

## **GRADUATE GUIDE:\***

### **Graduate Study Policies and Procedures in the Department of Aerospace Engineering at the University of Maryland**

**Revised: Fall 2007**

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\* These guidelines are specific to the Department of Aerospace Engineering and are in addition to all degree requirements imposed by the Office of Graduate Studies and

Research at the University of Maryland College Park (as detailed in the Graduate School Catalog - see <http://www.gradschool.umd.edu/>).

## **I. INTRODUCTION**

The department offers an environment for advanced graduate study and research in aerospace engineering. Two degrees are offered: The Master of Science (M.S.) and the Doctor of Philosophy (Ph.D.). A third degree, the Master of Engineering (M.E.), is offered within the college with an option in Aerospace Engineering (for details on the M.E. degree contact the office of the Professional Master's in Engineering Program). The Master of Science Degree Program is the program for early graduate study. By contrast, the Doctor of Philosophy is awarded for creative and independent accomplishment at a high level of excellence.

Graduate study is designed to stimulate intellectual growth, increase the level of objective understanding of the physical world, and further develop capabilities for analysis and synthesis. Each plan of study will provide depth in a chosen field of specialization while broadening the student's command of basic scientific principles to encourage creative application of current science and technology.

This guide has been prepared as an aid to graduate students and faculty. It is a record of policy, rules, and regulations concerning all phases of graduate study in the aerospace department, including the responsibilities of both the student and his/her advisor. The statements contained herein complement the material in the University of Maryland (UMCP) Graduate School Catalog and all of the departmental requirements specified herein are in addition to those specified by the Graduate School. It is advisable to first become familiar with the overall Aerospace Engineering graduate program and requirements by reading the UMCP Graduate Catalog. Reference to this guide will then provide additional details of policy and procedures. New policies adopted by the Graduate School or by the Aerospace Engineering Department at some future date will take precedence. Furthermore, the department may choose to deviate from the policies stated in this guide in special circumstances or these policies may change. In such cases, the guide will be amended consistent with the new policy as expeditiously as possible.

## **II ADMISSION REQUIREMENTS AND PROCEDURES**

The decision to admit a student for graduate study at the University of Maryland is formally made by the Graduate School after reviewing the recommendations of the applicant's chosen department as to the applicant's ability to carry out scholarly work at the graduate level.

## **A. Steps of the Admission Procedure**

- (1) The application, application fee, and supporting documentation are submitted to the Graduate School; a copy of the application, a statement of purpose, transcripts, and letters of recommendation are submitted to the department. The most effective way to apply is online at <http://www.gradschool.umd.edu/>.
- (2) The Graduate School will send a copy of the application to the department, and, for international applicants, the application file is also sent to the Office of International Education Services (IES) for an additional evaluation of the applicant's academic record.
- (3) In the Aerospace Department, the applicant's file is reviewed by each member of the department's Graduate Committee (GC) and a decision to accept or decline the application is made by the department's Director of Graduate Studies based on the GC recommendation.
- (4) This departmental decision is sent to the Graduate School and to the applicant.
- (5) The Graduate School (and IES for foreign students) reviews the applicant's file again, makes the final decision, notifies the student of the final decision, and gives detailed instructions to successful applicants for completion of their registration.

## **B. Minimum Admission Requirements**

- (1) Applicants should have a Bachelor of Science Degree (usually in Engineering, Physical Sciences or Mathematics) from an accredited institution.
- (2) Applicants are expected to have a strong academic record (GPA of at least 3.2/4.0), especially in the junior and senior years of their undergraduate studies. Applicants with a lesser academic record may be approved for admission to the M.S. program if other evidence of accomplishment is provided, i.e. publications or very strong letters of recommendations. Admission to the Ph.D. program requires an academic record indicating promise of the high level of accomplishment required for the degree.
- (3) The Graduate Record Examination (GRE) is strongly recommended, especially for any applicants with marginal academic records and for all foreign applicants.
- (4) Applicants who are from non-English speaking countries or who have attended non-English speaking universities must satisfy the requirements of the Office of International Education Services and Foreign Student Affairs. As a minimum, the Test of English as a Foreign Language (TOEFL) is required, and the Test of Spoken English (TSE) is recommended - especially for those interested in a Teaching Assistantship (TA).

### **C. Exceptions to the Minimum Admission Requirements**

If the applicant's qualifications do not meet the minimum admission requirements, the Graduate Committee can recommend a conditional status, which will automatically change to regular status when the specified conditions are satisfied. The applicant will be notified of the special conditions that he/she must meet.

### **D. Admission to the Ph.D. Program for Current M.S. Students**

Students completing the M.S. Program in the Department of Aerospace Engineering must reapply to continue studies for a Ph.D. program. The most effective way to apply is online at <http://www.gradschool.umd.edu/>. Only two letters of recommendation are needed (one should be from the advisor) and transcripts are obtained automatically.

## **III. SELECTION OF ACADEMIC ADVISOR(S)**

Each new graduate student coming into the department will be assigned an advisor based on his/her indicated area of interest. This assignment is made by the Department Chair in consultation with the Graduate Director and other faculty. This advisor is primarily to give advice on courses to be taken and may or may not be the advisor who will eventually direct the thesis, scholarly paper, or dissertation. The student has wide latitude to change his/her advisor at any later date to obtain increased compatibility and to best serve his/her specialty area of interest. Such advisor assignments will be documented in the student's file and are subject to the approval of the new advisor and the Graduate Director.

Situations may arise in which the student has unusual advisory requirements:

- C. The student may be interested in an interdisciplinary area of specialization.
- D. A prospective thesis topic may not be in an area of current research in the department.
- E. Cooperative research efforts between the department and local industry or government laboratories may involve excellent advisory support outside the university.

In such cases, the student can form an advisory committee consisting of an advisor outside the department and a member of the graduate faculty in the aerospace department who will serve as chair of the committee. This committee must be approved by the Graduate Director. If such an advisory committee is formed, the functions of the advisor as outlined in this handbook become the functions of the advisory committee.

#### **IV. DEGREE REQUIREMENTS FOR THE MASTER OF SCIENCE**

The student may pursue the degree of Master of Science in Aerospace Engineering under either of two options: with thesis option or non-thesis option.

##### **A. Requirements for the Master of Science WITH THESIS option**

1. The student is required to complete at least 24 semester hours of coursework beyond the B.S. and maintain at least a 3.0 GPA overall. Not less than 15 semester hours must be in courses designated as graduate courses (600 level or above) and not less than 12 semester hours must be taken in the student's chosen specialty area. This specialty area is generally one of the five departmental core areas (Rotorcraft, Flight Dynamics and Controls, Structures, Aerodynamics and Propulsion, and Space Systems) but courses taken to satisfy this requirement may be drawn from other core areas in the department or from other departments, as long as the chosen courses all relate to the specialty area in a meaningful way.
2. No more than 9 semester hours of credit may be for 400 level courses. No more than 6 of these 9 may be from the Aerospace Engineering Department. In accordance with university policy, no course may be counted towards both a Bachelor's and a Master's degree. All course selections will be done in conjunction with the advisor.
3. To accomplish a Master of Science with thesis, the student must perform a body of research commensurate with the level of the Master's Degree. This thesis should make some contribution to the advancement in the state-of-the-art of aerospace research; i.e., work performed for the M.S. thesis should be of such quality and extent that it would be suitable for publication as at least a technical note in an archival journal.
4. The student must register for at least six semester hours of ENAE 799 (M.S. thesis research) over the course of his/her Master's program, in addition to the 24 semester hours of coursework.
5. The procedure for the review of a Master of Science thesis is as follows:

- (a) The student's faculty advisor proposes a committee of at least three members of the Graduate faculty of the University of Maryland (regular or associate) to review the thesis. The advisor serves as the chair of the committee. The members should have backgrounds and interests related to the student's area of specialization and the subject matter of the thesis. This committee must be submitted for approval by the Director of Graduate Studies and the Graduate School, using the "Nomination of Thesis or Dissertation Committee" form. This form must be submitted at least 6 weeks prior to the thesis defense (see (5)(d) below).
- (b) The advisor is responsible for setting dates and deadlines for the review of the thesis. The student is responsible for providing each committee member and the department graduate secretary with a typewritten copy of the thesis, advisor approved, at least seven working days prior to the thesis defense.
- (c) The thesis committee will evaluate the quality of the research as well as the clarity and literary quality of the thesis.
- (d) The thesis defense is an oral examination of up to 3 hours duration. During this exam the student will defend the thesis and answer any coursework-related questions posed by the thesis examining committee. The advisor is responsible for planning and holding this examination.
- (e) All members of the thesis examining committee must accept the thesis for the student to pass the examination: revisions to the thesis may be recommended. These revisions should be reviewed and approved by the advisor or by all members of the committee before the Report of Examining Committee form is signed.
- (f) The student may redo the thesis defense once only, if necessary.
- (6) The student must make proper application to the Graduate School indicating completion of degree requirements.
- (7) The student must provide the department with a final revised copy of the thesis in electronic form (PDF file) on diskette, zip disk, or CD. Copies of the thesis must also be provided to the Graduate School in accordance with the *Thesis and Dissertation Manual*.

**B. Requirements for the Master of Science NON-THESIS option**

- (1) The student is required to complete at least 30 semester hours of coursework beyond the B.S. and to maintain at least a 3.0 GPA overall. Not less than 21 semester hours must be in courses designated as graduate courses (600 level or above) and not less than 12 semester hours must be taken in the student's chosen specialty area. This

specialty area is generally one of the five departmental core areas (Rotorcraft, Flight Dynamics and Controls, Structures, Aerodynamics and Propulsion, and Space Systems) but courses taken to satisfy this requirement may be drawn from other core areas in the department or from other departments, as long as the chosen courses all relate to the specialty area in a meaningful way.

- (2) No more than 9 semester hours of credit may be for courses at the 400 level. No more than 6 of these 9 may be from the Aerospace Engineering Department. In accordance with university policy, no course may be counted towards both a Bachelor's and a Master's degree. All course selections will be done in conjunction with the advisor.
- (3) For the non-thesis option, a scholarly paper must be completed and approved. The scholarly paper can:
  - (a) be done in conjunction with a course or independent of a course, but must be done with the advisement of a faculty member.
  - (b) take the form of a critical literature search; in this form, the paper can be similar to the first chapter of a Ph.D. thesis including
    - a survey of the state-of-the-art in a given problem area,
    - concise discussion of the fundamental principles involved,
    - discussion of what needs to be done to extend the state-of-the-art in the future.
  - (c) take the form of a piece of original research as for the M.S. thesis, although the research need not be as extensive. This form, for example, might be the solution of a problem of interest by a preliminary or less developed method.
  - (d) be non-original such as redoing all or part of the work of a published paper or report in order to gain in-depth understanding of a complicated analysis technique or concept.
- (4) The procedure for review of the scholarly paper is as follows:
  - (a) The student's faculty advisor forms a committee of 2 members to review the paper (i.e. the advisor and one additional faculty member). Both reviewers should have backgrounds and interests related to the student's area of specialization and the subject matter of the scholarly paper.
  - (b) The advisor is responsible for setting dates and deadlines for the review of the paper. The student is responsible for providing each committee member with a typewritten copy at least ten days prior to the review deadline.
  - (c) If major problems are found, the committee shall recommend revisions.
  - (d) Final approval of the paper requires approval from both members. This is indicated by the advisor's signature on the "Certification of Master's Degree Without Thesis" form.

- (e) A final copy of the paper, signed by the faculty advisor, is to be submitted to the graduate program secretary.
- (5) A comprehensive examination is no longer required for satisfaction of the M.S. non-thesis degree option.

## V. DEGREE REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY

### A. Coursework Requirements

For the degree of Doctor of Philosophy in Aerospace Engineering, the student is required to complete a minimum of 42 semester hours of coursework beyond the Bachelor's degree. Courses should be listed on the Doctoral Coursework Plan (see Appendix A) as early as possible in the program, and must satisfy the following requirements:

- (1) Major Area: Not less than 18 semester hours shall be within one departmental core area of specialization:
- Aerodynamics and Propulsion
  - Flight Dynamics and Control
  - Rotorcraft
  - Space Systems
  - Structural Mechanics and Composites
- Note that courses taken to satisfy this requirement may actually be drawn from other core areas in the department or from other departments, as long as the chosen courses all relate to the area of specialization in a meaningful way.
- (2) Minor Area: At least 6 semester hours (2 courses that relate to each other) shall be from one of the other departmental core areas of specialization in the department or from another department.
- (3) Math/Science Requirement: Not less than 9 semester hours of coursework must emphasize mathematics, physical sciences, life sciences, or computer sciences.
- (4) At least 12 semester hours of the credits taken to satisfy (2) and (3) above, must be at the 600 level or higher.
- (5) The student must maintain at least a 3.0 GPA in all coursework.
- (6) Graduate credit hours for courses completed previously at other universities may be applied to the doctoral coursework requirement in some cases. For example, most students entering with an M.S. degree will be granted 24 credits of coursework assuming their M.S. degree is in a closely related field. However, all students must pass the Doctoral Qualifying Examination and Doctoral Oral Examination in the

department, and must satisfy the major, minor, and math/science requirements with their coursework. In addition, to facilitate the student becoming familiar with the faculty of the department, all Ph.D. students must complete a minimum of twelve semester hours of coursework in the department. It is preferable that at least six semester hours be taken from faculty other than the advisor, and that these be in the student's major area of specialization.

## **B. Doctoral Qualifying Exam and Doctoral Oral Exam**

All students entering the Ph.D. program must pass both a qualifying examination and a comprehensive oral examination. The purposes of these exams are (1) to assess the student's aptitude and ability to be successful in the Ph.D. program, and (2) to assess the student's knowledge in his/her technical area at an introductory graduate level.

Students who matriculate into the Ph.D. program with an M.S. degree must take the qualifying examination no later than their third semester. Students who matriculate into the Ph.D. program with a B.S. degree must take the qualifying examination no later than during the second semester after they have accumulated 18 or more credits, or during their fourth semester of study, whichever occurs first. Those students who pass the qualifying examination become eligible to take the doctoral oral examination. The doctoral oral exam is normally taken within one year after the qualifying examination. Only under extenuating circumstances, the student's advisor may petition the graduate committee for an extension of the deadline.

Students who do not pass the qualifying examination during their first attempt may, on the recommendation of their examining committee, be allowed to repeat the examination once more. Under no circumstances will a student be permitted to repeat the qualifying examination more than once. The same rule applies for repeating the oral comprehensive examination.

Students who have exhausted their opportunities to pass the Ph.D. qualifying examination or to pass the oral comprehensive examination within the specified period will not be allowed to continue in the Ph.D. program. Such students will be permitted to remain in the program for one additional semester, after which their graduate admission will either be terminated or, upon the student's request and eligibility, be transferred to the M.S. program.

## **(1) Doctoral Qualifying Examination**

1. **Examining Committee:** The Ph.D. Qualifying Examination will be administered by an examining committee, which will be comprised of three full-time faculty from the Department of Aerospace Engineering. The examining committee will consist of the student's advisor, a chair, and a third member. The chair of the committee and the third member will be selected by the Director of Graduate Studies and the Department Chair in concurrence with the advisor. Students will be notified of the composition of their committee via email.
2. **Registering for Exam:** It is the student's responsibility to register for the doctoral qualifying exam as early in the semester as possible and without fail by the first Friday of the month before the exam is to take place (so, by the first Friday of October for the fall semester and by the first Friday of February for the spring semester). To register, send email to Rosalia Webb at [rosalia5@umd.edu](mailto:rosalia5@umd.edu), with the name of your advisor and your area of specialization. Once you have been informed of the composition of your examining committee, you should contact the chair of the committee to make the necessary arrangements for the actual exam.
3. **Dates of Exam:** The start date of the doctoral qualifying exam will be the first Friday of November for the fall semester exam and the first Friday of March for the spring semester exam. Each student will have a topic assigned to them on that Friday, a summary write-up will be due the following Friday, and then an oral exam will be held the following week.
4. **Exam Topic:** On the first Friday of the doctoral qualifying exam, each student will be given a research topic and a relevant bibliographical reference in some aspect of his/her technical area. The topic will be selected by the chair of the examining committee and must be concurred with by the advisor. The topic will be different for each student and will not be the specific topic in which the student has done his/her Master's thesis.
5. **Exam Preparation and Requirements:** The student will study the pertinent literature on the assigned topic, in order to be able to formulate questions suitable for investigation within the topic and to outline his/her approach to carrying out such an investigation. The results of this study are to be summarized in no more than 3 type-written pages formatted as follows: single-spaced, 12-point type, and one-inch margins all around. The summary must consist of the following: a section reviewing the assigned literature, a section identifying an issue related to the topic that the student wants to focus on, and a section describing a research approach (experimental or theoretical) to solve or clarify the selected issue. Note that this entire effort is to be performed by the

student alone with no help from faculty or other students. A copy of the summary is to be submitted to the graduate secretary by noon on the following Friday (7 days after the topic is assigned).

6. Exam Format: The Ph.D. Qualifying Exam will be given orally. The assigned topic will be the starting point for the oral discussion and will lead to a number of questions that will test the student's aptitude and ability to do original and independent research at the doctoral level, as well as his/her basic engineering knowledge.
7. Committee Decision: For the student to pass the exam, the decision of the three members of the examining committee must be unanimous. The examining committee will confer immediately after the exam, and make their decision known to the Graduate Office. The student will be notified about the outcome of the exam in writing. If the decision is negative, the student may be allowed to repeat the exam in the same semester. A new examining committee will be assigned to the student for the retake examination, but the same examination procedure will be followed. The student's advisor may participate as an ex-officio member of the new examining committee.

## **(2) The Doctoral Oral Exam**

- (a) The student becomes eligible to take the doctoral oral exam by passing the doctoral qualifying exam. The oral exam should be scheduled as soon as the student becomes eligible. The student aided by his/her advisor is responsible for scheduling the oral exam.
- (b) The student and the advisor are also responsible for organizing the oral examining committee and obtaining the approval of its membership by the Director of Graduate Studies. The committee will consist of at least 5 members, with at least one member representing the field of mathematics, physical sciences, life sciences, or computer sciences, and one member representing the student's minor area within the department.
- (b) In the oral examination, the student is responsible for all course material listed on the student's doctoral coursework plan.
- (c) The normal duration of the examination is in the range of two to four hours.
- (d) If two or more members of the committee vote not to pass the student, the student fails the exam. The oral exam may be repeated only once. The second attempt on the oral should be taken within one semester of the failure.

### **C. Advancement to Candidacy**

The student must apply for and be admitted to candidacy within five years of admission to the doctoral program. Admission to candidacy occurs after successful completion of the doctoral oral examination and approval of the doctoral dissertation proposal. Once these milestones are complete, an advisor-approved form for advancement to candidacy must be submitted to the Graduate School. Any doctoral student admitted to candidacy must register for a minimum of one credit every Fall and Spring semester thereafter until the degree is awarded.

### **D. Doctoral Dissertation**

The student must complete and obtain committee approval of the Ph.D. dissertation. The Ph.D. dissertation research should represent a significant contribution to the state-of-the-art in a given field of endeavor. It should typically be of sufficient quality and scope that it would be suitable for publication as a full-length paper in an archival journal. The procedure for supervision and review of the dissertation is as follows:

- (1) The student must register for at least 12 semester hours of ENAE 899 (Ph.D. thesis research) over the course of his/her doctoral program, in addition to the 42 semester hours of coursework.
- (2) After successful completion of the doctoral oral examination, the advisor forms a dissertation committee. This committee must be composed of at least 5 faculty members (including the advisor) as outlined in Section E. below. It is recommended that this committee, if possible, have the same membership as the doctoral oral examining committee, and in fact no member can be dropped from the committee without explicit permission from the Director of Graduate Studies. The Director of Graduate Studies will also review the membership of the dissertation committee for its appropriateness to the topic.
- (3) The student must submit to his/her advisor a thesis proposal, consisting of a summary of the intended dissertation topic and a critical review of the literature. Upon approval by the advisor, a copy of the thesis proposal is to be distributed to the committee and included in the student's permanent file.
- (4) The dissertation committee, and particularly the advisor, is responsible for ensuring that the dissertation research meets the accepted standards of originality and independent effort.
- (5) The student will give a pre-defense oral report on the progress of his/her research to the dissertation committee. This should take place when the student is 50-80% finished with planned research so the committee can actively share in the research

and make constructive comments. The student is responsible for scheduling this pre-defense, in agreement with the advisor.

- (6) After approval of a majority of the committee, the student must undergo a final oral defense of his/her dissertation. This defense may be scheduled during any semester. The scheduling is the responsibility of the student. The defense is to be conducted during normal business hours. No exam should start prior to 8:00 a.m. or later than 3:30 p.m. Notification of the defense should be posted at least 5 working days prior to the defense.
- (7) The student is responsible for providing each committee member and the department with a typewritten advisor-approved copy of the dissertation, at least ten working days prior to the defense. The department copy is to be delivered to the graduate program secretary and is then made available to the entire departmental faculty.
- (8) The dissertation defense will first consist of an oral presentation of the thesis to the examining committee and will be open to the public. The remainder of the defense will be open only to members of the Graduate Faculty of the University. After the examination, the committee will vote privately on the outcome of the examination. Two or more negative votes constitute failure of the exam. Revisions to the thesis may be recommended. These revisions should be reviewed and approved by the advisor or by all members of the committee before the Report of Examining Committee form is signed.
- (9) The final dissertation defense may be repeated, if necessary, only once.
- (10) The student must provide the department with a final revised copy of the thesis in electronic form (PDF file) on diskette, zip disk, or CD. Copies of the thesis must also be provided to the Graduate School in accordance with the *Thesis and Dissertation Manual*.

#### **E. Doctoral Dissertation Committee**

- (1) A dissertation committee must consist of a minimum of five members, at least three of whom must be regular members of the University of Maryland Graduate Faculty. At least three members of the committee shall be full-time faculty who are members of the Aerospace Engineering Department; the Graduate Committee can be petitioned for a waiver of this requirement in case of dissertations based on multidisciplinary research, when this rule would prevent the dissertation committee from having the required background and expertise. Additional committee members may be required or invited to serve at departmental discretion.

- (2) Each dissertation committee will have a chair, who must be a regular member of the Graduate Faculty and a full-time faculty member of the Aerospace Engineering Department. Dissertation committees may be co-chaired upon written recommendation of the Graduate Director and the approval of the Dean of Graduate Studies and Research.
- (3) Each committee shall have appointed to it a representative of the Dean for Graduate Studies and Research. This person must be a regular member of the Graduate Faculty at the University of Maryland College Park and must be from a department other than the student's home department. In cases where a student is in an interdisciplinary department or program, the Dean's Representative must be from a program outside of those departments and programs involved in the interdisciplinary endeavors.
- (4) Individuals from outside the University of Maryland system may serve on dissertation committees provided their credentials warrant this service and upon the written request of and justification by the advisor. These individuals must, however, be in addition to the minimum required number of regular members of the College Park Graduate Faculty.
- (5) Graduate Faculty who terminate employment at the University of Maryland may be regarded, for dissertation-committee service purposes, as members of the Graduate Faculty for a 12-month period following their termination. During that time, they may chair individual dissertation and thesis committees and work with students as necessary. After that time, they may no longer serve as chair of a dissertation committee, although they may take on the position of co-chair or committee member. If, after this 12-month period, these individuals continue to serve on a committee (as co-chair or member) they must be in addition to the minimum required number of regular members of the College Park Graduate Faculty. After they leave UMCP, faculty may not serve as the Dean's Representative.
- (6) The doctoral dissertation committee must be submitted for approval by the Director of Graduate Studies and the Graduate School, using the "Nomination of Thesis or Dissertation Committee" form. This form must be submitted at least 6 weeks prior to the dissertation defense.

## **VI. FINANCIAL SUPPORT**

- A. The department offers various forms of financial support, including teaching and research assistantships and fellowships. However, the total number of such appointments is always limited by available resources. Therefore, each year these

assistantships and fellowships will be awarded on a competitive basis. There is no guarantee that, once financial assistance is granted to a student, it will continue for the duration of the student's program. Such continuation is dependent upon the student's individual competitive standing and dependent on available resources.

B. The stipends for research and teaching assistants have been standardized in the College of Engineering and change from one year to the next. The current funding levels can be obtained from the aerospace office. The following important points should be noted:

(1) The graduate school requirements for the three steps of an assistantship are given below.

TABLE 1

	Criteria for Appointment
Step I	Graduate student in good standing who lacks previous teaching or research experience as a graduate student.
Step II	Graduate student in good standing who possesses a master's degree or has one year of experience as a graduate assistant or fellowship student.
Step III	Graduate student in good standing who has been admitted to candidacy for the doctoral degree, with written approval from the Graduate School.

Note that students admitted directly into the doctoral program who already have a master's degree may start at Step II.

Also, international students cannot receive money in addition to their stipend. They *may not* be paid on a part-time basis.

(2) In addition to stipends, teaching and research assistants also receive health benefits and tuition remission for up to a maximum of 10 credits. Health benefits are detailed in a booklet entitled "Summary of Health Benefits for Maryland State Employees," available in the aerospace office. The student can choose from among the many options available, and can alter coverage to a different plan only during October of each year.

(3) To be certified as a full-time graduate student you must be officially registered for a combination of courses equivalent to a total number of units as described below. Audited courses do not generate graduate units and cannot be used in calculating full-time or part-time status.

(a) You need to register for a MINIMUM OF 48 UNITS per semester to be considered full-time if your graduate employment status is listed as:

- (i) Graduate School Fellow
- (ii) National Needs Fellow
- (iii) National Science Foundation Fellow

(b) You need to register for a MINIMUM OF 24 UNITS per semester to be considered full-time if your graduate employment status is listed as:

- (i) Minta Martin Fellow
- (ii) Smart Structures Fellow
- (iii) Space Systems Fellow
- (iv) Rotorcraft Fellow
- (v) Research Assistants
- (vi) Teaching Assistants

Use the chart below to assist you in determining how to convert CREDITS into UNITS.

- Courses in the series 000-399 carry 2-units/credit hour
- Courses in the series 400-499 carry 4-units/credit hour
- Courses in the series 500-599 carry 5-units/credit hour
- Courses in the series 600-898 carry 6-units/credit hour
- Research course: 799 carries 12 units/credit hour
- Research course: 899 carries 18 units/credit hour

This policy is for the academic year only. It is not necessary that full-time graduate students (US citizens or international) enroll in summer study.

(4) There are three options for assistantship appointments:

- (a) A 9.5 month or academic-year appointment (20 hrs./week).
- (b) A 12 month annual appointment (20 hrs./week during the academic year, 40 hrs./week during the summer).
- (c) A 9.5 month academic year appointment, plus a full time appointment during the summer (20 hrs./week during the academic year, 40 hrs./week during the summer).

## VII. STUDENT FILES

- A. A file is maintained for each student when the admission procedure is complete and the applicant has accepted the offer of admission.
- B. The student's file contains all records of the student's graduate studies. In particular, the following items will be in the file:
- (1) Copy of student's application to the Aerospace Department.
  - (2) Copies of all correspondence with the Graduate School.
  - (3) Information accompanying the initial application to the Graduate School and given to the department.
  - (4) A copy of the admission control sheet with any provisional conditions indicated.
  - (5) If applicable, a detailed statement of transfer credits approved by the Director of Graduate Studies.
  - (6) All other documentation and forms relating to the student's program.
- C. Responsibility for maintenance of the student's file is shared by departmental office staff, the Director of Graduate Studies, and the student's advisor. However, the advisor and the student have the primary responsibility for bringing to the attention of the office staff any information that needs to be included into the student's file.
- D. Forms are available and should be inserted in the file for the completion of each milestone of a student's program, such as passing the qualifying exam, appointment of an examination committee, completion of coursework, advancement to candidacy, etc. The following forms should be used:
- 1) Approved Program Form (graduate school form)
  - 2) Certification of Master's Degree Without Thesis Form (graduate school form)
  - 3) Nomination of Thesis or Dissertation Committee (graduate school form)
  - 4) Advancement to Candidacy Form (graduate school form)
  - 5) Report of Examining Committee (graduate school form)
  - 6) Results of Doctoral Qualifying Exam (departmental form)
  - 7) Doctoral Coursework Plan (departmental form)
  - 8) Doctoral Checklist. (departmental form)
- Copies of some of the departmental forms are included in Appendix A; graduate school forms are available online or can be obtained from the aerospace office.

## VIII. KEY PERSONNEL

Department Chairman and Director of Graduate Studies: Dr. Darryll J. Pines, 301-405-0263, e-mail: pines@umd.edu, Glenn L. Martin Hall, Room 3179F.

Associate Director of Graduate Studies: Dr. Mary Bowden, 301-405-0011, e-mail: maryb@SSL.umd.edu, Glenn L. Martin Hall, Room 3146.

Assistant Director of Graduate Studies: Rosalia Webb, 301-405-3457, e-mail: rosalia5@umd.edu, Glenn L. Martin Hall, Room 3158.

Program Management Specialist: Laurie Brown, 301-405-2376, email: lbrown11@umd.edu, Glenn L. Martin Hall 3181

Associate Director of Undergraduate Studies, Dr. Nicole Roop, 301-405-8959, email: nroop@umd.edu, Glenn L. Martin Hall, Room 3176.

**Appendix A**

**DEPARTMENTAL FORMS**

**CHECKLIST FOR DOCTORAL DEGREE REQUIREMENTS**  
**University of Maryland - Department of Aerospace Engineering**

**STUDENT'S NAME:** \_\_\_\_\_

**STUDENT ID#:** \_\_\_\_\_

	<b>Date Satisfied</b>	<b>Advisor's Initials</b>
<b>Doctoral Qualifying Exam</b>	_____	_____
<b>Additional requirements     following qualifying exam (if any)</b>	_____	_____
<b>Doctoral Oral Exam</b>	_____	_____
<b>Additional requirements     following oral exam (if any)</b>	_____	_____
<b>Approval of Thesis Proposal</b>	_____	_____
<b>Advancement to Candidacy</b>	_____	_____
<b>Dissertation Pre-Defense</b>	_____	_____
<b>Dissertation Defense</b>	_____	_____
<b>Receipt of Final Revised Copy of Dissertation</b>	_____	_____

Original: Department Files  
Copy: Student

**DOCTORAL COURSEWORK PLAN**  
**University of Maryland - Department of Aerospace Engineering**

**STUDENT'S NAME:** \_\_\_\_\_ **STUDENT ID#:** \_\_\_\_\_

COURSE NUMBER	COURSE NAME (DESCRIPTION)	SEMESTER COURSE TAKEN	UNIVERSITY (IF TRANSFERRED)
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**Major Area of Concentration (18 credit hours / 6 courses)**


**Minor Area of Concentration (6 credit hours / 2 courses)**


**Math, Physical Sciences, Life Sciences, or Computer Sciences (9 credit hours / 3 courses)**


**Other Courses**


The above coursework plan should include all courses the student intends to use for satisfying the requirements of the doctoral degree: courses completed, courses in progress, and any proposed courses. All courses taken during a masters program that will be counted towards the doctoral degree should be listed with the name of the University where they were taken.

**STUDENT:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**GRADUATE DIRECTOR:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**ADVISOR:** \_\_\_\_\_ **DATE:** \_\_\_\_\_