

School of Earth and Space Exploration
Graduate Program Guidebook
Arizona State University

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INTRODUCTION

This guidebook outlines the graduate requirements and procedures set forth by the faculty of the School of Earth and Space Exploration (SESE) at Arizona State University. The SESE graduate degree programs are directed toward the attainment of excellence in Earth and Space Exploration as demonstrated by accomplishments in research, coursework, and examinations.

SESE graduate student recruitment, mentoring, and oversight is accomplished by a 9+ person faculty committee comprised of two subcommittees (Graduate Recruitment and Graduate Oversight) and chaired by the SESE Associate Director for Graduate Initiatives. In addition, the full-time Graduate Coordinator position assists current students with administrative issues, the subcommittees with their charges, and recruitment activities.

This guidebook is a living document and SESE will refer to the most current version for the enforcement of policy. Any student can petition for a specific exception to the current guidebook if it puts them at a disadvantage.

In addition to the requirements set by SESE, students must follow the policies and procedures established by the [Graduate College](#) and the [University](#).

Graduate Student Responsibilities

Graduate students are responsible for familiarizing themselves with all university and graduate policies and procedures. Students should also communicate directly with their academic unit to be clear on expectations for degree completion. Information is provided to students via [MyASU](#) and through student's ASU email addresses. Students are expected to frequently check their [MyASU](#) account and their ASU emails for the most up-to-date information regarding their status, holds, items to attend to and other important information.

ADMISSIONS INFORMATION

To be eligible for admission to SESE's graduate program, applicants must:

- Have earned a bachelor's degree or higher from a regionally accredited institution in the U.S. or the equivalent of a U.S. bachelor's degree from an international institution that is officially recognized by that country. Although applicants are not required to have a specific type of bachelor's degree, most admitted students have a degree related to their graduate program of interest.
- Have maintained a "B" (3.00 on a 4.00 scale) grade point average (GPA) in the last 60 semester hours or 90 quarter hours of undergraduate course work. If students do not meet the minimum GPA requirements, their application may still be considered.
- Demonstrate [English proficiency](#) if the applicant's native language is not English.

Application Information

Most SESE admissions are for the fall semester. Spring admissions occur under special circumstances. Graduate admission to SESE consists of the following application dates for full consideration of funding and campus recruitment activities. Applications received after these dates will be considered, but at a lower priority for funding and visitation:

January 15 for fall admission

October 1 of the previous year for spring admission

All application materials must be submitted online through the Graduate Admissions [electronic application](#). The application consists of two categories of materials: those required by Graduate Admissions and those required by SESE. The application provides instructions regarding the required materials, which include:

- Basic application and fees
- Personal statement/letter of interest
- Three letters of recommendation
- Official English Proficiency test scores, if applicable
- Official transcripts from all former institutions
- Academic Record Form

More details regarding the required documents can be found at the [SESE graduate admissions website](#) as well as the electronic admissions application.

All applicants will be considered for financial support. Applicants not in need of financial support should notify the prospective faculty advisor(s) at the time the application is submitted. Funding resources greatly impact the admissions review process and the number of students who are admitted.

Students not receiving financial support should refer to the [ASU tuition website](#) for more information on the estimated costs.

Students are admitted and awarded funding offers to a SESE graduate program based on the research areas of interest in their graduate application and on the recommendation of faculty members who agree to advise them. If a student decides to change their research focus or faculty advisor after being admitted, the original funding offer may no longer apply. See the 'Changing Advisors' section for more details.

GRADUATE PROGRAM REQUIREMENTS

Advisement of Students

During the mandatory Orientation Week, which typically occurs the week of, or before, the fall semester starts, each incoming graduate student will receive general information about the graduate program from the Graduate Committee. Students should meet individually with their research advisors for personalized guidance about the graduate program, advice in first year class selections, and discussion of other related matters. The Graduate Committee is available to assist in advising graduate students at any time, but particularly during this period. Students admitted in spring semester are required to attend orientation during the next fall semester.

Research Advisor

Students are recommended for admission by the faculty member(s) who will serve as their research advisor through the duration of their studies, pending satisfactory academic progress being met. A student's research advisor(s) must be a member of the [Graduate Faculty](#) for the student's designated program and have an endorsement to chair or co-chair, if applicable. This list is applicable for students in either a PhD or MS program.

Changing Advisors

Under certain circumstances, a graduate student may not be able to continue to work on a research assistantship with a faculty member, for instance, when faculty depart from ASU, research funding ends, or other unforeseen issues arise. When a change in faculty research advisor and/or research assistantship is deemed necessary, a student should schedule a meeting with the SESE Associate Director for Graduate Initiatives to discuss the situation as soon as possible. While graduate students are responsible for and required to find a new faculty advisor and secure funding for a research assistantship, SESE will help facilitate the transition and provide necessary guidance and advice. SESE will not assign an advisor to the student, however, contingent on the student's satisfactory academic progress and remaining TA eligibility, SESE will consider extending TA support during the transition period. Students have one semester to identify the new advisor and report back to the SESE Associate Director for Graduate Initiatives on their decision. The student must identify a faculty member (job titles are Assistant Professor, Associate Professor, Professor) of the School of Earth and Space Exploration who is on the approved [Graduate Faculty](#) list for their degree program. If the students received a financial support commitment upon admission, it is the responsibility of the student to secure their remaining funding through the new research advisor. Failure to identify a new advisor in this time period will result in the termination of TA funding and may result in a recommendation of dismissal from the program.

MS Supervisory Committee

A masters student, after consultation with their advisor, will secure a total of three faculty members for their Thesis Supervisory Committee. These members in general will be from the [Graduate Faculty](#)—a classification defined and managed by the ASU Graduate College. All

SESE faculty members are on the Graduate Faculty, along with various researchers and lecturers. Most Graduate Faculty can be committee chairs or co-chairs. Students who wish to add members to the Graduate Faculty should contact the Graduate Coordinator for the procedures.

This three (3) person committee shall consist of:

- The research advisor as chair or two research advisors as co-chairs
- Two members of the [Graduate Faculty](#) in the degree program (which includes all SESE faculty as well as other SESE research staff and faculty from other programs). If a student has co-chairs only one additional committee member is required.
- Additional participants (e.g., academic professionals, adjunct faculty, affiliated faculty, or non-ASU faculty members not on the SESE Graduate Faculty) may serve *only* in addition to the 3 Graduate Faculty members upon approval of the Graduate Oversight Committee
- MS students should formalize their supervisory committee within 1 year of the start of their program.

PhD Supervisory Committee

A doctoral student, after consultation with their advisor, will secure a total of five faculty members for their Dissertation Supervisory Committee. These members in general will be from the [Graduate Faculty](#)—a classification defined and managed by the ASU Graduate College. All SESE faculty members are on the Graduate Faculty, along with various researchers and lecturers. Most Graduate Faculty can be committee chairs or co-chairs. Students who wish to add members to the Graduate Faculty should contact the Graduate Coordinator for the procedures.

This five (5) person committee shall consist of:

- The research advisor as chair or two research advisors as co-chairs
- Four members of the [Graduate Faculty](#) in the degree program (which includes all SESE faculty as well as other SESE research staff and faculty from other ASU degree/research programs). If a student has co-chairs only three additional committee members are required.
- Additional participants such as academic professionals, external faculty members or others persons not on the Graduate Faculty may serve as one of the committee members pending approval of the Supervisory Committee, the Associate Director for Graduate Initiatives and the Graduate College. Students are allowed a maximum of one outside member per committee within the 5 person committee, any other outside members can serve in addition to the 5 required members. Non SESE Graduate Faculty committee members are NOT eligible to serve on comprehensive exam committees

- For Exploration Systems Design PhD students, at least one committee member must be a SESE Graduate Faculty member with a research area primarily in science, rather than engineering.
- PhD students must formalize their full supervisory committee by the 15th of the October following their successful candidacy exam (i.e., at the time of the first annual review following successfully achieving candidacy.)

If a student wishes to include non-ASU participants on their committee, they should submit the name of the proposed member and a rationale for that choice to their Supervisory Committee for evaluation. Should the Supervisory Committee concur, the student must contact the proposed member and ask them to provide their curriculum vitae. The student submits a short memo including the rationale for this request, along with the potential outside member's curriculum vitae to the Associate Director for Graduate Initiatives through the Graduate Coordinator. With the Associate Director's approval, the request is submitted to the Graduate College. Once the Graduate College approves the outside participant, the student should adjust their Interactive Plan of Study (iPOS, see below) accordingly.

Students in the MNS program should see 'Requirements for the MNS Degree' section for information regarding advising/advisors.

Registration and Enrollment

All students are required to have proof of measles immunizations on file with [Health Services](#) prior to registration. Graduate students register through My ASU according to their enrollment appointment. Details regarding registration and tuition are provided in the [Registration and Tuition Payment Guide](#).

Course Load

Graduate students employed as a Research (RA) or Teaching Assistant (TA) in SESE during the academic year should not be otherwise employed and must register for a minimum of six hours of graduate level credits (500 or higher). SESE graduate students are limited to a maximum of twelve credit hours per semester in fall and spring, and six credit hours per summer session (3 credits maximum, per session). Students supported on work-study, other types of financial aid, those not being paid as an RA or TA, or those on a VISA may be required to take a minimum course load of more than six credit hours, but no more than twelve hours per semester.

Graduate students employed as a Research or Teaching Assistant during the summer must be enrolled in at least one hour of graduate level credit during the summer (either session is acceptable) to receive pay.

Students who are completing culminating (academic milestone) experiences in the summer including comprehensive exams, defenses or graduation, must be enrolled in a minimum of 1 credit in the summer, regardless of whether or not they have summer financial support. Any

culminating experiences that occur the day after the spring degree conferral/commencement date require summer registration.

Students should review the registration and enrollment guidelines in the Graduate College [Policies and Procedures guidebook](#) for more information.

Continuous Enrollment

Once admitted to a graduate degree program or graduate certificate program, students must be registered for a minimum of one credit hour during all phases of their graduate education, including the term in which they graduate. This includes periods when students are engaged in research, conducting a doctoral prospectus, working on or defending theses or dissertations, taking comprehensive examinations, taking Graduate Foreign Language Examinations, or in any other way utilizing university resources, facilities, or faculty time.

Registration for every fall semester and spring semester is required. Summer registration is required for students taking comprehensive examinations, completing culminating experiences, conducting a doctoral prospectus, defending theses or dissertations, completing applied projects, or graduating from the degree program.

To maintain continuous enrollment the credit hour(s) must:

- appear on the student's Plan of Study, OR
- be research (592, 692, 792), applied project (593), thesis (599), dissertation (799), or continuing registration (595, 795), OR
- be a graduate-level course

Grades of "W" (withdrawal) or "X" (audit) are not valid for continuous enrollment purposes or minimum registration requirements. "W" grades are received when students officially withdraw from a course after the course drop deadline or they do not successfully complete an audited class. "X" grades are received when a student successfully completes audited courses. Additionally, students completing work for a course in which they received a grade of "I" (incomplete) must maintain continuous enrollment as defined previously. Graduate students have one year to complete work for an [incomplete grade](#); if the work is not complete and the grade changed within one year, the "I" grade becomes permanent. The [Student Services Manual](#) provides more information about incomplete grades.

If a program of study must be interrupted, the student may apply for leave status for a maximum of two semesters during their graduate program. The research/applied project advisor, Supervisory Committee, Graduate Oversight Committee, and the Graduate College must endorse a leave of absence request. This request must be filed and approved the semester prior to the anticipated absence. The instructions and the policies related to continuous enrollment are located on the [Graduate College website](#). The student should briefly state the reason for requesting leave status and the duration (not to exceed two semesters per Graduate College guidelines). This request will be submitted via the Interactive Plan of Student (iPOS). A student on leave is not required to pay fees, but is also not permitted to place any demands on university faculty or use any university facilities.

Failure to maintain continuous enrollment without prior approval will result in the student being discontinued from the graduate program. A student removed from a graduate program for failure to maintain continuous enrollment may re-apply for admission. The application will be considered a new application to the degree program and there is no guarantee of admission or that prior credits/culminating events will transferring over.

Grades and Grievances

The final passing grade for research (SES 592/692/792) and thesis/dissertation (SES 599/799) is a Y. Research grades will be assigned at the end of each semester. Thesis and dissertation grades will be assigned after the student has successfully defended a degree. Applied Project grades will be assigned after the student has successfully completed and presented the applied project. SESE students should refer to the Academic and Research Performance Evaluations section for more information regarding GPA and letter grade expectations.

Students who are seeking to appeal a grade should refer to The College's [Academic \(Grade\) Grievance procedures](#). Grade appeals should be addressed (by the student) as soon as possible after the grade in question is awarded.

Drop/Add and Withdrawal Deadlines

Registration deadlines determine the last day a student is able to [add, drop or withdraw](#) from classes. Each class has its own set of registration deadlines that are based on the length of the class and the session in which the class is held. The drop/add/withdrawal deadlines listed on the [Academic Calendar](#) apply to classes scheduled in regular A/B/C sessions. If a class does not follow the A/B/C session timelines, the drop/add/withdrawal deadlines are prorated. The best way for a student to determine the registration deadlines for a class in which they are already registered is to sign in to My ASU and click on the calendar icon next to the class in the My Classes box. To determine the registration deadlines for a class in which they are not yet registered, students should use the online [Class Search](#) to find the class and click on the Dates column in the search results.

Medical/Compassionate Withdrawal

If a student experiences a serious illness, injury, or other significant personal situation that prevents progress in classes or research, and the standard withdrawal options are not appropriate for the situation, the student may request a [medical/compassionate withdrawal](#). All applications for the medical/compassionate withdrawal require thorough and credible documentation and must be approved by The College's Dean's Office. The student must complete all of the required steps in order to be considered for a medical/compassionate withdrawal. Students can contact the Graduate Coordinator if they have specific questions about the medical/compassionate withdrawal option.

Voluntary Withdrawal

Students may voluntarily withdraw from a specific degree program or from ASU at any time. Students who wish to withdraw should submit a [voluntary complete withdrawal form](#) to Graduate

Admission Services. Submission of this form will not withdraw students from course(s) for any semester. Students may choose to complete the course(s) in which they are currently enrolled. If a student needs to withdraw from course(s) currently in progress or course(s) in the upcoming semester, the student should contact the Registrar's Office.

Registration Procedure for Fulton Engineering Courses

Students in the Exploration Systems Design PhD program and possibly in other programs will likely take several courses offered by the Ira A. Fulton Schools of Engineering. These courses are often reserved solely for engineering graduate students. To receive permission to register for reserved engineering courses, ESD students need to complete the following steps:

- Communicate with the instructor of the course to ensure the student is qualified to take the course.
- Email the instructor's permission to the SESE Graduate Coordinator.

The Graduate Coordinator will work with the Fulton Schools of Engineering to request a course permission override on behalf of the student. Although most override requests are approved, they are not guaranteed and will not be granted for courses that are full at the time the request is made.

Interactive Plan of Study

The [Interactive Plan of Study \(iPOS\)](#) functions as an agreement between the student, the academic unit and the Graduate College. The iPOS is an official academic plan for the student that maps the requirements for degree completion. It includes coursework, the student's Thesis/Dissertation Supervisory Committee and any additional milestones.

Pre-admission/Transfer Credits

Graduate-level credits taken at ASU or another accredited institution prior to admission to the SESE graduate degree program are considered pre-admission credits (these are the same as transfer credits). Graduate students may include a maximum of 12 semester hours of pre-admission credit toward an iPOS with approval from the student's advisor. Such courses must be acceptable for inclusion in graduate degree programs at that institution. Pre-admission courses must have been taken within three years of admission to the ASU degree program. Only graduate-level courses with a grade of "B" or higher that were not used toward a previous degree may be eligible to apply toward the current degree program. See the [Graduate College guidelines](#) for more details regarding pre-admission credits (refer to ASU pre-admission section under graduate degree requirements section).

Filing the Program of Study

The student is expected to meet with their Supervisory Committee shortly after its appointment to formulate and approve their iPOS. PhD students should submit the iPOS at least one semester before their comprehensive examination. MS or MNS students should submit an iPOS by the end of their second semester. It is the student's responsibility to submit and/or update an

iPOS (found in the “My Programs” section of My ASU) as necessary and to include the iPOS requirements as noted in this guidebook depending on their degree. The student must turn in an iPOS signed by their advisor, electronically or in hard copy, to the Graduate Coordinator for approval by the Associate Director for Graduate Initiatives. The iPOS will be forwarded to the Graduate College for final approval. Final approval of the iPOS by the Graduate College confirms the approval of the coursework toward degree requirements and the appointment of the Thesis/Applied Project/Dissertation Supervisory Committee (note supervisory committees must be formulated according to Graduate Faculty eligibility in the degree program).

iPOS coursework requirements for the MS/MNS and PhD degrees will be listed in upcoming sections. The iPOS coursework and/or Supervisory Committee may need to be updated as the student advances toward completion of their studies. PhD students must have an approved iPOS on file before taking comprehensive oral exams. It is the student’s responsibility to ensure that the information on the iPOS is accurate before the student schedules their defense. Students must notify the Graduate Coordinator when any changes are made to the iPOS.

Academic and Research Performance Evaluations

A graduate student is considered to be performing satisfactorily when:

- Student maintains a “B” average (3.0 GPA) or better in graduate coursework approved by the Graduate Oversight Committee or the student’s Supervisory Committee, excluding research, thesis or dissertation credits. The minimum must be maintained on all GPA’s: Plan of Study (iPOS) GPA, Overall Graduate GPA, and Cumulative GPA:
 - The iPOS GPA is calculated on all courses that appear on the student’s approved iPOS (with the exception of LAW and Transfer credits).
 - Cumulative ASU GPA represents all courses completed at ASU during the graduate career. Students have a “career” for each admission (degree or non-degree). The cumulative GPA is the GPA within each “career”.
 - The Overall Graduate GPA is based on all courses numbered 500 or higher that appear on the transcript after admission (degree or non-degree). This includes shared coursework if in an approved accelerated bachelor’s/master’s program. Students can find all three GPAs in the ‘Programs’ tab under the ‘My Programs’ section of My ASU.
- Student research is progressing satisfactorily as determined through the annual report process.
- The performance of duties related to any appointment the student may hold (e.g., teaching or research assistantship) is satisfactory. Students in a TA position will be evaluated by the instructor of the assigned course(s). Students in an RA position will be evaluated by the faculty member funding the assistantship. Expectations for the TA or RA position will be set by the faculty member and the student should follow up with the faculty member to define the expectations.
- Requirements and responsibilities (outlined in the following sections) for examinations, technical reviews, and defense of thesis or dissertation are completed within the allowed time period.

Annual Review

The SESE Graduate Oversight Committee reviews the progress of all graduate students annually. All students with one or more semesters completed are required to submit an annual report. The following materials are due to the Graduate Oversight Committee by October 15 as one single PDF document (details of the submission process will be sent in advance of the due date):

- The PhD/MS annual report form (found at the end of this document) signed by the thesis/applied project/dissertation advisor. Signatures may be obtained by scanning a signed hard copy, by using electronic signatures, or coordinating an email indicating approval by the advisor (this is *not* the preferred method of signature).
- A 1-2 page narrative progress report outlining thesis/applied project/dissertation progress over the past year in terms of research, classes, workshops, conferences, etc.
- An updated CV, including references for all research meeting abstracts, as well as publications in print, in press, or in preparation.
- A memo from the Supervisory Committee summarizing the meeting.

The student must meet with their Supervisory Committee (with as many members as possible in attendance; virtual presence is permitted) for an annual review of academic progress before the report is due on October 15. The Supervisory Committee will write a memo to the Graduate Oversight Committee and the student summarizing the meeting. Note, the student is not to generate this memo – it must be generated by the Supervisory Committee. The student will include this memo in the single PDF that is submitted by October 15. Students who conducted a technical review or comprehensive examination between March 1 and November 30 of the annual report year do not need to hold an additional meeting, *but they are still responsible for turning in an annual report*. These students must include the memo from the technical review or comprehensive examination in place of the Supervisory Committee meeting memo. In the case of students who are advanced to candidacy, the report should include the members of the Dissertation Supervisory Committee. This memo should be combined into a single PDF with the other required annual report materials. Students who defended their thesis, completed an applied project, or dissertation during the annual period are exempt from submitting an annual report.

The due date of annual reports is a fixed annual date and students must plan and schedule their meetings accordingly (i.e., early in the Fall semester). SESE will not allow extensions for annual reports except under extenuating circumstances. Failure to submit an annual report will result in a meeting with the Associate Director for Graduate Initiatives to discuss the student's progress in more detail; failure to submit an annual report may also result in loss of office space, low priority for funding, or termination from the graduate program.

End of Semester GPA Review

The Graduate College requires all degree-seeking graduate students to maintain a 3.0 GPA in order to be in good academic standing. Graduate students who do not meet these GPA requirements will be put on academic probation.

At the end of each semester, SESE will conduct a review of graduate student GPAs. The purpose of this review is to identify students who do not meet the minimum GPA requirements set forth by the Graduate College. Students will receive an academic probation letter if any of their GPAs fall below the minimum requirements.

Students who are on academic probation will not be allowed to complete any academic milestones until their GPAs meet the minimum requirements. These milestones include, but are not limited to: completion and presentation of applied projects, comprehensive exams, technical reviews, defenses and graduation.

Continuing academic probation beyond three semesters for PhD students or two semesters for MS students may result in loss of office space, low priority for funding, or termination from the graduate program.

Students with an approved iPOS can verify their GPAs in the 'My Programs' section of My ASU.

Satisfactory Academic Progress

Satisfactory academic progress is evaluated through both the annual report process and end of semester GPA review. During the annual review process, the Graduate Oversight Committee will review all reports and submit recommendations to the Associate Director for Graduate Initiatives for consideration. Students with situations of concern will receive a detailed letter addressing the concerns. For a student whose performance is deemed unsatisfactory, the following actions may be proposed to the Associate Director for Graduate Initiatives:

- Recommendation of dismissal from the graduate program at the end of the semester in which the student is currently enrolled.
- Transfer of a PhD student to the MS graduate program.
- Probationary continuation of enrollment in the graduate program. Following a meeting with the Associate Director for Graduate Initiatives, the student will be given a specific set of requirements to achieve in a specified period of time. The requirements and timeline will be documented in a memo and kept in the student's file. Failure to meet these requirements will result in one of the two recommendations above.

Copies of letters recommending probation, suspension, or dismissal will be forwarded to the dean of the Graduate College. The student may appeal in writing to the Associate Director for Graduate Initiatives if they feel there are extenuating circumstances that should be considered. Unsatisfactory performances in research, academics, and/or assistantship assignments are grounds for discontinuation of financial support from the School of Earth and Space Exploration.

Academic Integrity and Student Code of Conduct

The highest standards of [academic integrity](#) and compliance with the university's [Student Code of Conduct](#) are expected of all graduate students in academic coursework and research activities. The failure of any graduate student to uphold these standards may result in serious consequences including suspension or expulsion from the university and/or other sanctions as specified in the academic integrity policies of individual colleges as well as the university.

Violations of academic integrity include, but are not limited to: cheating, fabrication of data, tampering, plagiarism, or aiding and/or facilitating such activities. At the graduate level, it is expected that students are familiar with these issues and that students assume personal responsibility in their work.

Allegations of academic dishonesty or violations of Student Code of Conduct will be reviewed by the Graduate Oversight Committee who will decide on the appropriate actions. This may include reporting the student to the appropriate ASU administrations and may result in a recommendation of dismissal from the program.

Petitions

A formal request for an exception to any SESE policy requires a written request via email from the student's faculty advisor to the SESE Associate Director of Graduate Initiatives and copied to the SESE Graduate Coordinator. The email should include the details of the request along with the justification for the exception. In the case of extension requests, a proposed timeline is also required.

REQUIREMENTS FOR THE MS DEGREE

Given the broad range of expertise necessary for the diverse research topics under study in the School of Earth and Space Exploration, no single prescription for achievement of breadth can be defined. Therefore, the onus is on the advisor and the Thesis Supervisory Committee, as well as the student, to ensure not only that the specific knowledge and skills necessary for the degree are gained, but also that the value of educational and experiential breadth in the long-term interest of the student is considered.

Students admitted with an undergraduate degree that is not in a field related to their SESE graduate degree may be required by the Graduate Oversight Committee or their research advisor to take additional courses to complete their background. All required course work must be completed before the student can hold a thesis technical review.

Course Requirements for MS

The student will complete at least thirty (30) semester hours of graduate coursework credit. At ASU, graduate courses are defined as courses numbered 500 or greater, but up to 6 credit hours of 400 level classes may be included with the approval of the research advisor, the Associate Director for Graduate Initiatives and the Graduate College. Twenty (20) hours or more will consist of formal coursework other than research and thesis. This coursework should be designed to serve the individual needs of the student, with due attention to breadth and depth of development. Seminars with the same topic will only count once toward formal coursework requirements. A cumulative average GPA of 3.0 or better must be maintained at all times in graduate coursework approved by the Graduate Oversight Committee or the student's Supervisory Committee, excluding research and thesis credits. The following courses are required of students seeking an MS degree in SESE:

- SES 502 Exploring SESE Research During the first fall semester in residence for fall admits, all graduate students are required to take this one-hour seminar devoted to a series of talks by ASU faculty on their current research. Students starting in the spring semester will take this course in the first fall semester of their program.
- SES 501 SESE Colloquium All graduate students are required to take at least one semester of the SESE colloquium.
- SES 592 Research Most students will register for research hours during semesters in which they are actively engaged in research. There is no credit requirement for research hours. Students who are TA/RA's often use research hours to meet the minimum registration requirement for tuition remission and health insurance benefits. Students should consult with the faculty advisor on how many credit hours of research, if any, should be taken in a given semester.
- SES 599 Thesis During their course of study, students must complete exactly six (6) thesis credit hours that involve the preparation of a written thesis on an original research topic. The thesis will be defended in a final oral examination.

Students in the MS Astrophysics and Astronomy program are required to take a series of AST courses. These courses provide graduate training in the major fields of astrophysics. A student involved in interdisciplinary research may petition the Graduate Oversight Committee to be excused from any of the courses that may not be applicable to the research topic of the student. The required courses for students in the MS Astrophysics and Astronomy include:

- AST 521 Stars and Interstellar Medium I
- AST 522 Stars and Interstellar Medium II
- AST 523 Stars and Interstellar Medium III
- AST 531 Galaxies and Cosmology I
- AST 532 Galaxies and Cosmology II
- AST 533 Galaxies and Cosmology III
- AST 591 Astrophysics Seminar

Course substitutions must be requested by the student's faculty advisor through an email to the Associate Director for Graduate Initiatives. The email must include the course substitution details and a relevant justification for the exception.

Time to Degree Limit for MS

The time that a student will spend in graduate school varies considerably, depending on a number of factors such as background preparation and the nature of the research. A student with a B.S. or B.A. degree should reasonably expect to complete the requirements for the MS degree within three calendar years.

The Graduate College requires that a master's degree must be completed within a maximum of six (6) consecutive years. The six-year period begins with the semester and year of admission to the program. Any exception to this timeline must be approved by the student's Supervisory Committee, the Graduate Oversight Committee, the Associate Director for Graduate Initiatives,

and the Graduate College. To submit this request, students must submit a time extension petition through their iPOS. The student must also send their advisor's approval to the Graduate Coordinator at the time the petition is submitted. Final approval of this petition may involve a repeat of the technical review. A recommended timeline for the MS degree is at the end of this guidebook.

Thesis Technical Review

When the student and the faculty advisor decide that the major research results are near completion, the student will convene his or her Thesis Supervisory Committee for an in-person technical review of the research results. The objective of the technical review is to:

- Allow the Supervisory Committee to establish whether an appropriate research project has been carried out and that the results are sufficiently sound to warrant completion and defense of a thesis.
- Ensure that the student receives substantive feedback from the entire Supervisory Committee well in advance of the thesis defense.
- Identify any technical problems with analyses done or any additional analyses that need to be completed.
- Advise the student on how best to present their material at the defense.

The technical review for an MS degree must be held at least 3 months in advance of the desired final defense date in order to accommodate any recommendations that emerge from the technical review. Requests for a shorter time interval between the technical review and final defense must be requested by the student's faculty advisor and approved by the Associate Director of Graduate Initiatives. The student is urged to schedule the technical review as soon as possible after the major research results are available in order to ensure the advisor, student, and Supervisory Committee are in agreement that an appropriate research effort will be completed. A majority of the Supervisory Committee must be physically present for the technical review. If a majority is not available to be present in person, the technical review must be rescheduled. Other committee members not available in person may attend via either teleconference or videoconference. If any members are unable to participate in the tech review, the student's advisor should submit a petition the Associate Director of Graduate Initiatives for an exception for them to be absent. If approved, the student will be required to have a separate tech review with the absent member.

The student will provide an extended abstract and an outline of the thesis research to the Supervisory Committee at least one week before the review. The technical review shall consist of an oral presentation of results and appropriate interpretations. This is typically a 30-minute seminar-type presentation followed by discussion of progress to date and future work needed for a successful thesis defense. Technical reviews typically last between 2 and 3 hours. The student and research advisor will work together to help the student understand the purpose and flow of the technical review process. Further, the research advisor should work with the student to ensure that the content of the presentation is appropriate for a technical review.

At the conclusion of the technical review, the Supervisory Committee will indicate any concerns regarding the thesis research. The committee members may identify specific areas that need further investigation and/or consideration. The manner in which the student subsequently addresses these areas is subject to evaluation at the thesis defense. These comments will be transmitted to the student via a detailed memo from the student's advisor. The memo should note the committee members present, the manner of participation for each committee member (i.e., in-person, virtual, etc.), the outcome of the technical review and any action items that must be completed for the defense. A copy of the memo (electronic or hard copy) should be given to the Graduate Coordinator after the technical review.

If the thesis is not defended within one year of the technical review, an additional review meeting with the Supervisory Committee may be required. This will be at the discretion of the research advisor. If the topic of a student's thesis changes after the completion of a technical review, a second technical review on the new thesis topic must be performed at the discretion of the research advisor.

Applying for Graduation

Applying for graduation is one of several steps that graduate students must complete as they are nearing degree completion. Students must apply for graduation through MyASU in accordance with the University Registrar policies. See [Apply for Graduation](#). Students must meet all University and [Graduate College degree requirements](#) prior to the conferral of their degree or awarding of their certificate. The graduation deadlines and procedures are set by the Graduate College and are available online at: <https://graduate.asu.edu/current-students/policies-forms-and-deadlines/graduation-deadlines>. Deadline dates vary slightly depending on the calendar year, so students should check them carefully in advance of the semester they plan to defend their thesis/dissertation. It is very important that students become familiar with these deadlines so that graduation can occur during the expected term. Exceptions to these deadlines and procedures will not be considered.

Final Oral Thesis Defense

A final oral defense of the completed thesis is required by the School of Earth and Space Exploration and the Graduate College before a student can graduate. The thesis Supervisory Committee conducts this examination and all members of the Supervisory Committee must be present for the defense. The student and a majority of the committee including research advisor(s) must be physically present. Virtual presence of the remaining committee members may be permitted upon approval of the Graduate Oversight Committee. A thesis defense typically lasts between 2 and 3 hours and begins with a 30-minute seminar-type public presentation by the student. **Students must be active and enrolled in at least one credit during the semester of the defense and the semester of graduation if they are not the same. This includes the summer.**

Scheduling the defense consists of 3 steps: (1) coordinating the defense date and time with the supervisory committee; (2) booking a room for the defense through the SESE staff; and (3) officially scheduling the defense through the Graduate College. When selecting a date, students

must take into account the Graduate College [Ten Day Calendar](#). Students will officially schedule the defense through the 'Defense' tab within the 'My Programs' section of My ASU. Students should verify that all information on their iPOS is accurate prior to scheduling their defense. Late iPOS changes may result in the rescheduling of the defense.

Defense Timeline

No later than the semester of the defense, students should:

- Confirm that the information on the iPOS is current and that all requirements have been met. Students are encouraged to do an iPOS check a few months prior to the anticipated defense to avoid any issues with scheduling the defense.
- Submit an application for graduation via My ASU. This can be found in the 'Graduation' tab embedded in the 'My Programs' section of My ASU.
- Confirm registration of at least one credit during the semester of the defense and the semester of graduation. If the defense is in the summer, the student only needs to enroll in one of the available summer sessions.

A *minimum* of two weeks (ten business days) before the scheduled defense, it is the student's responsibility to:

- Submit a complete copy of the thesis to the Supervisory Committee. The Supervisory Committee needs sufficient time to review the thesis in preparation for the defense. Failure to provide them with two weeks of review time may result in the postponement of the defense.
- Provide pertinent information for the defense announcement to the Graduate Coordinator. Pertinent defense abstract information includes: a title, an abstract, the name of the research advisor(s), the names of the Supervisory Committee members, and the date, time, and location of the defense. Abstracts should be a few paragraphs in length. The full defense announcement should be no more than one page. Once received, the Graduate Coordinator will distribute the announcement to the SESE community.
- Officially schedule the defense with the Graduate College via the 'Defense' tab within the 'My Programs' section of My ASU. Once the defense has been approved, the details of the defense will appear in this area of My ASU. The defense report form will be emailed from the Graduate College to the student's supervisory committee.

A *minimum* of ten calendar days before the scheduled defense, it is the student's responsibility to submit a complete copy of the formatted thesis to the Graduate College for format review.

The day before the defense, the exam committee members will receive the electronic defense form. **As soon as possible after the defense**, preferably the same day, each committee member will indicate the appropriate result (pass or fail) along with their signatures in the 'Examination Results' section of the electronic defense form. The faculty advisor(s) must also write a brief description of revisions that need to be made, if any.

After the defense and within the semester graduation deadlines, students should:

- Complete format revisions of the thesis as required by the Graduate College.
- Complete content revisions of the thesis as documented by the Supervisory Committee at the defense.
- Ensure that their faculty advisor(s) has indicated final approval of the dissertation in the 'Final Approval' section of the electronic defense form.
- Submit final copy of thesis to ProQuest for publication.

Students can view the Graduate College defense procedures and deadlines via the 'Defense' tab within the 'My Programs' section of their My ASU homepage or they can view them on the [Graduate College website](#).

REQUIREMENTS FOR THE MNS DEGREE

Students are recommended for admission by the faculty member(s) who are willing to serve as their applied project advisor pending satisfactory academic progress being met. Students are expected to identify and confirm who has agreed to be their applied project advisor by the middle of their second semester. If a student needs to change advisors, it is the responsibility of the student to: 1) notify the current advisor and graduate oversight committee of their intent to change advisors and 2) identify the new faculty advisor who has agreed to serve as their applied project advisor. Co-advisors and co-chairs are allowed. The student must identify a faculty member (job titles are Assistant Professor, Associate Professor, Professor) of the School of Earth and Space Exploration who is on the approved [Graduate Faculty](#) for their degree program.

Given the broad range of expertise necessary for the diverse research topics under study in the School of Earth and Space Exploration, no single prescription for achievement of breadth can be defined. Therefore, the onus is on both the advisor and the student to ensure not only that the specific knowledge and skills necessary for the degree are gained, but also that the value of educational and experiential breadth in the long-term interest of the student is considered.

Students who are admitted with an undergraduate degree that is not in a field related to their SESE graduate degree may be required by the Graduate Oversight Committee or their applied project advisor to take additional courses to complete their background. All required course work must be completed before the student registers for the applied project course.

Course Requirements for MNS

The student will complete at least thirty (30) semester hours of graduate coursework credit including the applied project. At ASU, graduate courses are defined as courses numbered 500 or greater, but up to 6 credit hours of 400 level classes may be included with the approval of the research advisor, the Associate Director for Graduate Initiatives, and the Graduate College. MNS students are expected to emphasize coursework in two or more areas of specialization. This coursework should be designed to serve the individual needs of the student, with due

attention to breadth and depth of development. Seminars with the same topic will only count once toward formal coursework requirements. A cumulative average GPA of 3.0 or better must be maintained at all times in graduate coursework approved by the Graduate Oversight Committee or the student's applied project advisor. The following courses are required of students seeking an MNS degree in SESE:

- GLG 591 Faculty Research Seminar (now SES 502 Exploring SESE Research) During the first semester in residence for fall admits, all graduate students are required to take this one-hour seminar that is devoted to a series of talks by ASU faculty on their current research. Students starting in the spring semester will take this course in the first fall semester of their program.
- GLG 500 Colloquium (now SES 501 SESE Colloquium) All graduate students are required to take SESE colloquium for at least one semester.
- SES 593 Applied Project During their course of study, MNS students must complete an original applied project. The applied project requirements and expectations are defined by the student's faculty advisor. Students are required to receive a "B" or better in the applied project course in order to graduate. Upon completion of the applied project, students will present their results to their advisor.

Time to Degree Limit for MNS

The time that a student will spend in graduate school varies considerably, depending on a number of factors such as background preparation and the nature of the research. A student with a B.S. or B.A. degree should reasonably expect to complete the requirements for the MNS degree within two calendar years.

The Graduate College requires that a Master's degree must be completed within a maximum of six (6) consecutive years. The six-year period begins with the semester and year of admission to the program. Any exception to this timeline must be approved by the student's applied project advisor, the Graduate Oversight Committee and the Graduate College. To submit this request, students must submit a time extension petition through their iPOS. The student must also send their advisor's approval to the Graduate Coordinator at the time the petition is submitted. A recommended timeline for the MNS degree is at the end of this guidebook.

Applying for Graduation

Applying for graduation is one of several steps that graduate students must complete as they are nearing degree completion. Students must apply for graduation through MyASU in accordance with the University Registrar policies. See [Apply for Graduation](#). Students must meet all University and [Graduate College degree requirements](#) prior to the conferral of their degree or awarding of their certificate. The graduation deadlines and procedures are set by the Graduate College and are available online at: <https://graduate.asu.edu/current-students/policies-forms-and-deadlines/graduation-deadlines>. Deadline dates vary slightly depending on the calendar year, so students should check them carefully in advance of the semester they plan to defend their thesis/dissertation. It is very important that students become familiar with these deadlines so that graduation can occur during the expected term.

Final Presentation of Applied Project

The School of Earth and Space Exploration requires a final presentation of the applied project before students in the MNS can graduate. The student will present the results to the applied project advisor and his/her research group. **Students must be active and enrolled in at least one credit during the semester of the presentation and the semester of graduation if they are not the same. This includes the summer.**

Scheduling the presentation consists of: 1) coordinating the presentation date and time with the applied project advisor and (2) booking a room through the SESE staff. Students should apply for graduation via MyASU and verify that all information on their iPOS is accurate prior to scheduling their final presentation.

REQUIREMENTS FOR THE PHD DEGREE

Given the broad range of expertise necessary for the diverse research topics under study in SESE, no single prescription for achievement of breadth from SESE can be defined. Therefore, the onus is on the advisor and the student, to ensure not only that the specific knowledge and skills necessary for the degree are gained, but also that the value of educational and experiential breadth in the long-term interest of the student is considered.

Students who are admitted with an undergraduate degree or MS that is not in a field related to their SESE graduate degree may be required by the Graduate Oversight Committee or their dissertation advisor to take additional courses to complete their background. All required course work must be completed before the student can hold a dissertation technical review.

Course Requirements for PhD

The student will complete at least eighty-four (84) credit hours of graduate credit. At ASU, graduate courses are defined as courses numbered 500 level or greater; up to 6 credit hours of 400 level classes may be included with the approval of the research advisor, the Associate Director for Graduate Initiatives, and the Graduate College. A maximum of 30 credits from a previously awarded MS degree can be applied toward this requirement. Students applying courses from a previously awarded M.S degree toward their PhD program are required to take a minimum of 12 credits of coursework at ASU.

At least 25 hours of this total will consist of formal coursework other than research and dissertation. The courses chosen should serve the individual needs of the student, with due attention to breadth and depth of development. Seminars with the same topic will only count once toward formal coursework requirements. Coursework from a previously awarded MS degree may count towards these 25 credits. A cumulative average GPA of 3.0 or better must be maintained at all times in graduate coursework approved by the Graduate Oversight Committee or the student's Supervisory Committee, excluding research and dissertation credits. The following courses are required of all students seeking a PhD degree in SESE:

- SES 502 Exploring SESE Research During the first semester in residence for fall admits, all graduate students are required to take this one-hour seminar that is devoted to a weekly series of talks by ASU faculty on their current research. Students starting in the spring semester will take this course in the first fall semester of their program.
- SES 501 SESE Colloquium All graduate students are required to take the SESE colloquium for at least one semester.
- SES 692 or 792 Research Most students will register for research hours during semesters they are actively engaged in research. There is no credit requirement for research hours. Students who are TA/RA's often use research hours to meet the minimum registration requirement. PhD students who wish to seek a Masters in Passing (MIP, see below) should take SES 692 for research until the MIP is completed. All other PhD students, such as those who already have an MS or those who will not seek an MIP, should register for SES 792 for research. Students should consult with the faculty advisor on how many credit hours of research, if any, should be taken in a given semester.
- SES 799 Dissertation During their course of study, students must complete exactly 12 hours of dissertation that involve the preparation of a written dissertation on an original research topic. Students must be advanced to candidacy before registering for dissertation hours (i.e., the semesters following the oral comprehensive examination).

Students in the PhD Astrophysics program are required to take a series of AST courses. These courses provide graduate training in the major fields of astrophysics. A student involved in interdisciplinary research may petition the Graduate Oversight Committee to be excused from any of the courses that may not be applicable to the research topic of the student. Students who have already taken equivalent courses as part of a related MS degree may petition the Graduate Oversight Committee to be excused from related courses. The required courses for students in the Astrophysics PhD include:

- AST 521 Stars and Interstellar Medium I
- AST 522 Stars and Interstellar Medium II
- AST 523 Stars and Interstellar Medium III
- AST 531 Galaxies and Cosmology I
- AST 532 Galaxies and Cosmology II
- AST 533 Galaxies and Cosmology III
- AST 591 Astrophysics Seminar

Students in the PhD Exploration Systems Design program are required to take a series of courses based on their chosen concentration:

Instrumentation students must take 3 of the following 6 courses (9 credit hours):

- EEE 425/591 Digital Systems and Circuits
- EEE 433/591 Analog Integrated Circuits
- EEE 481/591 Computer Controlled Systems
- EEE 523 Advanced Analog Integrated Circuits

- EEE 527 Analog to Digital Converters
- EEE 539 Introduction to Solid State Electronics

Sensor Networks students must take 3 of the following 6 courses (9 credit hours):

- CSE 534 Advanced Computer Networks
- CSE 535 Mobile Computing
- CEE 581 Advanced Earth Systems Engineering and Management
- EEE 507 Multidimensional Signal Processing
- EEE 551 Information Theory
- EEE 554 Random Signal Theory

Systems Engineering students must take 3 of the following 8 courses (9 credit hours):

- CSE 571 Artificial Intelligence
- CSE 574 Planning and Learning Methods
- IEE 547 Human Factors Engineering
- IEE 552 Strategic Technological Planning
- IEE 572 Design Engineering Experiments
- IEE 573 Reliability Engineering
- MAE 525 Mechanics of Smart Materials and Structures
- MAE 547 Modeling and Control of Robots

In addition, Exploration Systems Design students must take two elective science courses (6 credit hours total) from among AST, SES, or GLG topics. The student's research advisor must approve these courses.

Required ESD courses offered through the Fulton Schools of Engineering may require instructor permission or course permission overrides for registration. See page 10 of this document for information about registering for Engineering courses.

These courses and electives will be applied toward the 25 credit hours of coursework required for the degree.

Course substitutions must be requested by the student's faculty advisor through an email to the Associate Director for Graduate Initiatives. The email must include the course substitution details and a relevant justification for the exception.

Time to Degree Limit for PhD

The time that a student will spend in graduate school varies considerably, depending on a number of factors such as background preparation and the nature of the research. SESE students should reasonably expect to complete the requirements for the PhD degree within five calendar years.

The Graduate College requires doctoral students to complete all program requirements within a ten-year period. The ten-year period begins with the semester and year of admission to the

doctoral program. Any exception to this timeline must be approved by the student's Supervisory Committee, the Graduate Oversight Committee and the Graduate College. To submit this request, students must submit a time extension petition through their iPOS. The student must also send their advisor's approval to the Graduate Coordinator at the time the petition is submitted. Final approval of this petition may involve the repetition of a technical review. A recommended timeline for the PhD degree is at the end of this guidebook.

Demonstration of Competence in Comprehensive Examination

The process of qualifying for PhD candidacy serves three purposes:

- To assess in a timely manner the suitability of a student to continue working toward a PhD
- To broaden students' scientific vision before they focus on the details of their dissertation research.
- To better prepare students for the process of doing scientific research.

PhD candidacy will be earned on the basis of a written component and an oral component. The written portion of the comprehensive exam will be in the form of two written research project reports. The oral portion of the comprehensive exam will consist of an oral defense of the two project reports.

Fall admits are expected to take comprehensive exams in their 4th semester and spring admits are expected to take comprehensive exams in their 5th semester. All PhD students are expected to begin working on comprehensive exam project development as soon as possible, regardless of their timeline.

Project Selection and Preparation for Exams

The two projects must be carried out with two different primary faculty advisors and the student must also identify secondary advisors for each project. These primary and secondary advisors must be members of the [SESE Graduate Faculty](#) *who are authorized to chair or co-chair Supervisory Committees*. The secondary advisor should be a faculty member or academic professional working in a related field. This secondary advisor will provide an independent check on the suitability of the work for a student project, and agree to be available to discuss the project with the student during the course of the research.

Students should consider the following in regards to the selection of their project topics:

- Students admitted with an MS degree may, upon successful petition to the Graduate Oversight Committee, base one of their projects on work related to their MS thesis.
- It is expected that at least one of the two projects will lead to the research the student intends to pursue as a significant component of their dissertation research.
- Presentation of both projects must include, at the very least, some preliminary research results (e.g., new data, results of model runs, or new analysis of data, etc.). Significant progress on both projects is expected.

- The two projects must utilize substantially different methodologies and involve work in substantially different fields.
- At least one of the projects should be experimental or observational (i.e., “hands on”) in nature.
- Project titles, primary and secondary advisor names, a 1 paragraph abstract summarizing each project, and a short description of how the projects are different must be submitted to the Graduate Oversight Committee for approval by March 1 of the 2nd semester in residence for fall admits, or the 3rd semester in residence for spring admits. Each submitted title/abstract must carry the signature of the primary advisor for that project. Submission instructions will be communicated to students prior to the deadline.
- For ESD PhD students, one project must have an engineering focus with a system or component design as a primary subject. The other project must have a science focus.

Proposed projects will be reviewed for appropriateness and sufficient breadth by the Graduate Oversight Committee. Pairs of projects judged to be too similar will be returned to the student for refinement. The idea of sufficient breadth is central to the PhD program in the School of Earth and Space Exploration. This breadth requirement helps to ensure that SESE PhD graduates are capable of achievement throughout the wide range of activities that will ensue during their professional careers. Demonstration of breadth is in the long-term interest of the student and should not be avoided for short term efficiency. The projects will be separated at least:

- by topics in different fields represented by SESE
- with different tools of inquiry (for instance, observational and theoretical)
- by collaborations with different advisors

Project Format and Scope

A complete draft of project reports will be submitted to the Graduate Oversight Committee for approval by March 1 of the 4th semester in residence for fall admits or the 5th semester in residence for spring admits. Each submitted report must be approved by the primary advisor for that project, either via a signature on a hard copy of the report, and electronic signature, or via an email that is attached to the document prior to submission. Submission instructions will be communicated to students prior to the deadline. Failure to submit signed reports for the two projects will result in a meeting with the Graduate Oversight Committee. Students should consider the following in preparing their project reports:

- At least one of the two project reports will be written and formatted following the style of a manuscript being submitted to a major professional journal in the field relevant to the research.
- The second project report may be written up in the style of a manuscript (noted above) or as a research proposal following the style of a funding agency (e.g., NSF, NASA, DOE, etc.) that includes the project results to date and their relationship to the proposed future work. Note, details such as a budget, CV, funding history, etc., which are

necessary for a proposal to a funding program, are not a necessary component of the project report; *the presentation of results are essential*.

- The reports should be detailed and concise. The length of text should be a minimum of 5 pages and no longer than 10 pages, with figures, tables and references in addition to this length. The report should be single-spaced with 12-point font. It must include an abstract, sufficient background material that demonstrates familiarity with the subject, relevant equations and figures, a discussion of the work completed to date, a description of the work necessary to complete the project, and references.
- When submitted to the Graduate Oversight Committee on March 1, each project report should be a complete draft. Significant additional progress should occur on the documents up through the date of the exam.
- The final versions of the two written project reports must be submitted to the student's Comprehensive Exam Committee *at least* two weeks in advance of the oral portion of the comprehensive examination. Failure to do so may result in the rescheduling of the exam.
- Work on both of the projects should consume a substantial portion of the student's effort during the 2 years prior to the oral examination. Students will normally be expected to register for 3 hours of research in addition to courses (maximum of 12 hours total) in their 2nd and 3rd semesters to allow them to focus on their projects.
- It is expected that one of the two projects will lead to a student's PhD dissertation research. To as great a degree as possible, given realities of funding and other considerations, the second project (the one that does not become the PhD research subject) should be of the student's own design and carried out in as independent a fashion as possible, in coordination with the primary and secondary advisor.

At the time of project report submission and in preparation for candidacy exams, each student is responsible for confirming they have a current, approved Program of Study (iPOS) filed with the Graduate College. Per Graduate College requirements, students who do not have a current and approved iPOS before the time of their comprehensive exam will either not be allowed to take their exam, or the exam itself could be nullified.

The Graduate Oversight Committee will review the draft exam documents for compliance. Unless notified of an issue by the oversight committee, students should expect to take their comprehensive examination between April 1st and the last day of classes of spring semester. Students should refer to the [academic calendar](#) for specific dates pertaining to each semester and begin the process of scheduling their examinations at the beginning of Spring semester. In extenuating circumstances (requiring written appeal to the Graduate Oversight Committee), the comprehensive exam may be taken in the following fall semester (i.e., the 5th semester in residence) for fall admits, or the 6th semester in residence for spring admits. Exams should not be scheduled during the summer unless the student has received permission from the Associate Director for Graduate Initiatives.

Students must be enrolled in at least one credit hour during the semester of the comprehensive exam, including the summer term which begins the day after spring commencement/degree conferral. It is the responsibility of the student to confirm registration requirements and

deadlines. It is the responsibility of the student's faculty advisor to obtain the necessary comprehensive exam paperwork from the Graduate Coordinator prior to the exam date.

Salary increases for candidacy advancement are effective in the fall or spring semester after the student passes his/her orals. Students should work directly with the Graduate Coordinator after passing exams to ensure that advancement to candidacy occurs in a timely manner.

Composition of the Comprehensive Exam Committee

The five members of the Comprehensive Exam Committee will consist of the primary faculty advisors for each of the 2 projects, the secondary advisors for both projects, and a fifth member appointed by the Graduate Oversight Committee. All members of the Comprehensive Exam Committee must be physically present for the exams. An exam committee member who is not one of the student's two primary advisors on the two projects shall chair the Comprehensive Examination Committee. *All members of the Comprehensive Exam Committee must be approved to chair or co-chair SESE supervisory committees (see [Graduate Faculty list](#)).* External supervisory committee members who are not on the Graduate Faculty may not participate in comprehensive examinations. It is the student's responsibility to ensure that the Comprehensive Examination Committee members are authorized to serve on the exam.

Structure of Comprehensive Examination

- Following the review of the project reports by the Graduate Oversight Committee, the reports must be submitted to the Comprehensive Exam Committee at least two weeks before the oral portion of the comprehensive examination or the exam may be rescheduled.
- In the exam, the student will present a 10-minute overview of each project report. A typical exam will consist of (in order):
 1. The presentation by the student of the 1st report
 2. Questions from the exam committee regarding the 1st report and related topics
 3. Presentation by the student of the 2nd report
 4. Questions from the exam committee regarding the 2nd report and related topics
 5. Final questions from the exam committee.
 6. The total length of the examination of the student should not exceed 3 hours.
- The Comprehensive Examination Committee will approach review of the projects as they would the review of a paper or research proposal, and the student will be expected to defend the projects at that level. This includes an ability on the part of the student to discuss the scientific underpinnings of the work being presented.
- Topics discussed during the exam should not be limited to formal coursework taken by the student. In its assessment, however, the Comprehensive Examination Committee will be cognizant of the formal training of the student.

Evaluation of Comprehensive Examination

An examination committee member who is not one of the student's two primary advisors on the two projects shall chair the Comprehensive Examination Committee. Immediately following the

examination, the members of the committee will discuss the student's performance and each will complete a PhD Comprehensive Exam Evaluation. The results of the exam are reported by each member on a SESE PhD Comprehensive Exam Report form. The chair of the committee will tally numerical scores (on a 0 to 5 scale) assigned by each committee member to determine an average score. These results will be reported on the chairperson copy of the SESE PhD Comprehensive Exam Report form. The chair of the committee will prepare a memorandum with committee input and review summarizing the exam outcome. The memo will be emailed to the student and copied to the exam committee and Graduate Coordinator. The exam chair will also return the completed evaluation forms to the Graduate Coordinator. Based on the value of the average score, the following recommendations may be made by the Comprehensive Examination Committee:

- Pass (score of 5.0 – 3.5): The student is recommended for admission to candidacy for the PhD degree.
- Deferred Decision (score of 3.4 – 2.5): The examination committee may find that the examination is not satisfactory because of deficiencies in project reports, exam preparation, or background knowledge. In the case of a deferred decision, the committee will discuss the deficiencies with the student and specify conditions for continuation in the PhD program, if they determine it is appropriate. This discussion will be reflected in the exam evaluation documentation and memorandum. The committee will require one of the following:
 - Continuation of exam The examination may be continued following additional preparation by the student. In most cases, the student should complete the exam within 6 months of the initial exam date, but additional time may be specified by the examination committee. Only one deferred decision is allowed.
 - Other Conditions The examination committee may require coursework, completion or presentation of a project or projects, or other actions to rectify the student's deficiencies. The conditions will be specified on the Comprehensive Exam Report along with a date by which the specified actions must be completed.
 - Transfer to the MS degree program For students who do not already hold an MS degree, the examination committee may require that the student complete an MS degree before attempting to advance to candidacy in the PhD program. After completion of the MS degree, the student must apply for admission to the PhD program. If re-admitted to the PhD program, the student begins with a "clean slate" with respect to the comprehensive exam.
- Fail: Option to Retake (score of 2.4 – 1.5): The examination committee may find that the examination is not satisfactory because of deficiencies in the project reports, exam preparation, or background knowledge. In the case of a conditional fail, the committee will discuss the deficiencies with the student and specify conditions for continuation in the PhD program, if they determine it is appropriate. This discussion will be reflected in the exam evaluation documentation. The committee will require one of the following:
 - Re-examination The examination may be retaken after close consultation with the members of the examination committee, and with approval of the SESE

Associate Director for Graduate Initiatives and the Dean of the Graduate College. The Graduate College requires that the re-examination take place no sooner than 3 months and no later than 1 year from the date of the original examination. Only one re-examination is permitted. The examination committee will inform the student of the requirements of the second examination, but in general the student should follow the same procedure as for the first examination.

- Transfer to the MS degree program For students who do not already hold an MS degree, the examination committee may require that the student complete an MS degree before attempting to advance to candidacy in the PhD program. After completion of the MS degree, the student must apply for admission to the PhD program. If re-admitted to the PhD program, the student begins with a “clean slate” with respect to the comprehensive exam.
- Fail (score of less than 1.5 on the first examination or less than 3.5 on the second examination): Students may be failed without opportunity for re-examination. For students who do not already hold a MS degree, a MS degree may be recommended, including all of the pertinent degree requirements to be completed. Funding support for the student may be withdrawn at the end of the semester during which the exam was failed. Students will be notified in writing if funding is terminated.

Research

The faculty emphasizes that the basic requirement for the PhD degree is that the candidate demonstrate the capacity for independent, original research. Students are encouraged to begin their professional careers in science early by preparing their PhD research for publication in refereed journals, and to view such activity as part of the preparation of their dissertations. Students are encouraged to prepare their dissertations in a manner that permits individual chapters to be submitted (or potentially already published) as individual journal articles.

Dissertation Technical Review

When the student and the faculty advisor decide that the major research results are near completion, the student will convene his or her Supervisory Committee for an in-person technical review of the research results. The objective of the technical review is to:

- Allow the Supervisory Committee to establish whether appropriate research has been carried out and that the results are sufficiently sound to warrant completion and defense of a dissertation.
- Ensure that the student receives substantive feedback from the entire Supervisory Committee well in advance of the dissertation defense.
- Identify any technical problems with analyses done or any additional analyses that need to be completed.
- Advise the student on how best to present their material at the defense.

The technical review for a PhD must be held at least 6 months in advance of the desired final defense date in order to accommodate any recommendations that emerge from the technical review. Requests for a shorter time interval between the technical review and final defense must

be requested by the student's faculty advisor and approved by the Associate Director of Graduate Initiatives. The student is urged to schedule the technical review as soon as possible after the major research results are available in order to ensure that advisor, student, and Supervisory Committee all agree that an appropriate research effort will be completed. A majority of the Supervisory Committee must be physically present in person for the technical review. If a majority is not available to be present in person, the technical review must be rescheduled. Committee members not available in person should attend via teleconference or videoconference. If any members are unable to participate in the tech review, the student's advisor should submit a petition the Associate Director of Graduate Initiatives for an exception for them to be absent. If approved, the student will be required to have a separate tech review with the absent member.

The student will provide an extended abstract and an outline of the dissertation research to the Supervisory Committee at least one week before the review. The technical review shall consist of an oral presentation of results and appropriate interpretations. This is typically a 30-minute seminar-type presentation followed by discussion of progress to date and future work needed for a successful dissertation defense. Technical reviews typically last between 2 and 3 hours. The student and research advisor will work together to help the student understand the purpose and flow of the technical review process. Further, the research advisor should work with the student to ensure that the content of the presentation is appropriate for a technical review.

At the conclusion of the technical review, the Supervisory Committee will indicate any concerns regarding the dissertation research. The committee members may identify specific areas that need further investigation and/or consideration. The manner in which the student subsequently addresses these areas is subject to evaluation at the dissertation defense. These comments will be transmitted to the student via a detailed memo from the student's advisor. The memo should note the outcome of the technical review and any action items that must be completed for the defense. The memo should also indicate the manner of participation for each committee member such as in-person, virtual, etc. A copy of the memo (electronic or hard copy) should be given to the Graduate Coordinator after the technical review.

If the dissertation is not defended within one year of the technical review, an additional review meeting with the Supervisory Committee may be required at the discretion of the advisor. If the topic of a student's dissertation changes after the completion of a technical review, a second technical review on the new dissertation topic may be required at the discretion of the advisor.

Applying for Graduation

Applying for graduation is one of several steps that graduate students must complete as they are nearing degree completion. Students must apply for graduation through MyASU in accordance with the University Registrar policies. See [Apply for Graduation](#). Students must meet all University and [Graduate College degree requirements](#) prior to the conferral of their degree or awarding of their certificate. The graduation deadlines and procedures are set by the Graduate College and are available online at: <https://graduate.asu.edu/current-students/policies-forms-and-deadlines/graduation-deadlines>. Deadline dates vary slightly depending on the calendar year, so students should check them carefully in advance of the

semester they plan to defend their thesis/dissertation. It is very important that students become familiar with these deadlines so that graduation can occur during the expected term.

Final Oral Dissertation Defense

A final oral defense of the completed dissertation is required by the School of Earth and Space Exploration and the Graduate College. The Supervisory Committee conducts this examination and all members of the Supervisory Committee must be present for the defense. The student and the majority of the committee including the research advisor(s) must be physically present. Virtual presence of the remaining committee members may be permitted upon approval of the graduate oversight committee. A dissertation defense typically lasts between 2 and 3 hours and begins with a 30-minute seminar-type public presentation by the student. The completed dissertation must be submitted to the Supervisory Committee at least 2 weeks prior to the examination or the student may be required to reschedule the defense. **Students must be active and enrolled in at least one credit during the semester of the defense and the semester of graduation if they are not the same. This includes the summer.**

Scheduling the defense consists of 3 steps: (1) coordinating the defense date and time with the supervisory committee; (2) booking a room for the defense through the SESE staff; and (3) officially scheduling the defense through the Graduate College. When selecting a date, students must comply with the Graduate College [Ten Day Calendar](#). Students will officially schedule the defense through the 'Defense' tab within the 'My Programs' section of My ASU. Students should verify that all information on their iPOS is accurate prior to scheduling their defense. Late iPOS changes may result in the rescheduling of the defense.

Defense Timeline

No later than the semester of the defense, students should:

- Confirm that the information on the iPOS is current and that all requirements are met, including advancement to candidacy (which should have occurred shortly after the student passed comprehensive exams). Students are encouraged to do an iPOS check a few months prior to the anticipated defense to avoid any issues with scheduling the defense.
- Submit an application for graduation. This will be found in the 'Graduation' tab embedded in the 'My Programs' section of My ASU.
- Confirm registration of at least one credit during the semester of defense and graduation. If the defense is in the summer, the student only needs to enroll in one of the available summer sessions.

A minimum of two weeks (ten business days) before the scheduled defense, it is the student's responsibility to:

- Submit a complete copy of the dissertation to the Supervisory Committee. The Supervisory Committee needs sufficient time to review the dissertation in preparation for

the defense. Failure to provide the document with two weeks of review time may result in the postponement of the defense.

- Provide pertinent information for the defense announcement to the Graduate Coordinator. Pertinent defense abstract information includes a title, an abstract, the name of the research advisor(s), the names of the Supervisory Committee members, and the date, time, and location of the defense. Abstracts should be a few paragraphs in length. The full defense announcement should be no more than one page. Once received the Graduate Coordinator will distribute the announcement to the SESE community.
- Officially schedule the defense with the Graduate College via the 'Defense' tab within the 'My Programs' section of their My ASU. Once the defense has been officially approved, the details of the defense will appear in this area of My ASU. The defense report form will be emailed from the Graduate College to the student's supervisory committee.

A minimum of ten calendar days before the scheduled defense, it is the student's responsibility to submit a complete copy of the formatted dissertation to the Graduate College for format review.

The day before the defense, the exam committee members will receive the electronic defense form. **As soon as possible after the defense**, preferably the same day, each committee member will indicate the appropriate level of pass or fail along with their signatures in the 'Examination Results' section of the electronic defense form. The faculty advisor(s) must also write a brief description of revisions that need to be made, if any.

After the defense and within the semester graduation deadlines, students should:

- Complete format revisions of the dissertation as required by the Graduate College.
- Complete content revisions of the dissertation as documented by the Supervisory Committee at the defense.
- Ensure that their faculty advisor(s) has indicated final approval of the dissertation in the 'Final Approval' section of the electronic defense form.
- Submit final copy of dissertation to ProQuest for publication.

Students can view the Graduate College defense procedures and deadlines via the 'Defense' tab within the 'My Programs' section of their My ASU homepage or they can visit the [Graduate College website](#).

Masters in Passing (MIP)

Obtaining a Master of Science in Passing (MIP) degree is completely elective. It is an option for SESE PhD graduate students who have successfully advanced to candidacy and who wish to obtain an MS degree, based on completed work. Students who already have a related MS degree from another school are not eligible for the MIP. The following coursework requirements apply to the MIP:

- Students need 30 credits minimum for the MIP program of study. The 25 credit hours of coursework that are required for the PhD may be used toward MIP program of study.
- The 30 credits will be a combination of coursework and 600-level research (SES 692). The 700-level research courses (SES 792) that are typically taken during a PhD degree will not count toward the MIP. Students who anticipate seeking an MIP must plan and register for research hours accordingly.

Passing the comprehensive exam (i.e., the PhD qualifying exam) is required for a student to be eligible for the MIP. To earn the MIP the student must complete the following steps within one calendar year after passing the comprehensive examination:

- Submit a paper to a refereed journal. The student should be a first author of the paper submitted to the journal.
- Give a public talk to the SESE community about the work submitted to the refereed journal.

A majority of the Supervisory Committee should be physically present for the public talk and it should be followed by a question and answer period. Two weeks prior to the talk, the student must send an announcement to the Graduate Coordinator for distribution to the SESE community. The announcement should include the title and a brief summary of the talk along with the date, time and location. The advisor should submit a short memo to the Graduate Oversight Committee and Graduate Coordinator documenting completion of the submitted journal article and public talk. Following completion of these requirements, the student will work with the Graduate Coordinator to complete all necessary Graduate College MIP degree paperwork. Material used for the MIP degree may not be used verbatim for the PhD thesis. If sufficient enhancements are added to the body of work and subject to the Supervisory Committee's approval, this material may be used as part of the PhD dissertation.

If this degree is desired, the student should be in contact with the Graduate Coordinator to address any questions about the requirements. This should be done prior to the comprehensive examination to ensure that the student will meet the requirements within the 1-year deadline.

FINANCIAL SUPPORT

The majority of MS and PhD students accepted to a SESE graduate program are offered financial support for the academic year (August-May) by means of a Graduate Research or Teaching Assistant (RA/TA) position. Financial support is not available for MNS students.

MS students typically receive 2 years of guaranteed financial support and PhD students typically receive 5 years of support. Renewal of support is contingent upon the student maintaining satisfactory academic progress in their graduate program and satisfying all requirements and obligations of any assistantships. (Please refer to Academic and Research Performance Evaluations section for more information). Financial support may extend beyond these timeframes pending availability of funds. Financial support typically includes a stipend, tuition remission, and health insurance for the student. Students must enroll in health insurance via the

Campus Services section of My ASU in order to have coverage. Tuition remission does not cover class fees, tuition-related fees, or taxes. Students not requiring financial support from SESE may elect not to receive an assistantship and should indicate this in their admissions application. For students who have applied for and/or received federal financial aid, acceptance of RA/TA positions may decrease financial aid eligibility.

MS students are typically guaranteed 2 semesters of TA support. PhD students are typically guaranteed 4 semesters of TA support. Guaranteed TA support is contingent upon the student maintaining satisfactory academic progress in their graduate program and satisfying all requirements and obligations of any assistantships. Students should be aware that if advisors request TA support beyond these timeframes, priority will not be given when TA positions are considered. A TA position may be awarded beyond the guaranteed timeframe; but, it will be considered on a semester by semester basis and does not guarantee future funding. Students are strongly encouraged to discuss RA support with their advisors as soon as possible. RAs are contingent on funds available through research advisors and are awarded at the advisors discretion.

Graduate Assistants must meet program requirements and be enrolled in a minimum of 6 hours of graduate level credits and no more than 12 per standard semester (fall or spring). Students supported by a fellowship must meet the requirements specified by the fellowship.

Summer financial support for graduate students is not guaranteed and should be coordinated with the student's faculty advisor. During the summer, students can be supported as GSAs or as TAs/RAs. Students supported as GSAs during the summer should take the following into consideration:

- Students who are completing culminating experiences in the summer including comprehensive exams, defenses or graduation, must be enrolled in a minimum of 1 credit in the summer, regardless of whether or not they have summer financial support. Any culminating experiences that occur the day after the spring degree conferral/commencement date require summer registration.
- GSAs do not provide tuition remission. Students in a GSA position do not need to register in the summer unless they are completing a culminating experience such as comprehensive exam, defense, or graduation. If a student in a GSA position does need to register in the summer, the tuition will be out-of-pocket.
- If the student held a TA/RA position in the spring semester prior to the GSA position and received health insurance during this time, it should continue through the summer regardless of summer employment status.

Summer RA/TAs must register for at least 1 credit in either summer session (session A or session B). Students typically sign up for research, thesis, or dissertation over the summer depending on degree progress. It is the responsibility of the student to be aware of their position (TA/RA vs. hourly) and any implications that the position has in terms of registration, tuition remission or lack thereof, etc.

Students funded by the department or university are not encouraged to hold additional employment of any kind. Additional employment takes time and attention away from student progress toward their degree. Should a student decide to take on additional employment outside the university during the summer, it is their responsibility to notify their advisor and maintain satisfactory research progress.

In extenuating circumstances students may request to work remotely while being supported in a RA/TA position. If a student is in an RA position these requests must be approved by the student's faculty advisor. If a student is in a TA position these requests must be approved by the instructor(s) of the course(s) in which the student holds the TA position. Approval of these requests is completely discretionary.

To be eligible for TA positions when English is not a student's native language, they must demonstrate TA certification by the end of the first semester of the graduate program. Students must meet one of the following eligibility requirements to be certified to TA:

- Earn a score of 26 or higher on the IBT speaking portion of the TOEFL
- Earn a score of 8 or higher on the speaking portion of the IELTS
- Earn a score of 55 or higher on the English language [SPEAK Test](#). SESE requires students to receive a minimum score of 55 to be certified to TA. Full English Certification for TA positions must be obtained as soon as possible. Students are expected to complete the SPEAK test at the start of their graduate program. If further time is needed for the student to reach certification, the student should be in communication with his/her faculty advisor and the Graduate Oversight Committee on how to proceed.

Students should review the [TA/RA website](#) for more information regarding the policies and procedures of Graduate Assistant/Associate positions.

RESOURCES

Student Support Services

International Student and Scholars Office (ISSC)

The [International Student and Scholars Office \(ISSC\)](#) provides comprehensive support, advisement and advocacy for ASU international students, scholars and faculty, while maintaining the highest standard of integrity and immigration compliance.

Counseling Services

[ASU Counseling Services](#) offers confidential, time-limited, counseling and crisis services for students experiencing emotional concerns, problems in adjusting, and other factors that affect their ability to achieve their academic and personal goals.

Health Services

[ASU Health Services](#) is dedicated to the well-being and educational success of each individual student by providing high quality health care that is accessible, affordable, and compassionate.

Disability Resource Center

The [Disability Resource Center](#) provides services to qualified students with disabilities on all ASU campuses.

Graduate Wellness Resources

The [Graduate Wellness Resources](#) document is a one-page guide to Financial, Social, Emotional, and Physical Health and Wellness Resources for ASU Graduate Students was developed by the Graduate and Professional Student Association (GPSA).

10 Best Practices in Graduate Student Wellbeing

The [Best Practices](#) resource guide outlines proven ways to help graduate students better care for themselves under the increasing demands of graduate school.

Title IX

[Title IX of the Education Amendments of 1972](#) protects individuals from discrimination based on sex in any educational program or activity operated by recipients of federal financial assistance. Sexual harassment, which includes acts of sexual violence, is a form of sex discrimination prohibited by Title IX. ASU does not discriminate on the basis of sex in the employment, education programs or activities it operates. ASU is committed to providing an environment free from discrimination based on sex and provides a number of resources and services to assist students, faculty and staff in addressing issues involving sex discrimination, including sexual violence.

Pat Tillman Veterans Center

The [Pat Tillman Veterans Center](#) provides a quality resource where veterans can find assistance and receive the support necessary to ensure their success at ASU.

GPSA

[GPSA](#) provides support for ASU graduate and professional students through professional development, advocacy, and service opportunities.

Academic and Professional Development Services

Libraries

[ASU Library](#) is home to eight library facilities across four ASU campuses, providing students and faculty access to millions of information resources.

Writing Centers

[ASU Writing Centers](#) offer a dynamic, supportive learning environment for undergraduate and graduate students at any stage of the writing process.

Career and Professional Development Services

[ASU's Career and Professional Development Services](#) offers career and professional development services for ASU students and alumni.

Business Services

Technical Support

Students can visit [Contact ASU](#) or the My ASU Service Center for assistance regarding technical difficulties.

Parking and Transit

[ASU's Parking and Transit Services](#) provides parking and transportation support to Sun Devils and visiting guests across all four campuses.

Student Business Services

[ASU's Student Business Services](#) offers a variety of student account services including tuition and billing, student refunds (including financial aid), receipt and payment processing, support for past due accounts, third party sponsorship assistance and Perkins Loan repayment.

Student ID cards

ASU requires all students, employees and qualifying university affiliates to obtain an official ASU ID card which is available through [Sun Devil Card Services](#).

Family Leave Information

Graduate student employment status may include eligibility for [parental leave](#). Students seeking this benefit must work closely with their faculty advisor, the Graduate Oversight Committee and the SESE Business Office before applying for leave. The SESE Business Office will assist students with the appropriate paperwork and establish Parental, Sick, & Vacation pay, if applicable.

For graduate students, these excerpts from ASU parental leave policy are relevant:

6) Postdoctoral scholars and graduate students with a .50 FTE research or teaching assistantship (RA/TA) appointment who have completed at least one academic year's service are eligible for up to twelve weeks of paid parental leave for the birth or adoption of a child and will continue to receive their stipend and associated benefits (health insurance and tuition remission) during this twelve-week period. If both parents are postdoctoral scholars or graduate students with a .50 FTE RA/TA appointment who have completed at least one academic year's

service, they may choose to split the leave between them. The department is responsible for funding these costs. The RA/TA must maintain a minimum enrollment of six credit hours during the term of paid leave. Any portion of the twelve-week period that falls outside the appointment term will reduce the amount of available paid parental leave on a pro-rated basis.

7) In an effort to allow students to return to the same academic status as before the pregnancy, accommodations and services for pregnant students are available through the Disability Resource Center.

Additional Links:

Academic Affairs Manual: [Parental Leave with Pay](#)

Academic Affairs Manual: [Family Leave \(FMLA\)](#)

Staff Personnel Manual: [Parental Leave Benefits Forms and Other Information on Leaves](#)

Campus Amenities

Dining on Campus

Sun Devil Dining offers a wide range of food venues located in the [Memorial Union](#) and various [other locations on campus](#).

Banks

ASU offers various [banking services](#) on campus available to students, faculty and staff.

Sun Devil Campus Stores

ASU offers [full service convenience stores](#) as well as the [ASU Bookstores](#) which sell textbooks, used books, academic supplies, art supplies and ASU logo clothing and gifts.

APPENDIX

SESE Graduate Program Requirements

	MS Astrophysics	MNS Geological Sciences	M.S Geological Sciences	PhD Astrophysics	PhD Geological Sciences	PhD. Exploration Systems Design
Required coursework	SES502: Exploring SESE Research (1)	SES502: Exploring SESE Research (1)	SES502: Exploring SESE Research (1)	SES502: Exploring SESE Research (1)	SES502: Exploring SESE Research (1)	SES502: Exploring SESE Research (1)
	SES501:SESE Colloquium (1)	SES501:SESE Colloquium (1)	SES501:SESE Colloquium (1)	SES501:SESE Colloquium (1)	SES501:SESE Colloquium (1)	SES501:SESE Colloquium (1)
	SES599: Thesis (6)	SES593: Applied Project	SES599: Thesis (6)	SES799: Dissertation (12)	SES799: Dissertation (12)	SES799: Dissertation (12)
	AST521: Stars & Interstellar Medium I (3)			AST521: Stars & Interstellar Medium I (3)		Three concentration courses (9)
	AST522: Stars & Interstellar Medium II (3)			AST522: Stars & Interstellar Medium II (3)		Two science courses (6)
	AST523: Stars & Interstellar Medium III (3)			AST523: Stars & Interstellar Medium III (3)		
	AST531: Galaxies and Cosmology I (3)			AST531: Galaxies and Cosmology I (3)		
	AST532: Galaxies and Cosmology II (3)			AST532: Galaxies and Cosmology II (3)		
	AST533: Galaxies and Cosmology III (3)			AST533: Galaxies and Cosmology III (3)		
	AST 591 Astrophysics Seminar (1)			AST 591 Astrophysics Seminar (1)		
Coursework credits*	20	30 (includes applied project)	20	25	25	25
Total units required	30	30	30	84	84	84
Qualifying exam	n/a	n/a	n/a	Yes	Yes	Yes
Culminating experiences	Technical review	n/a	Technical review	Technical review	Technical review	Technical review
	Thesis		Thesis	Dissertation	Dissertation	Dissertation
	Defense	Applied Project Presentation	Defense	Defense	Defense	Defense

*Research, thesis, applied project and dissertation hours are not applicable to the coursework credit requirements

MS/MNS Student Brief Timeline

	Fall Semester	Spring Semester
Year 1	<p>New Student Orientation, TA training, safety trainings</p> <p>No later than end of semester: Meet with advisor and potential Supervisory Committee (SC) to discuss possible research (MS) or applied project (MNS) topics.</p>	<p>Beginning of semester: MS students should finalize SC with faculty advisor. Begin work on thesis or applied project.</p> <p>Submit Program of Study to Graduate College. Students must notify Graduate Coordinator once the iPOS is submitted.</p> <p>Meet once per year with SC members to discuss thesis or applied project progress.</p>
Year 2	<p>Meet once per year with SC members to discuss thesis or applied project progress.</p> <p>Submit Annual Progress Report form, narrative, SC committee meeting memo and updated CV on Oct. 15.</p> <p>MS students hold technical review of thesis results (at least 3 months before defense). Work on suggestions/ revisions to thesis given at technical review.</p> <p>Make any necessary adjustments to Program of Study in preparation of defense or applied project presentation. Notify Graduate Coordinator of any submitted changes.</p>	<p>MS students schedule defense if ready. Follow policies and procedures set by Graduate College and SESE.</p> <p><u>A min of two weeks (10 business days) before defense:</u></p> <ol style="list-style-type: none"> 1) Distribute full copies of thesis to SC committee for review. 2) Officially schedule defense through the Graduate College website. 3) Submit defense announcement info to Graduate Coordinator. <p>A min of 10 calendar days before defense, submit a complete copy of thesis to Graduate College for format review.</p> <p>Complete other defense and necessary revisions/requirements for graduation.</p> <p>MNS students are not required to follow the official defense scheduling procedures but will instead work directly with their applied project advisor to schedule their final presentation.</p>

GOC = Graduate Oversight Committee (Faculty presiding over all graduate students)

SC = Supervisory Committee (Committee of 3 faculty who supervise thesis)

*Annual reports are due **October 15 of each year**. Students must hold a meeting with their **SC** well before the report deadline to discuss their progress and submit annual committee report on **October 15**.

**MNS students are not required to have a supervisory committee and will consult directly with the applied project advisor during various milestones.

PhD Student Brief Timeline

	Fall Semester	Spring Semester
Year 1	<p>New Student Orientation, TA training, safety trainings</p> <p>No later than end of semester: Meet with advisor and potential Exam Committee (EC) members to discuss possible research topics.</p>	<p>Beginning of semester: Start serious work on at least one project.</p> <p>No later than March 1: Submit project titles, primary and secondary advisor names, and abstracts for 2 projects to Graduate Oversight Committee (GOC).</p> <p>Continue working on both projects. Make necessary changes as recommended by GOC after review of project abstracts.</p> <p>Meet once per year with EC members to discuss research progress.</p>
Year 2	<p>Continue work on projects. Meet with advisor(s) and EC as necessary to review progress in preparation for annual reports and comprehensive exams.</p> <p>File Program of Study with Graduate College. Students must notify Graduate Coordinator once the iPOS is submitted.</p> <p>Submit Annual Progress Report, narrative, EC meeting memo, and updated CV on Oct. 15.</p>	<p>No later than March 1: Submit both comprehensive exam written project reports in complete draft form to GOC.</p> <p>Schedule Oral exam to occur between April 1st and the end of the Spring semester. Submit final project reports to EC no less than 2 weeks before exam.</p> <p>Complete Comprehensive Examination by end of spring semester. See academic calendar for semester deadlines.</p> <p>After successful completion of comprehensive exams, work with Graduate Coordinator to ensure that advancement to candidacy occurs. Students will receive a stipend raise the semester after passing comprehensive exams and advancement to candidacy.</p>
Year 3	<p>Submit Annual Progress Report, narrative, EC/SC meeting memo, and updated CV on Oct. 15</p>	<p>Formalize Supervisory Committee (SC) within a year of passing comprehensive exams. Meet once per year with SC members to discuss dissertation progress and submit Annual Committee Report October 15 or earlier.</p>
Year 4	<p>Submit Annual Progress Report, narrative, SC meeting memo, and updated CV on Oct. 15</p>	<p>Meet once per year with SC members to discuss dissertation progress and submit Annual Committee Report October 15 or earlier. Hold technical review of dissertation results, if ready.</p>
Year 5	<p>Meet with SC members to work through suggestions/revisions given at technical review OR hold technical review if not already done (must be 6 months before defense).</p> <p>Make any necessary adjustments to Program of Study in preparation of defense. Notify Graduate Coordinator of any submitted changes.</p>	<p>Schedule defense if ready. Follow policies and procedures set by Graduate College and SESE.</p> <p><u>A min of two weeks (10 business days) before defense:</u></p> <ol style="list-style-type: none"> 1) Distribute full copies of dissertation to SC committee for review. 2) Officially schedule defense through the Graduate College website. 3) Submit defense announcement info to Graduate Coordinator. <p>A min of 10 calendar days before defense, submit a complete copy of dissertation to Graduate College for format review.</p> <p>Complete other defense and necessary revisions/requirements for graduation.</p>

GOC = Graduate Oversight Committee (Faculty presiding over all graduate students)

EC = Examination Committee (Committee of 5 faculty working with students on the two oral exam projects. These members will administer the oral exam.)

SC = Supervisory Committee (Committee of 5 faculty supervising dissertation research and defense); may include most members of the EC

*Annual reports are due **October 15 of each year**. Students must hold a meeting with their **EC/SC** well before the report deadline to discuss their progress and submit annual committee report prior to **October 15**.

Annual Report Form

The full annual report is due on October 15

Before submitting this report, please note that per SESE graduate guidelines you must meet with your Supervisory Committee and present your current research progress in the form of a short research talk. *A complete annual report must include:*

- The completed and signed annual report form
- A 1-2 page narrative progress report outlining thesis/applied project/dissertation research progress over the past year including funding sources, coursework completed, and professional activities (abstracts, papers, presentations)
- An updated CV
- Memo from advisor/committee summarizing the Supervisory Committee meeting

Student Name _____
Degree and date of admission _____
Advisor(s) 1) _____
Supervisory Committee 2) _____
3) _____
4) _____
5) _____

iPOS GPA _____ Graduate GPA _____ Cumulative GPA _____

PhD Students Only:
Candidacy exam date and result _____
Progress toward candidacy _____
Conditions (if applicable) _____

Technical Review/Defense Information

Technical review date (include anticipated date if not yet completed): _____

Defense date (include anticipated date if not yet completed): _____

Faculty Advisor Verification

This student has met with her/his Supervisory Committee in the past year and has reviewed their annual progress in research, teaching and academic performance. Faculty advisors should check the appropriate box and sign below.

Student meets or exceeds expectations for satisfactory academic annual progress

Student does not meet expectations for satisfactory academic annual progress

Advisor: _____ Date: _____

Co-Advisor (if applicable) : _____ Date: _____

PhD Candidacy Exam (Orals) Procedures

Preparation

- Student needs to submit an iPOS several months **before** taking candidacy exam.
- Student needs to schedule a time when their exam committee members are all available to be physically present.
- Student needs to schedule room through the SESE front desk staff.
- Student needs to notify graduate oversight committee and Graduate Coordinator of their exam date.
- Student does NOT need to notify the Graduate College before they take orals. They will be notified when the results are entered in the system.
- Students must be registered for at least one credit during the semester of oral exams, including summer.
- **Student's advisor is responsible for obtaining the following documents from the Graduate Coordinator and having them available at the oral exam.** These include:
 - Candidacy Exam Procedures sheet
 - 1 Copy of *PhD Comprehensive Exam Report* (Chairperson copy)
 - 5 Copies of *PhD Comprehensive Exam Evaluation* (Member copy)
 - Copy of student's transcript

After the examination is completed:

- Each member, including the committee chair, needs to fill out a 'committee member' evaluation form.
- After all evaluations are completed, the committee chair will summarize all of the results on the 'committee chair' evaluation form.
- The committee chair must work with the committee to prepare a memorandum summarizing the outcome of the exam and recommendations and conditions (if any) for the student. This needs to be done within two weeks of the exam.
- A copy of the exam memo should be emailed directly to the student and copied to the exam committee and Graduate Coordinator.
- The exam chair must also return the evaluation forms to the Graduate Coordinator for record keeping.
 - Salary increases are effective in the fall or spring semester after the student passes his/her orals and are contingent on the student being officially advanced to candidacy. Students should work directly with the Graduate Coordinator after passing exams to ensure that advancement to candidacy occurs in a timely manner.

Technical Review Procedures

- Student needs to schedule a time when all of their committee members can attend
- A majority of the committee must be physically present
- Student needs to schedule room through the SESE front desk staff
- Student does NOT need to notify the Graduate College - technical reviews are a SESE requirement only
- If desired, the committee chair or the student should visit the Graduate Coordinator to obtain printouts of the student's transcript, annual report memos, etc.
- Committee chair should summarize the results of the technical review in a memo distributed to the student, Supervisory Committee and Graduate Coordinator

PhD students must complete their tech reviews at least 6 months prior to their planned defense date and MS students must complete them at least 3 months prior to planned defense date. Any exceptions must be requested by the student's faculty advisor and approved by the SESE Associate Director of Graduate Initiatives.

Defense Procedures

MS and PhD students are ready to defend after they have successfully completed a technical review and have received approval from their committee to hold a defense. Students need to be following all of the defense [policies and procedures](#) outlined by the Graduate College. Below is a general timeline of the steps for a defense:

No later than the semester of the defense, students should:

- Confirm that the information on the iPOS is current and that all requirements are met, including advancement to candidacy for PhD students (which should have occurred shortly after the student passed comprehensive exams). Students are encouraged to do an iPOS check a few months prior to the anticipated defense to avoid any issues with scheduling the defense. If the student submits any changes to the iPOS they must notify the SESE Graduate Coordinator for approval.
- Submit an application for graduation through My ASU.

A minimum of two weeks (ten business days) before the scheduled defense, it is the responsibility of the student to:

- Submit a complete copy of the thesis/dissertation to the Supervisory Committee. The committee needs sufficient time to review the thesis/dissertation in preparation for the defense. Failure to provide them with two weeks of review time may result in the postponement of the defense.
- Provide pertinent information for the defense announcement to the Graduate Coordinator. Pertinent defense abstract information includes a title, an abstract, the name of the thesis/dissertation advisor(s), the names of all members of the Supervisory Committee and the date, time, and location of the defense. Abstracts should be a few paragraphs in length (no more than one page). Once the student sends this information to the Graduate Coordinator, it will be distributed to the SESE community.
- Officially schedule the defense with the Graduate College via the 'Defense' tab within the 'My Programs' section of their My ASU. Once the defense has been officially approved, the details of the defense will appear in this area of My ASU. The defense report form will be emailed from the Graduate College to the student's supervisory committee.

A minimum of ten calendar days before the scheduled defense, it is the student's responsibility to submit a copy of the complete thesis/dissertation to the Graduate College for format review.

The day before the defense, the exam committee members will receive the electronic defense form. **As soon as possible after the defense**, preferably the same day, each committee member will indicate the appropriate level of pass or fail along with their signatures in the 'Examination Results' section of the electronic defense form. The faculty advisor(s) must also write a brief description of revisions that need to be made, if any.

After the defense and within the semester graduation deadlines, students should:

- Complete format revisions of the thesis/dissertation as required by the Graduate College.
- Complete content revisions of the thesis/dissertation as documented by the Supervisory Committee at the defense.
- Follow up with their faculty advisor to ensure that the final defense form is signed and submitted to the Graduate College by the appropriate deadline.
- Submit final copy of dissertation to ProQuest for publication.

Students can view the Graduate College defense procedures and deadlines via the 'Defense' tab within the 'My Programs' section of their My ASU homepage or they can visit the [Graduate College website](#). Any questions regarding defense procedures should be addressed to the SESE Graduate Coordinator.