are strongly encouraged to register during Phase I. New students may only register during Phase II. Specific dates for the registration phases are available on the [Academic Calendar](#) through the Registrar's website.

Students on research and teaching assistantships should consult with their faculty advisor prior to registering for classes. DL students can consult with the Academic Advisor for Distance Learning. Other students seeking course advisement should schedule an appointment with the appropriate Academic Program Manager.

It is the student's responsibility to complete all registration procedures and pay tuition and fees. The registration procedures are completely described in the Online Student Computer Assisted Registration ([OSCAR](#)). OSCAR also includes a listing of all Georgia Tech courses that have been scheduled for the term. More detailed course information can be found in [Georgia Tech's Online Catalog](#).

Students may change the grade basis of classes listed with multiple grade options (e.g., letter grade, pass/fail, and audit). For such classes, changes from letter grade to audit can be made through the close of registration in each term. Changes from letter grade to pass/fail may be made through the withdrawal deadline of each term. However, courses must be taken on a letter grade basis to count towards the AE M.S. and Ph.D. degree requirements (except AE 8002 Graduate Seminar and AE7000/9000 Thesis, which are taken pass/fail). Please check degree requirements before changing to an audit or pass/fail basis for a course.

Students are not able to add or drop classes after registration for the term closes, typically at 4:00 pm ET on Friday of the first week of the semester. Students should be aware of the difference between *schedule changes* made prior to the close of the final phase of registration for a term and *withdrawing from (or dropping)* a course between the close of registration and the withdrawal deadline.

Registration Restrictions

A student attempting to register for courses may not be able to do so because of registration restrictions that have been placed by an academic or administrative unit at Georgia Tech. Some of the registration restrictions that students may encounter include:

Major Restriction

Some academic units may place enrollment or major restrictions on their courses to ensure that students in their major areas have full access to the courses they offer. Students who attempt to register for a course with a major restriction will receive an error message. Permits to override the “Major Restrictions” can only be issued by the academic unit that offers the courses. The academic affairs office of the unit offering the course is a good starting point to receive a major restriction or course overload permit and see what policies they have for registration. Please refer to the list of [Departmental Contacts](#) for more information.

Campus Restriction

Georgia Tech courses are offered on campus in Atlanta, at Georgia Tech Europe in France, online as part of our Distance Learning programs, and in other Georgia Tech campuses. Registration is structured so that students can only register for the courses taught through the specific campus to which they were admitted. Students who attempt to register for courses on a campus other than the one in which they are enrolled will receive a campus restriction error message. A student cannot take courses on different campuses during the same term. Students should contact the AE Graduate Office to inquire about changing campuses if needed.

Permit Required

Some courses are set up so that no one can register for them without permission. Students who attempt to register for course sections with this restriction will receive an error message. For example, the Special Problems (AE 8900) course sections are restricted to those with registration permits. The form to request an AE8900 permit can be found in the AE Useful Forms as <https://ae.gatech.edu/ae-useful-forms>.

Other restrictions include prerequisites, maximum hours, time conflict, duplicate course, and course overloads. The AE Graduate Office staff may be able to assist in dealing with restrictions, but it may be necessary to seek assistance from another academic or administrative units in some cases.

1.3.e Graduation

All M.S. and Ph.D. students must indicate their intent to graduate from Georgia Tech early in the term **prior** to their graduation. All the instructions and necessary forms to apply for graduation are available online at <https://ae.gatech.edu/applying-graduate-ms-or-phd>.

Students who do not graduate in their expected term may have to enroll in the next term in order to graduate. M.S. and Ph.D. students who do not graduate in the term for which they applied must reapply by submitting a new Online Application for Graduation (OAG).

1.4 Academic Workload

1.4.a General Requirements

Students assigned to the Institute by the armed forces for the purpose of pursuing a degree, and those with assistantships, fellowships, traineeships, tuition waivers, co-op students on non-work semesters, or individual grants, are required to be enrolled full-time (i.e., should be enrolled for 21 credit hours), even during their graduating term. Although students signed up for 12 credit-hours are considered "full time" by the Institute, students in AE should sign up for 21 credit-hours. As many of these hours as possible, but no less than 12, must be taken on a letter-grade or pass/fail basis. Students should register for a sufficient number of AE 7000 credit-hours (M.S. students) or AE 9000 credit-hours (Ph.D. students) to bring their academic load to the required 21 credit hours.

Students on F-1 or J-1 visas also must be enrolled in 21 credit hours (letter-grade or pass/fail) during the fall and spring semesters, except, under certain circumstances, during their first and last semesters. During summer semesters, students on F-1 or J-1 visas may reduce the number of credit-hours or skip the summer semester (without leaving the country). For detailed advice, or when in doubt, please contact the Georgia Tech [Office of International Education](#).

Part-time students, on campus or enrolled in distance learning, may sign up for as little as three (3) credit hours.

1.4.b Enrollment Waiver and Reduced Load During Final Semester

Graduate students who have completed all the requirements for their degree, including theses, special problems, projects, and removal of incomplete grades by the end of the registration period of the semester in which they are to receive their degree, may request an enrollment waiver for that term.

Students requesting an enrollment waiver must have been registered in the semester prior (usually the term in which the successful final defense took place) to the semester for which a waiver is requested. No Institute facilities or faculty time are to be utilized by the student during the term for which the student receives a waiver.

An Enrollment Waiver Form (DocuSign) must be completed by the student and signed by the AE Associate Chair and the AE Academic Program Manager. The signed form must be submitted to the Graduate Office at the same time as the [Certificate of Thesis Approval Form](#). This form, the final and completed electronic thesis, and all other thesis related forms are due **before the end of the registration** period the semester of graduation.

Students who have completed all their course work and almost all of their thesis-related work and are not supported through Georgia Tech may register for only one (1) credit-hour during this last semester. This exception to the three-hour minimum rule is granted only once for each student. **NOTE:** *International students must notify the Office of International Education before they register less than full-time.*

1.4.c Employed Non-assistantship Students

The maximum allowable semester load for students employed by the Institute (other than graduate assistants) is reduced as a function of the number of hours employed per week as follows:

Work Load per Week:	Maximum Semester Hour Load:
Full time (40 hours)	6
3/4 of Full time (30 hours)	9
2/3 of full time (27 hours)	10
1/2 of Full time (20 hours)	12
1/3 of Full time (13 hours)	15
¼ of Full time (10 hours)	18 (16 for summer semesters)

1.5 Dismissal Policy

All Georgia Tech policies regarding Academic Dismissal apply to Aerospace Engineering Graduate Students. Students should review the policy at <https://catalog.gatech.edu/rules/6/>.

Any student dismissed from Georgia Tech for academic reasons must do the following:

1. Sit out of school one semester before applying for readmission.
2. Meet with the AE Graduate Program Manager
3. Complete an academic contract, a petition to the faculty form, and readmission application.

The AE Associate Chair for Graduate Studies will review your application and send it to the Registrar's Office for processing. Please note that readmission is not guaranteed. Students who are dismissed from the department for disciplinary reasons will not be readmitted.

1.5.a Dismissal Policy for M.S. Students on Assistantships

M.S. students receiving a stipend in the form of a GRA or GTA are expected to complete all degree requirements within five semesters, including summer terms. Failure to complete the degree requirements on schedule may result in loss of the assistantship.

GRAs are expected to perform research as part of their degree requirements. Unsatisfactory research performance can lead to the GRA not being renewed in subsequent semesters and/or loss of supervision. Unsatisfactory research performance will be documented through a U grade in AE7000. A student in danger of being dismissed by their advisor can expect to receive sufficient warning in the form of a letter or e-mail outlining the deficiencies and spelling out at what level they would have to perform to continue in the assistantship. The deficiencies must be remedied before the end of the semester in order to prevent possible dismissal from the advisor's research group and/or loss of the assistantship. Funding support will normally not be withdrawn in mid-term, other than in exceptional circumstances.

If a M.S. student is dismissed from a GRA position, the AE Associate Chair for Graduate Studies may, at their sole discretion, provide financial support in the form of a GTA during the next semester. If the student is unable to find another GRA position after this semester, either with their original advisor or another advisor, they may be asked to finish the degree at their own expense and/or switch to the coursework option if pursuing a thesis. The AE School is under no obligation to financially support a student who is unable to secure a new advisor.

GTA assignments are made on a semester-by-semester basis. Receipt of a GTA position during any semester does not imply that a GTA position will be awarded in any future semester.

1.5.b Dismissal Policy for Ph.D. Students

Ph.D. students receiving a stipend in the form of a GRA or GTA are expected to complete all degree requirements within five years, including summer terms. Failure to complete the degree requirements on schedule may result in loss of the assistantship.

Ph.D. students are expected to perform research as part of their degree requirements. Unsatisfactory research performance can lead to an assistantship not being renewed in subsequent semesters and/or loss of supervision. Unsatisfactory research performance will be documented through a U grade in AE9000. A student in danger of being dismissed from their research position can expect to receive sufficient warning in the form of a letter or e-mail outlining the deficiencies and spelling out at what level they would have to perform in order to continue in the assistantship. The deficiencies must be remedied before the end of the semester in order to prevent possible dismissal from the advisor's research group and/or loss of the assistantship. Funding support will normally not be withdrawn in mid-term, other than in exceptional circumstances.

GTAs are also expected to assist the instructor of record for the course to which they are assigned with teaching and grading. GTA assignments are made on a semester-by-semester basis. Receipt of a GTA position during any semester does not imply that a GTA position will be awarded in any future semester. Teaching performance will be documented through a survey sent to course instructors each semester.

If a Ph.D. student is dismissed from a GRA position, the AE Associate Chair for Graduate Studies may, at their sole discretion, provide financial support in the form of a GTA during the next semester. A Ph.D. student who no longer has an advisor must seek another advisor with help from the Associate Chair for Graduate Studies. A Ph.D. student who cannot find a new advisor

after one term may be dismissed from the AE School or may opt to transfer to the M.S. (coursework option) program to finish the M.S. degree at their own expense. The AE School is under no obligation to financially support a student who cannot secure a new advisor.

Ph.D. students should complete all required coursework and take the oral Ph.D. qualification examination by the end of their third year. If the student has not met the coursework requirement or attempted the qualifying exam by the end of the term specified above, they may be dismissed from the program. Ph.D. students who fail the qualifying exams twice will be dismissed from the Ph.D. program. If appropriate, the student may opt to transfer to the M.S. (coursework option) program to finish the M.S. degree. The student will need to fill out a Graduate Change of Major/Level form during the semester when the second failure occurred. All Ph.D. students should have completed their Ph.D. proposal in the first five years of enrollment. If the student has not met the proposal exam requirements by the end of the term specified above, they may be dismissed from the Ph.D. program.

A student who is dismissed from the program should participate in exit interviews with AE (HR, academic office, Associate Chair for Graduate Studies, faculty advisor) to ensure that academic and financial matters are handled correctly. The student should also meet with the faculty advisor to ensure that all access mechanisms and property of the lab are returned.

1.6 Responsible Conduct of Research Requirements

Georgia Tech is committed to providing leadership in the realm of ethics and the responsible conduct of research (RCR). The [RCR Compliance Policy](#) is intended to meet the RCR training requirements of federal funding agencies and other sponsors. The [RCR Academic Policy for Doctoral Students](#) and the [RCR Academic Policy for Master's Thesis Students](#) delineate RCR training degree requirements for certain categories of graduate students.

Master's students conducting a thesis, the online training, [a CITI RCR course](#), must be successfully completed prior to defending the thesis. The online course and some form of in person RCR training is required for all Master's students receiving financial support through NSF or NIH.

For Doctoral students, the online training, [a CITI RCR course](#), must be successfully completed within 60 days of when applicable students begin the first full semester in their doctoral program. AE Doctoral students also are required to complete successfully [PHIL 6000](#). Students are strongly encouraged to complete this within the first 12 months of their doctoral program, generally summer session after they begin their doctoral program at Georgia Tech.

1.7 AE Website

The School home page is <http://www.ae.gatech.edu>. This site provides news, events, research, curriculum, academic advisement information, course outlines for courses, information about student groups and faculty, and other useful information. The AE communications team and the AE IT staff maintain the website. Please direct to [their attention](#) any necessary corrections or revisions that you become aware of, as well as any broken links.

2. Master's Degree Requirements

2.1 Academic Requirements

The following table summarizes these requirements for the M.S. degree. (See below for a further discussion of these requirements.)

M.S. Credit Hour Requirements	M.S. without Thesis (33 hrs total):	M.S. with Thesis (33 hrs total):
AE Graduate Seminar	AE8002*	AE8002*
Formal Courses (minimum, not including AE7000 or AE8900)	30	24
GT AE Courses (minimum)	12	9
Math (minimum)	6	6
Non-technical** (maximum)	6	3
6000 level or above (minimum)	24	15
Research Coursework OR 3 hours of additional AE coursework***	3 (AE 8900) OR 3 (AE formal course)	9 (AE 7000)

*AE8002 (1 credit hr. P/F) is required during the first year in residence in the graduate program at GT but does not count toward the 33 credit-hours needed for the degree. AE 8002 is only required if you enrolled in the Graduate Program in Fall 2018 or after. This requirement is waived for distance-learning students.

**Technical courses are defined as any courses in the College of Engineering, College of Science, or College of Computing; all other courses are considered non-technical.

***As of FALL 2023 AE 8900 is optional. Students who matriculated before Fall 2023 who do not wish to take AE 8900 must request that their catalog year be changed to 2023. Please contact the AE Academic Program Manager for more information. During the first year in residence in the graduate program at Georgia Tech, each student must satisfactorily complete one semester of AE 8002 AE Graduate Seminar. This requirement is waived for distance-learning students. This 1 credit-hour course is taken on a pass/fail basis and does not count toward the 33 credit-hour requirement for the M.S. degree. The AE Graduate Seminar introduces graduate students to world-class aerospace researchers and topics and introduces students to Institute resources that support the student's academic and research success.

2.1.a M.S. – Thesis Option

All students enrolled in the Master of Science program must decide sometime during the first two semesters whether or not to pursue a research thesis in partial fulfillment of the degree requirements. Those students who will be submitting a thesis must complete a minimum of 24 credit-hours of formal coursework at the 4000-level or above (Math 3215 also may be included), which do not include any Georgia Tech [Bachelor of Science in AE required courses](#). Formal courses are non-research-based courses taken on a letter-grade basis. Of these 24 credit-hours of formal course work, at least nine (9) must be taken in the School of Aerospace Engineering. Of the remaining hours, no more than three (3) may be in a non-technical subject. The 24 credit-hours of formal coursework must include at least 15 credit-hours at the 6000 level or above. **All of these minimum credit requirements for formal coursework must be taken on a letter-grade basis.**

In addition to the coursework described above, students are also required to satisfactorily complete a minimum of nine (9) credit-hours of Master's Thesis (AE 7000) and submit an approved M.S. thesis to the Office of Graduate Education.

The ability to complete a thesis as part of the M.S. program is not guaranteed, but subject to the availability of an appropriate project. Students should contact potential thesis advisors in their first two semesters to secure a topic. This will ensure that a project is available and the student has time to build the background knowledge (coursework, prerequisite reading, etc.) required to successfully complete the thesis.

Further details on the M.S. thesis are provided in Section 2.2 and information on the RCR requirement is provided in Section 1.6.

2.1.b M.S. – Non-Thesis Option

Students who will not submit a thesis must satisfactorily complete a minimum of 33 credit-hours at the 4000-level or above, which do not include any Georgia Tech [Bachelor of Science in AE required courses](#). Thirty (30) of the 33 credit-hours must be formal coursework, where formal courses are non-research-based courses taken on a letter-grade basis. At least 12 credit-hours of formal coursework must be taken in the School of Aerospace Engineering. Of the remaining credit-hours only six (6) may be in a non-technical subject. The 30 credit-hours of formal coursework must include at least 21 credit-hours at the 6000-level or above. The remaining three (3) credit-hours may be either AE8900 (Special Problems in AE) or another formal AE course. **All of these minimum credit requirements must be taken on a letter-grade basis.**

As mentioned, the M.S. Without Thesis option may include three (3) research hours (AE8900, Special Problems in AE). This course is designed to provide M.S. students with an introduction to planning, carrying out, and documenting a research project. Additional hours of AE8900 may be taken but only three (3) credit-hours will be allowed in the 33 credit-hour requirement for the degree. In order to register for AE8900, you must complete an [AE8900 Special Problems Permit](#) and have it approved by your advisor. In order to receive credit for this course, you must submit a report to your advisor that will be graded on a letter-grade basis.

The ability to complete an AE8900 Special Problem course is not guaranteed, but subject to the availability of an appropriate project. Students should contact potential AE8900 supervisors at least 1-2 semesters prior to enrolling in the course. This will ensure that a project is available and the student has time to build the background knowledge (coursework, prerequisite reading, etc.) required to successfully complete the project.

2.1.c M.S - Distance Learning Option

All distance learning students pursue the non-thesis M.S. option. The degree requirements are identical to those described in Section 2.1.b, with the exception that AE 8002 AE Graduate Seminar is waived for distance learning students.

Distance Learning students who wish to complete an AE 8900 Special Problem course as part of their degree should provide the Academic Advisor for DL students with their

- Resume
- Area of research
- AE faculty who matches research interests.

After this information is provided to the advisor, the advisor will contact the AE faculty members directly on the student's behalf. Once a faculty member agrees to serve as AE 8900 supervisor, the Academic Advisor for DL students will connect the student and faculty member.

2.1.d Mathematics Requirement

Before receiving the Master of Science degree, the student must have satisfactorily completed at least six (6) semester-hours of mathematics. These courses must be at the 4000 level or above. These courses must either carry the 'Math' prefix or be selected from the list below:

- CS 7530 Randomized Algorithms
- ECE 6601 Random Processes (formerly ECE 6050)
- ECE 7750 Mathematical Foundations of Machine Learning
- ISYE 6413 Design and Analysis of Experiments
- ISYE 6414 Regression Analysis
- ISYE 6416 Computational Statistics
- ISYE 6420 Bayesian Statistics
- ISYE 6650 Probabilistic Models
- ISYE 6739 Basic Statistical Methods
- PHYS 6124 Mathematical Methods of Physics I
- PHYS 6125 Mathematical Methods of Physics II
- PHYS 6268 Nonlinear Dynamics and Chaos (not with Math 6307)
- PUBP 6114 Applied Policy Methods

The courses in the list above were selected because they primarily introduce mathematical methodology rather than use mathematical techniques to model physical phenomena. Other courses may be added to this list when approved by the AE Graduate Committee. Requests to add additional courses to the list should be submitted to the AE Graduate Committee before the student signs up for the class. Courses in applied math or numerical methods offered in individual disciplines will usually not be acceptable. For example, the course ME 6758 Numerical Methods in Mechanical Engineering, is **not** approved (a request to approve was rejected by the AE Graduate Committee).

If the additional mathematics courses were taken before entering the graduate program at Georgia Tech, and if those courses were not used to satisfy requirements for another degree, then the student may seek transfer credit for those courses. If transfer credit is not possible or not awarded, then the additional mathematics courses may not be included in the program of study. However, subject to recommendation by the advisor and approval by the AE associate chair for Graduate Programs, those courses may still be used to fulfill the (6) six-hour mathematics requirement. In this case, the final program of study must satisfy the appropriate degree requirements (minimum of 24 credit-hours or 30 credit-hours of formal course work), but there will be less than six (6) credit-hours of mathematics. **All mathematics courses counting towards the six-hour requirement must be completed on a letter-grade basis.**

2.1.e Program of Study

Each student enrolled in the Master of Science program should, in collaboration with the Academic Advisor, formulate a Program of Study that satisfies both the technical interests of the student and the degree requirements set forth herein and in the [General Catalog](#). The student should review graduate [course descriptions](#) on the AE website.

NOTE: Sample M.S. degree programs are presented at the end of this section to assist the student in designing a program of study.

Students are encouraged to complete an [AE M.S. Program of Study](#) form to help plan their degree program. This form can be reviewed with the Academic Office and/or faculty advisor to ensure compliance with the degree requirements. The Program of Study form should be updated by the student every semester to help maintain degree progression.

2.1.f Academic Performance

All students enrolled in the Master of Science program in the School of Aerospace Engineering are required to maintain a grade point average of at least 2.7 in order to be in "good academic standing." This average will be computed for all course work that is eligible to be counted towards the degree. However, the Registrar compiles the official GPA using all courses taken while a graduate student at Georgia Tech. M.S. students in AE must also meet the Institute requirement of a grade point average of at least 2.7 based on all courses taken while a graduate student at Georgia Tech in order to be in good academic standing.

A student may be admitted to the Master of Science program on "conditional graduate standing" because of marginal undergraduate grades or an undergraduate degree that does not provide sufficient prerequisite material. Such a student must satisfy certain academic requirements that will be established at the time of matriculation before he/she can transfer to full graduate standing. Students with low undergraduate grade point averages must complete at least 18 credits of graduate course work with a grade point average of at least 2.7 before being recommended for "full graduate standing." Students whose undergraduate background does not sufficiently prepare them for the Master of Science program in their discipline of choice must complete certain undergraduate course work as recommended by their Academic Advisor and approved by the AE Academic Program Manager. This course work must be completed with a grade point average of at least 2.7 before the student is recommended for "full graduate standing." Eligible courses taken while on conditional standing carry over and count for credit toward the degree.

2.1.g Transfer Credit

A student may receive up to six (6) credit-hours of transfer credit for graduate-level courses taken at an accredited institution in the United States or Canada and not used for credit toward another degree. To obtain transfer of credit, the student must confer with the Academic Advisor to ascertain that the courses to be transferred are a logical part of the student's program of study. If the courses are appropriate, the student must provide a current transcript that verifies

completion of the credit, plus necessary descriptive materials, including catalog descriptions and textbooks for evaluation of the credit.

A student may not receive transfer credit towards the M.S. degree from universities outside the United States and Canada. An international student can obtain credit for courses previously taken but not applied toward another degree by passing an appropriate examination. Such students should consult with their advisor in this regard. *See Section XIV in the Georgia Tech Catalog.*

2.2 M.S. Thesis

Towards the end of the first semester following matriculation, and no later than the end of the second semester, all students wishing submit a thesis as part of their M.S. degree program must find a member of the AE faculty to serve as Faculty Advisor. The decision regarding thesis topic will be made in conference with the Faculty Advisor. Definition of the thesis topic will include identification of the motivation for the investigation, a scheduling of the scope of work associated with the study, and a statement of the anticipated objectives. The purpose of the thesis is to further the educational development by requiring the student to plan, conduct, and report on an organized and systematic study of importance.

2.2.a Committee Member Definitions

The **AE Academic Faculty** consists of members of the Georgia Tech faculty with a primary, secondary, or adjunct (courtesy) appointment in the School of Aerospace Engineering, having one of the titles listed under Academic Faculty here: <https://provost.gatech.edu/about/resources-links/list-faculty-titles>

The **AE Graduate Thesis Faculty** consists of members of the AE Academic Faculty with the titles of Assistant Professor, Associate Professor, Professor, or Professor Emerita/Emeritus.

The **AE Research Faculty** consists of members of the Georgia Tech faculty with an appointment in the School of Aerospace Engineering having one of the titles listed under Research Faculty here: <https://provost.gatech.edu/about/resources-links/list-faculty-titles>

The **AE General Faculty** consists of the combined AE Academic and Research Faculty.

2.2.b Advisory Committee & Proposal

Shortly after the thesis topic has been identified, the student and advisor will select a MS Thesis Advisory (Proposal) Committee. The MS Advisory Committee consists of 2-3 members (two is typical). One member is the student's Faculty Advisor, who must be from the AE Graduate Thesis Faculty and serves as Committee Chair. At least one other member must be from the AE Academic Faculty. The task of the advisory committee is to advise and direct the student on the scope and execution of the investigation. The MS Thesis Proposal should occur **at least six (6) months before the intended Thesis Final Examination (see 2.2.c).**

Shortly after the committee has been selected, the student must write a brief thesis proposal. This proposal, **which should not exceed 20 pages of text plus figures and tables**, should include the motivation behind the topic selection, the scope of work, preliminary results, and the specific objectives. After an editorial review by the advisor, the proposal will be distributed to the other

committee members. It is the student's responsibility to find an appropriate time (no less than two (2) weeks after distribution of the proposal) and book a room for the proposal presentation. The student must then immediately contact the AE Academic Office using the [Thesis Proposal and Defense Scheduling Form](#), which will trigger review/approval of the committee and advertise the proposal. An announcement of the thesis proposal will be distributed to all faculty and graduate students of the School of Aerospace Engineering and will be on the AE website at least one (1) week prior to the presentation.

The MS Thesis Proposal will consist of a formal presentation of the proposed. Immediately following the presentation and discussion by the general audience, the student will be questioned by members of the committee.

Possible outcomes of the Thesis Proposal are: Pass, Retake or Fail. All pass votes are required for an overall pass. All fail votes are required for an overall failure, in which case the student is moved from the Thesis to Non-Thesis MS. A mixture of pass and fail votes requires the student to redo the proposal (one retake is allowed).

After the committee has approved the proposed effort, the student should distribute the [Request for Approval of Master's Thesis Topic](#) form (PDF) to the committee members. This form and a copy of the thesis proposal will be submitted to the AE Academic Office for approval by the AE Associate Chair and forwarding to the Office of Graduate Education.

2.2.c Final Examination

At the conclusion of the research effort, the student will write the thesis, setting forth the results and conclusions of the study in a clear and articulate form. The [Institute's Theses and Dissertation](#) format must be followed.

The MS Thesis Examination (Defense) Committee consists of 3-4 members (three is typical). It always includes the MS Thesis Advisory Committee. No more than one member may be from outside the AE General Faculty.

After the advisor has completed an editorial review of the thesis, copies will be distributed to the remainder of the advisory committee. It is the student's responsibility to find an appropriate time (no less than two (2) weeks after distribution of the thesis) and book a room for the Thesis Final Examination. The student must then immediately contact the AE Academic Office using the [Thesis Proposal and Defense Scheduling Form](#), which will trigger review/approval of the committee and advertise the Thesis Final Examination. An announcement of the Thesis Final Examination will be distributed to all faculty and graduate students of the School of Aerospace Engineering and will be on the AE website at least one (1) week prior to the presentation.

The Final Examination will consist of a formal presentation of the thesis results and conclusions to the advisory committee and others. Immediately following the presentation and discussion by the general audience, the student will be questioned by members of the committee. This meeting will be used by the committee to ascertain that the student is well versed in the topic of the thesis and to inform the student of any modifications to the thesis that they require to be made before it is submitted to the graduate office.

2.2.d Thesis Submittal

After the advisory committee has approved the thesis, the student must distribute the [Certificate of Thesis Approval](#) form to the committee members. The [Institute Theses and Dissertations](#) webpage provides the deadlines and specific instructions for the required electronic submittal of the thesis. The Office of Graduate Education also requires a publishable thesis abstract of up to 300 words, certified for accuracy by the thesis advisor. **NOTE:** *The deadline for submitting a thesis to the Office of Graduate Education is well before the end of the semester in which the student plans to graduate.*

2.3 M.S. Special Problem

2.3.a Registration

All students who choose to complete a Special Problem in partial fulfillment of the M.S. degree requirements must register for Special Problems in Aerospace Engineering (AE 8900) in the section associated with their problem advisor. These credits are normally taken during the final semester of the program of study. Before the student is permitted to register for AE 8900, the AE Academic Office must receive the permit form approved by the Academic Advisor that includes the topic of the investigation and the number of academic credits to be awarded for completion of the project.

2.3.b Report Submittal

At the conclusion of the Special Problem research effort, the student will write a Special Problem report that describes the task, the results, and the conclusions formed on the basis of these results. The format and content of the report will be specified by the Academic Advisor. A copy of this report will be retained in the files of the advisor for potential future reference by other students and faculty.

2.4 Sample M.S. Degree Programs

The M.S. Without Thesis programs of study presented below are samples that a student could follow if interested in the indicated technical specialty. Students on Graduate Research Assistantships are usually limited to three formal courses per term. Distance learning students are usually limited to one or two formal courses per term. **It is expected that each student, in consultation with the academic or faculty advisor, will formulate an individually tailored program of study that is compatible with the student's research and career interests.**

It should be noted that students pursuing the M.S. with Thesis option can modify the programs of study listed below by 1) Not taking AE8900, 2) Replacing 9 credit-hours of the additional coursework shown with 9 credit-hours of AE7000.

Aerodynamics and Fluid Mechanics

FALL	SPRING	SUMMER	FALL
AE 6009	AE 6012	AE 6050	AE 8900
AE 6030/6765	AE 6015/6503/6766	MATH XXXX	AE 6060

AE 6070	AE 6042/6052	MATH XXXX	
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Aeroelasticity and Structural Dynamics

FALL	SPRING	SUMMER	FALL
AE 6030	AE 6111	ELECTIVE	MATH XXXX
AE 6230	AE 6200/ AE6220	MATH XXXX	AE 8900
AE6114	ELECTIVE		AE 6111/ELECTIVE

Aerospace Systems Design

FALL	SPRING	3 RD TERM*	4 TH TERM*
AE 6373	AE 6344	MATH XXXX or ISYE XXXX	AE 8900
AE 6343	AE 8804 MAV	QUALS 3**	MATH XXXX or ISYE XXXX
AE 6383 MAV	AE 8002***		
AE6372 or QUALS 1**	QUALS 2**		

*ASDL students often intern during the summer term; therefore 3rd term may be fall semester of the second year.

Electives may be design or discipline electives. Electives can be used to support subsequent Ph.D. qualifying exams.*Graduate Seminar is a 1-hour Pass/Fail course required of all design students, but P/F hours do not count toward academic degree requirements.

Flight Mechanics and Controls

FALL	SPRING	SUMMER	FALL
AE 6511/6520	AE 6580	ELECTIVE 6XXX	AE 6511/ AE6520
AE 6530	AE 6210	ELECTIVE 6XXX/ MATH XXXX	ELECTIVE 6XXX/ MATH XXX
ELECTIVE 6XXX/ MATH XXXX	ELECTIVE 6XXX/ MATH XXXX		AE 8900

Propulsion and Combustion

FALL	SPRING	SUMMER	FALL
AE 6765	AE 6766	ELECTIVE 6XXX	AE 6450/6451/6060
AE 6009	AE 6012	MATH XXXX	AE 6080/6410/6412
MATH XXXX	AE 6050/6361/6760		AE 8900

Structural Mechanics and Materials

FALL	SPRING	SUMMER	FALL
AE 6114	AE 6115	MATH XXX	AE 8900
AE 6230	AE 6104	MATH XXXX	AE 6100
AE 7772	AE 7774		AE 6170

Space Systems

FALL	SPRING	3 RD TERM*	4 TH TERM*
AE 6350	AE 6520	AE 6372	AE 8900 or AE 8803
AE 6353	AE 6310	MATH XXXX	AE 6505
AE 8883	MATH XXXX or ISYE XXXX	AE 8803**	

3. Doctor of Philosophy Degree Requirements

3.1 Academic Requirements

The academic requirements specify the formulation of a Program of Study for each student that must meet the Course Credit Requirements and the Mathematics Requirement. Transfer credits from prior coursework may also be used. When pursuing the Program of Study, the student must also meet the academic performance requirements.

3.1.a Program of Study

Each student enrolled in the Doctor of Philosophy (Ph.D.) program will, in conference with their Academic Advisor, formulate a program of study that satisfies both the technical interests of the student and the degree requirements set forth herein and in the General Catalog. No sample Ph.D. degree programs are presented in this section. Students entering with a Bachelor's Degree in Aerospace Engineering will generally follow the sample program of the M.S. degree during their first year. Beyond that point, programs of study should be tailored to the individual needs of the students using courses offered by the School of Aerospace Engineering and related courses offered by other schools at Georgia Tech.

While each program of study can be tailored to the specific interests of the student, it must also satisfy certain minimum coursework requirements set by the School of Aerospace Engineering. The following table summarizes these requirements for the Ph.D. degree. *(See below for a further discussion of these requirements.)*

Ph.D. Credit Hour Requirements	Hours after Bachelor's Degree
AE Graduate Seminar	AE 8002*
Formal Courses (not including: thesis, research or AE8900)	42 hours total
AE Classes	At least 18 hours
Math	At least 9 hours
Non-technical**	No more than 6 hours
Hours at 6000 or above	At least 36 hours

*AE8002 (1 credit hr. P/F) is required during the first graduate year in residence at GT but does not count toward the 42 credit-hours needed for the degree. AE 8002 is only required if you enrolled in the Graduate Program in Fall 2018 or after. The AE8002 requirement is waived for distance-learning students.

**Technical courses are any courses in the College of Engineering, College of Science, or College of Computing; all other courses are considered non-technical.

After the program of study is agreed to by the student and advisor, the courses will be listed on the [AE Ph.D. Program Summary](#) form (PDF). This form will be retained with the student's other academic records in the AE Academic Office. Students should also note the RCR requirements in Section 1.6.

3.1.b Course Credit Requirements

All students enrolled in the Doctor of Philosophy program must satisfactorily complete a minimum of 42 credit-hours of formal course work beyond the bachelor's degree. These courses must be at the 4000-level or above, which do not include any Georgia Tech [Bachelor of Science in AE required courses](#).

Formal courses are non-research-based courses taken on a letter-grade basis. Of these 42 credit-hours, at least 18 must have an AE-prefixed course number. Of the remaining hours, no more than six (6) may be in non-technical areas and only if these courses form a reasonable part of the program of study. These 42 credit-hours must include at least 36 credit-hours at the 6000 level or above. **Special Problem course credits and research course credits may not be included in the above minimum credit requirements.** AE 8900 credits may not be counted toward the Ph.D. course requirements. **All of these minimum credit requirements must be taken on a letter-grade basis.**

During the first year in residence in the graduate program at Georgia Tech, each student must satisfactorily complete one semester of AE 8002 AE Graduate Seminar. This one (1) credit-hour course is taken on a pass/fail basis and does not count toward the 42 credit hour requirement for the Ph.D. degree. The AE Graduate Seminar introduces graduate students to world-class aerospace researchers and topics and introduces students to Institute resources that support the student's academic and research success.

3.1.c Mathematics Requirement

For the Doctor of Philosophy degree, the student must have satisfactorily completed at least nine (9) semester-hours of mathematics. These courses must be at the 4000 level or above. These mathematics courses must either carry the 'Math' prefix or be selected from the list below:

- CS 7530 Randomized Algorithms
- ECE 6601 Random Processes (formerly ECE 6050)
- ECE 7750 Mathematical Foundations of Machine Learning
- ISYE 6413 Design and Analysis of Experiments
- ISYE 6414 Regression Analysis
- ISYE 6416 Computational Statistics
- ISYE 6420 Bayesian Statistics
- ISYE 6650 Probabilistic Models
- ISYE 6739 Basic Statistical Methods
- PHYS 6124 Mathematical Methods of Physics I
- PHYS 6125 Mathematical Methods of Physics II
- PHYS 6268 Nonlinear Dynamics and Chaos (not with Math 6307)

- PUBP 6114 Applied Policy Methods

The courses in the list above were selected because they primarily introduce mathematical methodology rather than use mathematical techniques to model physical phenomena. Other courses may be added to this list when approved by the AE Graduate Committee. Requests to add additional courses to the list should be submitted to the Committee before the student signs up for the class. Courses in applied math or numerical methods offered in individual disciplines will usually not be acceptable. For example, the course, ME 6758 Numerical Methods in Mechanical Engineering, IS NOT approved (a request to approve was rejected by the AE Graduate Committee).

If the additional mathematics courses were taken before entering the graduate program at Georgia Tech, and if those courses were not used to satisfy requirements for another degree, then the student may seek transfer credit for those courses. If transfer credit is not possible or not awarded, then the additional mathematics courses may not be included in the program of study. However, subject to recommendation by the advisor and approval by the AE Associate Chair for Graduate Programs, those courses may still be used to fulfill the nine-hour mathematics requirement. In this case, the final program of study must satisfy the appropriate degree requirements (minimum of 42 credit-hours of formal course work), but there will be less than nine (9) credit-hours of mathematics. **All mathematics courses counting towards the nine-hour requirement must be completed on a letter-grade basis.**

3.1.d Academic Performance

All students enrolled in the Doctor of Philosophy program in the School of Aerospace Engineering are required to maintain a grade point average of at least 3.25 in order to be in good academic standing. This average will be computed for all course work eligible towards the Ph.D. degree and taken at Georgia Tech. However, the registrar compiles the official GPA using all courses taken while a graduate student at Georgia Tech. Ph.D. students in AE must also meet the Institute requirement of a grade point average of at least 3.0 based on all courses taken while a graduate student at Georgia Tech in order to be in good academic standing. Details on GPA calculations, grading policy, and grade substitution are in the [Grading & GPA section of the Catalog](#).

In addition to the overall grade point average of 3.25, the student must maintain at least a 2.8 grade point average in all mathematics courses taken as a graduate student at Georgia Tech.

The student must satisfy the above grade point average requirements in order to take the Ph D. qualifying exam, be admitted to the candidacy, present a thesis proposal or graduate. If a student is unable to progress in their degree because of an inadequate GPA, they may be dismissed from their assistantship and are subject to the policy in Section 1.5.b.

3.1.d Transfer Credit

A student may receive up to thirty (30) credit-hours of AE transfer credit for graduate-level courses taken at an accredited institution anywhere in the world and not used for credit toward an undergraduate degree. To obtain this transfer of credit, the student must confer with the Academic Advisor to ascertain that the courses to be transferred are a logical part of the student's

program of study. If the courses are appropriate, the student must provide a current transcript that verifies completion of the credit, plus necessary descriptive materials (generally the course syllabus). These materials will be evaluated to assess equivalency with currently offered GT courses and, if found to be equivalent, will be transferred directly. Transfer equivalency assessment must be made by an instructor of the GT course. It is the student's responsibility to obtain this equivalency assessment. If there is no equivalent GT course, the external course may be transferred as generic AE technical credit at the discretion of the Associate Chair. However, transfer credit in mathematics must be approved by the School of Mathematics. A record of the courses accepted for AE transfer credit will be made on the [AE Ph.D. Graduate Transfer Credit Request Form](#), with signatures from the instructors who approved the transfers. This record will be retained in the AE Academic Office with the remainder of the student's academic files. This transfer credit will **not** appear on the student's transcript.

3.1.e Doctoral Minor

All Ph.D. students must demonstrate mastery of another smaller body of knowledge-the minor field-preferably outside the major school. The purpose of the minor is to encourage a wider interest on the part of the student and can include topics that will help them in their research or those that will allow them to explore and prepare for their future careers.

The minor will normally consist of at least six semester hours of work in related courses. The School of Aerospace Engineering requires these to be MATH courses. You must receive a letter grade of C or higher for a course to count towards the doctoral minor. **Courses that are taken as pass/fail are not eligible to count towards the doctoral minor.** Courses taken at other institutions may be included in the minor. Once the minor has been satisfactorily completed, the student will complete the [Doctoral Minor](#) form. This is usually submitted with the [Request for Admission to Ph.D. Candidacy](#) form after a student has successfully proposed their thesis (see 3.3).

3.2 Qualifying Examination

To be accepted as a candidate for the Ph.D. degree, a student must take and successfully complete the Aerospace Engineering Ph.D. qualifying examination. An in-depth overview of the Ph.D. qualifying exams may be found on the [AE website](#).

3.2.a Scheduling the Examination

The Ph.D. qualifying examination is offered twice a year, usually in the second week of the Fall and Spring semesters. Students are generally expected to take this examination during their second year of full-time graduate study. For a graduate student to be permitted to take the Ph.D. Qualifying examination, the student must have taken a minimum of 12 credit-hours of coursework at Georgia Tech and be enrolled in at least three credit-hours during the semester in which they take the qualifying examination. In addition, the student must have at least a 3.25 grade point average in coursework taken at Georgia Tech, which will count toward the 42 credit-hour Ph.D. requirement. The student must also obtain approval from their thesis advisor or the AE Graduate Committee in order to take the exam.

Approximately three months prior to each qualifying exam date, the AE Graduate Office will distribute a form through which students can sign up for the forthcoming exam and obtain the necessary approvals. Students may cancel their examination up to one week prior to the start of the qualifying exam period. After this date, the student will be required to take the exam unless an exception is granted by the Associate Chair for Graduate Programs.

3.2.b Administering the Examination

As described in the [overview of the Ph.D. qualifying exams](#), the student, in consultation with his/her advisor, will select two [qualifying examination areas](#) (PDF). It should be noted that the general scope of each examination will be based on the enumerated **primary** courses plus all associated **prerequisite** and **background** material at the graduate and undergraduate level. Every Ph.D. student will take an oral examination in each of the selected areas. Each examination will be administered by three faculty members.

All degree requirements must be completed within five years from the end of the semester in which the student passes the Ph.D. qualifying examination.

3.2.c Reexaminations

If a student fails the qualifying examination (i.e., fails one or both examination areas), a reexamination will be automatically permitted. This reexamination must be taken the next time the examination is offered. The reexamination will be given in the same two areas as the first examination. However, if the student obtained unanimous passing grades in one of the areas during the first attempt, that student does not need to be reexamined in that area. Such a student's reexamination will occur only in the area in which he/she did not get unanimous passing grades. A second failure of the examination will result in dismissal from the AE Ph.D. program.

3.3 Ph.D. Thesis

Each Ph.D. candidate must carry out original research and describe it in a thesis. This requires determination of a research topic, selection of a dissertation advisory committee, preparation of a research proposal (oral presentation followed by comprehensive examination), completion of the research, preparation of the thesis document, and lastly, oral presentation and final examination (i.e., thesis defense).

All students enrolled in the Ph.D. degree program will determine their topic of research, which will lead to their dissertation, as early as possible. This decision will be made in conference with their Faculty Advisor. The research effort should represent an original and significant contribution in the major field of study. Definition of the research topic will include identification of the motivation for the investigation, scheduling of the scope of work associated with the study, and a statement of the anticipated objectives. One purpose of the dissertation is to further the educational development by requiring the student to plan, conduct and report on an organized and systematic program of research in the major field of study; the other is to advance fundamental knowledge in the field of aerospace engineering.

3.3.a Committee Member Definitions

The **AE Academic Faculty** consists of members of the Georgia Tech faculty with a primary, secondary, or adjunct (courtesy) appointment in the School of Aerospace Engineering, having one of the titles listed under Academic Faculty here: <https://provost.gatech.edu/about/resources-links/list-faculty-titles>

The **AE Graduate Thesis Faculty** consists of members of the AE Academic Faculty with the titles of Assistant Professor, Associate Professor, Professor, or Professor Emerita/Emeritus.

The **AE Research Faculty** consists of members of the Georgia Tech faculty with an appointment in the School of Aerospace Engineering having one of the titles listed under Research Faculty here: <https://provost.gatech.edu/about/resources-links/list-faculty-titles>

The **AE General Faculty** consists of the combined AE Academic and Research Faculty.

3.3.b Advisory Committee & Proposal

Shortly after the Ph.D. Qualifying examination has been passed and the research topic has been defined, the student and advisor will select a PhD Thesis Advisory (Proposal) Committee. The Thesis Advisory Committee consists of 3-4 members (three is typical). One member is the student's Faculty Advisor, who must be from the AE Graduate Thesis Faculty and serves as Committee Chair. At least one other member must be from the AE Graduate Thesis Faculty. The third member must be from the Georgia Tech Graduate Thesis Faculty, but not necessarily from AE. All members of the committee must hold a terminal degree (PhD, ScD, etc.).

The task of the Advisory Committee is to advise and direct the student on the scope and execution of the research, and the student and the advisor should generate a course of study, including courses and topics for self-study, that will benefit the student's preparation for the thesis research. The PhD Thesis Proposal generally occurs about one year after a student passes the PhD Qualifying Exam.

The student must write a brief technical report that describes the proposed research effort. This Research Proposal should include the motivation behind the topic selection, a brief account of work conducted by others on the topic, the scope of work to be completed, preliminary results, and the specific objectives of the study. The length of this proposal document is typically limited to about 20 pages of text (single-spaced, font 10-point or larger, 1- inch margin), plus tables and figures, and is not to exceed 25 pages, excluding citations.

After an editorial review by the advisor, the proposal will be distributed to the other committee members. It is the student's responsibility to find an appropriate time (no less than two (2) weeks after distribution of the thesis) and book a room for the Thesis Proposal. The student must then immediately contact the AE Academic Office using the [Thesis Proposal and Defense Scheduling Form](#), which will trigger review/approval of the committee and advertise the thesis proposal. An announcement of the thesis proposal will be distributed to all faculty and graduate students of the School of Aerospace Engineering and will be on the AE website at least one (1) week prior to the presentation.

The PhD Thesis Proposal will consist of a formal presentation of the proposed research to the Advisory Committee as a whole and others. Immediately following the presentation and discussion by the general audience, the student will be questioned by members of the committee on the proposed research as well as his/her depth in specific technical areas surrounding the research topic as defined in their approved course of study. The total time block should be approximately two (2) hours, divided into two parts. The first part is the presentation by the student followed by public questioning and is limited to approximately 40 minutes. The second part is devoted to comprehensive questioning of the student on the proposed research by the Advisory Committee.

Possible outcomes of the Thesis Proposal are: Pass, Retake or Fail. Three pass votes are required for an overall pass. Three fail votes are required for an overall failure, in which case the student is dismissed from the program. A mixture of pass and fail votes requires the student to redo the proposal (two retakes are allowed).

After the Advisory Committee has approved the proposed effort, the student must distribute [Request for Admission to Ph.D. Candidacy](#) form (PDF) to the committee members. This form and a copy of the research proposal will be submitted to the AE Academic Office for approval by the chair and forwarded to the Office of Graduate Education.

3.3.b Final Examination

At the conclusion of the research effort, the student will write the thesis by setting forth in a clear and articulate form the results and conclusions of the investigation. The [Institute's Theses and Dissertation](#) format must be followed.

The PhD Final Examination (Defense) Committee consists of 5-6 members (five is typical). It always includes the PhD Advisory Committee. It must also include one examiner that is external to the AE General Faculty. The external examiner must hold a terminal degree (PhD, ScD, etc.). No more than two members may be from outside the AE General Faculty. At least five members of the committee must hold a terminal degree. If a committee member is proposed from outside the Georgia Tech General Faculty, a CV and brief justification for their inclusion must be provided. The committee member must be approved by the AE Associate Chair for Graduate Programs.

After the Academic Advisor has completed an editorial review of the thesis and has found it to be satisfactory, copies will be distributed to the PhD Final Examination Committee. It is the student's responsibility to find an appropriate time (no less than two (2) weeks after distribution of the proposal) and book a room for the proposal presentation. The student must then immediately contact the AE Academic Office using the [Thesis Proposal and Defense Scheduling Form](#), which will trigger review/approval of the committee and advertise the proposal. An announcement of the thesis proposal will be distributed to all faculty and graduate students of the School of Aerospace Engineering and will be on the AE website at least one (1) week prior to the presentation. The defense must be scheduled at least three (3) days before the thesis due date of the term in which the student intends to graduate.

The Final Examination will consist of a formal presentation of the research results and conclusions to the Final Examination Committee and others in attendance. Immediately following the

presentation and discussion by the general audience, the student will be questioned by the committee and any interested members of the general faculty. The examination committee will then decide what modifications to the thesis, if any, they require to be made before it can be submitted to the Office of Graduate Education.

3.3.c Thesis Submittal

After the advisory committee has approved the thesis and signed the [Certificate of Thesis Approval](#) form (PDF), the Certificate of Thesis Approval must be turned in to the Office of Graduate Education. The [Institute Theses and Dissertations](#) webpage provides the deadlines and specific instructions for the required electronic submittal of the thesis. The Office of Graduate Education also requires a publishable thesis abstract of up to 300 words, certified for accuracy by the thesis advisor. Please note that the deadline for submitting a thesis to the Office of Graduate Education is well before the end of the semester in which the student plans to graduate.