

**STANFORD
UNIVERSITY**



GUIDE TO GRADUATE STUDIES

IN

AERONAUTICS AND ASTRONAUTICS

2014 - 2015

TABLE OF CONTENTS

DEPARTMENT INFORMATION	1
UNIVERSITY PUBLICATIONS AND RESOURCES	3
GENERAL ACADEMIC INFORMATION	5
REGISTRATION PROCEDURES	5
REGISTRATION REQUIREMENTS	6
SATISFACTORY PROGRESS	6
SUMMER QUARTER REGISTRATION, TGR, GFR	6
GRADUATION QUARTER, LEAVES OF ABSENCE - QUARTERS NOT REGISTERED	8
RESEARCH AND THESIS UNITS	9
RESIDENCY REQUIREMENTS and Transferring Residency	10
CHANGES OF DEGREE LEVEL and/or DEPARTMENT	10
COMPLETING A DEGREE	11
MATHEMATICS REQUIREMENTS IN AERO/ASTRO	12
NON-AERO/ASTRO ELECTIVE COURSES	13
MASTER OF SCIENCE IN AERONAUTICS AND ASTRONAUTICS	14
COURSE REQUIREMENTS	14
EXPERIMENTATION / DESIGN REQUIREMENTS IN AERO/ASTRO	15
WAIVERS OF REQUIREMENTS	16
PROGRAM PROPOSAL FOR MASTER'S DEGREE	16
DEGREE COMPLETION	16
STUDY AFTER THE MASTER'S DEGREE	16
Timeline for Aero/Astro M.S. Students	17
sample: AERO/ASTRO MASTER'S PROGRAM PROPOSAL	18
DEGREE OF MASTER OF SCIENCE IN ENGINEERING	20
COURSE REQUIREMENTS	20
PROGRAM PROPOSAL FOR MASTER'S DEGREE	20
DEGREE COMPLETION	20
sample: PROGRAM PROPOSAL for MASTER'S DEGREE	21
ENGINEER'S DEGREE	22
COURSE REQUIREMENTS	22
CANDIDACY	22
ENGINEER'S THESIS	22
Timeline for Aero/Astro Engineer's Students	23
sample: APPLICATION FOR CANDIDACY FOR ENGINEER'S DEGREE - AERO/ASTRO	24
PH.D. IN AERONAUTICS AND ASTRONAUTICS	26
COURSE REQUIREMENTS	26
CANDIDACY	26
DISSERTATION READING COMMITTEE	27
UNIVERSITY ORAL EXAMINATION	27
DOCTORAL DISSERTATION	27
Timeline for Aero/Astro Ph.D. Students	28
Ph.D. QUALIFICATION PROCEDURES in AERO/ASTRO	29
sample: APPLICATION FOR CANDIDACY FOR DOCTORAL DEGREE - AERO/ASTRO	32
PROCEDURES FOR SCHEDULING UNIVERSITY ORAL EXAMINATIONS	34
RESEARCH AND COURSE ASSISTANTSHIPS (RAS & CAS)	35
SUMMER QUARTER RAs – Options and Examples	36
2013-14 ENGINEERING TUITION and Assistantships	37
STUDENT PAYROLL AT STANFORD: HOW, WHEN, AND WHERE?	38
AERO/ASTRO DIRECTORY - LABS AND FACULTY	39
APPENDICES & STANFORD ACADEMIC CALENDAR 2014-15	40

DEPARTMENT INFORMATION

The administrative hub of the Aero/Astro Department is Room 250 of the Durand Building. The Office Coordinator at the front desk, Liza Julian, will be able to answer many of your questions about the department and the Durand building, including access to Durand and its facilities after business hours. Academic questions and matters of student support can be addressed to Patrick Ferguson and Robin Murphy in Aero/Astro Student Services. (They deal with degree program requirements; advising; grades; assistantships and fellowships; and just about anything else!) The office of the Department Manager, Ralph Levine, is also in Durand 250.

Professor Charbel Farhat, the Department Chair, has authority over all department functions, including academic matters, but he delegates many of the day-to-day responsibilities to specific faculty or staff members. For items requiring "chairman approval" or "department approval," students generally should talk first with Patrick or Robin, in Aero/Astro Student Services.

Your advisor will serve as the first resource for consultation and advice about your academic program, and you should meet with him/her frequently during the year, but feel free to contact any of the people mentioned above for additional information.

FACILITIES

The Aero/Astro computer lab, on the second floor of Durand, Room 273, houses our general study area, Ph.D. dissertation collection, and computer cluster. The computers are primarily for use in Aero/Astro courses, but provide access to all of the University's networked computing resources and the Internet as well. The Engineering Library in the Huang Engineering Center has the University library holdings in engineering; reserve readings and videotapes for classes; and a computer cluster. Additional computer clusters with a wide variety of hardware and software are located throughout the University, including dorms and libraries, and are linked together over SUNet.

There are Aero/Astro mailboxes in the hallway opposite Durand 250. Student mail, including forms we are returning to you, is put in the slot corresponding to the first letter of your last name; you should check there regularly.

Departmental office space for Ph.D. students is assigned within their research labs by their research advisor. Course assistants share offices in Durand 271 and 272 (for office hours, etc.). Lockers are available in the Durand building. To request a locker, email your name and locker number to the Durand Building Manager, Jaime Eredia, jeredia@stanford.edu. You must supply your own lock.

EMAIL

Email is the usual method for department announcements and individual notifications. Check your email regularly. You must setup your Stanford email account (free account) which is established when you request your SUNet ID – see <http://www.stanford.edu/group/itss/services/sunetid>

Aero/Astro Student Services maintains a private distribution list, aa-academic@lists.stanford.edu, for academic reminders and other major informational mailings. We will add your '@stanford.edu' email address during your first week here.

There is also an optional "social" Aero/Astro student email list, aa-students@lists.stanford.edu. This is primarily for students to share news and upcoming events. Only accounts which are on the list can send messages to it. We will add your '@stanford.edu' email address during your first week here. To unsubscribe go to <https://mailman.stanford.edu/mailman/listinfo/aa-students>. This same method of "subscribe/unsubscribe" will be used by many other lists at Stanford.

STUDENT DIRECTORY INFORMATION

Aero/Astro does not maintain its own student directory. Instead, we rely on the AXESS system, in which students review and update their own official directory information, such as local and permanent addresses, email, phone numbers, etc. Please keep this info up-to-date. AXESS is also the source of the information for StanfordWho service and the Stanford Directory, a volume published each January.

If you wish to keep some or all of your information confidential, AXESS lets you mark items "private" so that only authorized people can see. Please use this privacy function rather than withholding information.

AIAA STUDENT BRANCH

The Stanford student branch of the American Institute of Aeronautics and Astronautics (AIAA) holds various activities throughout the school year. Stanford's AIAA activities are open to all students in the department (and those in other departments who are interested in Aero/Astro), and all students are heartily welcome! Membership in AIAA is optional, although student memberships are available and include many non-Stanford benefits. For announcements of events, there is an AIAA email distribution list, aiaa-stanford@lists.stanford.edu. We will add your '@stanford.edu' email address during your first week here. To unsubscribe go to <https://mailman.stanford.edu/mailman/listinfo/aa-students>.

The branch supports a Young Astronauts program in the local schools, which relies on enthusiastic graduate student volunteers to interest young students in science and engineering. To subscribe to the email distribution list, young-astronauts@lists.stanford.edu, go to <https://mailman.stanford.edu/mailman/listinfo/aa-students>.

Aero/Astro Labs: Research Safety Notes

Many research labs and facilities utilize hazardous materials or equipment. Please do not visit a lab without first checking on hazards. [You don't just "pop in" at a lab where lasers are used, for instance!] If you are going to participate in research at a lab, you should first receive specific training on its hazards, safety equipment, and emergency procedures.

We make every effort to identify hazards and to keep our facilities safe and secure. If you notice situations which need to be corrected, please let us know immediately.

Also, if any injury or accident does occur, please let the Department office know right away. We will then be able to help, if necessary; and we'll be able to handle whatever reporting procedures are required by law or University policy.

Aero/Astro Health and Safety officer: 5-2183 William Webster

EMERGENCY (from a campus phone): **9-911** fire, police, ambulance, etc

UNIVERSITY PUBLICATIONS AND RESOURCES

There are several sources of information, about Stanford in general and graduate student life in particular, which will be very helpful to you if you know and consult them during your time here. All the publications below are online; some are in print, too, but the Web will be more current, and will offer links to other related sites of interest. Among the first documents to browse and to bookmark:

Stanford Bulletin <http://www.stanford.edu/dept/registrar/bulletin>

Department-by-department listings of programs, courses, and degree requirements as well as University policies regarding academic life, degree requirements, etc. Published online in early-August. Note that many departments put a draft Bulletin on their Web pages, but faculty add, move, and cancel courses during the year - even "official" isn't final!

Explore Courses <http://explorecourses.stanford.edu/>

Available before the quarter begins through AXESS <https://axess.stanford.edu/>

Lists days/time and location as well as instructor, units, etc. for the quarter's courses. For each course, check for pre-registration requirements, grading limitations, etc. The online version is updated nightly with room/time changes, etc.

Graduate Student Handbook <http://gap.stanford.edu/>

University policies, requirements, and resources for Stanford graduate students in all schools, departments, and programs.

Arriving at Stanford: An Orientation Guide for New International Students & Scholars http://icenter.stanford.edu//orientation/orientation_guide.html

Contains critical information about maintaining valid immigration status, helpful advice about maintaining your documents, as well as very useful orientation information. Written to accompany the I-Center Orientation events in September, this guide is a very useful introduction and reference material.

Registrar's Office <http://studentaffairs.stanford.edu/registrar>

Important reference for academic policy information. Also, University forms for graduate degree progress and enrollment are listed under Publications and Forms, <http://www.stanford.edu/dept/registrar/shared/publications.htm>

Research Policy Handbook <http://rph.stanford.edu/>

Policies relating to research assistantships, academic freedom, shared authorship, patents, etc.

About Computing at Stanford <http://acomp.stanford.edu/>

Guide to campus computing systems, facilities, and support resources.

Stanford Directory <http://stanfordwho.stanford.edu>

Directory info (address, phone, email) for students, faculty, and staff. Logon using your SUNetID and you'll have access to more information than the general public. A printed version of the "public" information is usually available in January, with one free copy per student. The printed Stanford Directory has information about student groups, Stanford facilities, and coupons for local businesses, in addition to the faculty/staff/student listings.

OTHER OFFICES AT STANFORD:

Stanford provides a wide range of professional staff and facilities. Students should look for and take advantage of these campus resources. For example:

Bechtel International Center (I-Center): An absolutely crucial office for international students! Orientation programs and other support services for international students; serves as a place for cultural exchange; liaison with U.S. Departments of Labor, Justice, State, etc. Visa status and SEVIS questions, requests for renewals, practical training approvals, etc are all handled by the I-Center. <http://www.stanford.edu/dept/icenter/>

School of Engineering, Office of Student Affairs - Huang Engineering Center 135K: Provides a variety of services to Engineering students; often indirectly, via support to the departments within the School. **Sally Gressens**, Assistant Dean, is responsible for Graduate Policy and Financial Aid. **Noe Lozano**, Associate Dean, directs the School's Diversity Programs. **Brad Osgood** is Senior Associate Dean for Student Affairs. In addition to their primary responsibilities, any of these individuals is available to graduate students for advice and counsel in case of academic problems with a department, or for a non-departmental view of a difficult issue in your academic life. <http://soe.stanford.edu/>

Vaden Student Health Service - 866 Campus Drive - 650-498-2336: Medical, counseling and psychological services and education; student health insurance. A nurse is available during office hours to answer routine medical questions in person or by phone, and advice for urgent conditions is provided 24 hours a day by an on-call physician. Health promotion information is also available, and CAPS (Counseling and Psychological Services) provides individual, couples and group psychological counseling. <http://vaden/>

Crisis Counseling at Vaden - 24 Hours, 650-723-3785: A CAPS on-call clinician may be contacted for urgent situations at any time, including evenings and weekends. In an emergency, a clinician will speak with you within 20 minutes. In an urgent situation, a clinician will see you the same day. In either case, the on-call clinician will assess your situation. Later, you will be offered a regular appointment with this or another clinician.

Graduate Life Office (GLO) - 859 Escondido Road, 650-723-1171: The Graduate Life Office works closely with students (both on and off campus) and with student groups in a variety of welcome and on-going programs. The GLO staff also works with individual students who need information or who may be experiencing personal difficulties. Staff members are knowledgeable about and have access to support and resources available throughout the University. <http://www.stanford.edu/group/glo/>

Career Development Center (CDC) - 563 Salvatierra Walk: Career counseling, job listings, resource library, on-campus recruiting, workshops. See the Aero/Astro majors' page at <http://studentaffairs.stanford.edu/cdc>

Center for Teaching and Learning (CTL) - 4th floor Sweet Hall: TA development, oral communication training; teaching resources for CAs, TAs, and faculty. <http://ctl.stanford.edu>

Office of Accessible Education (OAE) - 563 Salvatierra Walk: Provides information, referrals, and services for students with physical and learning disabilities. A variety of services is available for students with long-term disabilities or illnesses, as well as those with short-term disabling conditions. The OAE staff, professionals, and students are committed to providing support and services which remove the barriers to full participation in university life. Students should contact the OAE for further information and/or as the first step in a disability-related request for accommodations, auxiliary aids, or other services related to their education or life at Stanford. <http://studentaffairs.stanford.edu/oae>

GENERAL ACADEMIC INFORMATION

REGISTRATION PROCEDURES

Stanford's registration process is part of AXESS, the Registrar's student information system. This Web-based system alerts you of upcoming deadlines, gives instructions about meeting them, and lets you check your official records. Use AXESS to update your phone number and addresses (including email address) and apply for housing. <https://axess.stanford.edu/>

New students will need to know their student ID number as listed on the Student ID card and admission letter.

Step 1: Payment

Stanford ePay (<http://fingate.stanford.edu/students/index.html>) notifies students on the 20th of each month when their monthly online University bill is available. Bills are due on the 15th of the following month. For graduate students, the first bill of the academic year is due October 15. Late fees are charged after this date! Your bill will show charges for tuition, ASSU fees, insurance, housing, and other charges.

Your bill should reflect anticipated aid for the quarter for tuition from fellowships or assistantships, and fellowship stipends (but not RA/CA salaries; payroll is a separate system). If it does not, check with the Aero/Astro Student Services Office to verify that your financial aid has been processed. Note: Late fees are not charged for items paid by fellowship/assistantships.

Step 2: Courses

Before the quarter starts, you may enroll in classes when Axess opens for enrollment. You may also attend a class before officially enrolling in the course to help you make an informed decision about whether to take a particular course. (Some courses have limited enrollment and require that you sign a class list in advance; check the listing for each course in Explore Courses for "notes" about signup lists.)

When you have decided which courses to take, use AXESS to submit your official Study List for the quarter. Please pay attention to the deadline for entering your online Study List; a late fee will be charged! Also pay attention to the "drop/add" deadlines and "withdraw" deadline - use AXESS to make any of these changes. Petitions are required for late submissions and a fee is charged!

Note: fellowships are not fully disbursed until a student is enrolled in at least 8 units, qualifying as a full-time student. Students expecting a fellowship stipend check should enroll in at least 8 units at least two weeks before the quarter starts. You can add or change courses later.

In considering what courses to take, a student should talk with his/her academic advisor about long-term plans as well as the appropriateness of particular classes. It is the student's responsibility to schedule meetings with the advisor; this should be done first during Autumn registration, and then at least once a quarter. For first-year students, many advisors suggest meeting between midterms and finals each quarter to discuss future quarters' plans. [Note: for MS students, the week after first-quarter midterms is the recommended time to complete the Master's Program Proposal.]

Questions about the content of a particular course are best addressed to the instructor of the course, while questions about the quarter, days and times of courses can often best be answered on Axess through Explore Courses. Of course, you may also come to the Aero/Astro Student Services Office with questions about your program, course requirements, or general academic advice.

Step 3: Grades

You can check your grades on AXESS as soon as they are entered by the instructor.

REGISTRATION REQUIREMENTS

All graduate students are required to register as a full-time student – either at 8-10 units (minimum full-time registration) or at full tuition, every quarter until they graduate. Exceptions are as follows:

1. Student is a regular University employee.
2. Student has an Office of Accessible Education approved academic accommodation.
3. Student qualifies for GFR (Graduate Final Registration). See GFR, below.
4. Student qualifies for Graduation Quarter. See Graduation Quarter, below.
5. Student is an Engineer/Ph.D. candidate and TGR registration has been approved by the Registrar. Student enrolls in a 0-unit TGR course. See TGR, below.
6. Summer quarter only. See Summer Quarter, below.

To claim reduced tuition for reasons 1 or 2 above, you must submit a petition to the Student Services Center. [Students in the Honors Coop Program (HCP) claim reduced tuition status through their company coordinator and the SCPD staff.]

SATISFACTORY PROGRESS REQUIREMENTS

Stanford University defines academic requirements which constitute "satisfactory progress" and allow continued student status. Graduate students should maintain an overall average GPA of 3.0 (B). In addition, there are minimum unit standards each quarter: Students who are registered at maximum tuition must enroll for at least 11 units each quarter and must pass at least 8 units per term. Those registered at the 8-10 unit rate ("minimum full-time registration") must pass at least 6 units per term. Students with permission to enroll for fewer than 8 units must complete proportionate number of units, unless other requirements are specified. Students who have been granted TGR status (see TGR) enroll in a 0-unit TGR course, which puts them at full time status.

Other University requirements for satisfactory progress include timely completion of department and program requirements, such as admission to candidacy, successful completion of qualifying exams, and so on.

Students identified as not meeting the requirements for satisfactory progress are reviewed by the department on a quarterly basis. Generally, there is discussion with both the student and the advisor. Approval for continuation in the degree program is contingent on agreement by the student and department to a suitable plan to maintain satisfactory progress in subsequent quarters. The Graduate Degrees section of the Stanford Bulletin describes the University's satisfactory progress requirements, guidelines for handling problems and, if necessary, the procedures for dismissal of a student from the graduate program.

SUMMER QUARTER REGISTRATION and EXCEPTIONS

Summer is an academic quarter at Stanford, but it is "special" in several ways. First, fewer courses are offered than during other quarters in the University as a whole. Second, most students may enroll less-than-full-time and pay tuition on a unit basis, or choose not to enroll at all. **Note:** Students receiving any summer funds, including RAs and fellowships, must be registered. International students may have much more restrictive registration requirements as a condition of their visas, and should check with the International Center for details.

TGR (TERMINAL GRADUATE REGISTRATION)

Terminal Graduate Registration (TGR) is a reduced-tuition registration status available to students who have completed residency and course requirements but not yet completed thesis-related or project work. Most students in the Aero/Astro Ph.D. or Engineer's degree "go TGR" several quarters before graduating.

A student with TGR status registers each quarter for 0 units of TGR dissertation (or TGR project, for the Engineer degree) with the advisor's section number. The advisor then submits a grade each quarter, usually an N which signifies "continuing work, satisfactory progress" which is replaced by an S at the end of the thesis. Other possible grades are N- for "continuing work, unsatisfactory progress", and No Credit. For TGR students, University standards of minimal progress require an N grade for each quarter of the academic year. One N- is considered a warning; if it is followed by another N-, the student's registration should be placed on Hold until the problems have been identified and resolved with the advisor.

TGR status does not affect length of candidacy or deadlines for completion of degrees.

TGR status, once granted, remains in effect for the remainder of the student's degree program. The student's tuition will automatically be adjusted to TGR rates for each succeeding quarter. Granting TGR status means that the department agrees that all requirements for the degree, other than the thesis or project, have been met. It will not be possible to require additional work as a condition of graduation. Therefore, the department and advisor will follow the same procedures for approving TGR status as for clearing students to graduate.

Ph.D. students who wish to go TGR must have:

- been admitted to candidacy
- filed a Dissertation Reading Committee form
- received a passing grade for all units including thesis which are listed on the candidacy form (or its latest revision)
- acquired 135 units of residency. This includes the 45 units of residency required for the M.S. degree, or officially transferred from a Master's at another university
- completed all other department requirements for the degree, except the dissertation and the University Oral Examination

Engineer's degree students who wish to go TGR must have:

- been admitted to candidacy
- completed all units including thesis which are listed on the candidacy form (or later revisions) with a passing grade.
- acquired 90 units of residency. This includes the 45 units of residency required for the M.S. degree, or officially transferred from a Master's at another university
- completed all other department requirements for the degree, except the thesis

M.S. students in Aero/Astro cannot go TGR because there is no thesis requirement.

REDUCED TUITION QUARTER

Graduate Final Requirement, or GFR, is a one-quarter registration status available to students who have 7 units or less remaining before they graduate (and leave the University), or before they file for TGR status. For that one quarter only, students may adjust their tuition down to the number of units (3 units minimum) required to complete their unit and residency requirements. Because they are registered at less than 8 units, students are considered part-time students during the GFR quarter, and the Registrar's office cannot certify them as full-time students for insurance, loans, visa status, etc. Note: international students should check with the International Center well in advance to determine whether their visas permit this status.

For most graduate students who are not yet TGR, the GFR quarter is the only time they can reduce the tuition bill to less than 8 units for Autumn, Winter, or Spring quarter.

To apply for GFR, the student should have a "Request for Graduate Tuition Adjustment" form signed by the advisor and the Aero/Astro Student Services Office, and submit it to the Student Services Center. (If necessary, submit a revised candidacy form or program proposal at the same time.) Blank forms are available at the Aero/Astro Student Services Office.

Note: This status can only be used once. If a student does not graduate or achieve TGR status at the end of the Graduate Final quarter, he returns to standard tuition status. Therefore, students should check carefully to make sure that all requirements will be satisfied by the units requested, and that all Incompletes will be cleared and all paperwork for graduation or TGR will be filed on time, in order to avoid large tuition bills in the following quarter(s).

GRADUATION QUARTER (FINAL QUARTER)

Registration is required for the term in which a student submits a dissertation or has a degree conferred. Students who meet the following conditions are eligible to be assessed a special tuition rate for the quarter in which they are receiving a degree:

- 1) All course work, degree requirements, and residency requirements have been completed; graduate students must have enrolled in the applicable 801 or 802 section relevant to their degree during the Graduation Quarter;
- 2) The student has formally applied to graduate via Axess;
- 3) The student has filed all necessary forms regarding Graduation Quarter before the first day of the term chosen as the Graduation Quarter;
- 4) A graduate student must have enrolled in the term immediately preceding the term chosen as the Graduation Quarter;
- 5) A graduate student must have passed the oral examinations and successfully defended the dissertation/thesis. The graduate student has only to submit the dissertation/project by the deadline for submission in the term designated as the Graduation Quarter.

Students on Graduation Quarter are registered and have the rights and privileges of registered students. There is a registration fee and students will be assessed University health insurance (unless waived) and ASSU fees.

LEAVES OF ABSENCE - QUARTERS NOT REGISTERED

A student who wishes to interrupt graduate study may apply for a leave of absence. The [Leave of Absence](#) form is on the Registrar's Office website or may be picked up in the Aero/Astro Student Services Office. You should obtain your advisor's signature before coming to the Aero/Astro Student Services Office for department signature. For non-US citizens, a signature from the International Center is then required before the form can be submitted to the Registrar's Office. Leaves of Absence are normally granted for a maximum of one year. Extensions may be approved under exceptional circumstances. Students on leave who would like on-campus housing upon their return should keep in mind that the housing lottery for the following year is held in mid-May.

Leave of absence petitions should be fully approved and filed with the Registrar's office before the first day of the quarter to avoid tuition and insurance fees.

RESEARCH AND THESIS UNITS

Many graduate students in Aero/Astro are interested in becoming involved in the research here, perhaps by doing work and receiving credit as a part of the MS degree. Of course, students interested in the Ph.D. or Engineer's degree are looking for substantial thesis research, and a directed research project is a significant part of the PhD qualifying exams. All of our faculty supervise directed research and are involved in thesis work. (The Dissertation Reading Committee section of this Guide discusses restrictions on principal thesis advisors.) Each faculty member will have specific expectations for students who want to work with them, and students should talk directly with the faculty about this. However, some general information and advice may help in getting started:

What course? AA 290, "Problems in Aero Astro", is the directed research course for graduate students - to satisfy the PhD qualifying exam requirement; or for research that may lead into a dissertation or Engineer's thesis. Any graduate student may enroll in AA 290 for 1-5 units each quarter; in the summer only, the maximum is 15 units. You may take AA 290 several times, with the same or different faculty members. (Refer to specific degree descriptions for details about how many units of research may be used to satisfy which requirements.) Students may also do research in other departments: check the Bulletin, or ask the faculty member you are working with to see what course number is appropriate for your work.

Students in the Ph.D. program who have passed qualifying exams are eligible to enroll in AA 301, Ph.D. Dissertation, for 1-15 units per quarter. (Before passing quals, enroll in AA 290.) After going TGR, Ph.D. students must enroll in AA 802 TGR Dissertation for 0 units each quarter. Students in the Engineer's degree program enroll in AA 300 Engineer's Thesis for 1-15 units per quarter; after going TGR, enroll in AA 801 TGR Project for 0 units.

Important: When you enroll in any research/thesis course, always select the section number which corresponds to the faculty member who will grade you. [AXESS helps you find the faculty member's section number.]

Units: Talk with the faculty member before the quarter starts about how many units to sign up for, and clarify the expected work and timetable for the quarter. The first "290" is usually for 3 units, with a projected workload roughly corresponding to a standard class and a research paper due at the end of the quarter. After that, the number of units each quarter varies widely. Students working on their Engineer's or Ph.D. thesis will normally enroll in 1-10 units of thesis each quarter, depending on how many units of courses they are taking. (Since most post-MS students are registered at the 8-10 unit rate, they enroll in enough research units to bring their total enrollment to exactly 8-10 units each quarter.) TGR students have completed all unit requirements, and enroll for 0 units of TGR.

Getting started: If a topic is discussed in one of your courses or there is a research group/lab you would like to explore further, go to the faculty member's office hours to discuss it (or ask for a specific appointment). Do this **before** the quarter you want to begin research. Describe the research area, the problem, or the lecture material which particularly interests you. Ask, "Is there any possibility of working in this area with you? If so, what preparation do you expect/recommend? What should I do next?" Often, the suggested pattern will be:

- 1) start attending research group meetings (by invitation only);
- 2) discuss, and then do a 3-unit directed research project (AA 290);
- 3) if this works out well, discuss future research for units and/or for RA pay.

When asking to "do some research," students should be clear about their expectations. For instance, are you asking for short-term research, or for long-term possibilities (Ph.D. or Engineer thesis)? Are you interested in units only, or (eventually) in a paid RA position? Is this research going to be part of your Ph.D. Quas requirements? Faculty will have different projects, different time constraints, and different advice, for a student who wants one quarter of research experience before going to industry than for someone who is interested in four or five years of funded research leading to a dissertation. Also, it is perfectly okay to talk to several different faculty about various research options; just let them know you are "exploring".

RESIDENCY REQUIREMENTS (UNITS PER DEGREE)

Each type of graduate degree offered at Stanford (e.g., M.S., Ph.D.) has a residency requirement, stated as a number of academic units required for the degree. Residency units refer to the number of units completed at Stanford plus transfer residency units (see below).

For a Master's degree, a student must have at least 45 units; for an Engineer's degree, 90 units; for a Ph.D., 135 units. Engineer's degree and Ph.D. students who complete the residency requirements may qualify for reduced tuition while working on the thesis; see the section on TGR for details.

TRANSFERRING RESIDENCY

As noted above, students who receive their M.S. at Stanford must have completed at least 45 units; these are included in the residency unit total required for a (related) Ph.D. or Engineer's degree. Therefore, their Ph.D. residency requirement of 135 units is effectively 90 units in addition to the M.S.; the Engineer is 45 units in addition to the M.S.

Students who received their M.S. elsewhere may transfer up to 45 units of residency for that graduate work, which in essence makes them "even" with Stanford's M.S. students. Using an Application for Graduation Residency Credit form:

- students list the courses taken elsewhere as a graduate student.
- Stanford allows 12 units of transferred residency for thesis work or for courses without Stanford equivalent. For anything over 12 units, the student must list a (roughly) equivalent, graduate-level course which is taught at Stanford but which the student did not take here. Advisor validates the (rough) equivalence.
- advisor and student services administrator sign the form; the Graduate Degree Progress office reviews it and officially grants residency credit.

These courses and units do not appear on any Stanford transcript. Moreover, they do not count toward the Engineer's or Ph.D. degree course requirements, just as Stanford courses used to satisfy M.S. requirements cannot also be used to satisfy Engineer or Ph.D requirements. They are used solely to satisfy residency requirements.

When to file: This form may be filed when the student applies for candidacy, or later. **Engineer's** degree students must first complete one quarter at Stanford; **Ph.D.** students must first pass the qualifying exam. **MS students** cannot transfer units from elsewhere, because the 45 units of residency required for the M.S. must all be Stanford units.

CHANGES OF DEGREE LEVEL and/or DEPARTMENT

A multi-purpose online form/petition entitled "Graduate Program Authorization Petition" is used to apply for changes in department or degree level. If you were admitted to study for the M.S. degree and decide to continue in an Engineer or Ph.D. program, you must have this petition fully approved in the quarter prior to receiving your M.S., or else AXESS won't let you stay as a student. If you were admitted to study towards the Ph.D. and do not pass the Qualifying Exam, you must use it to change to whatever degree program you decide to pursue. In either case, the petition should be submitted to the Aero/Astro Student Services Office for departmental approval at the beginning of the last quarter of the previous degree.

This petition is also used to apply to transfer to another department. Other departments generally require your current department's approval before they will review your file for admission or transfer; please see the Aero/Astro Student Services Office to get department signatures.

International students will also need the approval of Bechtel International Center before changing or adding degrees. This can take time; please start early in the quarter.

COMPLETING A DEGREE

Stanford University officially confers degrees each academic quarter. In order to receive his/her degree, a student must officially apply to graduate before the degree conferral application deadline - see AXESS for details. (To ensure that a diploma will be ready by the June Commencement ceremony, students must apply to graduate by early April.) In addition to applying to graduate, a student must be sure that all degree requirements have been met before the end of the final quarter: this includes filing a revised program proposal or candidacy form, having all Incompletes officially changed to passing grades, etc. Come to the Aero/Astro Student Services Office early in your final quarter to review your records and be sure you meet all graduation requirements.

Degrees are conferred during the first week of the next quarter (except spring, when degrees are conferred on Commencement Sunday). The conferred degree and date of conferral will then appear on transcripts. Students who have no outstanding Stanford obligations (financial or academic) may obtain an official "certificate of completion" from the Registrar's Office as soon as degree requirements are completed (submit request via AXESS).

Diplomas are distributed once a year at the June Commencement. In addition, diplomas for graduate degrees are available for pickup or by mail. Indicate your preference on Axess when you apply to graduate. At the annual Commencement ceremonies each June, the University and the Department honor all degree recipients for the past year. Several days of events culminate in a University-wide conferral ceremony, followed by the Department's awards ceremony, at which diplomas and awards are distributed, and our reception for graduates and their families. Students should look for details about these ceremonies, caps and gowns, etc. early in spring.

The next step:

Students who will continue at Stanford after receiving an advanced degree must officially change their "degree level" before registering for the next quarter (see above).

Graduates who are moving on to jobs or other graduate work are encouraged to keep in touch, not only with the department but also with the Career Development Center (CDC) and the Alumni Association. Your career path will be of interest to students wondering about their own futures, as well as to the faculty and staff in Aero-Astro.

Note: Non-U.S. citizens who want to preserve their ability to work in the U.S. should consult with the Bechtel International Center about visa paperwork requirements several weeks before graduation.

MATHEMATICS REQUIREMENTS IN AERO/ASTRO

Each Aero/Astro degree has a math requirement, for which courses on the following list are pre-approved. (Other advanced courses may also be acceptable.) Students should consult with their advisors in selecting the most appropriate classes for their field. M.S. candidates select 2 courses. Engineers select 3 courses. Ph.D. candidates select 4 courses, with at least 6 units from courses numbered above 200.

Note: Courses with the same "footnote" cannot be combined, e.g., both Math 113 (*) and ME 300A (*)

<u>Course Number</u>	<u>Course Name</u>
AA 212	Analysis and Design of Multivariable Feedback Systems
AA 214A	Numerical Methods
AA 214B	Numerical Methods
AA 214C	Numerical Computation of Viscous Flow
AA 215A (CME 215A)	Advanced Computational Fluid Dynamics
AA 215B (CME 215B)	Advanced Computational Fluid Dynamics
AA 218	Introduction to Symmetry Analysis
AA 222	Introduction to Multidisciplinary Design Optimization
AA 228 (CS 238)	Decision Making under Uncertainty
AA 229 (CS 239)	Advanced Topics in Sequential Decision Making
AA 242B (ME 242B)	Mechanical Vibrations
CEE 281	Mechanics and Finite Elements
CME 108 (MATH 114)	Introduction to Scientific Computing
CME 302	Numerical Linear Algebra
CME 303 (MATH 220)	Partial Differential Equations of Applied Mathematics
CME 304 (MS&E315)	Numerical Optimization
CME 306 (MATH 226)	Numerical Solution of Partial Differential Equations
CME 308 (MATH 228)	Stochastic Methods in Engineering
CME 326	Numerical Methods for Initial Boundary Value Problems
CS 221	Artificial Intelligence: Principles and Techniques
CS 229	Machine Learning
ENGR 207B	Linear Control Systems II
ENGR 209A	Analysis and Control of Nonlinear Systems
EE 261	Fourier Transform and its Applications
EE 263	Introduction to Linear Dynamical Systems
EE 264	Digital Signal Processing
EE 278	Introduction to Statistical Signal Processing
EE 363	Linear Dynamical Systems
EE 364A	Convex Optimization
MS&E 201	Dynamic Systems
MS&E 207 (107)	Interactive Management Science
MS&E 211	Linear and Nonlinear Optimization
MS&E 221	Stochastic Modeling
MS&E 311	Optimization
MS&E 312 (CME334)	Advanced Methods in Numerical Optimization
MS&E 313	Vector Space Optimization
* MATH 113	Linear Algebra and Matrix Theory
MATH 115	Functions of a Real Variable
MATH 120	Groups and Rings
# MATH 132	Partial Differential Equations II
MATH 2xx	All Math courses over 200 will qualify (except seminars)
* ME 300A (CME 200)	Linear Algebra with Application to Engineering Computations
# ME 300B (CME 204)	Partial Differential Equations in Engineering
ME 300C (CME 206, AA 214A)	Introduction to Numerical Methods for Engineering
ME 335A	Finite Element Analysis
ME 335B	Finite Element Analysis
ME 335C	Finite Element Analysis
ME 408 (CME 322)	Spectral Methods in Computational Physics
ME 469	Computational Methods in Fluid Mechanics
PHYSICS 211	Continuum Mechanics
STATS 110	Statistical Methods in Engineering and the Physical Sciences
STATS 116	Theory of Probability (not recommended as Ph.D. math - take 110)
STATS 217	Introduction to Stochastic Processes

NON-AERO/ASTRO ELECTIVE COURSES

The courses listed below are provided for reference only. Along with the Aero/Astro Student Advisory Committee, the department has compiled a list of non-Aero/Astro courses that are more frequently taken to meet the technical elective requirements for the MS, ENGR, and PhD programs. Please note that this list does not include courses already listed on the Mathematics and Design/Experimentation lists. Please review those lists as well. All technical electives, as well as the overall program, must be approved by your advisor and the Aero/Astro Candidacy Chair.

<u>Course Number</u>	<u>Course Name</u>
CME 211 (EARTHSCI 211)	Introduction to Programming for Scientists and Engineers
CME 212 (ENERGY 212)	Advanced Programming for Scientists and Engineers
CS 106X (ENGR 70X)	Programming Abstractions (Accelerated)
CS 223A (ME320)	Introduction to Robotics
EE 212	Integrated Circuit Fabrication Processes
EE 216	Principles and Models of Semiconductor Devices
EE 266 (MS&E251)	Stochastic Control
EE 368 (CS232)	Digital Image Processing
ENGR 240	Introduction to Micro and Nano Electromechanical Systems
ME 203	Design and Manufacturing
ME 210 (EE118)	Introduction to Mechatronics
ME 317 A	Design Methods: Product Definition
ME 317 B	Design Methods: Quality by Design
ME 333	Mechanics
ME 333A	Mechanics - Fundamentals and Lagrangian Mechanics
ME 333B	Mechanics - Elasticity and Inelasticity
ME 333C	Mechanics - Continuum Mechanics
ME 361	Turbulence
ME 362A	Physical Gas Dynamics
ME 371	Combustion Fundamentals
ME 372	Combustion Applications
ME 470	Uncertainty Quantification
MS&E 351	Dynamic Programming and Stochastic Control
PHYSICS 216	Back of the Envelope Physics

COMMON SEMINAR COURSES

<u>Course Number</u>	<u>Course Name</u>
AA 294	Case Studies in Aircraft Design
AA 295	Aerospace Structures and Materials
CEE 272T	SmartGrids and Advanced Power Systems Seminar
CEE 301 (ENERGY 301)	The Energy Seminar
CME 500	Numerical Analysis and Computational and Mathematical Engineering Seminar
CME 510	Linear Algebra and Optimization Seminar
CS 545	Information and Data Analytics Seminar
EE 203	The Entrepreneurial Engineer
EE 292I	Insanely Great Products: How do they get built?
ENGR 298	Seminar in Fluid Mechanics
ENGR 311A	Women's Perspectives
ENGR 313	Topics and Engineering and Science Education
ME 395	Seminar in Solid Mechanics
ME 495A	ME Seminar Series: Product Design
MS&E 279A	Entrepreneurial Leadership
MS&E 279B	Entrepreneurial Leadership
MS&E 472	Entrepreneurial Thought Leaders' Seminar

MASTER OF SCIENCE IN AERONAUTICS AND ASTRONAUTICS

COURSE REQUIREMENTS

The Master's degree program requires 45 units of course work, all of which must be completed at Stanford. The course work is divided into 4 categories: Basic Courses, Mathematics Courses, Technical Electives and Other Electives.

Basic courses: M.S. candidates must select eight courses as follows:

- (I) Five courses in the basic areas of Aeronautics and Astronautics (one each):
 1. Fluids: AA 200 (Applied Aerodynamics) or AA 210A (Fund. of Compressible Flow)
 2. Structures: AA 240A (Analysis of Structures)
 3. Guidance and Control: ENGR 105 (Feedback Control Design) or ENGR 205 (Intro to Control Design)
 4. Propulsion: AA 283 (Aircraft and Rocket Propulsion)
 5. Experimentation/Design: List is attached for reference.
- (II) Three courses, one each from three of the areas below:
 1. Fluids: AA 200 (Applied Aerodynamics) or AA 210A (Fund. of Compressible Flow) or AA 244A (Intro. to Plasma Physics and Engineering)
 2. Structures: AA 240B (Analysis of Structures) or AA 242B (Mechanical Vibrations) or AA 256 (Mechanics of Composites) or AA 280 (Smart Structures)
 3. Dynamics and Control: AA 240B (Analysis of Structures) or AA 242A [Classical Dynamics] or AA 242B (Mechanical Vibrations) or AA 251 (Intro. to the Space Environment) or AA 271A (Dynamics and Control of Spacecraft and Aircraft) or AA 272C (Global Positioning Systems) or AA 279A (Space Mechanics)
 4. One course selected from AA courses numbered 200 and above, excluding seminars and independent research)

Students who believe they have satisfied Basic Course requirements previously may request a waiver of one or more courses (see "Waivers and Transfer Credits" below).

Mathematics Courses: M.S. candidates are expected to exhibit competence in applied mathematics. Students meet this requirement by taking two courses - a minimum of six units - of either advanced mathematics offered by the Mathematics department or technical electives which strongly emphasize methods of applied mathematics. Common choices include:

AA 212 (Analysis and Design of Multivariable Feedback Systems)
AA214A/ME300C/CME206 (Intro to Numerical Methods for Engineering)
AA214B (Numerical Methods for Compressible Flows)
AA214C (Numerical Computation of Viscous Flow)
AA215A (Advanced Computational Fluid Dynamics)
AA215B (Advanced Computational Fluid Dynamics)
AA218 (Intro to Symmetry Analysis)
AA222 (Intro to Multidisciplinary Design Optimization)

The list of Mathematics courses on the previous page has additional suggestions. In order to use applied mathematics courses not on the list to fulfill this requirement, prior approval should be obtained from the student's advisor. (Note: Calculus, ordinary differential equations, and vector analysis are fundamental math prerequisites and will not satisfy the mathematics requirement; they may be counted only as a free elective.)

Technical Electives: Students, in consultation with their advisor, select at least four courses (totaling at least 12 units) from among the graduate-level courses offered by departments of the School of Engineering and related science departments. This requirement increases by one course [3 units] for each basic course requirement which is waived. Up to three seminar units may count toward a technical elective requirement (equivalent to one technical elective course).

Other Elective: It is recommended that all candidates enroll in a humanities or social sciences course to complete the 45-unit requirement. Courses fulfilling this requirement may be taken as credit/no credit. Practicing courses in art, music, dance and physical education do not qualify in the free elective section. Language courses may qualify.

Notes: If you fulfill your Experimentation/Design requirement with a course other than AA 290 (or equivalent independent research study from another department), it is possible to count AA 290 as a technical or free elective. All courses other than seminars and your free elective must be taken for a letter grade.

Experimentation/Design Requirements in Aero/Astro

Course Number	Title
AA 236A	Spacecraft Design
AA 236B	Spacecraft Design Laboratory
AA 236C	Spacecraft Design Laboratory
AA 241X	Design, Construction, and Testing of Autonomous Aircraft
AA 284B	Propulsion System Design Laboratory
AA 284C	Propulsion System Design Laboratory
CS 225A	Experimental Robotics
CS 402 (EDUC 211X)	Beyond Bits and Atoms- Lab
EE 233/133	Analog Communications Design Laboratory
EE 234	Photonics Laboratory
EE 251	High-Frequency Circuit Design Laboratory
EE 265	Digital Signal Processing Laboratory
EE 345	Optical Fiber Communication Laboratory
EE 410	Integrated Circuit Fabrication Laboratory
EE 412	Advanced Nanofabrication Laboratory
ENGR 206	Control System Design
ENGR 207A	Linear Control Systems I
ENGR 341	Micro/Nano Systems Design and Fabrication
MATSCI 160	Nanomaterials Laboratory
MATSCI 164	Electronic and Photonic Materials and Device
MATSCI 171/161	Nanocharacterization Laboratory
MATSCI 172/162	X-Ray Diffraction Laboratory
MATSCI 173/163	Mechanical Behavior Laboratory
MATSCI 322	Transmission Electron Microscopy Laboratory
ME 210	Introduction to Mechatronics
ME 218A	Smart Product Design Fundamentals
ME 218B	Smart Product Design Applications
ME 218C	Smart Product Design Practice
ME 218D	Smart Product Design: Projects
ME 220	Introduction to Sensors
ME 294L	Medical Device Design Lab
ME 310A	Project-Based Engineering Design, Innovation, and Development
ME 310B	Project-Based Engineering Design, Innovation, and Development
ME 310C	Project-Based Engineering Design, Innovation, and Development
ME 324	Precision Engineering
ME 348	Experimental Stress Analysis
ME 354	Experimental Methods in Fluid Mechanics
ME 367	Optical Diagnostics and Spectroscopy Laboratory
ME 385	Tissue Engineering Lab

WAIVERS OF REQUIREMENTS

Waivers of the Basic Courses required in the M.S. program can only be granted by the instructor of that course. Students who believe that they have had a substantially equivalent course at another institution should consult with the course instructor to determine if they are eligible for a waiver, and with their advisor to judge the effect on their overall program plans. To officially request a waiver, students should fill out a Petition for Waiver form (reverse side of the department's Program Proposal) and have it approved by the instructor and their advisor. One additional technical elective must be added for each Basic Course which is waived.

PROGRAM PROPOSAL FOR MASTER'S DEGREE

Each Master's student must submit a "Master's Program Proposal" by the last day of classes in your first quarter of study. It must be signed by your advisor, then submitted to the Aero/Astro Student Services Office for the Candidacy Chair's signature. This first submission is intended as a planning document: to ensure that the student has identified at least one plan of study which meets all department and University requirements, and also fits the student's own abilities and interests. Recommended timing: discuss several versions of this overall plan with your advisor when choosing classes for the first quarter; then schedule an appointment for just after midterms, to work out a detailed course plan for future quarters and file an official Program Proposal for department review and approval.

Any changes to this program of study should be made in consultation with your advisor and the Student Services administrator. Such changes may be made more than once, but the final program proposal must be filed early in the quarter in which your degree is to be conferred. The changed program of study should be summarized on a Program Proposal marked "Revised," signed by your advisor and submitted to the Aero/Astro Student Services Office for signature by the Candidacy Chair. The M.S. degree cannot be conferred unless the student has successfully completed all courses on the (most recent) fully approved Program Proposal.

DEGREE COMPLETION

A minimum grade point average (GPA) of 2.75 is required to fulfill the department's Master's degree requirements and a minimum GPA of 3.5 is required for eligibility to attempt the Ph.D. qualifying examination. [Students must also meet the University's quarterly academic requirements for graduate students, as described in the Bulletin and in the Satisfactory Progress section of this booklet, above.] All courses used to satisfy the Basic Courses, Mathematics and Technical Electives requirements must be taken for a letter grade (excluding seminars).

For midyear degrees, the date of conferral is during the first week of the next quarter. Students who have no outstanding Stanford obligations (financial or academic) may obtain an official "certificate of completion" from the Graduate Degree Progress Office at any time after finishing. Diplomas are distributed once a year at Commencement in June. In addition, diplomas for graduate degrees are available for pickup or by mail. Once you have begun study for the Master's, you have three years to complete the degree (five years for Honors Cooperative students). This time is not extended by Leaves of Absence.

STUDY AFTER THE MASTER'S DEGREE

Students wishing to continue at Stanford after receiving the M.S. degree must be approved for further study by their last Master's quarter. In order to continue enrolling, a Graduate Program Authorization petition should be fully approved and filed at the Registrar's Office before your M.S. is conferred (see Changes of Degree, above). Students who are not citizens or permanent residents of the U.S. will need to verify their funding for the new degree, and update their visa documentation, as part of the Graduate Program Authorization procedure. These forms are available from the Bechtel International Center. Support from research assistantships can be verified by the professor providing support, and the Aero/Astro Student Services Office can verify course assistantships. For personal funding or other support, inquire at Bechtel International Center about the proper forms of verification.

If you leave Stanford for employment or study at another institution and later wish to return for further degree work, you will need to submit a standard admission application to the department's admissions committee. Check with the Aero/Astro Student Services Office to verify deadlines and required credentials. International students will be subject to visa requirements in place when they are considered for admission.

TIMELINE FOR AN AERO/ASTRO MASTER'S STUDENT

- * Update your mailing address, etc. in AXESS. To be "at status" by 5:00pm on the first day of classes, enroll in no fewer than eight units (a typical first quarter schedule would include a combination of AA 210A, AA 240A, AA 242A, or ENGR 205) – you can add/change classes until the Final Study List Deadline.

First quarter, prior to classes:

- * Attend Aero/Astro Orientation events. Receive department information packet, advisor assignment.
- * Meet with advisor to discuss plan of study. Map out tentative plan for entire year, then more definite schedule for first quarter. (This quarter's schedule should include a few alternatives)
- * Talk with continuing students about courses, realistic workloads, etc. (Peer advising is scheduled Autumn Quarter, less formal in winter and spring.)

First two weeks:

- * Go to classes; decide which to take; enroll/add/drop via AXESS.
- * Pay your University bill by October 15.

Between midterms and finals: meet with advisor to review progress, revise plan for entire year, map out next quarter's options.

Before finals: Fill out Master's Program Proposal, obtain advisor's signature, and submit to Aero/Astro Student Services Office.

Second, third, etc quarters -

Repeat enrollment process. Meet with advisor to discuss overall plan & current quarter.
Thinking about the PhD program? See Timeline for PhD, second quarter

Last quarter of your Master's degree:

- *By registration day: You may be able to register less-than-full-time, and pay less, if you need only a few units to complete your degree and don't intend to continue at Stanford next quarter. See the Aero/Astro Student Services Office.
- *By the third week: Fill out a revised Master's Program Proposal, obtain advisor's signature, and submit to Aero/Astro Student Services Office.
- *Before midterms: If you intend to continue at Stanford for another degree, file a Graduate Program Authorization Petition.

Time Limits for MS Degree

- 1) HCP (Honors Cooperative Students): Five years from the first quarter of enrollment in the MS program.
- 2) Coterminal students: Three years after the quarter in which 180 units are completed.
- 3) All other students: Three years from the first quarter of enrollment in the MS program, or 60 units completed.

AERO ASTRO MASTER'S PROGRAM PROPOSAL

Name: _____ SUID#: _____ New [] Revised []
 (Last) (First)

Email: _____

45 units completed at Stanford

All courses other than seminars & free elective must be taken for a letter grade. Courses cannot be counted toward any other Stanford degree. You must apply to graduate - see AXESS for info & deadlines.

REQUIREMENT	AUTUMN	WINTER	SPRING	SUMMER
1. Fluids – 1 course	AA 210A (3)		AA 200 (3)	
2. Structures – 1 course	AA 240A (3)			
3. Guidance & Controls – 1 course	ENGR 205 (3)	ENGR 105 (3)	ENGR 105 (3)	
4. Propulsion – 1 course		AA 283 (3)		
5. Experimentation/Design – 1 course (See full list of courses in AA Guide, page 15)	AA 236A AA 290 (see reverse)	AA 284B (3) AA 290 (see reverse)	AA 241X (3) AA 290 (see reverse)	
3 Courses from:				
1. Fluids – 1 course	AA 210A (3)	AA 244A (3)	AA 200 (3)	
2. Structures – 1 course		AA 240B (3)	AA 280 (3) AA 242B (3) AA 256 (3)	
3. Dynamics / Control – 1 course	AA 242A (3)	AA 279A (3)	AA 271A (3) AA 242B (3) AA 251 (3) AA 272C (3)	
4. AA above 200 – 1 course				
Mathematics – 2 courses (See full list of courses in AA guide, page 12)	AA 214A/ME 300C/CME 206 (3)	AA 214B (3) AA 215A (3)	AA 214A/ME 300C/CME 206 (3) AA 214C (3) AA 215B (3) AA 218 (3) AA 222 (3) AA 242B (3)	
Technical Electives – At least 4 courses (12 units) – Grad-level courses in Engineering or Physics – plus 1 course for each waiver				
Free elective – 3 units				
Total Units				

Student Signature: _____ Date: _____

Advisor Name: _____ Signature: _____ Date: _____

Candidacy Name: _____ Signature: _____ Date: _____

Experimentation/Design requirement is satisfied by: List of courses in AA Guide, page 15; AA 290 with "experimental" content (see below)

Complete this section if using AA 290 (Problems in Aero/Astro) for experimentation requirement	
experimental content:	
instructor name:	instructor's signature:

A maximum of three independent study/research units (AA 290 or independent study in another department) may count toward your MS program. If you fulfill your Experimentation/Design requirement with a course other than AA 290 (or equivalent from another department), it is possible to count AA 290 as a technical or free elective.

Math requirement: two graduate-level math or applied-math courses (see AA Guide, page 12, for extended list)

Technical Electives: at least 4 courses*, totaling at least 12 units, plus one course for every core course waiver granted. Should be graduate level courses in engineering or related disciplines & should be taken for a grade (student should not elect the credit/no-credit option for any course except free elective.)

*Up to three seminar units may count toward your MS program, and will be counted as one technical elective. At least three additional graduate courses offered in Engineering or related math/science departments should be taken to meet the technical elective section requirement.

Waivers (core courses only) Note: waivers do not reduce the 45-unit total requirement for MS

I hereby request a waiver for: _____ (Stanford Course #, in A/A Core)	
I believe I have fulfilled the substantial equivalent through the following prior work:	
Course #: _____	Title: _____
School and year: _____	
Supporting documentation (course description, grade, etc) have been reviewed and approved by:	
Instructor Name: _____	Signature: _____ Date: _____
Advisor Name: _____	Signature: _____ Date: _____

I hereby request a waiver for: _____ (Stanford Course #, in A/A Core)	
I believe I have fulfilled the substantial equivalent through the following prior work:	
Course #: _____	Title: _____
School and year: _____	
Supporting documentation (course description, grade, etc) have been reviewed and approved by:	
Instructor Name: _____	Signature: _____ Date: _____
Advisor Name: _____	Signature: _____ Date: _____

DEGREE OF MASTER OF SCIENCE IN ENGINEERING

The Master of Science in Engineering is available to students who wish to follow an interdisciplinary program of study that does not conform to any existing graduate program in a department. Each such degree program must be approved and administered ("sponsored") by a department within the School of Engineering, meeting department as well as School standards.

Sponsorship by the Aeronautics and Astronautics department requires that the student petition for admission to this program. No more than 18 units used for the proposed program may have been completed previously. The petition should include a statement explaining the objectives of the program, how it is coherent, contains depth, and fulfills a well-defined career objective. It should also include a Master's Program Proposal listing the specific courses to be included in the degree (see Program Proposal, below.) Both documents must be approved by the student's advisor and submitted to the Aero/Astro Student Services Office for approval by the Chairman of the Candidacy Committee. If approved, the actual transfer will be accomplished through the Graduate Authorization Petition process.

COURSE REQUIREMENTS

The School of Engineering requires that the student's program include at least 21 units of courses within the Engineering School with numbers 200 or above, for which a letter grade is received. The proposed program must include at least 12 units of graduate level work in the department of Aeronautics and Astronautics and meet rigorous standards of technical breadth and depth comparable to the regular Aero/Astro Master of Science degree.

Mathematics Courses: M.S. candidates are expected to exhibit competence in applied mathematics. Students may meet this requirement in the same manner as students pursuing the M.S. in Aeronautical and Astronautical Engineering: by taking a minimum of six units of advanced mathematics offered by the Mathematics department or technical electives which strongly emphasize methods of applied mathematics. (Please refer to the Master of Science in Aeronautics and Astronautics section of this Guide for a discussion of courses.)

Other Electives: It is recommended that all candidates enroll in a humanities or social sciences course as part of the Master's program of study. Three (3) units of such "free electives" may be included in the 45-unit M.S. program. Practicing courses in, for example, art, music and physical education, do not qualify in this category. Language courses may qualify.

PROGRAM PROPOSAL FOR MASTER'S DEGREE

University regulations regarding the Master's Program Proposal are the same as for the M.S. in Aeronautical and Astronautical Engineering; departmental procedures and deadlines are also the same. For the M.S. in Engineering, however, the University's standard Program Proposal should be used, and the initial Proposal must be accompanied by a statement describing the degree objectives (as described within sponsorship conditions, above).

Changes to the degree plan should be filed in the same manner as for the M.S. in Aero/Astro; in addition, an amended statement of objectives should also be submitted if the course changes involve a significant change in focus from the original proposal.

DEGREE COMPLETION

The length of study, grade and unit requirements, and procedures for conferral of degrees are the same as for the M.S. in Aero/Astro. **Note:** Except in the free elective, students should not elect credit/no-credit grading in a course where letter grades are available.

Program Proposal for a Master's Degree (M.A., M.F.A., M.A.T., or M.S.)



This form is to be submitted by the student to the major department *prior to the end of the first quarter of enrollment in the program*. Please type or print the application **(the pdf can be filled in online and printed for signatures)**, and retain a copy for your records. If your plans for meeting degree requirements change, you must formally submit the changes to your department for approval. The University minimum requirement for each master's degree is 45 unduplicated units of work done at Stanford. Departments may have additional requirements for the degree. In your final quarter, you must submit an *Application to Graduate for Advanced Degrees* through Axess. See "application to graduate" deadlines listed in the *Stanford University Time Schedule*.

NAME (Last)	(First)	(Middle)	Stanford Student Number
Department	Field Designation	Degree	Proposed Date for Degree Conferral
Other Stanford degree programs completed or in progress	Department	Degree	Conferral Coterminal BA/BS?

A. Stanford Courses to Be Completed in Fulfillment of the Requirements for this Degree

Quarter & Year	Dept. & Course No.	Course Title	Units	Quarter & Year	Dept. & Course No.	Course Title	Units

B. Work Completed Elsewhere as a Graduate Student and Accepted by Department to Fulfill Degree Requirements

Each master's degree must include 45 units of work done at Stanford. Work completed elsewhere as a graduate student, after conferral of the bachelor's degree, may be accepted by the department to meet requirements above the 45 unit minimum.

Institution	Dates of Enrollment	Courses	Units

C. Other Requirements to be Completed

University thesis
 Departmental project
 Qualifying examination
 Foreign language

Thesis title or project description: _____ Units from Sec. A _____

Other (specify) _____ Units from Sec. B _____

Student's signature _____ Phone _____ Date _____ Total Units _____

To Be Completed by Department

The above program of study, when completed, will fulfill the requirements for the proposed master's degree

Signature of Department/Area Chair _____	Date _____	Signature of Adviser _____	Date _____
Printed Name of Department/Area Chair _____		Printed Name of Adviser _____	
Department Administrator Verification/NSI input: _____	Name _____		Date _____

ENGINEER'S DEGREE

The Engineer's degree represents one to two additional years of study beyond the Master's degree and includes a research thesis. The program is designed for students who wish to do professional engineering work upon graduation and who want to engage in more specialized study than is afforded solely by a Master's degree.

Applicants not currently enrolled at Stanford should follow the standard procedures for graduate applications. Current Stanford students who wish to continue or transfer to the Engineer's degree program should submit the following materials to the Aero/Astro Student Services Office several weeks before the end of their current degree program:

- online Graduate Program Authorization Petition;
- statement of purpose describing the area of study and topic for thesis research;
- short letter from an Aero/Astro faculty member, addressing your preparation for the proposed research and their willingness to serve as your academic/research advisor.

Refer to the "Changes of Degree Level or Department" section, above, for more information.

COURSE REQUIREMENTS

Students wishing to pursue the Engineer's degree must first fulfill the department's requirements for the Master's degree or their substantial equivalent. Beyond the Master's degree, a total of 45 units of work are required, including a minimum of 30 units of courses. These 30 units should include 9 units of mathematics and 15 units of course work chosen from one particular field of study decided upon in consultation with the student's advisor. Free electives may be used to complete the 30 units (excluding practicing courses in music, art and physical education). Students may register for up to 15 units of Engineer thesis.

Candidates for the degree of Engineer are required to have a minimum GPA of 3.0 for their Engineer's degree courses. [Students must also meet the University's quarterly academic requirements for graduate students, as described in the Bulletin and in the Satisfactory Progress section of this booklet, above.] Students should not elect credit/no-credit grading in any course for which a letter grade is available.

CANDIDACY

Students in the Engineer degree program must submit an Application for Candidacy no later than the second quarter of Engineer's study, and at least one quarter before graduating. This form indicates the courses and thesis work which the student will be using for the degree. If the research topic cannot be clearly described when this form is filed, the area of research should be described along with a timetable for identifying a thesis topic. Aero/Astro has a department-specific Candidacy form, available in the Aero/Astro Student Services Office.

The Application for Candidacy should be signed by the student's advisor (if the research is in an area different from the academic advisor's expertise, then a research advisor should also sign), and submitted to the Aero/Astro Student Services Office for the Candidacy Chairman's signature. Neglecting to file for candidacy can prevent you from receiving your degree.

Changes to your program of study can be filed at any time by submitting a revised Candidacy form. Obtain your advisor's signature and submit it to the Aero/Astro Student Services Office for Candidacy Chairman's approval. In order to graduate or go TGR, you must have completed all the units listed on your current Candidacy form.

ENGINEER'S THESIS

For specific information about the format and deadlines for submission of theses, please check with Graduate Degree Progress in the Registrar's Office. The department recommends that students follow the format defined in the handbook Directions for Preparing Doctoral Dissertations, available from the Graduate Degree Progress Office or on the web at <http://registrar.stanford.edu/pdf/docdiissdir.pdf>. Note: the advisor must sign the thesis before the filing deadline of the graduation quarter.

Mid-year degrees are not officially conferred until the first week of the quarter after degree completion, and actual diplomas are distributed at the University's Commencement in June. However, students who have submitted their theses and have no outstanding Stanford obligations (financial or academic) may obtain an official University "certificate of completion" from the Graduate Degree Progress Office.

TIMELINE FOR AERO/ASTRO ENGINEER'S DEGREE STUDENTS

- * Update your mailing address, etc. in AXESS. To establish full-time student status, enroll in 8 units (graduate courses in the area you propose for research) – you can add/change later.

First quarter, Registration day(s):

- * Attend Aero/Astro Orientation events. Receive department information packet, advisor assignment.
- * Meet with advisor to discuss plan of study. Map out tentative plan for entire year, then more definite schedule for first quarter. (This quarter's schedule should include a few alternatives) Discuss research plans and how to get started.
- * Talk with continuing students about courses, realistic workloads, etc.

First two weeks:

- * Go to classes; decide which to take; enroll/add/drop via AXESS.
- * Pay your University bill by October 15.

Between midterms and finals: meet with advisor to review progress, map out next quarter's options.

Second quarter: Meet with advisor, discuss overall plan. Repeat enrollment process from first quarter.

- * Before finals: Fill out Engineer's Candidacy form, including description and timetable for thesis research, obtain advisor's signature, and submit to Aero/Astro Student Services Office.

Each quarter: repeat class selection/enrollment process. Enroll in research as well as classes.

- * When your course/unit requirements have been met: file for TGR status.

Final quarter: Apply to graduate. (If you applied for a previous quarter, you need to re-apply!)

Complete thesis; obtain signature of advisor; submit to University.

Name: _____ SUID: _____ New [] Revised []
 (Last) (First)

APPLICATION FOR CANDIDACY FOR ENGINEER'S DEGREE - AERO/ASTRO

Admission to candidacy for the Engineer degree is granted by the major department. This application must be submitted by the end of the second quarter in the program (fourth quarter for Honors Cooperative students). Candidacy is valid for five years, subject to satisfactory academic progress; Aeronautics and Astronautics expects a thesis to be substantially completed within two years. In order to graduate, you must also apply to graduate via AXESS. Please type or print this application, keep a copy, and submit the original to the Aero/Astro Student Service office for department approval.

A. Course Requirements (non-MS)

The minimum University requirement is 90 residency units, including 45 units completed at Stanford and not used to meet the requirements of any other degree. Aeronautics and Astronautics requires 45 units of non-M.S. work. Of these, 30 units must be courses: 15 units must represent a particular field of study, designated by student and advisor as "core"; 9 units must be mathematics or applied math; and 6 units are free electives.

Technical Electives (24 units - letter grade required if available - with 9 units math, 15 units identified "core")

Dept/Course # <i>sample: CME 200</i>	Title <i>Linear Algebra w/Application to Engineering Computations</i>	Instructor <i>Iaccarino</i>	Units <i>3</i>	Qtr/Yr <i>Aut 14-15</i>	Math <i>X</i>	Core

Other Electives (6 units - letter grade required if available - excludes athletics, art, dance, drama, music).

Dept/Course #	Title	Instructor	Units	Quarter & Year

Free Electives (15 units; research/thesis, seminars, linguistics, electives, etc- excludes athletics, art, dance, drama, music).

Dept/Course #	Title	Instructor	Units	Quarter & Year(s)

(continued on reverse) **Total Units: ___ (45 min)**

Thesis Topic (required):

Attach a separate sheet indicating timetable for completion of research and submission.

B. Other Stanford Advanced Degree Programs Completed or in Progress (Please note that each degree requires 45 unduplicated units taken at Stanford.)

Department	degree program	date completed/expected

C. Graduate Study at other Institutions. (Use a Transfer of Residency form to receive residency for this work. In the rare cases where courses from elsewhere were not part of another degree program, and are allowed to satisfy Engineer requirements, indicate the number of units under A. above, and attach a description of the courses.)

Institution	dates attended	degree awarded

D. Other University and Department requirements (Aero/Astro):

- Thesis submission
- Residency (90 units total, including 45 non-MS units completed at Stanford)

Applicant's Signature: _____

Approvals:

The above applicant is admitted to candidacy for the Engineer's degree. The proposed program meets departmental and University requirements for the degree.

Program Advisor (*required*): Name: _____ Signature: _____ date: _____

Research Advisor (if different) Name: _____ Signature: _____ date: _____

Candidacy Chair (*required*): Name: _____ Signature: _____ date: _____

Department Verification - filed by Student Services and entered in Peoplesoft: _____

Ph.D. IN AERONAUTICS AND ASTRONAUTICS

In order to be admitted to study for the degree of Doctor of Philosophy in Aeronautics and Astronautics, students must have fulfilled the requirements for the Department's Master of Science degree or its substantial equivalent.

Applicants who have received their M.S. from other institutions may apply directly to the Ph.D. program. Students who are currently pursuing the M.S. in our department and wish to continue for the Ph.D. should submit a Graduate Program Authorization Petition to the Aero/Astro Student Services Office at the **beginning** of their last quarter in the Master's program - see Changes of Degree Level, above. Current Stanford students in other degree programs who wish to be considered for admission to the Aero/Astro Ph.D. program will also follow the procedures described in "Changes of Degree Level", above, but will need to submit additional supporting materials; check with the Aero/Astro Student Services Office for details.

COURSE REQUIREMENTS

Each individual Ph.D. program, designed by the student in consultation with the advisor, should represent a strong and cohesive program reflecting the student's major field of interest. A total of 90 units of work is required beyond the M.S., including a minimum of 36 units of approved formal course work (excluding research, directed study, and seminars). The courses should consist primarily of graduate courses (letter-graded) in engineering and related sciences. The remainder of the 90 units may be in the form of either Ph.D. dissertation units or free electives. Units which were applied toward the M.S. degree cannot be used again. For students who elect a **minor** in another department, a maximum of 12 units from the minor program may be included in the 36 units of formal course work; the remaining minor units may be considered free electives, and included within the 90 unit total required for the Aero/Astro Ph.D.

Mathematics: Ph.D. students in Aeronautics and Astronautics must take 12 units of mathematics courses, with at least 6 of these units from courses with numbers over 200. The Aero/Astro Department and the other engineering departments offer many courses that have sufficient mathematical content that they may be used to satisfy the mathematics requirement; a partial list is included in this Guide, but there are many others which may be acceptable. Please consult with your advisor and the Aero/Astro Student Services Office before assuming that a particular course will be accepted in your own program.

CANDIDACY

There are two requirements for admission to Ph.D. Candidacy in Aero/Astro: students must first pass the departmental qualifying exam (for detailed deadlines, see the section on Ph.D. Qualification, following), and must then submit an official Application for Candidacy. The candidacy form lists the courses the student will take to fulfill the requirements for the degree. The form must include the 90 non-MS units required for the Ph.D.; it should be signed by the advisor and submitted to the Aero/Astro Student Services Office for the Candidacy Chairman's signature. Aero/Astro has a department-specific Candidacy Form, which may be obtained in the Aero/Astro Student Services Office.

The Application for Candidacy is due in the Aero/Astro Student Services Office before the end of the quarter in which you pass the Qualifying Examination. Changes can be filed at any time by submitting a revised Candidacy form: obtain your advisor's signature and submit it to the Aero/Astro Student Services Office for the Candidacy Chairman's approval. In order to graduate or go TGR, you must have completed all the units listed on your current Candidacy form.

Candidacy is valid for five years; this term is not affected by leaves of absence.

DISSERTATION READING COMMITTEE

Each Ph.D. candidate is required to establish a reading committee for the doctoral dissertation within six months after passing the department's Ph.D. Qualifying Examination. Thereafter, the student should consult frequently with all members of the committee about the direction and progress of the dissertation research.

A Dissertation Reading Committee consists of the principal dissertation advisor and at least two other readers. If the principal advisor is emeritus, there should be a non-emeritus co-advisor. If the principal research advisor is not within the Aero/Astro Department, then the student's Aero/Astro academic advisor should also be a member of the reading committee. It is expected that at least two members of the Aero/Astro faculty will be on the reading committee.

Although all readers are usually members of the Stanford Academic Council, the department Chair may approve one non-Academic Council reader if the person brings unusual and necessary expertise to the dissertation research. Generally, this non-Academic Council reader will be a fourth reader, in addition to three Academic Council members.

The student must submit a Doctoral Dissertation Reading Committee form, signed by each of the readers, to the Aero/Astro Student Services Office for approval by the department Chair. Approval of a non-Academic Council reader requires submission of an additional petition. The initial committee should be officially approved within six months of passing the Ph.D. Qualifying Examination. Any subsequent changes to the committee must be submitted to the Aero/Astro Student Services Office for approval by the department Chair prior to submission of the dissertation. [The "Change of Advisor or Reading Committee" form requires the signature of anyone who is added to the committee; advisors/readers who signed the original form do not need to sign again.]

UNIVERSITY ORAL EXAMINATION

Each Ph.D. candidate is required to take the University Oral Examination after the dissertation is substantially completed (with dissertation draft in writing) but before final approval of the dissertation. The examination consists of a public presentation of dissertation research, often during a seminar, followed by substantive private questioning on the dissertation and related fields by the University Orals Committee. This Committee is comprised of four faculty examiners plus a chairman. The examiners usually include the three members of the student's Ph.D. Reading Committee. The chairman must not be in the same department as the student or advisor. (For students who elect a Ph.D. minor, the minor department may require representation on the Orals Committee.) Once the oral examination has been passed, the student finalizes the thesis for reading committee review and final approval.

Forms for the University Orals Scheduling are available in the Aero/Astro Student Services Office. These forms must be submitted with a thesis abstract to the Aero/Astro Student Services Office at least three weeks prior to the date arranged for the oral. (Please refer to "Student Procedures for Scheduling University Oral Examinations", below.) Note: Students must be enrolled during the quarter when they take their University Orals. If the orals take place during the break time between quarters, the student must be enrolled in the prior quarter.

DOCTORAL DISSERTATION

For specific information regarding the format and deadlines for submission of doctoral dissertations, please refer to the handbook Directions for Preparing Doctoral Dissertations, available on the Web <http://registrar.stanford.edu/pdf/docdisdir.pdf> or in the Graduate Degree Progress Office - which is the office to which you will submit the completed dissertation. Note: All members of the Reading Committee must sign the dissertation before the filing deadline.

Midyear degrees are officially conferred the first week of the quarter after degree completion, and actual diplomas are printed once a year, for distribution at the University's Commencement in June. However, students who have submitted the dissertation and have no outstanding Stanford obligations (financial or academic) may obtain an official University "certificate of completion" from the Graduate Degree Progress Office. **Note:** Students who have passed their University Oral Exams in a prior quarter may be eligible for Graduation Quarter in the quarter they submit the dissertation, if they were registered in the immediately preceding quarter. For details, read the "Graduation Quarter" section of this Guide. **Note:** International students should consult with the International Center regarding their visa status before planning to use a graduation quarter.

TIMELINE FOR AN AERO/ASTRO PHD STUDENT

* Update your mailing address, etc. in AXESS. To establish full-time student status, enroll in eight units.

First quarter, prior to classes:

- * Attend Aero/Astro Orientation events. Receive department information packet.
- * Meet with advisor to discuss plan of study. Map out tentative plan for entire year, then more definite schedule for first quarter. (This quarter's schedule should include a few alternatives) Discuss qualifying examinations, including which courses may be necessary or advisable as preparation, when to do research, etc.
- * Talk with continuing students about courses, realistic workloads, etc.

First two weeks:

- * Go to classes; decide which to take; enroll/add/drop via AXESS.
- * Pay your University bill by October 15.

Between midterms and finals: meet with advisor to review progress, revise plan for entire year, map out next quarter's options.

Second quarter (also third quarter of MS study, for students thinking about a PhD):

- * Meet with advisor – discuss overall plan, quals preparation, and this quarter. Repeat enrollment process from first quarter.
- * Do at least one quarter of directed research as the basis of quals research evaluation.
- * Talk with several faculty – about the quals, courses, research. Learn to communicate effectively – especially to listen well and to express yourself orally.
- * Join or create a study group to prepare for the qualifying exams.

Qualifying exam quarter:

Repeat class selection/enrollment process. You must be a full-time student when taking quals.

- Petitions are due prior to the start of the quarter (to delay exams, or to waive a pre-requisite.)
- Quas applications are available prior to the start of the quarter (deadline will be announced).
- Qualifying Exams usually take place in the second week of November or May.
- After passing: submit PhD candidacy form, signed by advisor. Candidacy is valid 5 years.

Thereafter:

- Submit Dissertation Reading Committee form within 6 months of quals.
- Each quarter: repeat class selection/enrollment process. Enroll in research as well as classes.
- Confer regularly with advisor and reading committee about thesis progress.
- When your course/unit requirements have been met: file for TGR status.
- Schedule University Oral Exams, in defense of (draft) dissertation. Submit Orals form to Aero/Astro Student Services Office for approval three weeks before exam.

Final year:

Plan for Commencement. Apply to graduate, using AXESS. Order cap and gown etc

Spring quarter: if dissertation will not be completed before Spring deadline, obtain advisor's approval on walkthrough petition and submit to Aero/Astro Student Services Office. (see "Annual Events").

Final quarter:

Apply to graduate via AXESS. (If you applied for a previous quarter, you need to re-apply!)
Complete dissertation; obtain signature of all readers; submit to University.

Ph.D. QUALIFICATION PROCEDURES in AERO/ASTRO

Before beginning dissertation research for the Ph.D. degree, a student must pass the departmental Qualifying Examination (Quals). (Students may be admitted to the Ph.D. program and begin doctoral coursework before taking the Quals) The basis of this examination is a series of oral exams in the general areas of control theory and dynamics; fluids; structures; and applied math and informatics.

TIME

The Aero/Astro Ph.D. Qualifying Examination is given once in the Autumn Quarter and once in the Spring Quarter, usually in the second week of November and May. The exact dates will be announced several weeks before the exam.

DEADLINE

A student in the Aero/Astro M.S. program who wishes to pursue doctoral study must take the Qualifying Examination in Autumn Quarter of the second year. A Ph.D. student who did not study in our M.S. program must take the first available Qualifying Examination after two quarters of study here. Honors Cooperative students who have enrolled at less-than-fulltime for most of their study should take the Qualifying Examination within two years after entering the Ph.D. program.

ELIGIBILITY AND GENERAL ADVICE

Eligibility – A student must meet the following conditions by the appropriate deadline to be able to take the Qualifying Examination:

- a. Current enrollment in a graduate program at Stanford University with at least 30 units of Master's coursework completed. A student who has completed fewer than 30 units may petition to take Quals.
- b. Stanford graduate GPA of 3.5 or higher.
- c. Investigation of a research problem, under the direction of a faculty member who will evaluate this work as evidence of the potential for doctoral research. The minimum requirement for taking Quals is to complete 3 units of AA 290 before the Quals quarter.

EXAMINATION PROCEDURES

Examinations are given in the four fields of Dynamics and Controls, Fluids, Structures, and Applied Math and Informatics. Every student is examined in three of these fields: one field for a Major Field Exam and two other fields for Minor Field Exams.

- The Major Field Exam will be a sixty-minute test of knowledge and understanding on topics selected by the committee, based on the student's chosen area, including fifteen minutes devoted to pertinent mathematics. It will be conducted by a committee of four examiners, chaired by either the academic or research advisor. Committee members should be from Aero/Astro faculty participating in the exams, from the field closest to the student's specialty. If the student has done significant research in this area with another faculty member, however, the student may petition to have that professor on the Major Field Exam committee. Also, for Applied Math and Informatics, committee members may be faculty from other departments at Stanford who are specialists in these areas.
- There will be two examinations in each Minor field. Each Minor examiner will conduct a separate 15-minute oral exam. Questions are usually from materials in courses (ENGR 105, AA 242A, AA 200, AA 210A, AA 240A, AA 240B, courses listed under Applied Math and Informatics), or their equivalent at other universities, but may cover fundamentals from earlier (undergraduate) courses as well. Examinations are not intended to evaluate course work, but focus on general understanding, aptitude, and assimilation of knowledge. Minor examiners are to be chosen from the faculty participating in the exams in each field.

RECOMMENDED COURSES to PREPARE for QUALIFICATION EXAMINATION

1. Controls and Dynamics

- ENGR 105: Feedback Control Design
- AA 242A: Classical Dynamics

2. Fluids

- AA 200: Applied Aerodynamics
- AA 210A: Fundamentals of Compressible Flow

3. Structures

- AA 240A: Analysis of Structures
- AA 240B: Analysis of Structures

4. **Applied Math and Informatics.** Students can choose one sub-area in this field as a choice for a Major or Minor Field Exam. The exam will be based on two non-overlapping courses selected from a sub-area below. Additional courses in any sub-area may be proposed with advisor consent, and will be reviewed for approval by the Candidacy Chair.

a. Mathematics of Continuous Systems

- CME 204: PDEs in Engineering (ME 300B)
- CME 303: PDEs of Applied Mathematics (MATH 220)
- EE 261: The Fourier Transform and Its Applications
- MS&E 313: Vector Space Optimization

b. Linear Algebra and Numerical Methods

- EE 263: Intro to Linear Dynamical Systems (CME 263)
- CME 200: Linear Algebra with Application to Engineering Computations (ME 300A)
- CME 302: Numerical Linear Algebra
- CME 306: Numerical Solution of PDEs

c. AI / Machine Learning

- CS 221: Artificial Intelligence: Principles and Techniques
- CS 229: Machine Learning

d. Stochastic Processes & Control

- MS&E 221: Stochastic Modeling
- CME 308: Stochastic Methods in Engineering (MATH 228)
- EE 278A: Intro to Statistical Signal Processing
- ENGR 207B: Linear Control Systems II
- MS&E 251: Stochastic Control

e. Optimization

- CME 304: Numerical Optimization (MS&E 315)
- AA 222: Intro to Multidisciplinary Optimization
- EE 364A: Convex Optimization 1 (CME 264A)

AA 290/RESEARCH PRESENTATION

The Qualifying Exam includes a thirty-minute research presentation consisting of a twenty-minute presentation and ten minutes of questions and answers. The research presentation committee will be selected from your major exam area, and will include at least three Aero/Astro faculty members, counting the advisor. We will sometimes also reach out to other Stanford departments for additional examiners. The content of the presentation should be based on AA 290, focus on what the student has done, and show an understanding of the research process.

General advice for Qualls research:

- Be sure that the faculty member understands you are doing **Qualls research** - the type of project and level of interaction may differ from a simple "let me try this field" AA 290.
- If the supervising faculty member is not in the Aero/Astro Department, you should consult in advance with the Aero/Astro Student Services Office and your Aero/Astro advisor to ensure that this research will meet the Qualls requirement.

APPLICATION

All **petitions** (to waive specific Qualls conditions or to defer the exams) are due prior to the start of the Qualls quarter (deadline announced); they must include advisor signature and appropriate documentation.

Application forms (including the dates and participating faculty for this exam) are made available early each Qualls quarter and are due approximately two weeks later; the application serves as the basis for exam scheduling. The application must have the signed approval of the student's advisor and research supervisor.

QUALIFICATION DECISION

Following the Qualifying Examination, the results will be discussed by the department faculty in a closed meeting. In addition to performance on the examination, the student's research potential and academic performance are considered. FINAL DECISIONS WILL BE RELAYED TO THE STUDENT BY THE ADVISOR. The actual decision on the qualification of each student for the Ph.D. program is based on the student's:

1. Ability to assimilate knowledge.
2. Aptitude for independent thought.
3. Fundamental understanding of the basic principles.
4. Potential to conduct research.

AFTER THE EXAMS

A student who **passes** the Qualifying Examination must file for candidacy before the end of the quarter; doctoral candidacy is valid for five calendar years.

A student who **fails to qualify** may remain in (or be admitted to) the Ph.D. program only if he or she passes the next available Qualifying Examination. The Qualifying Examination may not be taken more than twice. A student who fails to qualify after two attempts may remain in the AA-PhD program for one additional quarter. After this additional quarter, a student will be formally dismissed from the PhD program by the Aero/Astro Faculty Committee. In this quarter, the department will not approve a leave of absence or any form of reduced tuition.

If a student elects to formally enter the Engineer degree, they must discontinue the PhD at the same time they add the Engineer degree via the Graduate Program Authorization Petition.

APPLICATION FOR CANDIDACY FOR DOCTORAL DEGREE - AERO/ASTRO

Name: _____ SUID: _____ *New* [] *Revised* []
 (Last) (First) Email: _____

Admission to doctoral candidacy is granted by the major department following successful completion of qualifying procedures. Students are expected to be admitted to candidacy by the end of the second year of doctoral study. Candidacy is valid for five years, and subject to satisfactory academic progress. Please complete this application and obtain your advisor's signature. Keep a copy, and submit the original to your major department for approval. To declare a Ph.D. minor, consult with the minor department about their requirements; then *submit an Application for Ph.D. Minor to both major and minor departments for approval.*

A. Doctoral Course Requirements

The Ph.D. requires 90 units completed at Stanford, in addition to 45 M.S. units (either Stanford units or transfer residency-units from a Master's elsewhere). At least three units must be taken with each of four Stanford faculty members. Aero/Astro requires that the 90 units include: 36 units of technical courses (not research/seminars), including 12 units of approved mathematics or applied math; and 54 units of free electives (research/thesis, technical/non-technical courses). Courses used for the M.S. degree may not be included in these 90 units.

Technical Electives (36 units of graduate-level courses in engineering and related sciences.

Letter grade required if available – with 12 units math; maximum of 12 units may be included in minor as well.)

Dept/Course #	Title	Instructor	Units	Qtr/Yr	Math	Minor
<i>sample: AA200</i>	<i>Applied Aerodynamics</i>	<i>Cantwell</i>	<i>3</i>	<i>Spr 12-13</i>	<i>X</i>	

Other (54 units of graduate-level courses; research/thesis, seminars, linguistics/English language, electives, minor units, etc. Excludes athletics, art, dance, drama, music.)

Dept/Course #	Title	Units	Dept/Course #	Thesis / Title	Units

B. Other Stanford Advanced Degree Programs Completed or in Progress

(Consult the Bulletin for complete information on Residency unit requirements for multiple degrees)

Department	degree program	date completed/expected

Minor Department (if any): _____

C. Graduate Study at other Institutions. Use a Transfer of Residency form to receive residency credit. In the rare cases where courses from elsewhere were not part of another degree and are allowed to satisfy Ph.D. unit requirements, include them among "Other" courses in section A., and attach a separate sheet describing the courses.

Institution	dates attended	degree awarded

D. Other University and Department requirements:

- Filing of Dissertation Reading Committee form
- University Oral Exam (defense of dissertation)
- Dissertation submission
- Residency (a total of 135 units, which may include the Aero/Astro MS)
- English Language Requirements - *please attach Screening Report from Linguistics/EFS* (these courses may also be listed on the reverse among "Other" in section A., or in your MS program)

Course #	Course Title	Course #	Course Title

Applicant's Signature: _____

Approvals: *The above applicant has met departmental qualifying requirements and is admitted to candidacy for the doctoral degree. The proposed program meets department and University requirements for the degree.*

Program Advisor Name: _____ Signature: _____ Date: _____

Diss/Rsch Advisor Name: _____ Signature: _____ Date: _____

Candidacy Chair Name: Brian Cantwell Signature: _____ Date: _____

Verification: *Student Services data entry done:* _____ *Candidacy start date (date passed Quals:* _____

PROCEDURES FOR SCHEDULING UNIVERSITY ORAL EXAMINATIONS

Below are the steps for an Aero/Astro student to schedule a University Oral Examination (Orals). The coordination of this exam is the responsibility of the department (primarily the student and advisor); the Registrar reviews but does not participate in the examination.

- Register for the quarter in which you will be taking your Orals.
- Check your Reading Committee (you can see this on AXESS): If the committee who signed on the form when you submitted your Doctoral Dissertation Reading Committee form is no longer appropriate, inquire at the Aero/Astro Student Services Office about how to obtain official approval for any changes. (Use a Change of Advisor or Reading Committee form.)
- Identify your Orals committee:
 - **four examiners:** normally your reading committee plus one other faculty member, although readers are not required to be members (for instance, in case of scheduling conflicts). At least one examiner must be from your major department; Aero/Astro expects that two or, more likely, three members will be from among our faculty. Check with your minor department for their rules as to representation. At least three examiners must be members of the Academic Council (i.e., a Stanford Professor, Associate Professor, or Assistant Professor - not Consulting or Visiting). A non-Academic-Council-member requires a Petition for Doctoral Committee Members (unless already approved for your Reading Committee).
 - **committee chair:** must be a member of the Academic Council (see above) or an emeritus member. Must not hold an appointment in the same department as you or your advisor (this includes joint appointments, but does not include courtesy appointments). Should not be a member of the reading committee. The chair is an "impartial representative of the University" in the exam; although he does vote, he need not be expert in your field. If you are having difficulty identifying a chair, ask your advisor or fellow students for suggestions. If you decide on a chair from a very distant field (e.g., History or Music), I suggest you alert your advisor before the exam!
- Schedule a room
 - For participation in a public seminar, ask in the Aero Astro Office (Durand 250)
- Fill out University Oral Examination Schedule Form
 - If you have a minor, obtain minor department chair signature
- Submit to Aero/Astro Student Services Office three weeks in advance- for the department chair's review and signature:
 - University Oral Examination Schedule Form
 - Dissertation abstract (for the committee chair)
 - Petition for Doctoral Committee Members, if required (with curriculum vitae if they are not visiting faculty or on the Stanford academic staff.)
- Deliver to Committee Chair - About three days before the oral, pick up the information packet for your committee chair from the Aero/Astro Student Services Office, and hand-deliver it. This serves two purposes: it delivers necessary paperwork, and it reminds the chair of the exam date and time.
 - Optional: you can make copies of the Schedule form to give to the examiners as a reminder, if you choose - and of course, you can read the information packet yourself, to learn the details of exam procedure, voting, etc.

RESEARCH AND COURSE ASSISTANTSHIPS (RAs and CAs)

Research and Course/Teaching Assistantships are paid positions available to Stanford students who are registered and making satisfactory progress in a graduate degree program.

Research Assistants are selected and paid by individual faculty members. During the academic year, assistantship appointments may not exceed 50% FTE (20 hours/week); most Aero/Astro RAs are hired at 50%. Salaries are set according to department standards, within limits set by the University and School. Generally, salaries are highest for students who have passed the Qualifying Exams, and lowest for those who have not received the M.S. degree.

When Aero/Astro faculty members agree to pay a student as a research assistant, the faculty and student fill out an Engineering Research Administration RA Appointment form. This form specifies the salary, hours per week, and grant/contract which will pay for the work; it also clarifies the terms and conditions of the RA pay. The student should submit this signed form to the Aero/Astro Student Services Office before the start of each quarter; late forms will result in late pay and possibly loss of health subsidy!

Course Assistants are assigned by the Aero/Astro department prior to the start of each quarter. Application information for Course Assistantships is posted by the Aero/Astro Student Services Office in the Spring Quarter. Information is available at <http://aa.stanford.edu/admissions/assistantsInfo.php>. Applicants are expected to have taken and done well in the course in which they will assist. Aero/Astro CAs are usually 50% appointments (20 hours/week); salaries are comparable to RAs. Aero/Astro students may also serve as course assistants in other departments. Procedures for selecting course assistants vary from department to department; students interested in applying for positions in another department should contact the appropriate student services office for information.

Students who hold assistantships receive tuition grants in addition to their monthly salaries, if their research or teaching is related to their academic degree. (Assistantships awarded within the student's academic department are always considered related to the degree.) This tuition grant is intended to support the academic progress of the student, not the specific needs of the grant, contract, or department providing the funds.

A 50% RA or CA tuition payment covers the full 8-10-unit cost, and students holding these appointments may not enroll for more than 10 units. RAs and CAs for less-than-50% bring a proportionally smaller salary and tuition grant (see Tuition and Assistantships chart, below). These students may enroll at either the 8-10 unit rate or the full tuition rate; the RA/CA tuition grant will partially pay the bill, and the student must pay for the remainder. Students with a less-than-50% appointment may accept more than one RA/CA appointment in the same quarter, so long as the combined percentage does not exceed 50%. The student will receive both salaries and a tuition grant based on the combined percentage (e.g., if they total 50%, the tuition grant will be 8-10 units).

- **Enrollment:** All students holding assistantships **must** be enrolled in the quarter for which the assistantship is held (including summer).
- **Unit requirement:** Students with assistantships must be enrolled in at least 8 units during Autumn, Winter and Spring Quarters. Part time enrollment is only allowed during Summer Quarter. Maximum enrollment is 10 units if you have a 50% RA/CA.
- **TGR:** Students who have fulfilled unit requirements and only need to complete their oral defense and dissertation may apply for Terminal Graduate Registration (TGR) status for a reduced tuition rate. TGR students with assistantships must enroll in the 0 unit TGR course.

Other Paid Positions: Occasionally, there are temporary jobs available (course grading, office work, etc) which pay an hourly wage and no tuition benefit. Employment in addition to a 50% assistantship must be formally approved by the faculty research supervisor, and may not exceed more than 8 hours per week. International students may not work at all in addition to a 50% RA/TA/CA (their visas set a limit of 20 hours/week of paid work during academic terms.) Students with fellowships may work 8 hours in addition; students without financial aid are not limited (except by their visas, if any).

SUMMER QUARTER RAs - Options and Examples:

The standard Research Assistantship, during the academic year and during summer quarter as well, is a 50% appointment which requires 20 hours a week of work and pays for 8-10 units or TGR fees. However, in Summer Quarter students can also be hired to work for **MORE-than-50%, up to a maximum 90%** - which brings proportionally more salary and less tuition payment. Different labs have different policies about whether, and when, students will be paid for more than 50% effort.

Students who are "trying out" research with a faculty member might also be hired for **less-than-50%** appointments, which bring proportionally less salary and fewer units. This can happen during any quarter. In Summer Quarter only, however, students may enroll at less than 8 units (minimum 1 unit), so an RA which pays for less than 8 units will not necessarily leave the student with a large tuition bill to pay.

Examples of 50%, 25%, 75% and 90% appointments are described in some detail below. (Other percentages are also possible, but these should be sufficient to demonstrate the principles involved.) In every case, the salary is proportional to hours-paid (e.g., 25% is half of the 50% standard; 75% is 150% of that standard; 90% is 180% the standard). Tuition charges will be proportionally lower, however, with the minimum tuition = 3-unit rate.

50% RA (20 hrs/wk), not TGR

quarterly salary: \$9684 postquals, \$9336 postMS, \$8820 preMS
tuition paid: 8-10 units: \$10200
Enroll in 8-10 units (AA 290 may be more than 5 units in summer)

50% RA (20 hrs/wk), TGR:

quarterly salary: \$9684 postquals
TGR tuition fully paid: \$2871 - Enroll in TGR course

25% RA (10 hrs/week):

quarterly salary: \$4842 postquals, \$4668 postMS, \$4410 preMS
tuition paid: 5 units: \$5100
Summer Only: Enroll in 3-5 units; you are billed for additional tuition if enrolled in > 5 units.
During the academic year: Enroll in 8 units or more; you will be billed for 8-10 units or for full tuition, as appropriate, and will be responsible for paying the remainder.

90% RA (36 hrs/week) - not TGR SUMMER ONLY

quarterly salary: \$17431 postquals, \$16805 postMS, \$15876 preMS
tuition paid: \$3060 - Enroll in 3 units

90% RA (36 hrs/wk), TGR: SUMMER ONLY

quarterly salary: \$17431 postquals
TGR tuition fully paid: \$2871 - Enroll in TGR course

75% RA (30 hrs/wk) - not TGR SUMMER ONLY

quarterly salary: \$14526 postquals, \$14004 postMS, \$13230 preMS
tuition paid: 5 units: \$5100
Enroll in 3-5 units; you will be billed for additional tuition if enrolled in > 5 units

75% RA (30 hrs/wk), TGR: SUMMER ONLY

quarterly salary: \$14526 postquals
TGR tuition fully paid: \$2871 - Enroll in TGR course

2014-15 ENGINEERING TUITION CHARGES & Assistantship Tuition Payments

Units	Tuition	RA/CA which pays for this amount of tuition [% FTE]	Weekly work effort (average)
11-18 "full tuition"	\$15,691	none	
8-10 "minimum fulltime"	\$ 10,200	50% the "standard" RA/CA	20 hours
7	\$ 7,140	35%	14 hours
6	\$ 6,120	30%	12 hours
5	\$ 5,100	25%	10 hours
4	\$ 4,080	20%	8 hours
3	\$ 3,060	15%	6 hours
TGR (0)	\$ 2,871	15% or more	

Notes:

Graduate students will usually be charged a minimum of the 8-10 unit tuition rate – which is considered minimum full-time registration for a graduate student. Enrollment in more than 10 units for a quarter will result in a higher tuition charge. Enrollment in fewer units will NOT lower tuition charges, but will result in academic and visa problems.

The chart above does not imply that students holding a less-than-50% assistantship may reduce their tuition bill. Students whose assistantships (or fellowships) pay for less than 8-10 units are expected to enroll for at least 8 units during the academic year, and are responsible for paying the remainder of their tuition bill. For details, including the few exceptions to this minimum tuition and minimum enrollment rule, refer to the Stanford Bulletin or to the "Registration Requirements" section of this Guide.

Several fellowships will pay for "full tuition" (11-18 units). Students holding such fellowships are advised to take advantage of this generous support, and to enroll in at least 11 units – or more likely, in 15-16 units – each quarter. If they enroll in 10 units or less, their tuition bill will remain at the 8-10 unit rate; the difference between this amount and full tuition will then be refunded to their fellowship sponsor. This remainder is usually not "bank-able" for use in a later quarter, nor convertible to stipend or to the payment of other fees. (Of course, students should always consult their academic advisors and the Student Services Office about a specific academic or financial situation.)

STUDENT PAYROLL AT STANFORD: HOW, WHEN, AND WHERE?

Any student employee (RA, CA, TA, grader, etc) must meet several requirements before receiving a paycheck. You must be enrolled in any quarter in which you are paid (including summer), make suitable academic progress, and maintain good standing in the University.

If this is your first employment by Stanford, you need to fill out these forms:

- "I-9 Verification" for the University and INS. To complete, bring to the Aero/Astro Student Services Office:
 - Permanent Residents: an unexpired resident alien card
 - F1/J1 visa holders: unexpired passport and most recent entry/departure card, plus a current I-20 or DS-2019.
 - U.S. Citizens: a U.S. Passport; or two documents: driver's license or Stanford I.D. card (to establish identity) AND an original Social Security card or U.S. birth certificate or unexpired INS Employment Authorization (to establish employment eligibility).
- Student Services must see the original documents; both the student and Student Services sign the I-9 form.
- Declare Federal and State Withholding allowances through employee tab on Axess (to instruct the University how much tax to withhold from your salary)
- If you do not have a social security number, a copy of your application (and then a copy of the actual social security card, when you receive one).

Note: If any of these forms is missing or outdated, your paychecks will be delayed!

International students may also qualify for "tax treaty" status: some countries have agreements with the U.S. which exempt their students from some or all taxes. To claim an exemption, the appropriate forms must be filed annually. For payroll, file IRS form 8233 and a country attachment; these are on the Web at <http://fingate.stanford.edu/students/taxinfo/forms.html>.

We strongly encourage you to sign up for DIRECT DEPOSIT and PAYROLL DEDUCTION. Click on the website for more information http://fingate.stanford.edu/students/universbill/quick_steps/enroll_direct_deposit.html.

*** HOW YOU ARE PAID ***

Assistantship or grader salaries are processed through Stanford's Payroll system. Assistants and graders are University employees. (Fellowships are entirely different.)

Deductions: Federal and state taxes are withheld from salary checks; the earnings and withholding are reported like any other salary. Tuition amounts are not taxable or reported.

(Student bill items like housing, ASSU fees, insurance etc can be paid by payroll deduction if you make prior arrangements - see the website info above.)

Schedule: Tuition is paid directly to Student Accounts. You can see the payment on your University bill. Click the Finances tab in Axess.

Payroll checks or direct deposit statements come twice a month, to the Aero/Astro Main Office. Work performed from the 1st to 15th of a month is paid on the 22nd; pay for the 16th-31st of the month is paid on the 7th. Assistantship appointments follow a standard quarterly schedule which does not coincide with the registration and exam dates:

	appointment span	first check	last check
Autumn	Oct 1 - Dec 31	Oct 22	Jan 7
Winter	Jan 1 - Mar 31	Jan 22	Apr 7
Spring	Apr 1 - Jun 30	Apr 22	July 7
Summer	July 1 - Sept 30	July 22	Oct 7

If A Check Does Not Arrive On Time: First, examine your own status. Are you enrolled? Is there a Hold on your registration? If this is your first check, have you filed all the appropriate paperwork? If you have worked elsewhere on campus, have you checked with the other department? Then, come to the Student Services Office to report either that you have found and fixed one of the problems, or to find out what is wrong. For an RA, the faculty member may have forgotten to initiate or renew your appointment for the quarter. In any event, we will try to find the problem and help you fix it.

AERO/ASTRO DIRECTORY 2014-15

Durand Building

Aero/Astro Main Office, Front Desk Room 250, 723-3317

Labs	Director	Room
Aerospace Computing Lab (ACL)	Jameson	005
Aerospace Design Lab (ADL)	Alonso	464
Aerospace Robotics Laboratory (ARL)	Rock	017
Autonomous Systems Lab (ASL)	Pavone	010-B
Extreme Environment Microsystems (XLab)	Senesky	012-B
Farhat Research Group (FRG)	Farhat	028
Global Positioning System Laboratory (GPS)	Enge	452
Space Systems Development Laboratory (SSDL)	Kalman	001
Space Environment and Satellite Systems (SESS)	Close	032B
Space Rendezvous Lab (SLAB)	D'Amico	
Stanford Intelligent Systems Lab (SISL)	Kochenderfer	267
Stanford Propulsion and Space Exploration Group (SPaSE)	Cantwell	051
Structures and Composites Lab (SACL)	Chang	054
Unsteady Flow Physics and Aeroacoustics Lab	Lele	267

Most labs maintain their own Web pages - <http://aa.stanford.edu/research/index.php>

AERO/ASTRO FACULTY

Juan Alonso
Brian Cantwell
Fu-Kuo Chang
Richard Christensen (Emeritus)
Sigrid Close
Simone D'Amico
Daniel DeBra (Emeritus)
Per Enge
Charbel Farhat (Chair)
Scott Hubbard
Antony Jameson
Andrew Kalman
Mykel Kochenderfer
Ilan Kroo
Sanjay Lall
Sanjiva Lele
Marco Pavone
Stephen Rock
Debbie Senesky
George Springer (Emeritus)

DURAND BUILDING; @STANFORD.EDU

Room 252; jjalonso@
Room 379; cantwell@
Room 385; fkchang@
Room 387A; christensen@
Room 264; sigridc@
Room 262; damicos@
Room 356; ddebra@
Room 260; per.enge@
Room 257; cfarhat@
Room 363; scott.hubbard@
Room 381; ajameson@
Room 377; aek@
Room 255; mykel@
Room 464; kroo@
Room 235, Packard Building; lall@
Room 253; lele@
Room 261; pavone@
Room 265; rock@
Room 254; dsenesky@
Room 367; gspringer@

Short summaries of faculty research interests and links to their individual websites can be found on our website at <http://aa.stanford.edu/faculty/facultyProfiles.php>.

What the Fundamental Standard Is

The Fundamental Standard has set the standard of conduct for students at Stanford since it was articulated in 1896 by David Starr Jordan, Stanford's first president. It states:

Students at Stanford are expected to show both within and without the University such respect for order, morality, personal honor and the rights of others as is demanded of good citizens. Failure to do this will be sufficient cause for removal from the University.

Understanding the Fundamental Standard

The Fundamental Standard is an aspirational statement of Stanford's ideal of civic and moral community. Although the spirit of the Fundamental Standard remains unchanged since 1896, these aspirational learning goals for all Stanford students elaborate its basic values today:

- i. Students are expected to respect and uphold the rights and dignity of others regardless of race, color, national or ethnic origin, sex, age, disability, religion, sexual orientation, gender identity, or socio-economic status.
- ii. Students are expected to uphold the integrity of the university as a community of scholars in which free speech is available to all and intellectual honesty is demanded of all.
- iii. Students are expected to respect university policies as well as state and federal law.
- iv. For the purposes of clarity, students should be aware that they may be subject to discipline at Stanford University for acts of misconduct including:

- Violation of university policy
- Violation of a specific university directive
- Violation of an applicable law
- Physical assault
- Sexual misconduct, sexual assault, sexual harassment, stalking
- Theft of property or services
- Threats
- Hazing
- Hate crimes
- Alcohol- and drug-related violations, including driving under the influence
- Intentional or reckless property damage
- Seeking a university benefit to which a student is not entitled
- Falsifying a document
- Impersonating another
- Computer violations
- Knowingly or recklessly exposing others to significant danger

Penalties for Violating the Fundamental Standard

There is no standard penalty that applies to violations of the Fundamental Standard. Infractions have led to penalties ranging from formal warning and community service to expulsion. In each case, the nature and seriousness of the offense, the motivation underlying the offense and precedent in similar cases are considered.

Honor Code

What the Honor Code Is

The Honor Code is the University's statement on academic integrity written by students in 1921. It articulates University expectations of students and faculty in establishing and maintaining the highest standards in academic work.

Honor Code Text

1. The Honor Code is an undertaking of the students, individually and collectively:
 1. that they will not give or receive aid in examinations; that they will not give or receive unpermitted aid in class work, in the preparation of reports, or in any other work that is to be used by the instructor as the basis of grading;
 2. that they will do their share and take an active part in seeing to it that others as well as themselves uphold the spirit and letter of the Honor Code.
2. The faculty on its part manifests its confidence in the honor of its students by refraining from proctoring examinations and from taking unusual and unreasonable precautions to prevent the forms of dishonesty mentioned above. The faculty will also avoid, as far as practicable, academic procedures that create temptations to violate the Honor Code.
3. While the faculty alone has the right and obligation to set academic requirements, the students and faculty will work together to establish optimal conditions for honorable academic work.

Violations of the Honor Code

Examples of conduct that have been regarded as being in violation of the Honor Code include:

- Copying from another's examination paper or allowing another to copy from one's own paper
- Unpermitted collaboration
- [Plagiarism](#) [1]
- Revising and resubmitting a quiz or exam for regrading, without the instructor's knowledge and consent
- Giving or receiving unpermitted aid on a take-home examination
- Representing as one's own work the work of another
- Giving or receiving aid on an academic assignment under circumstances in which a reasonable person should have known that such aid was not permitted

Penalties for Violating the Honor Code

In recent years, most student disciplinary cases have involved Honor Code violations; of these, the most frequent arise when a student submits another's work as his or her own, or gives or receives unpermitted aid. The standard penalty for a first offense includes a one-quarter suspension from the University and 40 hours of community service. In addition, most faculty members issue a "No Pass" or "No Credit" for the course in which the violation occurred. The standard penalty for multiple violations (e.g. cheating more than once in the same course) is a three-quarter suspension and 40 or more hours of community service.

Interpretations of the Honor Code

In the Spring of 1977, the Student Conduct Legislative Council authored and adopted the following guidelines to assist students and faculty in understanding their rights and obligations under the University's Honor Code. The most recent revisions to the original text were adopted in the Winter of 2002 by the Board on Judicial Affairs.

It must be understood that the individual and collective responsibility of the students for upholding the Honor Code was not imposed upon the students by the administration or the faculty but was assumed by the students at their own request starting in 1921. Without such student responsibility, the Honor Code cannot be effectively maintained.

1. General

- The Honor Code is agreed to by every student who registers at Stanford University and by every instructor who accepts an appointment.
- The Honor Code provides a standard of honesty and declares that compliance with that standard is to be expected. It does not contemplate that the standard will be self-enforcing but calls on students, faculty, and administration to encourage compliance and to take reasonable steps to discourage violations. If violations occur, procedures are prescribed by the Student Judicial Charter of 1997. However, the Honor Code depends for its effectiveness primarily on the individual and collective desire of all members of the community to prevent and deter violations rather than on proceedings to impose penalties after violations have occurred.
- In interpreting and applying the general provisions of the Honor Code, it should be kept in mind that although primary responsibility for making the Code effective rests with the students, faculty cooperation is essential, since the faculty sets the academic requirements which students are to meet. The faculty should endeavor to avoid academic requirements and procedures which place honorable and conscientious students at a disadvantage. The faculty should also be ready and willing to consult with students and should be responsive to their suggestions in these matters.
- While an instructor's failure to observe these guidelines might be viewed as an extenuating circumstance in evaluating penalty options for a student's misconduct, it would not preclude the initiation of an otherwise warranted charge against the student.

2. Specific Interpretations and Applications

- **Third-party responsibility**
A primary responsibility assumed by students is to discourage violations of the Honor Code by others. Various methods are possible. Drawing attention to a suspected violation may stop it. Moral suasion may be effective. Initiating formal procedures is a necessary and obligatory remedy when other methods are inappropriate or have failed. Faculty members have like responsibilities when suspected violations come to their attention.
- **Proctoring :**
Proctoring means being present in the examination room during a written examination, with the following exceptions:
 1. The prohibition against proctoring should not be construed to prohibit an instructor or teaching assistant from remaining in the examination room for the first few minutes to distribute and explain the examination; or from visiting the examination room briefly to transmit additional information; or from returning at the end of the examination to collect examination papers.
 2. Nor does the prohibition against proctoring prohibit an instructor or teaching assistant from visiting the examination room in response to specific reports from students that cheating has been observed, to investigate the basis for such reports.
The instructor or teaching assistant may also visit the examination room briefly and infrequently in order to answer students' questions.

- Unusual and unreasonable precautions:
In interpreting and applying this provision, consideration should be given to standard procedures which are customary to Stanford and the need for cooperation between students and faculty in making the Honor Code effective. The following situations are cited as examples: An instructor should not require students to identify themselves before being admitted to an examination room, or require students to submit in advance to being searched for notes or other materials, or maintain surveillance upon students who leave the examination room. Nor should the instructor take deliberate steps to invite dishonesty in order to entrap students. Procedures of this kind would be unusual and unreasonable. On the other hand, an instructor may require copies of an examination or test to be returned after the examination. When possible, alternate seating should be provided and used for all examinations. To avoid controversy in any rereading or regrading of students' work, the instructor may take measures by which the original work may be clearly identified. With clear advance notice, an instructor may systematically compare work submitted to current or previous submissions. An instructor who requires students to make up a missed test or examination may administer a different test or examination of equivalent range and difficulty. Such procedures are not to be construed as unusual or unreasonable.
- Procedures that create temptations to violate the Honor Code:
Although students are expected to resist temptations to cheat, the faculty should endeavor to minimize inducements to dishonesty. Examples of undesirable procedures include the following: failure to give clear directions and instructions concerning course requirements and the limits of acceptable collaboration in coursework; treating required work casually as if it were unimportant; carelessness or inconsistency in maintaining security of examinations or tests; reusing an examination which is neither kept secure from public exposure nor made available to all students. If take-home examinations are given, they should not be closed-book examinations, nor should there be a specific time limit less than the full period between the distribution of the examination and its due date. Such procedures place honorable and conscientious students in a difficult position and often at a disadvantage, and could be interpreted as mitigating by a judicial panel.
- Penalty grading:
Students are not to be penalized for violations of the Honor Code without adjudication under the procedures specified by the Student Judicial Charter of 1997. An instructor may not, therefore, lower a student's grade or impose any other academic penalty on the grounds of dishonesty in the absence of such formal proceedings.
- Instructor Discretion:
Procedures falling under instructor discretion would include exam location, alternate times for exams, and alteration of due dates. Tests will be taken from the classroom only with the consent of the instructor.
- Basis of Grading:
All student work in a course or independent study (exams, quizzes, problem sets, drafts of papers, oral presentations, internet/websites, research, classroom discussions, etc.) forms the basis for evaluating and/or grading. The Honor Code applies to all academic work whether or not the work is given a letter grade, and whether or not the Honor Code is cited and/or signed. Therefore, regardless of the nature or extent of an assignment, academic dishonesty of any type is expressly prohibited and should always be considered a violation of the Honor Code.
- Dual Submission Policy:
One of the principal motivations behind the Honor Code is to prevent one student from taking unfair advantage over the other students in a class. For example, receiving unpermitted aid on an assignment or consulting notes on a closed book exam gives a student an advantage that students who adhere to the Honor Code do not have. In much the same way, submitting the same work in more than one course without the knowledge of the instructor undermines fairness because faculty assume that student work prepared for a course is done for that course alone. To this end, the Interpretations of the Stanford Honor Code shall include the following: No student may submit substantially similar work in more than one class without the approval of any instructors who might otherwise assume that the work has been undertaken in their classes alone. Thus, submitting work that was prepared for a previous class requires the approval of the current instructor. Submitting substantially similar work in concurrent classes requires approval, in advance, from each instructor.

(Last amended 2002)

Honor Code Tips

Below is a listing of several tips that can make upholding the Honor Code an easier part of your day to day academic life. Since this list is not exhaustive, we welcome you to engage with some of the resources available on the site such as academic integrity videos for computer science assignments, lab work and in essays and papers.

Make sure to understand all guidelines for academic assignments.

This is especially applicable regarding permitted or unpermitted collaboration and aid. Guidelines frequently vary from course to course, instructor to instructor and assignment to assignment. Ask the instructor directly if there is any ambiguity on the guidelines for a particular assignment.

Sit apart during exams.

Alternate seating during in-class examinations when this is possible. Allowing space in between you and another student reduces the likelihood of looking at another's exam or copying.

Cite, cite, cite.

Citation is key in upholding the honor code in essays and other written work. You must cite all resources that were used in producing your work. Omission of citation can be viewed as an attempt to pass off someone else's words or thoughts as your own, whether this was intended or not.

Be actively engaged with the Honor Code.

All members of the Stanford community have an obligation to respond in some manner if they observe an Honor Code violation. If you observe another student behaving in a way that you believe is not aligned with the Honor Code, you should notify a TA or professor. Formal reporting of Honor Code violations by students should be discussed with a member of the Office of Community Standards.

Do not be tempted to take dishonest shortcuts.

Try to stand back and identify options. Think about the value of personal integrity. Think about the consequences of being caught. These can include embarrassment and negative academic, career and family impact – and most likely a quarter of suspension. Alternatives such as dropping a course, arranging for an incomplete or even accepting a lower grade are always better choices.

Do not make crucial decisions when judgment is impaired.

This applies to both academic and non-academic situations. It is clearly wiser not to decide upon anything important when feeling desperate, exhausted, grief-stricken or panicked.

Think before acting.

Most students need help at one time or another. Tap into the wealth of resources on campus and seek help or advice on how to proceed.

Computer and Network Usage Policy

Authority: Approved by the Vice President for Business Affairs and Chief Financial Officer.

Applicability: Applies to all University students, faculty and staff, and all others using computer and communication technologies, including the University's network, whether personally or University owned, which access, transmit or store University or student information.

Policy Statement: Use of Stanford's network and computer resources should support the basic missions of the University in teaching, learning and research. Users of Stanford network and computer resources ("users") are responsible to properly use and protect information resources and to respect the rights of others. This policy provides guidelines for the appropriate use of information resources.

1. Definitions

As used in this policy:

- a. "Information resources" are all computer and communication devices and other technologies which access, store or transmit University or student information.
- b. "Information" includes both University and student information.
- c. "Personally owned resources" are information resources that are under the control of University employees or agents and are not wholly owned by the University.

2. Policies

a. General Policy

Users of University information resources must protect (i) their online identity from use by another individual, (ii) the integrity of computer-based information resources, and (iii) the privacy of electronic information. In addition, users must refrain from seeking to gain unauthorized access, honor all copyrights and licenses and respect the rights of other information resources.

b. Access

Users must refrain from seeking to gain unauthorized access to information resources or enabling unauthorized access. Attempts to gain unauthorized access to a system or to another person's information are a violation of University policy and may also violate applicable law, potentially subjecting the user to both civil and criminal liability. However, authorized system administrators may access information resources, but only for a legitimate operational purpose and only the minimum access required to accomplish this legitimate operational purpose.

(1) Prohibition against Sharing Identities

Sharing an online identity (user ID and/or password or other authenticator such as a token or certificate) violates University policy.

(2) Information Belonging to Others

Users must not intentionally seek or provide information on, obtain copies of, or modify data files, programs, passwords or other digital materials belonging to other users, without the specific permission of those other users.

(3) Abuse of Computing Privileges

Users of University information resources must not access computers, computer software, computer data or information, or networks without proper authorization, or intentionally enable others to do so, regardless of whether the computer, software, data, information, or network in question is owned by the University. For example, abuse of the networks to which the University belongs or the computers at other sites connected to those networks will be treated as an abuse of University computing privileges.

c. Usage

The University is a non-profit, tax-exempt organization and, as such, is subject to specific federal, state and local laws regarding sources of income, political activities, use of property and similar matters. It also is a contractor with government and other entities and thus must assure proper use of property under its control and allocation of overhead and similar costs. Use of the University's information resources must comply with University policies and legal obligations (including licenses and contracts), and all federal and state laws.

(1) Prohibited Use

Users must not send, view or download fraudulent, harassing, obscene (i.e., pornographic), threatening, or other messages or material that are a violation of applicable law or University policy. In particular, contributing to the creation of a hostile academic or work environment is prohibited.

(2) Copyrights and Licenses

Users must not violate copyright law and must respect licenses to copyrighted materials. For the avoidance of doubt, unlawful file-sharing using the University's information resources is a violation of this policy.

(3) Social Media

Users must respect the purpose of and abide by the terms of use of online media forums, including social networking websites, mailing lists, chat rooms and blogs.

(4) Political Use

University information resources must not be used for partisan political activities where prohibited by federal, state or other applicable laws, and may be used for other political activities only when in compliance with federal, state and other laws and in compliance with applicable University policies.

(5) Personal Use

University information resources should not be used for activities unrelated to appropriate University functions, except in a purely incidental manner.

(6) Commercial Use

University information resources should not be used for commercial purposes, including advertisements, solicitations, promotions or other commercial messages, except as permitted under University policy. Any such permitted commercial use should be properly related to University activities, take into account proper cost allocations for government and other overhead determinations, and provide for appropriate reimbursement to the University for taxes and other costs the University may incur by reason of the commercial use. The University's Chief Financial Officer and Vice President for Business Affairs will determine permitted commercial uses.

(7) Use of University Information

Users must abide by applicable data storage and transmission policies, including Admin Guide 6.3.1 (Information Security). Consult the University Privacy Officer (privacyofficer@stanford.edu) for more information.

d. Personally Owned Resources

Stanford does not require personnel to use their personally owned resources to conduct University business. Individual units within the University may permit such use, and users may choose to use their own resources accordingly. Any personally owned resources used for University business are subject to this policy and must comply with all Stanford requirements pertaining to that type of resource and to the type of data involved. The resources must also comply with any additional requirements (including security controls for encryption, patching, and backup) specific to the particular University functions for which they are used.

e. Integrity of Information Resources

Users must respect the integrity of information and information resources.

(1) Modification or Removal of Information or Information Resources

Unless they have proper authorization, users must not attempt to modify or remove information or information resources that are owned or used by others.

(2) Other Prohibited Activities

Users must not encroach, disrupt or otherwise interfere with access or use of the University's information or information resources. For the avoidance of doubt, without express permission, users must not give away University information or send bulk unsolicited email. In addition, users must not engage in other activities that damage, vandalize or otherwise compromise the integrity of University information or information resources.

(3) Academic Pursuits

The University recognizes the value of legitimate research projects undertaken by faculty and students under faculty supervision. The University may restrict such activities in order to protect University and individual information and information resources, but in doing so will take into account legitimate academic pursuits.

f. Locally Defined and External Conditions of Use

Individual units within the University may define "conditions of use" for information resources under their control. These statements must be consistent with this overall policy but may provide additional detail, guidelines restrictions, and/or enforcement mechanisms. Where such conditions of use exist, the individual units are responsible for publicizing and enforcing both the conditions of use and this policy. Where use of external networks is involved, policies governing such use also are applicable and must be followed.

f. Access for Legal and University Processes

Under some circumstances, as a result of investigations, subpoenas or lawsuits, the University may be required by law to provide electronic or other records, or information related to those records or relating to use of information resources, ("information records") to third parties. Additionally, the University may in its reasonable discretion review information records, e.g., for the proper functioning of the University, in connection with investigations, or to protect the safety of individuals or the Stanford community. The University may also permit reasonable access to data to third-party service providers in order to provide, maintain or improve services to the University. Accordingly, users of University information resources do not have a reasonable expectation of privacy when using the University's information resources.

3. Oversight of Information Resources

Responsibility for, and management and operation of, information resources is delegated to the head of a specific subdivision of the University governance structure ("department"), such as a Dean, Department Chair, Administrative Department head, or Principal

Investigator ("lead"). This person will be responsible for compliance with all University policies relating to the use of information resources owned, used or otherwise residing in their department. The lead may designate another person to manage and operate the system, but responsibility for information resources remains with the lead. This designate is the "system administrator." The system administrator is responsible for managing and operating information resources under their oversight in compliance with University and department policies, including accessing information resources necessary to maintain operation of the systems under the care of the system administrator. (See also, section 4.b; system administrators should defer to the Information Security Office for access beyond that necessary to maintain operation of the system.)

a. Responsibilities

The system administrator should:

- Take all appropriate actions to protect the security of information and information resources. Applicable guidelines are found at <http://securecomputing.stanford.edu>
- Take precautions against theft of or damage to information resources.
- Faithfully execute all licensing agreements applicable to information resources.
- Communicate this policy, and other applicable information use, security and privacy policies and procedures to their information resource users.
- Cooperate with Information Security Office to find and correct problems caused by the use of the system under their control.

b. Suspension of Privileges

System administrators may temporarily suspend access to information resource if they believe it is necessary or appropriate to maintain the integrity of the information resources under their oversight.

4. Reporting or Investigating Violations or University Concerns

a. Reporting Violations

System users will report violations of this policy to the Information Security Office, and will immediately report defects in system accounting, concerns with system security, or suspected unlawful or improper system activities to the Information Security Office during normal business hours and the Office of the General Counsel emergency after-hours phone line at other times.

b. Accessing Information & Systems

Inspecting and monitoring information and information resources may be required for the purposes of enforcing this policy, conducting University investigations, ensuring the safety of an individual or the University community, complying with law or ensuring proper operation of information resources. Only the University's Chief Information Security Officer (or designate) may authorize this inspection and monitoring.

c. Cooperation Expected

Information resource users are expected to cooperate with any investigation of policy abuse. Failure to cooperate may be grounds for cancellation of access privileges, or other disciplinary actions.

5. Consequences of Misuse of Information Resources

A user found to have violated this policy may also have violated the University Code of Conduct, the Fundamental Standard, the Student Honor Code, and/or other University

policies, and will be subject to appropriate disciplinary action up to and including discharge, dismissal, expulsion, and/or legal action. The Chief Information Security Officer will refer violations to University units, i.e., Student Affairs for students, the supervisor for staff, and the Dean of the relevant School for faculty or other teaching or research personnel, if appropriate.

6. Cognizant Office

University's Chief Information Security Officer, or other person designated by the Vice President for Business Affairs and Chief Financial Officer, shall be the primary contact for the interpretation, monitoring and enforcement of this policy.

7. Related Policies

- a. Student Discipline**—See Student Life/Codes of Conduct/Fundamental Standard/Honor Code
- b. Staff Discipline**—See [Guide Memo 2.1.16](#) [2]: Addressing Conduct & Performance Issues
- c. Faculty Discipline**—See the Statement on Faculty Discipline in the Faculty Handbook
- d. Patents and Copyrights**—See [Research Policy Handbook 9.1](#) [3] and [9.2](#) [4]; see also the Stanford University [Copyright Reminder](#) [5]
- e. Partisan Political Activities**—See [Guide Memo 1.5.1](#) [6]: Political Activities
- f. Ownership of Documents**—See [Research Policy Handbook 9.2](#) [4], and [Guide Memo 1.5.4](#) [7]: Ownership of Documents
- g. Incidental Personal Use**—See [Research Policy Handbook 4.1](#) [8], and [Guide Memo 1.5.2](#) [9] : Staff Policy on Conflict of Commitment and Interest
- h. Security of Information**—See [Guide Memo 6.6.1](#) [10] (Information Security Incident Response)
- i. Privacy and Security of Health Information (HIPAA)**—See [Guide Memo 1.6.2](#) [11]: Privacy and Security of Health Information
- j. Data Classification, Access and Transmittal and Storage Guidelines**—See <http://dataclass.stanford.edu>.
- k. Endpoint Compliance**—See http://securecomputing.stanford.edu/endpoint_compliance.html

Links:

- [1] <https://studentaffairs.stanford.edu/communitystandards/integrity/plagiarism>
- [2] <https://adminguide.stanford.edu/chapter-2/subchapter-1/policy-2-1-16>
- [3] <http://doresearch.stanford.edu/policies/research-policy-handbook/intellectual-property/inventions-patents-and-licensing>
- [4] <http://doresearch.stanford.edu/policies/research-policy-handbook/intellectual-property/copyright-policy>
- [5] <http://library.stanford.edu/using/copyright-reminder>
- [6] <https://adminguide.stanford.edu/chapter-1/subchapter-5/policy-1-5-1>
- [7] <https://adminguide.stanford.edu/chapter-1/subchapter-5/policy-1-5-4>
- [8] <http://doresearch.stanford.edu/policies/research-policy-handbook/conflicts-commitment-and-interest/faculty-policy-conflict>
- [9] <https://adminguide.stanford.edu/chapter-1/subchapter-5/policy-1-5-2>
- [10] <https://adminguide.stanford.edu/chapter-6/subchapter-6/policy-6-6-1>
- [11] <https://adminguide.stanford.edu/chapter-1/subchapter-6/policy-1-6-2>

Published on Administrative Guide <https://adminguide.stanford.edu>

Stanford Academic Calendar 2014-15

AUTUMN QUARTER

- AUGUST 1 (Fri)** Access open for course enrollment
25 (Mon) 1st-year M.D. instruction begins
28 (Thu) 2nd-year M.D. instruction begins
SEPTEMBER 2 (Tue) Law School instruction begins for 1st-year J.D. students
12 (Fri), 5:00 p.m. At-student enrollment deadline in order to receive stipend or financial aid refund by first day of term
15 (Mon) MBA first-year instruction begins
16 (Tue) New undergraduate arrive; Convocation
18 (Thu) Undergraduate housing opens for returning students
22 (Mon) First day of quarter; instruction begins
22 (Mon) Law School instruction begins for 2nd- & 3rd-year J.D. & advanced degree students
22 (Mon), 5:00 p.m. Preliminary Study List deadline. Students must be "at status," i.e., students must have a study list with sufficient units to meet requirements for their status, whether full-time, 8-9-10 units (graduate students only), or approved Special Registration Status
22 (Mon), 5:00 p.m. Deadline to submit Leave of Absence for full refund
25 (Thu) Conferral of degrees; Summer Quarter
26 (Fri) GSB course add/drop deadline (GSB courses only)
OCTOBER 10 (Fri), 5:00 p.m. Final Study List deadline, except GSB. Last day to add or drop a class; last day to adjust units on a variable-unit course. Last day for rubric reassessment for dropped courses or units. Students may withdraw from a course until the Course Withdrawal deadline and a "W" notation will appear on the transcript
NOVEMBER 5 (Wed), 5:00 p.m. Term withdrawal deadline; last day to submit Leave of Absence to withdraw from the University with a partial refund
14 (Fri), 5:00 p.m. Change of grading basis deadline, except GSB
14 (Fri), 5:00 p.m. Course withdrawal deadline, except GSB, Law, and M.D.
14 (Fri), 5:00 p.m. Application deadline for Autumn Quarter degree conferral
24-26 (Mon-Fri) Thanksgiving (no classes)
DECEMBER 1-7 (Mon-Sun) End-Quarter Period
5 (Fri) Last day of classes (unless class meets on Sat.)
5 (Fri) Last opportunity to arrange incomplete in a course, at last class
5 (Fri), noon University thesis, D.M.A., final project, or Ph.D. dissertation, last day to submit
5 (Fri), 5:00 p.m. Late application to a deadline for Autumn Quarter degree conferral (\$50 fee)
5-12 (Fri-Fri) Law School examinations
8-12 (Mon-Fri) End-Quarter examinations
13 (Sat, noon) Undergraduate housing closes for Winter Break
16 (Tue), 11:59 p.m. Grades due

JANUARY 8 (Thu)

Conferral of degrees, Autumn Quarter

WINTER QUARTER

- OCTOBER 26 (Sun)** Access open for course enrollment
DECEMBER 26 (Fri) At-student enrollment deadline in order to receive stipend or financial aid refund by first day of term
JANUARY 3 (Sat), 8:00 a.m. Undergraduate housing opens for Winter Quarter
5 (Mon) First day of quarter; instruction begins for all students
5 (Mon), 5:00 p.m. Preliminary Study List deadline. Students must be "at status," i.e., students must have a study list with sufficient units to meet requirements for their status, whether full-time, 8-9-10 units (graduate students only), or approved Special Registration Status
5 (Mon), 5:00 p.m. Deadline to submit Leave of Absence for full refund
9 (Fri) GSB course add/drop deadline (GSB courses only)
19 (Mon) Martin Luther King, Jr. Day (holiday, no classes)
23 (Fri), 5:00 p.m. Final Study List deadline. Last day to add or drop a class; last day to adjust units on a variable-unit course. Last day for rubric reassessment for dropped courses or units. Students may withdraw from a course until the Course Withdrawal deadline and a "W" notation will appear on the transcript
FEBRUARY 16 (Mon) Presidents' Day (holiday, no classes); Law School does hold classes)
19 (Thu), 5:00 p.m. Term withdrawal deadline; last day to submit Leave of Absence to withdraw from the University with a partial refund
27 (Fri), 5:00 p.m. Change of grading basis deadline, except GSB
27 (Fri), 5:00 p.m. Course withdrawal deadline, except GSB, Law, and M.D.
27 (Fri), 5:00 p.m. Application deadline for Winter Quarter degree conferral
MARCH 9 (Mon) Last day of Law classes, 9-15 (Mon-Sun) End-Quarter Period
13 (Fri) Last day of classes (unless class meets on Sat.)
13 (Fri) Last opportunity to arrange incomplete in a course, at last class
13 (Fri), noon University thesis, D.M.A., final project, or Ph.D. dissertation, last day to submit
13 (Fri), 5:00 p.m. Late application deadline for Winter Quarter degree conferral (\$50 fee)
13-20 (Fri-Fri) Law School examinations
16-20 (Mon-Fri) End-Quarter examinations
21 (Sat) Undergrad housing move-out (if departing Winter Quarter)
24 (Tue), 11:59 p.m. Grades due
APRIL 2 (Thu) Conferral of degrees, Winter Quarter

SPRING QUARTER

- FEBRUARY 8 (Sun)** Access open for course enrollment
MARCH 20 (Fri) At-student enrollment deadline in order to receive stipend or financial aid refund by first day of term
28 (Sat) Undergraduate housing move-in date for Spring Quarter
30 (Mon) First day of quarter; instruction begins
30 (Mon), 5:00 p.m. Preliminary Study List deadline. Students must be "at status," i.e., students must have a study list with sufficient units to meet requirements for their status, whether full-time, 8-9-10 units (graduate students only), or approved Special Registration Status
30 (Mon), 5:00 p.m. Deadline to submit Leave of Absence for full refund
APRIL 2 (Thu) GSB instruction begins (MBA and MSx courses only)
7 (Tue) GSB course add/drop deadline (GSB courses only)
10 (Fri), 5:00 p.m. Application deadline for Spring Quarter degree conferral
17 (Fri), 5:00 p.m. Final Study List deadline. Last day to add or drop a class; last day to adjust units on a variable-unit course. Last day for rubric reassessment for dropped courses or units. Students may withdraw from a course until the Course Withdrawal deadline and a "W" notation will appear on the transcript
MAY 12 (Tue), 5:00 p.m. Term withdrawal deadline; last day to submit Leave of Absence to withdraw from the University with a partial refund
22 (Fri), 5:00 p.m. Change of grading basis deadline, except GSB
22 (Fri), 5:00 p.m. Course withdrawal deadline, except GSB, Law, and M.D.
25 (Mon) Memorial Day (holiday, no classes)
29 (Fri) Last day of Law classes
29-June 4 (Fri-Thu) End-Quarter Period
JUNE 1-5 (Mon-Fri) Law School examinations
3 (Wed) Last day of classes
3 (Wed) Last opportunity to arrange incomplete in a course, at last class
3 (Wed, noon) University thesis, D.M.A., final project, or Ph.D. dissertation, last day to submit
3 (Wed), 5:00 p.m. Late application deadline for Spring Quarter degree conferral (\$50 fee)
4 (Thu) Day before finals, no classes
5-10 (Fri-Wed) End-Quarter examinations.
10 (Wed, noon) Grades for GSB graduating students due
11 (Thu, noon) Grades for graduating students due
12 (Fri) Undergraduate housing move-out date (for all students not involved in Commencement)
13 (Sat) Senior Class Day
13 (Sat) Beccaluneta Saturday
13 (Sat) Law School Diploma Ceremony
14 (Sun) Commencement. Conferral of degrees, Spring Quarter
15 (Mon) Undergraduate housing move-out date for graduates and others involved in Commencement (with permission)
16 (Tue), 11:59 p.m. Grades for non-graduating students due

SUMMER QUARTER

- APRIL 12 (Sun)** Access open for course enrollment
JUNE 12 (Fri) At-student enrollment deadline in order to receive stipend or financial aid refund by first day of term
22 (Mon) First day of quarter; instruction begins
22 (Mon), 5:00 p.m. Preliminary Study List deadline to submit Leave of Absence for full refund
JULY 3 (Fri) Independence Day (celebrated; holiday, no classes)
6 (Mon), 5:00 p.m. Final Study List deadline. Last day to add or drop a class; last day to adjust units on a variable-unit course. Last day for rubric reassessment for dropped courses or units. Students may withdraw from a course until the Course Withdrawal deadline and a "W" notation will appear on the transcript
24 (Fri), 5:00 p.m. Term withdrawal deadline; last day to submit Leave of Absence to withdraw from the University with a partial refund
31 (Fri), 5:00 p.m.) Change of grading basis deadline
31 (Fri), 5:00 p.m.) Course withdrawal deadline
31 (Fri), 5:00 p.m.) Application deadline for Summer Quarter degree conferral
AUGUST 8-13 (Sat-Thu) End-Quarter Period
13 (Thu) Last day of classes
13 (Thu) Last opportunity to arrange incomplete in a course, at last class
14-15 (Fri-Sat) End-Quarter examinations
18 (Tue, 11:59 p.m.) Grades due
28 (Fri, noon) University thesis, D.M.A., final project, or Ph.D. dissertation, last day to submit
28 (Fri), 5:00 p.m. Late application deadline for Summer Quarter degree conferral (\$50 fee)
SEPTEMBER 24 (Thu) Conferral of degrees, Summer Quarter

1st year April 1, 2014

- Academic Calendar 2015-16**
 First day of classes and last day of finals
 Autumn 2015-16: September 21 & December 11
 Winter 2015-16: January 4 & March 18
 Spring 2015-16: March 28 & June 8
 Commencement: June 12
 Summer 2015-16: June 20 and August 13