

School of Life Sciences Graduate Student Handbook 2018-19

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 **School of
Life Sciences**
Arizona State University

SOLS Graduate Programs
Life Sciences Building A 181
Phone: [480-965-1768](tel:480-965-1768)
Fax: [480-965-7599](tel:480-965-7599)
SOLS.grad@asu.edu



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Part 1: Introduction

Welcome to the School of Life Sciences graduate programs at Arizona State University (SOLS graduate programs). This handbook is designed to guide graduate students through their respective degree programs and it includes information about the school's policies, as well as your responsibility to understand and follow these policies. As a student in the School of Life Sciences, you are required to read and understand this handbook. Should you have questions not answered in this handbook, consult your advisor, program director, or SOLS associate director of graduate programs.

Student responsibilities

Communication standards

Your name will be added to an email list so you can receive important information about deadlines, scholarships, jobs, workshops and events. Also, the graduate office sends out a weekly newsletter. If you do not receive an electronic communication from our office during a regular work week, immediately contact Wendi Simonson at Wendi.Simonson@asu.edu.

Professional ethics

As a graduate student, you have joined a larger community engaged in the scientific quest for truth, thus committing yourself to an honest, ethical, and cooperative style of learning and inquiry. You represent the university in this community in many ways. Please consider this responsibility in your conduct and general appearance. Because science progresses as new information is obtained and synthesized, all your work, including research and course work, must be original, accurate, and documented, and must reflect individual effort and integrity. You should become familiar with ASU graduate policies and regulations, found here: <https://graduate.asu.edu/policies-procedures>. We will cover university policies and resources in greater detail in Part 2 (p.4).

How the school and graduate degree programs are organized

SOLS director

The director of SOLS is the academic unit representative for the College of Liberal Arts and Sciences at ASU and is responsible for implementing university policies. The associate director for graduate programs represents the director in matters related to graduate programs. Although the director has final authority on many issues, you are encouraged to first consult advisors, program directors or the associate director for graduate programs about procedures and policies. The director and associate director of graduate programs welcome constructive comments about our graduate programs.

Associate director of graduate programs

The associate director of graduate programs (Grad AD) is appointed to serve a three-year, renewable term and serves as chair of the Graduate Programs Committee. Generally, the Grad AD oversees admissions, TA assignments, financial aspects of the programs and student progress.

Individual graduate programs

Each graduate degree program is led by a program director or co-directors who oversee individual student progress, admissions, recruitment and curriculum. The program director also consults a committee of program faculty in decisions related to the graduate program. The program director will coordinate closely with the Grad AD for admissions, financial, curricular and student progress issues.

SOLS Graduate Programs Committee

The SOLS Graduate Programs Committee (GPC) consists of the Grad AD (chair) and the director of each graduate program, or their designee. A faculty group not represented through a program director may elect a representative to serve on this committee. A graduate student serves as a non-voting member of this committee and completes a one-year, renewable term. The graduate student is selected by the SOLS Graduate Student Executive Committee, also called the E-Board. The Grad AD will appoint additional members if necessary.

SOLS graduate programs office

This office provides administrative assistance and supports students in their degree programs. Staff members are an invaluable resource for SOLS graduate students. Located in Life Sciences A (LSA) Room 181, the program manager and program coordinator will assist you with all aspects of navigating ASU's rules, requirements and administrative policies.

For help, see:

- Wendi Simonson, program manager: TA/RA hiring, graduate student payroll, scholarships, fellowships and all financial matters
- Amina Hajdarovic, program coordinator: plans of study, admissions, prospectus defenses, thesis and dissertation defenses, course permission and registration, progress reports, graduate travel awards

Graduate resources within SOLS

Booking a room

Staff in the graduate office can assist you with booking a room for your committee meetings and thesis and dissertation defense dates. Simply email us with the time and date of your thesis or defense and we'll book a room for you.

To book a room for committee meeting, email the graduate office. All other room reservation requests should go through facilities.

<https://sols.asu.edu/facilities-request-form>

Graduate resource room

In Life Sciences A (LSA) 187, next to the graduate office, you will find your graduate mailbox. There are computers and a printer/copier available for your printing and copying needs. You will be given the printer code and access key code once you start your program. If you lose or forget your code, the graduate office will provide it to you. This room is a great place for meetings or just having lunch.

Graduate programs Blackboard page

This website has all the information you'll need for your graduate program. The Blackboard pages house this student handbook along with a graduate survival guide. On Blackboard, you can find other guides and forms, as well as individual information pertaining to each degree program.

Graduate Student Executive Committee and graduate student representatives

The Graduate Student Executive Committee (E-Board) is the student organization that represents SOLS graduate students. The committee president meets regularly with the Grad AD to help coordinate graduate student activities. The committee oversees the nomination and selection of a student representative for the SOLS Graduate Programs Committee.

Part 2: University policies and resources

Student Code of Conduct

<https://eoss.asu.edu/dos/srr/codeofconduct>

The aim of education is the intellectual, personal, social and ethical development of the individual. The educational process is ideally conducted in an environment that encourages reasoned discourse, intellectual honesty, openness to constructive change and respect for the rights of all individuals. Self-discipline and a respect for the rights of others in the university community are necessary for the fulfillment of such goals.

The Student Code of Conduct sets forth the standards of conduct expected of students who choose to join the university community. Violations of the Student Code of Conduct will be reviewed by the College of Liberal Arts and Sciences and the Office of Student Rights and Responsibilities, and students who are found to violate these standards will be subject to disciplinary sanctions in order to promote their own personal development, to protect the university community, and to maintain order and stability on campus.

All students are expected to adhere to the ABOR Student Code of Conduct: <https://bit.ly/2vCi9WF>

Academic integrity

<http://provost.asu.edu/academicintegrity>

Academic dishonesty is not tolerated, and if uncovered, appropriate actions are taken. Students are expected to familiarize themselves with what constitutes violations to the academic integrity policy. A detailed list of violations can be found online.

Briefly, violations include but are not limited to: cheating on exams and assignments, plagiarizing, fabricating data or information, etc. Students are encouraged to pay special attention to the definition of plagiarism to avoid unintentional mistakes and to discuss the topic further with their advisors and instructors if they are unclear on whether a particular action constitutes plagiarism.

Allegations of academic dishonesty will be reviewed by the Grad AD and program director and may lead to dismissal from the program. Also, academic integrity violations will be reviewed by the College of Liberal Arts and Sciences (CLAS or 'college'). A student who violates ASU's Misconduct in Research Policy and the Student Academic Integrity Policy may be reviewed by both the college and the Office of Knowledge Enterprise Development <https://clas.asu.edu/resources/academic-integrity>.

All students are required to complete an academic integrity course on Blackboard. If you have not completed the course, a hold will be put on your program and you will not be able to register for classes until it is complete.

Discrimination complaints (Title IX)

<https://www.asu.edu/titleIX/>

Any complaint of alleged discrimination or harassment in employment, educational programs, or activities because of race, color, religion, national origin, citizenship, sex, sexual orientation, gender identity, age, disability and qualified veteran status, may be filed with the Office of Equity and Inclusion for investigation and resolution. Any employee or student may visit with the office's staff to confidentially discuss any concern without fear of jeopardizing job or academic standing within the university. Call (480) 965-5057.

Disability Resource Center

<https://eoss.asu.edu/drc>

Disability impacts people of all races, ethnicities, cultures, religions and genders. The ASU Disability Resource Center (DRC) supports an environment in which the diversity and variety of human experiences are respected and appreciated. It recognizes and values the unique history of each student and is committed to providing a safe and welcoming atmosphere and being sensitive to the needs of all students.

The center establishes eligibility for services and accommodations for qualified students with disabilities. For your convenience, there is a Disability Resource Center located on each of the four ASU campuses. Students with disabilities are encouraged to visit the DRC on their specific campus to register with the office and request accommodations. Special accommodations can be made for: testing, note-taking, laboratory work, transportation, rides and other needs.

For information, visit <https://eoss.asu.edu/drc> or contact any DRC office by phone: (480) 965-1234 or email: DRC@asu.edu.

Registering with the DRC does not change or waive Graduate College policy or time limits for degrees. If you need an extra accommodation because of a disability and you are registered with the DRC for this disability, you may petition the Graduate College for an exception to the policy (such as a time extension), citing your disability. The ASU Graduate College will review your individual situation and determine whether a policy exception is warranted. If you use the disability as justification in the petition, you will need to supply the Graduation College office with a release of information.

Compassionate or medical withdrawal

<http://clas.asu.edu/resources/medical-withdrawal>

You may request a compassionate or medical withdrawal if you experience a serious illness or injury or other significant personal situation that prevents you from continuing your classes.

Health and counseling services

Health services: <http://eoss.asu.edu/health>

Counseling services: <http://eoss.asu.edu/counseling>

ASU Health Services provides accessible health care for all ASU students right on campus. ASU Counseling Services provides confidential, personal 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.

Part 3: PhD funding

All PhD students admitted to a graduate program administered by SOLS receive a five-year funding guarantee, which includes a stipend, health insurance and tuition remission for the required 84 credit hours. However, you may not receive full tuition support once you have reached 84 credit hours, even if you are still within the five-year funding guarantee.

Funding is provided through teaching or research assistantships. Once you have reached the 84 credit hours, you may be placed on a Graduate Service Assistantship. While you are not required to serve as a Teaching Assistant in any of our graduate programs, every graduate student is encouraged to serve as a Teaching Assistant for at least one semester.

Teaching Assistantships (TA)

These positions come with a stipend, tuition remission and health insurance. In the middle of each semester, the graduate programs office will send a memo to you requesting an indication of your interest in being a TA for the upcoming semester. A typical TA teaches two or more laboratory sessions each semester. Assignments are based on the school's needs, faculty requests, student interests, experience and course schedules. Notification of appointments and rejections are issued by Dec. 15 for the following spring semester and Aug. 1 for the following fall semester.

Research Assistantships (RA)

These positions are generally funded through faculty research grants and provide a stipend, tuition remission and health insurance. Other research assistantships are funded by on- and off-campus sources and become available at various times during the year. The ASU Graduate College website provides valuable information on such funding. During the middle of each semester, the graduate programs office sends a memo to all graduate students and faculty advisors requesting information on the availability of an RA ship for the upcoming semester. Notification of appointments are issued by Dec. 15 for the following spring semester and Aug. 1 for the following fall semester.

Graduate Service Assistantships (GSA)

GSA are positions that are similar to a TA or RA position in the scope of work, however, the GSA position only provides a stipend. Tuition remission and student health insurance coverage are not part of a GSA offer. There are some exceptions to the latter, but those are made on a case-by-case basis and would be detailed in your offer letter.

Offer letters

Once you have signed and returned your TA, RA, or GSA offer letter, your acceptance of the position is considered final. You cannot later switch to other funding without petitioning the graduate programs office for permission. Petitions must include a letter from your advisor giving reasons for the change in funding. In granting permission for a change, the graduate office will consider such factors as helping junior faculty to quickly staff their research efforts, ensuring that training grant positions are filled, and staffing externally funded projects on tight deadlines. Petitions to withdraw will only be granted if a suitable substitute for the vacated TA position can be found.

TA eligibility and assignment

Students who hold a TA position must:

- Register each semester for a minimum of six hours of approved graduate coursework. We strongly encourage TAs to enroll for 18 hours each semester (courses and research) to take full advantage of the tuition benefit. We recommended that you sign up for dissertation hours soon after completing the comprehensive exam.
- TAs are expected to make satisfactory progress toward their degree. Outcomes of an annual review with unsatisfactory progress may negatively impact additional assignments to TA positions. See Part 6: "Academic Standing."

In addition, international students must:

- pass the SPEAK test at ASU with a score of 55 or above or obtain a score of 26 or higher on the speaking section of the iBT (TOEFL)
- have an appropriate visa status

Note: Faculty and student evaluations of teaching assistants will be considered when assigning students to TA positions.

Prioritization

If the number of TA requests exceeds the available positions, students will be assigned to positions in the following order:

First priority:

PhD students with an advisor whose primary faculty appointment is in SOLS.

Second priority:

Other graduate students, including:

- PhD students in SOLS-administered graduate programs who are beyond year five of their programs, and whose advisor's primary faculty appointment is in SOLS (previous TA support received by the student will be taken into consideration)
- PhD students in SOLS-administered graduate programs who are working for advisors without primary faculty appointment in SOLS, taking into consideration

the advisor's contributions to undergraduate teaching, collaborative grants and research initiatives within SOLS (previous TA support received by the student will be taken into consideration)

- MS students with an advisor who has a primary faculty appointment in SOLS

Third priority:

Graduate students in programs not administered by SOLS and who are working for advisors without primary faculty appointment in SOLS.

Teaching Assistants

The success of the teaching program rests on the abilities and attitudes of TAs, as well as on the faculty. TA experience is considered essential to your development as a graduate student and your performance impacts the general welfare of the entire program.

Orientation and professional development

All new TAs must:

- attend the Teaching Assistant/Associate Development (TAD) Program hosted by ASU Graduate College (TAD includes pre-orientation modules, a face-to-face orientation, at-risk training, and developmental experiences)
- attend SOLS TA training, which is offered at the start of each fall semester
- complete active-learning modules offered at a specific time during SOLS TA training
- take BIO 530, Scientific Teaching in the fall semester of their first year.
- attend all course-specific meetings conducted by the professor or laboratory coordinator in charge of the course you have been assigned to as a TA

New international TAs must:

- attend International TA orientation, hosted by ASU Graduate College. This training is offered at the start of each fall semester

Graduate College publishes a TA/RA handbook which includes detailed policies governing work as a TA or RA and information on ASU teaching development opportunities.

TA/RA Handbook:

<https://graduate.asu.edu/ta-ra-handbook>

Responsibilities

TA work assignments begin one week before the first week of instruction each semester. Work terminates after the completion of grades, inventory, laboratory cleanup, and TA evaluation and discussion with the faculty member responsible for the course. The compensatory 4.5-month stipend is paid every other Friday for 10 pay periods.

Primarily, the faculty member who directs the course assigns TA activities. Therefore, each TA will meet with the instructor in addition to completing course assignment preparation. TA absences from teaching duties and arrangements for coverage should be made through the supervising faculty member.

TAs must:

1. learn the subject material
2. prepare for the course and laboratory before the beginning of each semester
3. attend all orientations, weekly meetings and classes as scheduled. Set up materials for the day's lesson before class. Have specific objectives for each period
4. prepare and grade weekly laboratory quizzes as requested by the instructor
5. see that the room is cleaned after each class period so that only routine preparation is necessary for the next class
6. keep the room and equipment cases locked at all times when class is not in session. You are responsible for all materials in the laboratory. Make sure all microscopes and other equipment are in proper operating condition at all times. Immediately report any malfunctioning microscopes, breakage, damage, or loss of materials to the faculty member who is teaching the lecture portion of the course and if applicable, to the lab coordinator for the lab portion of the class
7. plan to make sure all materials are ready for the lab. Materials are to be returned in clean condition immediately after use
8. do not transfer any materials or equipment from one room to another under any circumstances without the express consent of the lab coordinator
9. make certain that classes are properly taught and properly disciplined. Do not waste the students' time; be prepared. Treat each student as an individual, be strict and demand required work but be fair and honest
10. post and keep a minimum of two office hours per week so that students may confer with you outside of class
11. make certain students do not attend alternate sections without permission of the instructor

Teaching performance review

Faculty, lab coordinators and students evaluate each teaching assistant at the end of every semester or summer session. Faculty and lab coordinators will complete a rubric which is sent out by the graduate office. Testing Services will compile your student evaluations and send the results to the undergraduate office, which will share any concerns with the graduate office. Your TA evaluation will be considered in the yearly progress report (see Part 5: Annual Reviews).

Part 4: Earning your degree

All students must follow the general steps listed at the bottom of this section to obtain a degree from the School of Life Sciences. Carefully review your degree-specific information and deadlines in [Part 7](#).

Program duration

Full-time graduate students in SOLS should aim to finish a master's program within two years, and PhD studies within five years (or four years if you already have an MS).

By Graduate College policy, the maximum time limits are as follows: <https://graduate.asu.edu/key-policies>

- All work toward a master's degree must be completed within six consecutive years. The six-year period begins with the semester and year of admission to the program. Graduate courses taken prior to admission that are included on the Plan of Study (iPOS) must have been completed within three years of the semester and year of admission to the program.
- Doctoral students must complete all program requirements within a ten-year period. The ten-year period begins with the semester and year of admission to the PhD program. Graduate courses taken prior to admission that are included on the iPOS must have been completed within three years of the semester and year of admission to the program (previously awarded master's degrees used on the iPOS are exempt).
- The supervisory committee, the head of the academic unit and the Graduate College dean must approve any exception. If a time-limit exception is approved, the student may need to re-take the comprehensive examinations. Graduate College may withdraw students who are unable to complete all degree requirements and graduate within the allowed maximum time limits.

Continuous enrollment

All graduate students must enroll each fall and spring semester until they graduate. Further, students must be enrolled in courses that meet the program requirements. If no additional credit is required toward the degree, the student may enroll for XXX 595 or XXX 795, Continuing Registration (where XXX stands for the corresponding three letter program code). We recommended that students enroll in a research credit (592/792) to maintain continuous enrollment.

If the student fails to enroll for a semester, Graduate College automatically drops the student from the program and university. The student would have to re-apply and be re-admitted to continue the degree program. There are no special considerations for the new application. The application for re-admission is evaluated against the pool of current applications for that year and re-admission is not guaranteed.

If graduate study must be interrupted, students may apply for leave status before the semester in which they will not be registered. Leave requests cannot exceed two semesters over the entire degree program. The student must obtain approval from the program director, SOLS Grad AD and the dean of Graduate College.

Advisors and supervisory committees

The advisor and supervisory committee provides guidance in research, administer the PhD comprehensive examinations (PhD only), oversee the preparation and defense of the dissertation prospectus (PhD only), and direct and evaluate the thesis or dissertation. Detailed guidelines by degree of who can serve on the Supervisory committee are provided in:

Part 7.

Students are expected to have an advisor no later than the end of their first year (unless specified otherwise in Part 7 for individual program requirements). Some graduate programs may require students to identify an advisor earlier.

The advisor must be a member of the graduate faculty members endorsed to chair a committee in that degree program. Most regular ASU faculty and emeritus faculty can be committee members. Graduate faculty lists can be accessed here: http://graduate.asu.edu/graduate_faculty.

The advisor and supervisory committee members are formally appointed through your iPOS.

Please see “Funding Guidelines for non-SOLS Advisors” available on the graduate programs Blackboard site for additional rules. The graduate office will complete the form needed to add a faculty member to a student’s committee if the faculty member meets the guidelines.

Students are expected to meet with their supervisory committee at least annually after their first year.

If you wish to have someone on your supervisory committee who is not currently listed as part of your program’s graduate faculty, you must submit a Committee Approval Request form, as well as the faculty member’s current CV and birthdate to the Grad AD.

Please note: Committee Approval Request forms and CVs must be submitted and approved before submitting the committee change request in the iPOS.

To submit a Committee Change Request form through the iPOS system:

1. print the committee change request page from the iPOS website
2. obtain signatures of each supervisory committee member
3. bring the paperwork to the SOLS graduate office to obtain the Grad AD’s signature
4. The SOLS graduate office will forward the form electronically to ASU Graduate College for review and final approval.

Change or loss of advisors

Changing your advisor is always possible, but should be preceded by conversations with the new and current advisors, program director and Grad AD. If the new advisor is not a SOLS faculty member, the five-year PhD-funding offer may be affected (see “Funding Guidelines for non-SOLS Advisors” available on the Graduate Programs Blackboard site).

Students who no longer have an advisor have one semester to identify a new advisor. If an advisor cannot be found after one semester, the student is placed on academic probation (see [SOLS Satisfactory Academic Progress Policy](#)).

Mentoring compact

A mentoring compact is sent to first-year students and faculty at the beginning of the fall semester. It outlines student and advisor commitments and facilitates a mutual understanding of the roles each person has in a mentor-mentee relationship. This mentoring compact must be filled out, signed and turned in to the graduate program office before fall break. Students in lab rotations will fill out the mentoring compact once they have found an advisor. The mentoring compact is also available on the SOLS graduate program Blackboard site. Students and advisors are encouraged to revisit their mentoring compact annually.

Research involving human and animal subjects

Theses or dissertations that use research involving human or animal subjects must include a statement indicating that the research has been approved by the appropriate university body.

Research involving human subjects conducted under the auspices of Arizona State University is reviewed by the University Human Subjects Institutional Review Board (IRB) in compliance with federal regulations. Documents containing any planned data collection from human subjects require that applications be submitted to the ASU Office of Research Integrity and Assurance <https://researchintegrity.asu.edu/human-subjects> for approval before data collection or recruitment of subjects is initiated.

Research involving the use of animals conducted under the auspices of Arizona State University is reviewed by the Institutional Animal Care and Use Committee (IACUC) in compliance with federal regulations. If you plan to use documents that contain any data collection from animal research, ASU requires that you submit an application and receive prior approval by the ASU Office of Research Integrity and Assurance. <https://researchintegrity.asu.edu/animals>

It is very important that students check with their thesis/dissertation advisor well-in-advance to ensure compliance with university regulations as it pertains to the collection of research data involving human and animal subjects.

Courses and other program requirements

Detailed descriptions of course and program requirements by degree are provided in [Part 7](#)

Plans of Study

The Interactive Plan of Study (iPOS) is an agreement between the student and ASU about the coursework that must be completed to earn the graduate degree. While completing the iPOS, keep in mind that this is a working plan for completing your program requirements and changes may need to be made in future semesters.

The iPOS is completed through an online system called the Interactive Plan of Study accessed through MyASU. Revisions to the iPOS are easily made online and should be made each semester if needed. Please alert the graduate office of any changes that need to be approved.

iPOS

Be sure to discuss course requirements with your advisor and supervisory committee and follow the guidelines for your degree program. In keeping with standards of professional conduct, students are responsible for meeting deadlines and completing requirements as specified below.

Graduate College requires that you file an iPOS no later than when you have completed half of the credit hours required for your degree (15 credit hours for master's degree and 42 credit hours for PhD). Some programs may require earlier filing. (See [Part 7](#)). A student is not eligible to apply for comprehensive examinations, dissertation prospectus, or thesis/dissertation defense without an approved iPOS.

With approvals, an iPOS may include hours taken before the start of the current degree program. PhD students may be able to apply 30 credit hours from a conferred master's degree to the PhD iPOS. PhD and master's students may also be able to use courses on the iPOS that were completed at ASU, or at another university, before starting the degree program, provided the courses were not applied to another degree. The advisor, program chair, and Graduate College must approve any such hours. An original transcript must be on file with Graduate College. (See ASU pre-admission credits and non-ASU transfer credits in "Graduate Policies and Procedures")
<http://graduate.asu.edu/policies-procedures>.

How to submit your interactive Plan of Study (iPOS)

Step-by-step instructions for completing the iPOS are available in "How to submit your interactive Plan of Study (iPOS)" at:
<https://graduate.asu.edu/completing-your-degree/how-to>.

1. After filling out the iPOS online, students must submit signed paper copies to the SOLS graduate office.

2. Print the 'Courses' page and the 'Approval' page from the iPOS summary tab. The iPOS approval page has a signature line only for the faculty advisor. However, we ask that all supervisory committee members named in the online system print their name and sign the approval page.
3. Once the student submits the signed version of the iPOS to the SOLS graduate office, the program director reviews and approves the iPOS before sending it electronically to Graduate College for final approval.

You should check your iPOS each semester. If the computer system identifies errors, update your iPOS.

To update an iPOS:

1. Submit a Course Change request in the online system. Remove courses you have not taken from the iPOS and add courses you've taken that were not originally listed on the iPOS. Once the iPOS is updated, save and submit the changes.
2. Notify [Amina Hajdarovic](#) in the graduate programs office so she can evaluate the corrections and approve the updated iPOS.

Note: Courses required for a degree program cannot be substituted unless they have not been taught for two years. You do not need to list all the courses you take on your iPOS. Once you complete the required degree credits, you can take additional courses but do not have to add them to your iPOS.

Comprehensive exams and the prospectus defense (PhD degrees only)

PhD students demonstrate their ability to integrate knowledge of their research area and their potential to conduct an original research project by completing comprehensive exams and a prospectus defense. Graduate College requires that you pass a written comprehensive exam, develop a dissertation proposal/prospectus, and orally defend the prospectus. (See [Part 7](#)).

Comprehensive exam and prospectus defense— 'How To' guide

<https://graduate.asu.edu/completing-your-degree/how-to>

Students must be in good academic standing and have an approved iPOS to be allowed to take the comprehensive exams and defend a prospectus.

Notify the SOLS graduate office several weeks before your comprehensive exam/prospectus defense date. Your records will be reviewed to make sure you have met all program and Graduate College requirements to hold a prospectus defense.

You will bring the SOLS "Report of Doctoral Comprehensive Examinations and Approval of the PhD Dissertation Prospectus" form to the comprehensive exam/prospectus defense. The form should be carefully

completed, as it requires signatures from all supervisory committee members. Deliver the signed form to the SOLS graduate office. The Grad AD signs the form and the results are entered into campus data systems.

Master's in Passing (select PhD students only)

A Master's in Passing (MIP) may be awarded to PhD students after they have advanced to candidacy, in the case that they have not applied hours from a previous Master's to their PhD plans of study

Filing for a MIP

Filing for a MIP is completed online and by email.

To be eligible for a MIP, you must be registered in the term for which you are applying for the MIP. MIP degrees are awarded at the end of the semester in which you apply.

How to file for a MIP

- Ask the SOLS graduate office to email the MIP application to you.
- Complete the MIP form and email it to the SOLS graduate office.
- The SOLS graduate office emails the MIP application to the Graduate College for approval.
- When approved, the student and the SOLS graduate office will receive an email stating that the MIP will be awarded after the student follows the steps stated in the email sent by Graduate College.

See example below:

- 1) Submit an iPOS for the MIP.
 - a) Go to my.asu.edu and log in.
 - b) Look for the My Programs section.
 - c) Click on the My Graduate Plan of Study link.
 - d) Choose the appropriate master's degree and start an iPOS.
 - e) Complete all steps for the iPOS and submit it.
 - f) List 30 hours of course work on the iPOS.
 - g) Students may use XXX 792 credits on the iPOS, but XXX 799 courses are not permitted on the MIP iPOS.
- 2) Work with the SOLS graduate office for approval of the MIP iPOS.
- 3) After the iPOS is approved, the student must also apply to graduate from the MIP.

For information on how to apply for graduation, deadlines, and the online application form, visit MyASU and click on the graduation tab.

Theses and dissertations

The culminating experience of our on-ground graduate degrees is a dissertation or thesis that you will orally defend. These are original works of research and scholarship. The ASU Graduate College process for

defending a dissertation or thesis and completing an ASU graduate degree has numerous, strict deadlines.

Be sure to consult the Graduate College website several months before the anticipated completion of your degree to check specific deadlines and potential process changes. SOLS and ASU Graduate College have helpful resources for navigating the process, which include:

- The SOLS Graduation Packet
- Graduate College guides: <https://graduate.asu.edu/completing-your-degree>

The SOLS graduate programs office will circulate this packet near the beginning of each semester. Students can also get one from the office at any time. It outlines steps to take and deadlines to meet in order to defend and graduate.

Steps to completing your graduate degree

- 1) **Register:** Students must register for at least one credit hour during the semester in which they plan to defend. For students who defend during the summer, enrollment in any one summer session (Session A or Session B, each 7.5 weeks) fulfills the requirement. If the oral defense is scheduled between sessions, the student must be enrolled for the next semester.
- 2) **Update your iPOS:** See "Plans of Study" (p.9).
- 3) **Apply for graduation:** Apply for graduation through the MyASU graduation tab. If your application for graduation is made after the deadline, you will be assessed a late fee and you must apply in person at the student services building. Also, your name will not appear in the commencement program.
- 4) **Schedule your defense:** Determine a good defense date and time together with your supervisory committee. The defense date must meet Graduate College deadlines <https://graduate.asu.edu/completing-your-degree/defenses>. Your defense must be held on an ASU campus during regular business hours. At least 50 percent of your committee must be physically present at the defense. Plan ahead! We recommend that you schedule your defense date several months in advance. See the SOLS graduate office to schedule a room for the oral defense. If you need audio or video equipment for your defense, make arrangements with the SOLS Graduate Programs office. Once you finalize a date with your supervisory committee and the SOLS graduate office, schedule your defense using the "Defense" tab in MyASU.
- 5) **Format the thesis/dissertation and submit it for format review:** The document submitted for format approval must be a complete, defense-ready document. Submit a complete draft of your document at least 10 calendar days before your defense date by uploading your document to the Graduate College Dropbox link. Be sure to include your ASU affiliate ID number in the file name.

Use the formatting tool at <https://graduate.asu.edu/format-manual> to help you format the title page, table of contents, list of illustrations, acknowledgments, etc. Watch for follow-up emails that will alert you to any needed corrections.

6) **Using your own publications as chapters in your dissertation**

Students may include up to three published papers in one final document. However, their inclusion must adhere to the guidelines of the format manual, be consistent with their respective style (MLA, APA, etc.), list their references with each paper and compile all references in one reference section toward the end of their document.

The document must flow. Typically, there is an introductory chapter, the three papers, followed by a conclusion chapter. Students must submit one cohesive document to fulfill the requirements of their dissertations. ASU Graduate College will not accept multiple documents.

Students should check with their committee and the ASU Academic Integrity website <https://provost.asu.edu/academicintegrity/students> to make sure they are properly citing themselves in the document. When referencing their own published work, students should cite themselves like any other author in accordance with the respective style (MLA, APA, etc.).

The university library website also has information on citations <http://libguides.asu.edu/citing>.

7) **Complete the “Survey of Earned Doctorates” (PhD only):** PhD students must complete this survey on the Graduate College website: http://graduate.asu.edu/progress/graduation_deadlines

8) **Register for commencement:** If you are planning to attend any of the commencements, sign up via MyASU and purchase academic regalia at the ASU Bookstore.

9) **Announce the defense:** Submit a word document by email to the SOLS graduate office 10 working days in advance of your defense. Include the following so your defense can be announced:

- date, time and place of the defense
- title of the dissertation/thesis
- supervisory committee members
- abstract
- photo or illustration related to the defense (optional)

10) **Hold the defense:** The Graduate College sends the “Announcement and Report for Doctoral Dissertation Defense” form (Pass/Fail form) electronically to the advisor and supervisory committee members before the defense. Check with your advisor before the defense to make sure he or she has received the form. The student, the chair or one co-chair, and 50 percent of the committee must be physically present at the defense. Follow the procedures stated on the Pass/Fail form under “Level of Pass or Fail.”

11) **Complete the Pass/Fail form:** When the defense is determined to be successful, gather all the necessary signatures on the Pass/Fail form. If a faculty member is substituting for a supervisory committee member who could not attend the defense, have the substitute sign the supervisory committee member’s full name followed by the substitute’s initials only.

Please include a copy of the email from your committee member to the substitute advisor giving them permission to attend and sign on their behalf. If revisions are required, the advisor signs the Pass/Fail form again after all revisions have been completed satisfactorily.

Once you have obtained the signatures, bring your Pass/Fail form to the SOLS graduate office to file with the Graduate College.

12) **Upload the final document to ProQuest:** Once the document has been submitted to ProQuest and approved by ASU format advisors for publication, the document cannot be recalled; no changes may be made to an approved document. Make sure you have submitted the correct version for publication.

13) **Attend commencement:** if desired, attend the commencement ceremony

14) **Leaving campus:** Return any keys to the SOLS facilities office, clean out desk and office space, and give mail-forwarding information to the SOLS graduate office. Check with your advisor regarding any requirements on the safekeeping of data, sample records and laboratory notebooks.

Part 5: Annual reviews

All graduate students in programs administered by SOLS are required to complete an annual review in order to document your own progress and academic standing. The purpose of the progress report is to ensure an ongoing dialog between a student, advisor and supervisory committee about the student's progress toward a degree.

As a part of the process, students and advisors should discuss not only the student's progress during the last year, but also confer on upcoming milestones, goals and expectations. We highly encourage students and advisors to use their mentoring compact during this discussion as a tool to determine what is working well and what may need to be adjusted in the coming year.

The results of these evaluations are incorporated into a variety of decisions, including:

- academic standing:
 - satisfactory progress
 - SOLS academic probation
 - program dismissal
- nominations for fellowships and awards
- petitions for support extensions

- summer support
- Teaching Assistantships

Annual supervisory committee meeting

As a part of the evaluation process, students must meet annually, at a minimum, with their supervisory committees (or with the advisor or program director if they have not yet formed a supervisory committee) to review the progress of their studies and research.

Annual supervisory committee meetings must occur before the advisor's deadline to submit their evaluation on the student's progress. This deadline is the first business day of April, as noted in the annual review timeline on page 13. Schedule your committee meeting well in advance of this deadline to allow for ample preparation and time for the advisor to review the items discussed in the meeting. Any supervisory committee meeting in which the student, advisor, and committee discuss their progress over the past year can be used to fulfill this requirement.

During this meeting, we encourage you to orally present a short synopsis of your cumulative research progress and future plans, including coursework and updates to your iPOS. The supervisory committee asks questions and provides feedback. The supervisory committee excuses the student and confers about the student's progress and continuing status. Once the student returns, the supervisory committee communicates the outcome of its deliberations, as well as an assessment of the strengths and weaknesses of the student's research efforts and any suggestions for alterations in the student's plans.

Progress report exceptions

Students who are close to finishing their degrees (graduating end of spring semester or summer of that year) do not need to complete the progress report. Other students with unusual and compelling circumstances may also request an extension of the progress report deadline.

Requests for progress report extensions must:

- be made in writing to the Grad AD, with a cc:to the program director
- include a reason for the request
- provide a date by which the student will provide the evaluation

Student's self-evaluation

The student's self-evaluation is the first portion of the progress report process. Instructions and a cover form will be emailed to you during the first week of February. The instructions and form are also available on Blackboard, however, additional information is provided in the email noted above.

When writing a self-evaluation, students will be asked to consider and address several areas of assessment, which are intended as a guide to assist in writing. These include:

- coursework
- program development and milestones
- research
- service and outreach
- teaching and mentoring
- writing

Please see the annual review timeline below and note that student documents are due to the SOLS graduate office on the first business day in March. Failure to turn in the Student Progress Report by the deadline will constitute non-satisfactory progress. Throughout this collection process, the SOLS graduate office will review submitted documents for completeness and provide advisors with access to their students' files.

Advisor evaluation

After the committee meeting and before the SOLS graduate office deadline on the first business day of April, the advisor completes and signs the progress report form, including a rating and a brief written evaluation. This evaluation assesses the student's cumulative progress and should include the input of the student's self-evaluation, files and the outcome of the supervisory committee meeting.

The ratings available for the advisor evaluation are as follows:

Rating 1: Student is making timely progress toward degree.

Rating 2: Student's research progress needs improvement. Student needs to address the issues described in the comment area of the form, which must specify milestones and timeline to correct problem(s). Noncompliance will lead to an unsatisfactory progress rating in the following academic year.

Rating 3: Student is not making satisfactory progress and needs to address the issues described in the comment area of the form, which must specify milestones and timeline to correct problem(s). The student is put on probation immediately and will not be eligible for SOLS TA funding. The student has one semester to remedy the situation or be dismissed from the program.

All advisors are encouraged to elaborate on the rating they give in the comment area of the evaluation form. However, comments are required for any evaluation in which a rating of 2 or 3 is given.

As advisor evaluations are turned in, the SOLS graduate office will compile a PDF for each student. When complete and after it is sent to the program director for review, a final evaluation packet will be emailed to the student.

Program review

Program directors review each annual progress report that includes the advisor evaluation and the student's documents to confirm whether or not each student is making satisfactory progress. In the evaluation form provided, program directors will certify they have reviewed the evaluations and may provide additional feedback to the Grad AD.

SOLS review

During the process of collecting the students and advisor's documents, a SOLS staff member will read, review and compile files. If any files are missing, staff will send an email notification to the student and/or advisor, with a cc: to the Grad AD.

The Grad AD reviews any progress reports indicating that a student is not making satisfactory progress or reports with a discrepancy in the evaluation by the (co-)chairs or program directors. In this case, the Grad AD, the program director and the chair or co-chairs meet to discuss the student's status. Their decision becomes the final academic status rating for the student for that review cycle.

TA evaluations by faculty and lab coordinators and those by students (compiled by the undergraduate office) should be considered part of the SOLS review, particularly if issues with the performance of TA duties are identified.

Annual review timeline

- **first week of February:** instructions and cover form sent to students to provide ample time for thoughtfully compiled self-evaluations
- **first business day of March:** completed student portion of the progress report due to the SOLS graduate office
- **first business day of April:** completed advisor evaluation is due to the SOLS graduate office
- **second week of April:** reports sent to the program directors and Grad AD, especially those with ratings of 2 or 3
- **first week of May:** program directors' assessments due to the SOLS graduate office
- annual review cycle completed with determinations on whether students are making satisfactory progress

Part 6: Academic standing

Satisfactory progress

Students are responsible for reading and following satisfactory academic progress policies of the Graduate College, SOLS and their individual graduate programs.

Graduate College satisfactory academic progress policy

All graduate students are expected to make systematic progress toward completion of their degree. This progress includes satisfying the conditions listed below and achieving the benchmarks and requirements set by the individual degree programs. If a student fails to satisfy the requirements of their degree program and/or the benchmarks outlined below, the student may be placed on academic probation and ultimately dismissed from their program based on the academic unit's recommendation to the ASU Graduate College. The dean of the Graduate College makes the final determination.

The following criteria determine satisfactory progress:

1. **Maintain a minimum of 3.00 GPA on all three of the reported GPAs:** the cumulative, the overall graduate and the Plan of Study (iPOS). If any of the three GPAs fall below 3.00, the student is placed immediately on academic probation by the Graduate College. The AD for graduate programs will follow with a letter identifying the conditions and the time-frame for making satisfactory academic progress in their degree program so that the probation status can be lifted (for the overall graduate GPA, only 500 level or higher courses count)
 - The iPOS GPA is calculated from all courses that appear on the student's approved iPOS. The overall graduate GPA is calculated from all courses numbered 500 or higher that appear on the transcript, with the exception of courses counted toward an undergraduate degree at ASU (unless shared with a master's degree in an approved bachelor's/master's degree program); and courses identified as deficiencies in the original letter of admission.
 - The student is considered to be on academic probation until the conditions specified in the academic performance improvement plan are met and all three GPAs are above 3.00.

2. **Satisfy all requirements of the degree program in a timely manner.**
 - Complete the graduate degree program within the maximum time limit set for the student's specific graduate degree program.
 - Successfully pass comprehensive exams, qualifying exams, and the oral defense of the proposal/prospectus for the thesis or dissertation.
 - Successfully complete the culminating experience and the oral defense of the culminating experience.
3. **Stay continuously enrolled in your degree program.**
 - Failing to do so without the Graduate College-approved Request to Maintain Continuous Enrollment is considered a lack of academic progress and may lead to automatic dismissal of the student from the degree program. Persistent "W" and "I" grades during multiple semesters on an iPOS or transcript may reflect a lack of academic progress.

Full Graduate College Policies and Procedures:
<https://graduate.asu.edu/key-policies>

SOLS satisfactory academic progress policy

To be considered as making satisfactory progress toward a degree, a student must:

- Meet Graduate College and program GPA requirements and progress listed above.
- Complete the SOLS annual evaluation of graduate student progress (Progress Report) program annual evaluation by the first business day of March of each year and be found to be making satisfactory progress by the supervisory committee and program director ([See part 5](#)).
- Have a permanent advisor by the end of the period specified by the graduate program. Students who do not have an advisor or no longer have an advisor are notified in writing that they have one semester to identify a new one. Students who fail to identify a chair/advisor after this period will be considered to be making unsatisfactory progress.

Students who are making unsatisfactory progress may be placed on SOLS academic probation or recommended to Graduate College for dismissal from their program. Consequences of unsatisfactory progress, including failure to complete a progress report by the first business day of March, will directly affect consideration for SOLS fellowships or awards, other financial support from SOLS, eligibility for SOLS academic year TA and RA positions, and consideration for SOLS summer TA and RA positions. In addition, programs and individual faculty may use progress determinations to inform funding decisions ([see SOLS academic probation](#)).

Individual Graduate Program Satisfactory Academic Progress Policies

Degree	Appoint permanent advisor	Pass comprehensive exams (PhD only)	Successfully defend dissertation prospectus (PhD only)	Submit completed dissertation or thesis	Other program requirements
Animal Behavior PhD	Fall semester of first year	5 th semester	5 th semester	Not specified. Target Year 5 or 6	
Biology PhD	2 nd semester	5 th Semester		Not specified. Target Year 5 or 6	
Biology and Society PhD	2 nd semester	6 th semester	6 th semester	12 th semester	
Environmental Life Sciences PhD	Fall semester of first year	5 th semester		Not specified. Target Year 5 or 6	
Evolutionary Biology PhD	Fall semester of first year	6 th semester		Not specified. Target Year 5 or 6	
History and Philosophy of Science PhD	2 nd semester	6 th semester	6 th semester	12 th semester	
Microbiology PhD	Fall semester of first year	4 th semester		Not specified. Target Year 5 or 6	
Molecular and Cellular Biology PhD	Fall semester of first year	4 th semester	5 th semester	Not specified. Target Year 5 or 6	
Neuroscience PhD	Summer before starting second year	6 th semester	6 th semester	Summer after eighth year	--2 lab rotations in yr. 1 --No course grade below B-
Biology MS	Fall semester of first year	NA	NA	Semester 4	
Biology and Society MS	Semester 1	NA	NA	Semester 4	
Microbiology MS	Semester 1	NA	NS	Semester 4	
Molecular and Cellular Biology MS	Semester 1	NA	NS	Semester 4	
Plant Biology and Conservation MS	Fall semester of first year	NA	NA	Semester 4	

SOLS academic probation

SOLS academic probation affects a student's status within SOLS but is not reported to Graduate College or put on a student's permanent academic record. Students can be placed on probation for academic dishonesty or unsatisfactory progress (see [SOLS satisfactory academic progress policy](#)). Students should take probation as a strong warning from SOLS that their continuing status in the program is in jeopardy unless corrective action is taken.

Students on probation are notified in writing. The probation letter includes:

- academic performance and/or program requirements to be met
- deadlines for meeting requirements
- consequences of not meeting requirements at the determined time

After probation, students can be returned to a status of satisfactory progress or recommended for program dismissal. Students who improve academic performance by the specified deadlines (generally within one semester) are considered to be making satisfactory progress.

Students who are not able to fulfill a requirement by its deadline may submit a petition in writing to their program director and the Grad AD requesting an extension to complete the requirement. The petition must:

- explain extenuating circumstances as to why the requirement cannot be met
- describe what has been done and what will be done to get back on track
- give the date(s) as to when the requirement will be completed
- include a letter of support from the student's advisor

Students will be notified by email or letter whether the program director and Grad AD have granted an extension.

Dismissal

SOLS may seek student dismissal in several situations.

1. **Provisional admission (as defined in the SOLS offer letter):**

At the end of each semester, Graduate College reviews students who were admitted provisionally to determine whether they have successfully met the conditions of admission. If a student has met the conditions, the provisional admission hold will be removed from the student's record. If a student has not successfully met the conditions of admission, Graduate College will dismiss the student from the program. There is no appeal process for provisional admits.

2. **Admission with deficiencies (as defined in the SOLS offer letter):**

At the end of each semester, SOLS reviews students who have been admitted with academic deficiencies. If a student has successfully completed the requirements pertaining to the deficiencies outlined by SOLS in the student's admission letter, the Grad AD and program director will send a letter to the student stating he or she has met the conditions of admission and are in good academic standing. If a student has not successfully met the requirements, the Grad AD will notify Graduate College that the student did not meet the conditions of admission and recommend the student for dismissal from the program. The student can petition this decision and request to extend the probationary period by one more semester.

3. **Individual graduate programs, SOLS and Graduate College non-satisfactory progress:**

For students who have not met the conditions of probation at the end of the deadline stated in the probation letter, the Grad AD will send the student a letter with notification that a recommendation will be made to the Graduate College that the student be dismissed from the degree program. The student can petition this decision within 10 business days and request to extend the probationary period by one more semester.

Appeals

Appeals:

- must be made to SOLS within 10 days of the notification date
- will be heard by a committee of program directors in SOLS
- If the appeal is not successful, SOLS provides the College of Liberal Arts and Sciences (CLAS) associate dean of Graduate Programs with a copy of the letter recommending dismissal of the student, along with supporting documentation.
- CLAS then notifies students that their appeal is reviewed at the college level.

Possible outcomes of an appeal

The CLAS associate dean notifies student in writing of a successful appeal. The letter will include any stipulations or restrictions (e.g., continuation in the program is under the condition of academic probation, contingent on corrections within a specific time frame).

The CLAS associate dean notifies students in writing of an unsuccessful appeal and that they will be recommended to Graduate College for dismissal.

Part 7: Individual program requirements

Animal Behavior PhD

The PhD in Animal Behavior is a research training degree, culminating in a dissertation that analyzes a behavioral problem from multiple levels of analysis and exemplifies the development of an independent scientist.

Supervisory committee

Selected by the student in consultation with his/her advisor by the end of the 2nd semester.

- The committee will have at least five members (the advisor and at least four other members).
- The composition needs to be approved by the animal behavior executive committee.
- One member may be from outside ASU but will need to be approved by the program's executive committee.
- Annually, a student will meet with his/her supervisory committee to review their progress in the program. The advisor will file a report on behalf of the committee that evaluates the student's progress and plans for the coming year.

Program of Study

Filed by the end of the 2nd semester after meeting with supervisory committee.

- Each student, with his or her advisor, develops an interactive Plan of Study (iPOS), which the student's supervisory committee approves and oversees.
- 84 hours required, minimum GPA = 3.0
- 8 credit hours of core courses: ANB 601 (4 credit hours) to be taken in the first or second semester, and ANB 602 (1 credit hour) to be taken four times during the Program of Study
- 12 hours of ANB 799 dissertation hours
- Remaining credit hours are selected in consultation with the supervisory committee and filled with either elective courses or ANB omnibus courses (ANB 784, Doctoral Internship; ANB 790, Doctoral Reading and Conference; ANB 799, Doctoral Dissertation). Except for ANB 799, Doctoral Dissertation, the omnibus courses are not required.
- No more than 6 credit-hours of 400-level coursework can be included on the student's iPOS.
- If a student has previous graduate-level credits, but has not received a graduate-level degree, a maximum of 12 credit hours completed before admission may be petitioned from Graduate College to be included on the Program of Study for the current doctoral degree.
- Students may not apply credit hours earned for a doctoral degree previously awarded at ASU or another institution toward their current ASU doctoral degree.

- The student may apply up to 30 semester hours from a previously awarded master's degree toward their doctoral iPOS.

Comprehensive exam and defense of the dissertation prospectus

Complete before the end of the 5th semester.

Written comprehensive exam

- The student will write a dissertation prospectus consisting of a synthetic, NSF-style research proposal that lays out the rationale and experimental plan of the dissertation. This should be submitted to the supervisory committee at least two months before the scheduled comprehensive exam date. The committee will judge how well the student's research proposal is designed and justified.
- Within one month of receiving the dissertation prospectus, committee members should send any suggestions for improvement of the prospectus to the student and advisor. Once these changes are incorporated into the prospectus and before the exam can be held, each committee member must in writing indicate to the student's advisor that the prospectus is ready to defend.

Oral comprehensive exam

This exam consists of the defense of the research proposal and subsequent questions from the supervisory committee on the broader context of the proposed research.

- At the beginning of the exam, the student may choose to give a 15-20 min presentation on their research plan. This part is open to a general audience of faculty, as well as to the supervisory committee. Questions from the committee in closed session should then focus on the prospectus and the student's general knowledge of their research and teaching discipline.
- There are several allowable outcomes of the exam.
- pass – satisfactory performance on both the written and oral components
- postponed decision – unsatisfactory performance on one or both components, but with an explicit plan for dealing with the deficiencies by rewriting the prospectus, retaking the oral, or both
- failure – unsatisfactory performance on both the written and oral components

Candidacy

Students will advance to Candidacy after successfully completing all steps up to this point.

Apply for graduation

See Graduate College website for details of this process. <https://students.asu.edu/graduation>

Dissertation and defense

- This is typically completed within five to six years.
- Convene with supervisory committee about four months before planned defense.
- Register for a least one hour of appropriate graduate level credit during the semester in which the dissertation is defended.
- Submit completed dissertation to committee members at least one month prior to the scheduled exam.
- Students are strongly advised to work with their committee members and allow them sufficient time to provide input on the chapters.
- Defense should be scheduled at a time agreed upon by the student and supervisory committee that takes into consideration the deadlines for graduation set by Graduate College.
- Submit request to hold the defense, dissertation and appropriate paperwork to Graduate College at least 10 working days prior to scheduled defense date.
- The first hour of the defense is a public presentation of the dissertation research. After the public defense, the supervisory committee will examine the student and judge whether the student's dissertation and performance in the oral defense are sufficient to award the PhD degree.

Biology PhD

Supervisory committee**

- Selected by end of 2nd semester.
- At least four members (one professor from your major and three others).

Program of Study

- filed by end of 2nd semester
- 84 semester hours required
- a minimum of 9 semester hours consisting of:
 - 3 or 4 semester hours of core course: BIO 614 Biometry or BIO 620 Research Prospectus Writing
 - remaining semester hours of elective courses including seminars or classes at the 400, 500, 600 or 700 level. No more than 3 semester hours of the required semester hours may be taken at the 400 level
- optional additional semester hours of elective courses including seminars or classes at the 400, 500, 600 or 700 level, but no more than 6 semester hours at the 400 level in total
- exactly 12 BIO 799 Dissertation semester hours
- Remaining semester hours, 84 total, are BIO 792 (Research). At least 12 semester hours of research are required, but typically students take many more than required.

- Of the 84 semester hours, at least 30 semester hours of the approved PhD program hours and 12 dissertation hours must be completed after admission to the current PhD program.
- If a student has previous graduate level credits, but has not received a graduate level degree, a maximum of 12 semester hours of credit completed before admission may be included on the Program of Study for the current doctoral degree.
- Students may not apply credit hours earned for a doctoral degree previously awarded at ASU or another institution towards their current ASU doctoral degree.
- The student may apply up to 30 semester hours from a previously awarded master's degree toward their doctoral Program of Study.

**The requirements for supervisory committees and plans of study for the Biology PhD were updated August 2016. Any students who began the degree before that semester are subject to the previous requirements (consult your program director with questions).

Research proposal

Students are requested to submit their research proposal in the 4th or 5th semester and required to submit their research proposal by the end of the 6th semester for satisfactory progress. Otherwise, the student will be put on probation.

This takes the place of the written comprehensive exam. Students who are not able to fulfill this requirement by its deadline may submit a petition in writing to their program director and the Grad AD as described in the SOLS graduate handbook.

The research proposal:

- The proposal synthesizes current ideas in the student's area of research interest.
- Must follow the guidelines of an appropriate funding agency (e.g., NSF or NIH).
- Should show sufficient breadth and depth in the research area to be suitable for submission to a national funding agency, although actual submission and approval is not a criterion for successful completion of this requirement.
- Must be approved by supervisory committee before the oral comprehensive examination.

Oral comprehensive exam

Students will be requested to take their exam in the 4th or 5th semester and required to take their comprehensive exam by the end of the 6th semester for satisfactory progress. Otherwise, the student will be put on probation. Students who are not able to fulfill this requirement by its deadline may submit a petition in writing to their program director and the Grad AD as described in the SOLS graduate handbook.

The oral comprehensive exam:

- a defense of the written research proposal
- tests the depth and breadth of knowledge in the major area, particularly in the research area of the student

Failing the comprehensive examination(s) is considered final unless the supervisory committee and the head of the academic unit recommend and the Vice Provost for Graduate College approve a re-examination as described in the ASU graduate policies. Only one re-examination is permitted.

Candidacy

Students will advance to candidacy after successfully completing all steps up to this point.

Apply for graduation

- See Graduate College website for details of this process: <https://students.asu.edu/graduation>

Dissertation and defense

- typically done by end of the 10th semester
- consists of a one-hour public lecture followed by an oral examination administered by the supervisory committee
- meeting scheduled with supervisory committee approximately four months before planned defense, present dissertation project and get approval to prepare the final written document
- dissertation draft to the committee about two months before planned defense
- should be scheduled at a mutually agreed on time by the student and Supervisory Committee
- submit request to hold the defense, dissertation, and appropriate paperwork to Graduate College at least 10 working days prior to scheduled defense date
- Register for a least one hour of appropriate graduate level credit during the semester in which the dissertation is defended.

Biology and Society PhD (concentration in biology)

Supervisory committee**

The advisor must be appointed by the end of the second semester. The full advisory committee should be appointed at least one semester before a student defends the dissertation prospectus and is generally appointed not later than the end of the fourth semester.

- Five members are recommended, and four members (advisor and at least three others) are required.
- The advisor must be a member of the biology and society graduate faculty endorsed to chair such committees.
- Half (or more) of the advisory committee must be members of the biology and society graduate faculty.

Program of Study**

Filed by the time the student has completed 50 percent of the required 84 hours

Four different tracks of study are available:

- bioethics, policy and law (BPL)
- biology education research (BER)
- ecology, economics and ethics of environment (4E)
- history and philosophy of science (HPS)
- With permission of the program director, students may also develop plans of study that incorporate elements of several tracks.

Required coursework:

- 12-13 credit hours of core courses (combine to provide broad, basic competency in Biology and Society)
- 9 credit hours of courses related to the life sciences. This supporting coursework provides expertise in the particular research area. Any courses offered under one of the SOLS prefixes (BIO, ELS, EVO, HPS, MCB, MIC, and PLB) or any courses taught by faculty members in the biology and society faculty group fulfill the requirement. In general, the courses should be 'x of science or biology' rather than just 'x'. (e.g. 'history of biology' rather than 'modern American history').
- 39 credit hours of research, seminars, and readings courses, including additional research methods, as appropriate, and BIO/HPS 615: Biology and Society Lab.
- at least 12 credit hours of BIO 792, Research
- exactly 12 credit hours of BIO 799, Dissertation Sample Core Courses I: Bioethics, policy and law (BPL) track
 - 3 hours – Ethics, as related to life sciences
 - 3 hours – Science policy

- 3 hours – Law, as related to science or technology
- 3 hours – BIO 620, Research Prospectus Writing, or BIO 614, Biometry

Sample Core Courses II: Biology education research (BER) track

- 3 hours – Quantitative methods or statistics
- 3 hours – Learning, educational, or psychological theory
- 3 hours – Discipline-based education research
- 3 hours – BIO 620, Research Prospectus Writing, or BIO 614, Biometry

Sample Core Courses III: Ecology, economics and ethics of the environment (4E) track

- 3 hours – Ecology
- 3 hours – Environmental or natural resource economics
- 3 hours – Environmental ethics or environmental policy
- 3 hours – BIO 620, Research Prospectus Writing, or BIO 614, Biometry

Sample Core Courses IV: History and philosophy of science (HPS) track

- 3 hours – History of science
- 3 hours – Philosophy of science
- 3 hours – History of science or philosophy of science
- 3 hours – BIO 620, Research Prospectus Writing, or BIO 614, Biometry

- 400, 500, 600 and 700 level classes only (only 6 total credit hours of 400-level coursework are allowed)
- Students cannot use courses with grades of “D,” “E,” “I” (Incomplete), “X” (Audit), or “W” (Withdrawn) on a Plan of Study.
- Graduate students must maintain a minimum of 3.00 GPA to maintain satisfactory academic program and to graduate. The minimum 3.00 GPA must be maintained on both the Plan of Study GPA and the Graduate GPA.
- Of the 84 semester hours, at least 30 hours of the approved PhD program hours and 12 dissertation hours must be completed after admission to the current PhD program.
- If a student has previous graduate level credits but has not received a graduate level degree, a maximum of 12 semester hours of credit completed before admission may be included on the Program of Study for the current doctoral degree with approval from Graduate College.
- Students may not apply credit hours earned for a doctoral degree previously awarded at ASU or another institution towards their current ASU doctoral degree.

- The student may apply up to 30 semester hours from a previously awarded master’s degree toward their doctoral Program of Study.
- PhD students must complete all program requirements within a ten-year period. The ten-year period starts with the semester and year of admission into the doctoral program. In addition, the student must take the final oral examination in defense of the dissertation within five years after passing the comprehensive examinations (which for the biology and society programs, are also the written dissertation prospectus and its defense).

Comprehensive exam and defense of the dissertation prospectus

The written dissertation prospectus is also the written comprehensive exam and the oral defense of the prospectus is also the oral comprehensive exam. These are typically completed early in the 4th semester and must be completed by the end of the 6th semester.

- Students must meet with their committees to discuss a draft prospectus before formal defense of the prospectus.
- The written dissertation prospectus must contain, at a minimum, a description of the research question and its significance, a detailed work plan for data collection, analysis, and writing, and a complete bibliography.
- The goal of the written prospectus and its oral defense is for the committee to ascertain whether the candidate has an adequate grasp on the scholarly literature relevant to the project and is ready to start researching and writing the dissertation.
- Failure is considered final except under extraordinary circumstances.

Candidacy

Students will advance to candidacy after successfully completing all steps up to this point.

Apply for graduation

See University Registrar Services’ web site for details of this process: <https://students.asu.edu/graduation>

Dissertation and Defense

Typically completed in the 8th - 10th semester. Must be completed by the end of the 12th semester.

- Register for a least 1 hour of appropriate graduate level credit during the semester in which the thesis is defended
- Submit dissertation draft to the committee about two months before planned defense.
- The student and supervisory committee, taking into consideration the deadlines for graduation set by Graduate College, should schedule defense at a mutually agreed on time. To allow for coordinating

schedules, the student should start planning a defense date with the committee several months in advance of the defense.

- Submit request to hold the defense, dissertation, and appropriate paperwork to Graduate College at least 10 working days prior to scheduled defense date
- The first part of the defense is a public presentation of the thesis research. After the public presentation and questions from the audience, the student is examined by their supervisory committee, which will judge whether to award the PhD.

****The requirements for supervisory committees and plans of study for the Biology PhD were updated August 2016. Any students who began the degree before that semester are subject to the previous requirements (consult your program director with questions).**

Environmental Life Sciences PhD

The PhD in ELS is a research degree, culminating in a dissertation, which must draw on multiple disciplinary perspectives.

Supervisory committee

Selected by end of 2nd semester

- The supervisory committee will be formed by the student in consultation with his/her advisor by the end of the second semester.
- comprised of at least four members (major professor and at least 3 others)
- interdisciplinary (at least two ELS units need to be represented)
- composition needs to be approved by the ELS Executive Committee

Program of Study

Filed by end of 2nd semester

- Each student, with his or her main advisor, develops an interactive Program of Study (iPOS), which the student's Supervisory committee approves and oversees.
- 84 hours required, minimum GPA = 3.0
- 3 credit hours of core course ELS 501 to be taken in the first semester.
- At least two courses (6 credit hours) selected from different broad categories of:
 - Earth Sciences (e.g., geology, hydrology)
 - Ecology/ecosystems/biogeochemistry
 - Evolutionary biology (e.g., population genetics)
 - Organismal biology (e.g., physiology and behavior)
 - Sustainability/Social/Policy
- Successful completion of each course includes a synthetic paper in the subject area.

- a course (3 credit hours) in quantitative/modeling/statistics
- 12 credit hours of ELS 799 dissertation hours
- The remaining credit hours should be filled either from the list of ELS electives (see <https://sols.asu.edu/degree-programs/environmental-life-sciences-phd>) or ELS omnibus courses (ELS 784, Doctoral Internship; ELS 790, Doctoral Reading and Conference). Except for ELS 799 Doctoral Dissertation, these omnibus courses are not required.
- No more than 6 credit hours of 400-level coursework can be included on graduate student's Program of Study.
- If a student has previous graduate level credits but has not received a graduate level degree, a maximum of 12 semester hours of credit completed before admission may be petitioned from Graduate College to be included on the Program of Study for the current doctoral degree.
- Students may not apply credit hours earned for a doctoral degree previously awarded at ASU or another institution towards their current ASU doctoral degree.
- The student may apply up to 30 semester hours from a previously awarded master's degree toward their doctoral Program of Study.

Comprehensive exam and defense of the dissertation prospectus

To be completed before the end of the 4th or 5th semester

- A synthetic NSF-style research proposal constitutes the written comprehensive exam.
 - A detailed description of the rationale and experimental plan of the dissertation, in NSF grant-style, should be submitted to the graduate committee at least two months before the scheduled comprehensive exam date. Students will be engaged in dissertation projects that explicitly involve interdisciplinary research and will be evaluated on it. The dissertation committee will judge how well the student's research proposal is designed and justified. Within one month of receiving the dissertation prospectus, committee members should approve the prospectus as "ready to defend" and send any suggestions for prospectus approval to the student. All committee members should indicate that the prospectus is "ready to defend" before the exam is held.
- The oral comprehensive exam consists of the defense of the research proposal and subsequent questions from the supervisory committee on the broader context of the proposed research.
 - At the beginning of the exam, the student should give a 15-30 minute presentation on their research plan. This part is open to a general audience of faculty as well as to the supervisory committee. Questions from the committee in closed session

should then focus on the prospectus and the student's general knowledge of their research and teaching discipline.

- Failure is considered final except under extraordinary circumstances.

Candidacy

Students will advance to candidacy after successfully completing all steps up to this point.

Apply for graduation

See University Registrar Services website for details of this process: <https://students.asu.edu/graduation>

Dissertation and defense

to be completed by end of 8th or 10th semester.

- Convene with supervisory committee about four months before planned defense.
- Register for a least 1 hour of appropriate graduate level credit during the semester in which the dissertation is defended
- Students should submit their completed dissertation to their committee members at least one month prior to the scheduled exam.
- Students are strongly advised to work with their committee members, allowing them sufficient time to provide input on the chapters.
- The student and supervisory committee, taking into consideration the deadlines for graduation set by Graduate College, should schedule defense at a mutually agreed on time.
- Submit request to hold the defense, dissertation, and appropriate paperwork to Graduate College at least 10 working days prior to scheduled defense date.
- The first hour of the defense is a public presentation of the dissertation research. After the public defense, the student is examined by their supervisory committee which will judge whether the student's performance in the oral and written exams is sufficient to award the PhD degree.

Evolutionary Biology PhD

The PhD in evolutionary biology is a research degree culminating in a dissertation.

Supervisory committee

The supervisory committee should be formed by the student in consultation with his/her advisor by the end of the third semester.

- At least 50 percent of the dissertation committee should be from the evolution graduate faculty (as per graduate college requirements).
- Composition needs to be approved by the evolutionary biology executive committee.

Program of Study

Filed by end of 3rd semester

- Each student, with his or her main advisor, develops an interactive Program of Study (iPOS), which the student's supervisory committee approves and oversees.
- 84 hours required, minimum GPA = 3.0
- 5 credit hours of core courses (EVO 601 and 610), to be taken in the first and second semesters
- at least three courses (10 hours) selected from approved EVO elective courses
- BIO 614: Biometry, or a course (3 hours.) in quantitative/modeling/statistics, approved by the Supervisory Committee, generally to be taken in the first four semesters
- 12 hours of EVO 799 dissertation
- The remaining credit hours should be filled either from the list of EVO electives or EVO omnibus courses (EVO 784, Doctoral Internship; EVO 790, Doctoral Reading and Conference). These elective courses should be chosen in consultation with the dissertation advisor and doctoral dissertation committee. It is generally expected that the elective courses will be completed by the end of the third year (6th semester). Except for EVO 799 Doctoral Dissertation, these omnibus courses are not required.
- No more than 6 credit hours of 400-level coursework can be included on graduate student's Program of Study.
- If a student has previous graduate level credits but has not received a graduate level degree, a maximum of 12 semester hours of credit completed before admission may be petitioned from Graduate College to be included on the Program of Study for the current doctoral degree.
- Students may not apply credit hours earned for a doctoral degree previously awarded at ASU or another institution towards their current ASU doctoral degree.
- The student may apply up to 30 semester hours from a previously awarded master's degree toward their doctoral Program of Study.

Comprehensive exam and defense of the dissertation prospectus

to be completed by the end of the 6th semester

A synthetic NSF-style research proposal constitutes the written comprehensive exam.

- A detailed description of the rationale and experimental plan of the dissertation, in NSF grant style, should be submitted to the graduate committee at least two months before the scheduled comprehensive exam date. The dissertation committee will judge how well the student's research proposal is designed and justified. Within one month of receiving the dissertation prospectus, committee members should approve the prospectus as "ready to defend" and send any

suggestions for prospectus approval to the student. All committee members should indicate that the prospectus is “ready to defend” before the exam is held.

- The oral comprehensive exam consists of the defense of the research proposal and subsequent questions from the supervisory committee on the broader context of the proposed research. This exam is open to the supervisory committee only. At the beginning of the exam, the student should give a 20-25-minute presentation on his or her research plan. Questions from the committee should then focus on the prospectus and the student’s general knowledge of their research and teaching discipline.
- Failure is considered final except under extraordinary circumstances.

Candidacy

Students will advance to candidacy after successfully completing all steps up to this point.

Apply for graduation

See University Registrar Services website for information: <https://students.asu.edu/graduation>

Dissertation and defense

to be completed by end of 10th semester

- Register for at least one hour of appropriate graduate level credit during the semester in which the dissertation is defended.
- Submit your completed dissertation to your committee members at least one month prior to the scheduled exam.
- Students are strongly advised to work with their committee members, allowing them sufficient time to provide input on the chapters.
- The student and supervisory committee, taking into consideration the deadlines for graduation set by Graduate College, should schedule defense at a mutually agreed on time.
- Submit request to hold the defense, dissertation, and appropriate paperwork to Graduate College at least 10 working days prior to scheduled defense date.
- The first hour of the defense is a public presentation of the dissertation research. After the public defense, the supervisory committee examines the student and judges whether the student’s performance in the oral and written exams is sufficient to award the PhD degree.

History and Philosophy of Science PhD

Supervisory committee

The advisor must be appointed by the end of the second semester. The full advisory committee should be appointed at least one semester before a student defends the dissertation prospectus and is generally appointed not later than the end of the fourth semester.

- The committee is comprised of at least five members (advisor and at least four others)
- The advisor must be a member of the History and Philosophy of Science graduate faculty endorsed to chair such committees.
- At least fifty percent of the committee members must be members of the History and Philosophy of Science graduate faculty.

Program of Study

filed by the time the student has completed 50 percent of the required 84 hours

Required coursework:

- HPS 620, Research Prospectus Writing—3 credits
- HPS 615, Biology and Society Lab—3 credits
- approved courses in history of science—6 credits
- approved courses in philosophy of science—6 credits
- approved course(s) in history of philosophy—3 credits
- approved course(s) in value theory—3 credits
- approved course(s) in advanced logic or equivalent—3 credits
- approved courses in philosophy, history, or the life sciences—9 credits
- electives and research—24 credits
- HPS 792, Research—at least 12 credits
- HPS 799, Dissertation—exactly 12 credits
- 400, 500, 600, and 700 level classes only (only 6 total credit hours of 400 level coursework are allowed)
- Students cannot use courses with grades of “D,” “E,” “I” (Incomplete), “X” (Audit), or “W” (Withdrawn) on a Plan of Study.
- Graduate students must maintain a minimum of 3.00 GPA to maintain satisfactory academic program and to graduate. The minimum 3.00 GPA must be maintained on both the Plan of Study GPA and the Graduate GPA.
- Of the 84 semester hours, at least 30 hours of the approved PhD program hours and 12 dissertation hours must be completed after admission to the current PhD program.

- If a student has previous graduate level credits but has not received a graduate level degree, a maximum of 12 semester hours of credit completed before admission may be included on the Program of Study for the current doctoral degree with approval from Graduate College.
- Students may not apply credit hours earned for a doctoral degree previously awarded at ASU or another institution towards their current ASU doctoral degree.
- The student may apply up to 30 semester hours from a previously awarded master's degree toward their doctoral Program of Study.
- PhD students must complete all program requirements within a ten-year period. The ten-year period starts with the semester and year of admission into the doctoral program. In addition, the student must take the final oral examination in defense of the dissertation within five years after passing the comprehensive examinations (which for this program, are also the written dissertation prospectus and its defense).
- Register for a least one hour of appropriate graduate level credit during the semester in which the dissertation is defended.
- Submit dissertation draft to the committee about two months before planned defense.
- The student and supervisory committee, taking into consideration the deadlines for graduation set by Graduate College, should schedule defense at a mutually agreed on time. To allow for coordinating schedules, the student should start planning a defense date with the committee several months in advance of the defense.
- Submit request to hold the defense, dissertation, and appropriate paperwork to Graduate College at least 10 working days prior to scheduled defense date.
- The first part of the defense is a public presentation of the thesis research. After the public presentation and questions from the audience, the student is examined by their supervisory committee, which will judge whether to award the PhD.

Comprehensive exam and defense of the dissertation prospectus

The written dissertation prospectus is also the written comprehensive exam and the oral defense of the prospectus is also the oral comprehensive exam. This is typically completed early in the 4th semester, but must be completed by the end of the 6th semester.

- Students must meet with their committees to discuss a draft prospectus before formal defense of the prospectus.
- The written dissertation prospectus must contain, at a minimum, a description of the research question and its significance, a detailed work plan for data collection, analysis, and writing, and a complete bibliography.
- The goal of the written prospectus and its oral defense is for the committee to ascertain whether the candidate has an adequate grasp on the scholarly literature relevant to the project and is ready to start researching and writing the dissertation.
- Failure is considered final except under extraordinary circumstances.

Candidacy

Students will advance to candidacy after successfully completing all steps up to this point.

Apply for graduation

See University Registrar Services website for details of this process: <https://students.asu.edu/graduation>

Dissertation and defense

typically completed in the 8th-10th semester and must be completed by the end of the 12th semester.

Microbiology PhD

Supervisory committee

- Select a lab no later than the end of the 2nd semester following admission
- Select the supervisory committee by the 3rd semester
- Hold first supervisory committee meeting by beginning of 4th semester

Committee

- at least four members (major professor and at least three others)
- chair or co-chair must be a School of Life Sciences microbiology faculty member
- must be approved members of the graduate faculty
- If a student is doing research with a non-SOLS faculty member, a SOLS microbiology faculty member must serve as co-chair of the supervisory committee.

Program of Study

File by the end of the semester after choosing a lab.

- 84 credit hours required

Required Courses:

- Fall Semester
 - MIC 501 – Foundations in Microbiology (3 credits)
 - A minimum of 18 graduate level course work credits is required.
 - Exactly 12 MIC 799 Dissertation credits after admittance to candidacy
 - remaining credits are comprised of MIC 792 Research, seminars and journal clubs

- 500, 600 and 700 level classes only (no more than 6 credits of 400 level classes can be included if recommended and justified by the supervisory committee or by the supervisor and/or director)
- Of the 84 semester hours, at least 30 hours of the approved PhD program hours and 12 dissertation hours must be completed after admission to the current PhD program.
- If a student has previous graduate level credits but has not received a graduate level degree, a maximum of 12 semester hours of credit completed before admission may be included on the Program of Study for the current doctoral degree.
- Students may not apply credit hours earned for a doctoral degree previously awarded at ASU or another institution towards their current ASU doctoral degree.
- The student may apply up to 30 semester hours from a previously awarded master's degree toward their doctoral Program of Study.
- This consists of a one-hour public seminar followed by an oral examination administered by the supervisory committee.
- Convene with supervisory committee approximately four months before planned defense.
- Present dissertation data and get approval to prepare the final written document.
- Submit dissertation draft to the committee about two months before planned defense.
- Should be scheduled at a mutually agreed on time by the student and supervisory committee.
- Submit request to hold the defense, dissertation, and appropriate paperwork to Graduate College at least 10 working days prior to scheduled defense date.
- Register for a least 1 hour of appropriate graduate level credit during the semester in which the dissertation is defended.

Research proposal

Complete by end of 2nd semester for students with MS, end of 4th semester for students with BS. Include:

- introduction (brief literature review, statement of purpose or objective)
- expected significance of work
- plan of work (methods and approaches)
- bibliography
- 10 double-spaced typewritten pages
- written proposal with oral presentation to be completed in meeting with supervisory committee
- approved copy of proposal becomes part of student's academic file in SOLS graduate office

Written and oral comprehensive exams

Complete by end of 2nd semester for students with MS, end of 4th semester for students with BS:

- written exam formulated by faculty and graded by the student's committee; usually involves 2 full days.
- oral exam scheduled within 2 weeks following the written exam and administered by student's committee.

Candidacy

Students will advance to candidacy after successfully completing all steps up to this point.

Apply for graduation

See University Registrar Services website for details of this process: <https://students.asu.edu/graduation>

Dissertation and defense

Complete by end of 8th semester for students with MS or 10th semester for students with BS.

Molecular and Cellular Biology PhD

Supervisory committee

selected by end of 2nd semester and include:

- at least four members (major professor and at least three others)
- chair or co-chair, who is a core ASU MCB chair-eligible faculty member
- minimum of two members must be MCB chair-eligible faculty
- If student is doing research in a non-ASU laboratory, then he/she needs an ASU-based MCB chair or eligible co-chair.

Program of Study

filed by end of 2nd semester

- 84 semester hours required

Required Courses

- MCB 701 is required every semester
- core curriculum taken during first year

Fall semester

- MCB 555, 6 credit hours – team taught – membrane biology, neurobiology, signal transduction, bioimaging and molecular-based disease
- research, 3-6 credits

Spring semester

- MCB 556, 3 credits –gene regulation, developmental biology, microbiology and immunology; reading the scientific literature and scientific writing and oral presentation
- BIO 543 Molecular Genetics or equivalent genetics course if an equivalent course was not previously taken, 3 credits (Committee can approve substitution

with another graduate level course). TAs may want to defer until Year 2

- electives, up to 3 credits
 - BIO 610 Responsible Conduct of Research 1 credit, offered spring – take in year 1 or 2
- MCB 792 Research hours taken in all years
- Research seminars and journal clubs taken in all years
- exactly 12 MCB 799 dissertation hours
- 400, 500, 600 and 700 level coursework only
- Of the 84 semester hours, at least 30 hours of the approved PhD program hours and 12 dissertation hours must be completed after admission to the current PhD program.
- If a student has previous graduate level credits, but has not received a graduate level degree, a maximum of 12 semester hours of credit completed before admission may be included on the Program of Study for the current doctoral degree.
- Students may not apply credit hours earned for a doctoral degree previously awarded at ASU or another institution towards their current ASU doctoral degree.
- The student may apply up to 30 semester hours from a previously awarded master's degree toward their doctoral Program of Study.

Comprehensive exam paper and oral presentation

Complete by end of second year:

- Student prepares two abstracts of two potential proposals.
- The abstracts should be submitted to the chair of the comprehensive exam committee, who is a supervisory committee member, but not the student's main mentor or research advisor.
- The exam committee will select one of the abstracts for the student to prepare for written comprehensive exam suggested time frame is within four weeks. The oral exam should take place after that (suggested time frame within two weeks).
- Written research proposal should be in NIH NRSA 7-page format based on a hypothesis driven problem that is not an ongoing project in the laboratory.
- To receive a Master's in Passing, the student must write a dissertation prospectus on their research and the Master's in Passing can be approved upon successful completion of these requirements.

Candidacy

Students will advance to candidacy after successfully completing all steps up to this point.

Dissertation research proposal (non-pass/fail)

Completed by end of third year unless submitted with the Master's in Passing

- Plans for dissertation research should be presented at a supervisory committee during the third year.
- A brief written description of the dissertation research plan should be distributed to the committee and orally presented at the committee meeting.

Apply for graduation

See University Registrar Services website for details of this process: <https://students.asu.edu/graduation>

Dissertation and defense

Complete by end of 7th semester for students with MS, and 9th semester for students with BS.

- this consists of a one-hour public lecture followed by an oral examination administered by the supervisory committee. Convene with supervisory committee approximately four months before planned defense
- Present dissertation data and get approval to prepare the final written document.
- Submit dissertation draft to the committee about 2 months before planned defense.
- Submit request to hold the defense, dissertation, and appropriate paperwork to Graduate College at least 10 working days prior to scheduled defense date.
- Register for a least one hour of appropriate graduate level credit in the semester that the thesis is defended.

Neuroscience PhD

Advisory committee

Must be selected prior to the beginning of the 2nd year to maintain satisfactory progress.

- The committee is to consist of a minimum of four program faculty members.
- The committee will be one chair (the mentor), or two co-chairs and the balance will be committee members.
- The mentor must be endorsed to chair according to established criteria by Graduate College. Students who select a mentor who is either a non-ASU or an ASU adjunct faculty member must also have an ASU faculty member serve as a co-chair of their advisory committee. The director of the program can serve in this capacity if desired.
- The committee will be formed by the student in consultation with his/her mentor prior to the beginning of 2nd year.
- Students must meet with their advisory committee at least once per year to receive feedback on their progress and research. Download and print the Advisory Committee Meeting form posted on Blackboard. This form verifies the date that the committee meeting took place and includes a brief statement of feedback from the committee regarding the student's progress.

- The committee chair(s) must provide a statement summarizing the student's progress during the previous year and must sign the form. The signed form is returned to the program administrative assistant.
- Extensions for selecting the graduate advisory committee may be granted under the extenuating circumstances that a student does not choose either of their two rotation supervisors as their mentor. In this case, students are expected to complete a third rotation and to form their committee as soon as possible after completing their third rotation.

Program of Study (iPOS)

filed prior to the beginning of the 2nd year

- In consultation with their mentor and committee, students will be able to customize the Program of Study to suit their particular interests and goals
- minimum of 84 hours required
 - 12 hours of dissertation
 - research hours (each semester)
 - 10 hours of the formal course credits will be comprised of the core course Sequence (Systems Neuroscience – 4 hours, Cellular and Molecular Neuroscience – 6 hours), which must be completed before the oral and written qualifying exams are taken
 - minimally 3 credit hours of Journal Club
 - minimally 3 credit hours of Neuroscience Research Seminar
 - Students must enroll in either Journal Club or Research Seminar each spring and fall semester they are in the program.
 - 4 hours of professional development courses
 - additional credits will be comprised of specialized disciplinary courses chosen in consultation with the mentor and advisory committee
- No more than 6 credit hours of 400-level coursework can be included on a graduate student's Program of Study.
- If a student has previous graduate level credits but has not received a graduate level degree, a maximum of 12 semester hours of credit completed before admission may be petitioned from Graduate College to be included on the Program of Study for the current doctoral degree. These credit hours cannot include dissertation or research hours.
- Students may not apply credit hours earned for a doctoral degree previously awarded at ASU or another institution towards their current ASU doctoral degree.
- The student may apply up to 30 semester hours from a previously awarded master's degree toward their doctoral Program of Study.
- minimum GPA: 3.0
- 'B' grade or better in core courses and a 'C' grade or better in all other courses on Program of Study

- Fellowship students (first year) must have a minimum of 9 credit hours/semester.

Fall semester

- Cellular Molecular (6 hours)
- Journal Club (1 hour)
- Research (2 hours)

Spring semester

- Human Systems Neuroscience (4 hours) – NEU 556
- Journal Club (1 hour) – NEU 558
- Research – NEU 792
- Ethics Course

Depending on the number of credit hours for research and ethics course, an additional class may be added.

Laboratory rotations (first year):

- rotations planned by the student and their mentor or the program director if mentor has not yet been determined
- minimum of 2 rotations for a minimum of 7 weeks each within the first year
- Students are strongly encouraged to perform their rotations at more than one of the units that participate in this interdisciplinary program (School of Life Sciences, Math, Psychology, Biomedical Engineering, Speech and Hearing Sciences, Barrow Neurological Institute, T-GEN, or the University of Arizona College of Medicine – Phoenix).
- At the end of each rotation, the student will write a short report describing the rotation. The report is to be signed by the student and the laboratory leader in whose laboratory the rotation was performed. The form for rotation report is available on Blackboard and must be returned to program administrative assistant.
- Teaching Assistants (TAs) and Research Assistants (RAs) must have a minimum of 6 credit hours and a maximum of 18 credit hours and are encouraged to take at least 12 credit hours.
- Students are required to prepare an annual progress report using the form available on the Program's Blackboard site. Students must return their progress report along with a copy of their CV to their mentor and to the program administrative assistant, who will then post the report on Blackboard for review by the program's executive committee. The report will include:
 - list of course work completed and grades achieved
 - list of laboratory rotations (if applicable)
 - list of academic milestones achieved in that year
 - list of milestones for the coming year
 - any other information that is pertinent to the student's progress (papers published; attendance and presentations at profession meetings, etc.)

Qualifying exam and defense of the dissertation prospectus

typically completed during the 2nd year and must be completed prior to the start of the 4th year in order to maintain satisfactory progress in the program

- Must have an approved POS and committee on file with the Graduate College.
- Advancement to candidacy will depend on successfully passing the qualifying exam that includes a written proposal of the dissertation research, take-home exam questions formulated by the committee, and an oral examination. Students are expected to have a broad understanding of areas that pertain to their research, in-depth knowledge of the literature that directly relates to their research, and the ability to communicate and formulate ideas about research.
 - The exam will begin with the student submitting his/her dissertation prospectus to each committee member in the form of a pre-doctoral NIH (NRSA) or NSF (DDIG) proposal. The prospectus will be based on the student's remaining two to three years of research and training. Proposed hypotheses should be backed up with preliminary results obtained up to that point. Individual committees have the option to require an expanded background section than that allowed in the pre-doctoral NIH and NSF proposals.
 - Within ~1 week of receiving the prospectus, each committee member will submit 1-2 exam questions to the committee chair, who will then compile the questions to comprise the take home exam. Students will choose to answer two of the questions in written form to be turned in to the committee chair within the following day or two (e.g., ~24-48 hours after receiving the questions). The answers to both questions should be 6-10 pages total, using 11-point Arial font double-spaced and including illustrations if required or desired.
 - The oral portion of the exam will take place within 1-2 weeks of completing the written portion of the exam. Committee members will use the prospectus and the answers to the written exam questions as a springboard for questioning students about their proposal and related issues. The oral exam typically proceeds with the student presenting their prospectus and committee members interjecting with questions, followed by a discussion of the implications of the work in the broader scientific field.
 - The evaluation of the exam will follow immediately after the oral portion of the exam and will be based on overall performance on the three exam components (proposal, take home exam, oral exam).

- Students who pass advance to candidacy. At the discretion of the committee, students may be required to address minor deficiencies in order to receive a pass. Failure is considered final.

Candidacy

Students will advance to candidacy after successfully completing all steps up to this point.

Apply for graduation

See University Registrar Services website for details of this process: <https://students.asu.edu/graduation>

Dissertation and defense

typically completed within 5-6 years but must be completed by the summer after the 7th year.

Failure to meet this deadline will automatically result in academic probation and may lead to removal from the program.

- Under extenuating circumstances, the Graduate College requirements may apply, which require students to defend the dissertation within five years after passing the qualifying exam or within 10 years of entering the program, whichever comes first.
- Must achieve candidacy.
- Convene with advisory committee approximately four months before planned defense.
- Register for a least one hour of appropriate graduate level credit during the semester in which the dissertation is defended.
- Students should submit their completed dissertation to their committee members at least one month prior to the scheduled exam.
- Students are strongly advised to work with their committee members, allowing them sufficient time to provide input on the chapters.
- Report exam results to the Graduate College before scheduling the date for the defense.
- Defense should be scheduled at a mutually agreed on time by the student and advisory committee, taking into consideration the deadlines for graduation set by the Graduate College.
- Submit request to hold the defense, dissertation and appropriate paperwork to the Graduate College at least 10 working days prior to scheduled defense date.
- The first hour of the defense is a public presentation of the dissertation research. After the public defense, the advisory committee examines the student and judges whether the student's performance in the oral and written exams are sufficient to award the PhD degree.

Biology MS

Supervisory committee

selected by end of 1st semester:

- consists of the major professor and two other faculty members

Program of Study

filed by end of 1st semester

- 30 hours required
- exactly 6 credit hours of BIO 599 Thesis
- 1 credit hour of participatory seminar appropriate to area of study (XXX 591 or 791)
- 8 - 14 credit hours in "special courses" such as Research (BIO 592) and Readings and Conference (BIO 590)
- 9 - 15 credit hours of regular coursework and additional seminars
- 400, 500, 600 and 700 level coursework only

Research proposal

completed by middle of 2nd semester

- submitted as a part of the Program of Study
- discussed with and approved by supervisory committee

Apply for graduation

See University Registrar Services website for details of this process: <https://students.asu.edu/graduation>

Thesis and defense

completed by end of 4th semester

- Defense consists of a one-hour public lecture followed by an oral examination administered by the supervisory committee.
- Convene with supervisory committee approximately four months before planned defense.
- Present thesis data and get approval to prepare the final written thesis.
- Submit thesis draft to the committee about two months before planned defense.
- Should be scheduled at a mutually agreed on time by the student and supervisory committee.
- Submit request to hold the defense, thesis, and appropriate paperwork to Graduate College at least 10 working days prior to scheduled defense date.
- Register for a least one hour of appropriate graduate level credit during the semester in which the thesis is defended.

Biology and Society MS (concentration in biology)

Supervisory committee

The advisor must be appointed by the end of the first semester. The full advisory committee should be appointed in the second semester.

- The committee is comprised of at least three members (advisor and at least two others).
- The advisor must be a member of the biology and society graduate faculty endorsed to chair.
- At least 50 percent of committee members must be members of the biology and society graduate faculty.

Program of Study

Program of study should be filed by the time the student has completed 50 percent of the required 30 hours.

- Three different tracks of study are available:
 - History and Philosophy of Science (HPS)
 - Bioethics, Policy, and Law (BPL)
 - Ecology, Economics, and Ethics of Environment (4E)
- With permission of the program students may also develop plans of study that incorporate elements of several tracks.

Required coursework

- 9 credit hours of core courses (these seminars combine to provide broad, basic competency in biology and society)
- 9 credit hours of courses related to the life sciences. This supporting coursework provides expertise in the particular research area. Any courses offered under one of the SOLS prefixes (BIO, ELS, EVO, HPS, MCB, MIC, and PLB) or any courses taught by faculty members in the Biology and Society group fulfill the requirement. In general, the courses should be 'x of science or biology' rather than just 'x' (e.g. 'history of biology' rather than 'modern American history').
 - at least 6 credit hours of BIO 592, Research
 - exactly 6 credit hours of BIO 599, Thesis
- sample Core Courses I: Bioethics, Policy, and Law (BPL) Track
 - 3 hours – Bioscience ethics
 - 3 hours – Science policy
 - 3 hours – Law (as related to science or technology)
- sample Core Courses II: Ecology, Economics, and Ethics of the Environment (4E) Track
 - 3 hours – Ecology
 - 3 hours – Environmental or natural resource economics

- 3 hours – Environmental ethics or environmental policy
- sample Core Courses III: History and Philosophy of Science (HPS) Track
 - 3 hours – History of science
 - 3 hours – Philosophy of science
 - 3 hours – Supporting coursework in history or philosophy (e.g. logic, decision theory, epistemology, environmental history).
- 400, 500, 600 and 700 level classes only (ONLY 6 total credit hours of 400 level coursework are allowed)
- Students cannot use courses with grades of “D,” “E,” “I” (Incomplete), “X” (Audit), or “W” (Withdrawn) on a Plan of Study.
- Graduate students must maintain a minimum of 3.00 GPA to maintain satisfactory academic program and to graduate. The minimum 3.00 GPA must be maintained on both the Plan of Study GPA and the Graduate GPA.
- If a student has previous graduate level credits but has not received a graduate level degree, a maximum of 12 semester hours of credit completed before admission may be included on the Program of Study for the current doctoral degree with approval from Graduate College.
- Master's degree students must complete all program requirements within a six-year period. The six-year period starts with semester and year of admission into the master's program.

Master's thesis prospectus

typically completed before the beginning of the 3rd semester.

- The written thesis prospectus must contain, at a minimum, a description of the research question and its significance; a detailed work plan for data collection, analysis, and writing; and a complete bibliography. See the biology and society tip sheets for additional information.
- The goal of the prospectus is for the committee to be able to ascertain whether the candidate is ready to start researching and writing the thesis. The candidate must have an answerable research question, a full knowledge of sources, and plans for conducting the research and writing the thesis that provides the committee milestones to assess.
- The student's committee may elect to have the student orally present and defend the prospectus, but defense of the master's thesis prospectus is not required.

Apply for graduation

See University Registrar Services at <https://students.asu.edu/graduation>

Thesis and defense

Normally completed by the end of the 4th semester.

- Register for a least one hour of appropriate graduate level credit during the semester in which the thesis is defended.
- Submit dissertation draft to the committee about two months before planned defense.
- The student and supervisory committee, taking into consideration the deadlines for graduation set by Graduate College, should schedule defense at a mutually agreed on time. To allow for coordinating schedules, the student should start planning a defense date with the committee several months in advance of the defense.
- Submit request to hold the defense, thesis, and appropriate paperwork to Graduate College at least 10 working days prior to scheduled defense date.

Microbiology MS

Supervisory committee

Select your supervisory committee by end of 1st semester.

- At least three members (major professor and two other faculty members).
- Chair or co-chair must be a School of Life Sciences microbiology faculty member.
- Supervisory committee members must be approved members of the graduate faculty.
- If a student is doing research with a non-SOLS mentor, they must have a SOLS microbiology faculty member serve as co-chair of the supervisory committee.

Program of Study

File by end of 2nd semester in 1st year

- Minimum of 30 credit hours
- 400, 500, 600 and 700 level classes only (no more than 6 credits of 400 level classes)

Required Courses:

- MIC 501 (Foundations of Microbiology) (3 credits) must be taken during first semester.
- Minimum of additional 9 credits total of regular course work appropriate to the research area and approved by the supervisory committee.
- Research seminars and journal clubs taken in both years (up to 3 credits)
- MIC 599 Thesis (exactly 6 credits) must be taken during last semester of the second year.
- MIC 592 Research taken each of first three semesters (9 credits total).

Example: (for fall start of a two-year program; a one-year MS has an accelerated time-line)

Fall semester – 1st year

- MIC 591 (3 credits)
- Elective course appropriate to the research area and approved by the supervisory committee(3 credits)
- Research seminars and/or journal club (1 credit)
- MIC 592 Research (3 credits)

Spring semester – 1st year

- Elective courses (3-6 credits)
- Research seminars and/or journal club (1 credit)
- MIC 592 Research (3 credits)

Fall semester – 2nd year

- Elective course (0-3 credits)
- Research seminars and/or journal club (1 credit)
- MIC 592 Research (3 credits)

Spring semester – 2nd year

- MIC 599 Thesis (exactly 6 credits)

Research proposal

Complete by end of 2nd semester.

Apply for graduation

See University Registrar Services website for information:

<https://students.asu.edu/graduation>

Thesis

Complete by the end of 4th semester, but not later than end of 5th semester.

- Consists of a one-hour public lecture followed by an oral examination administered by the supervisory committee.
- Convene with supervisory committee approximately four months before planned defense.
- Present thesis data and get approval to prepare the final written thesis.
- Submit thesis draft to the committee about two months before planned defense.
- Should be scheduled at a mutually agreed on time by the student and supervisory committee.
- Submit request to hold the defense, thesis, and appropriate paperwork to Graduate College at least 10 working days prior to scheduled defense date.
- Register for a least one hour of appropriate graduate level credit during the semester in which the thesis is defended.

Molecular and Cellular Biology MS

Supervisory committee

Selected by end of 1st semester

- At least 3 members (major professor and 2 other faculty members).
- Chair or co-chair must be from ASU MCB chair-eligible faculty member.

- If student is doing research in a non-ASU laboratory, then he/she needs an ASU based MCB chair eligible co-chair.

Program of Study

- Filed by end of 2nd semester
- Minimum of 30 credit hours

Required courses:

- MCB 501 must be taken every semester.
- Core Curriculum taken during first year.

Fall semester

- MCB 555, 6 credit hours – team taught – membrane biology, neurobiology, signal transduction, bioimaging and molecular-based disease
- Research, 3-6 credits.

Spring semester

- MCB 556, 3 credits –gene regulation, developmental biology, microbiology and immunology; reading the scientific literature and scientific writing and oral presentation.
- BIO 543 Molecular Genetics or equivalent genetics course if an equivalent course was not previously taken, 3 credits (Committee can approve substitution with another graduate level course). TAs may want to defer until Year 2.
- BIO 610 Responsible Conduct of Research, 1 credit, offered spring. Take in Year 1 or 2.
- Electives, up to 3 credits.
- MCB 592 Research hours taken in all years.
- Research seminars and journal clubs taken in all years.
- Exactly 6 credit hours of MCB 599 Thesis.
- 400, 500, 600 and 700 level coursework only (no more than 6 credits of 400 level classes).

Research proposal

Completed by end of 2nd semester.

Apply for graduation

See University Registrar Services website for information:

<https://students.asu.edu/graduation>

Thesis and defense

Completed by end of 5th semester

- Consists of a one-hour public lecture followed by an oral examination administered by the supervisory committee.
- Convene with supervisory committee about four months before planned defense.
- Present thesis data and get approval to prepare the final written thesis.
- Submit thesis draft to the committee about two months before planned defense.

- Should be scheduled at a mutually agreed on time by the student and supervisory committee.
- Submit request to hold the defense, thesis, and appropriate paperwork to Graduate College at least 10 working days prior to scheduled defense date.
- Register for a least one hour of appropriate graduate level credit during the semester in which the thesis is defended.

Plant Biology and Conservation MS

Supervisory committee

Selected by end of 1st semester.

Consists of the major professor and two other faculty members or non-academic biologists. Students are encouraged to seek out members of the Desert Botanical Garden research and conservation staff as potential committee members (see <http://www.dbg.org/research-conservation/research-conservation-staff>).

Program of Study

Filed by end of 1st semester:

- 30 hours total required
- Exactly 6 credit hours of PLB 599 Thesis
- 3 credit hours of PLB 502 (only taught every other fall)
- 1 credit hour of participatory seminar appropriate to area of study (XXX 591 or 791)
- At least 3 credit hours of Research (PLB 592)
- Up to 14 credit hours in "special courses" such as Fieldwork (PLB 583), Internship (PLB 584), Special Topics (PLB598, BIO 598) and Readings and Conference (PLB 590)
- 9 - 15 credit hours of regular coursework and additional seminars
- 400, 500, 600 and 700 level coursework only (no more than 6 credits hours of 400 level coursework)

Research proposal

Completed by middle of 2nd semester.

- Submitted as a part of the Program of Study
- Discussed with and approved by supervisory committee

Apply for graduation

See University Registrar Services website for information:

<https://students.asu.edu/graduation>

Thesis and defense

Completed by end of 4th semester.

- Consists of a one-hour public lecture followed by an oral examination administered by the supervisory committee.

- Convene with supervisory committee about four months before planned defense.
- Present thesis data and get approval to prepare the final written thesis.
- Submit thesis draft to the committee about two months before planned defense.
- Should be scheduled at a mutually agreed on time by the student and supervisory committee.
- Submit request to hold the defense, thesis, and appropriate paperwork to Graduate College at least 10 working days prior to scheduled defense date.
- Register for a least 1 hour of appropriate graduate level credit during the semester in which the thesis is defended.

Accelerated Bachelor of Science/ Master of Science

If you want to earn your bachelor's and master's degrees within a five-year period, we offer accelerated Bachelor of Science/Master of Science programs for all of our undergraduate degrees.

We currently have 4+1 accelerated options for the Master of Science programs in: biology, biology and society and molecular and cellular biology.

You will first need to communicate with your undergraduate advisor if you are interested and fill out a pre-application form in the undergraduate office. Then, you will see the graduate programs coordinator and discuss further details.

As an undergraduate student, you are encouraged to apply for the accelerated Bachelor of Science/Master of Science program after completing 75 hours of your bachelor's degree.

What do I need to apply?

- Have 75 hours completed toward your undergraduate degree.
- GPA of 3.0+ is required at the time of application, and at the time of admission to the master's program.
- Have a faculty member who will advise you for your master's thesis.
- Submit an application and receive acceptance into the accelerated program prior to registration for the final year of your bachelor's degree.
- Apply to the term and year you plan to start sharing credit hours.

Note: A GRE is not required.

You will complete an online Graduate College admissions application for the Master of Science programs in biology, biology and society and molecular and cellular biology.

Submit the following with the online application:

- personal statement of interest
- résumé

- transcripts for all universities and colleges outside ASU
- three letters of recommendation including one letter of recommendation from the faculty member who will advise you for your master's thesis
- academic record form
- writing sample (biology and society concentration only)
- Once the application and application fee is submitted, it will go through an admissions review process. An in-person interview may be required to determine eligibility for admission.
- Once accepted, Graduate Enrollment Services will be notified that you are part of an accelerated Bachelor of Science/Master of Science degree program.
- Once you apply for graduation from your bachelor's degree, Graduate Enrollment Services Office will activate your graduate student record. Undergraduate status will remain until all requirements are met and a bachelor's degree is posted to your transcript.

Bachelor of Science requirements:

- 120 credit hours in your chosen Bachelor of Science program
- 138 credit hours is required for both degrees and 12 credit hours may be shared between the accelerated bachelor's/master's degrees.

Master of Science requirements

- 30 credits of approved graduate course work ([see more](#))
- Develop an individual Plan of Study (iPOS) in consultation with your advisor and supervisory committee.
- Complete a research thesis and defend it orally (an undergraduate honors thesis cannot substitute for a master's thesis).
- No more than six hours of 400 level courses will apply to the master's degree.

The master's coursework required for the bachelor's/master's is the same as the master's coursework in our standard Master of Science degrees.

Shared credit hours

- 12 credit hours may be shared between the two degrees.
- Choose these credits after consulting your undergraduate advisor and prospective masters advisor.
- Shared courses are typically chosen according to your research interest.

Once accepted into the accelerated program

- You must draft, together with your advisor, a preliminary Plan of Study for the Master of Science program.
- Your degree program must include up to 6 credits of shared 400-level courses and up to 6 credits of 500-level courses.

Note: Only credit hours completed after you are accepted into the accelerated program can be shared. Six credit hours or more of shared coursework must be 500-level courses.

Required milestones

Once you have graduated with your BS and have begun registering as a master's student, you will work toward the following milestones.

1. Supervisory committee

Your advisor is appointed during your application to the Bachelor of Science/Master of Science program. A full advisory committee will be appointed by the beginning of the first semester as a master's student (by the university's 21st day).

Your advisor will chair your supervisory committee and must be a member of the appropriate graduate faculty endorsed to chair. At least three members (advisor and two or more others) will serve on your committee.

2. Plan of Study

File by the beginning of your 1st semester as a master's student (by the university's 21st day).

3. Thesis Research proposal

Complete by beginning of 1st semester as a master's student (by the university's 21st day):

- The written thesis prospectus must contain: a description of the research question and its significance; a detailed work plan for data collection, analysis and writing; and a complete bibliography.
- The goal of the prospectus is to help your committee determine whether you have the necessary knowledge, and whether your research is on track to continue with the research and begin writing a thesis. You must have an answerable research question, full knowledge of sources, and plans for conducting the research and writing the thesis that provide the committee milestones to assess.

4. Application for graduation

Apply for graduation at the beginning of your second semester as a master's student.

5. Thesis Defense

completed by end of 2nd semester:

- Register for one or more hours of appropriate graduate level credit during the semester you defend your thesis.
- The student and supervisory committee, taking into consideration the deadlines for graduation set by Graduate College, should schedule defense at a mutually agreed on time. To allow for coordinating schedules, the student should start planning a defense date with the committee several months in advance of the defense.

- Approximately two months before your defense, submit a complete draft of your thesis to your committee for comments.
- Submit a request to hold the defense, thesis, and appropriate paperwork to Graduate College at least 10 working days prior to your scheduled defense date.
- The first part of your defense is a public presentation of your thesis research. After the public presentation and questions from the audience, you will be examined by your supervisory committee, which will determine whether to award you Master of Science degree.

Sample Plan of Study (IPOS)

The following is an example:

The IPOS will vary according to your undergraduate degree or concentration and will have input from your advisor and committee. For the accelerated Master of Science programs in biology and society and molecular and cellular biology, please consult with the program directors of those degree programs.

Bachelor of Science in biological sciences

Undergraduate

Semesters 1-6 (90 bachelor's hours)

- courses towards Bachelor of Science in biological sciences (Neurobiology, Physiology and Behavior)

Semester 7 (14 bachelor's hours including 6 toward master's)

- undergraduate courses (4)
- BIO 455 Introduction to Comparative Genomics (3)
- BIO 435 Research Techniques in Animal Behavior (3)
- BIO 522 Populations: Evolutionary Ecology (3)
- participatory seminars appropriate to area of study (1) (e.g. BIO 591)

Semester 8 (16 bachelor's hours including 6 toward master's)

- required undergraduate courses (9)
- BIO 465 Neurophysiology (3)
- BIO 524 Ecosystems (3)
- participatory seminars appropriate to area of study (1) (e.g. BIO 591)

Graduate

Option 1

Semester 9 (9 master's hours)

- 1 credit hour of participatory seminar appropriate to area of study (BIO 591 or ANB 602)
- BIO 592 Research or BIO 590 Reading and Conference (8)

Semester 10 (9 master's hours)

- BIO 599 Thesis (6)
- BIO 592 Research or BIO 590 Reading and Conference (3)

Option 2

Semester 9 (9 master's hours)

- BIO 599 Thesis (3)
- 1 credit hour of participatory seminar appropriate to area of study (BIO591 or ANB602)
- BIO 592 Research or BIO 590 Reading and Conference (5)

Semester 10 (9 master's hours)

- BIO 599 Thesis (3)
- BIO 592 Research or BIO 590 Reading and Conference (6)

Certificates

Environmental Communication and Leadership (graduate certificate)

Scientists must go beyond publishing in journals if they want their research to be relevant to society. However, academic training rarely covers how to communicate with the press, the public, policy makers and other relevant stakeholders. This certificate program in environmental communication and leadership gives graduate students in environmental disciplines the important leadership and communication skills needed to increase their influence and reach above and beyond academia.

Degree requirements

Required core (3)

- BIO 578 Environmental Leadership and Communication (3)

Electives (12)

- Policy and Management (3)
- Communication (3)
- Leadership (3)
- Open Elective (3)

Additional curriculum information

Students must choose three credit hours from each of the three categories with approval of the School of Life Sciences. If a student takes a course for fewer than 3 credit hours, the student must take more than one course in that category to meet the 3-credit hour requirement. Students should contact the School of Life Sciences for a complete list of courses.

Students choose one three-credit hour elective course from any of the three categories above. Students should note that only three credit hours of approved 400 level coursework can appear on the plan of study.

Admission requirements

Applicants must fulfill the requirements of both the Graduate College and the College of Liberal Arts and Sciences. Applicants are eligible to apply to the program if they have earned a bachelor's or master's degree, in any field, from a regionally accredited institution.

Applicants must have a minimum of a 3.00 cumulative GPA (scale is 4.00 = "A") in the last 60 hours of a student's first bachelor's degree program, or applicants must have a minimum of a 3.00 cumulative GPA (scale is 4.00 = "A") in an applicable master's degree program.

All applicants must submit:

1. graduate admission application and application fee
2. official transcripts
3. GRE scores
4. proof of English proficiency

Additional application information

An applicant whose native language is not English (regardless of current residency) must provide proof of English proficiency.

Sample related fields include business, education, biology, geosciences, political science and English.

Applicants must have completed 12 undergraduate credit hours of natural science or social science coursework related to the environment at the time of application to the graduate certificate program. They must meet all other graduate admissions requirements. Courses will be reviewed by the School of Life Sciences graduate committee to ensure that they fulfill this requirement.

Scientific Teaching in Higher Education Certificate (graduate certificate)

Many higher education faculty and instructors in STEM disciplines have not had formal training in teaching science, even though high-quality teaching is often cited in university and college mission statements.

This certificate provides you with a more sophisticated understanding of teaching and education research in the context of college-level science classrooms. We believe this will empower you to become a "change agent" as we strive toward positive reform in undergraduate science education.

This program will provide you with the skills and knowledge needed to implement and evaluate evidence-based teaching at the college level. Graduate students currently enrolled in a program at ASU are eligible to apply to this certificate program.

Program components

The program has three major components:

- teaching experience, including use of evidence-based teaching

- course work in teaching and education
- capstone experience

Certificate Requirements

To earn the certificate, you must complete 17 credits, including a culminating experience in the form of an applied project.

Core Courses (6 credits)

Each of the following core courses must be taken to total six credits:

- BIO 530 Scientific Teaching (2)
- BIO 531 Advanced Scientific Teaching (3)
- BIO 532 Recent Papers in Discipline-based Education Research (1)

Elective Courses (6 credits)

You may select from the following electives to total six credits:

- BIO 598 Topic: Biology Education Research (3)
- COE 502 Introduction to Data Analysis (3)
- COE 503 Introduction to Qualitative Research (3)
- DCI 691 Advanced Pedagogy in STEM (3)
- EDP 523 Educational Assessment (3)
- EDP 540 Theoretical Views of Learning (3)
- EDP 541 Motivating Students to Learn (3)

Teaching Experience (2 credits)

You may select from the following courses for a total of two credits:

- BIO 584 Internship: Scientific Teaching in Higher Education (1-2)
- BIO 598 Topic: Advanced Study Practicum: Teaching Assistance (1-2)

Note: In coordination with, and under the supervision of the program chairs, you may teach at another university or college to fulfill the teaching experience requirement. However, making these arrangements is an exception that will be decided on a case-by-case basis by the program directors.

Culminating capstone experience (3 credits)

The following applied project course must be taken (3 credits):

- BIO 593 Applied Project (3)

Note: For details on the required capstone experience, please see the culminating capstone experience tab.

Sample Plans of Study

Normal plan

- Fall 2015: BIO 530 Scientific Teaching
- Spring 2016: BIO 531 Advanced Scientific Teaching
- Fall 2016: BIO 532 Recent Papers in Discipline-based Education Research
- Spring 2017: BIO 598 Biology Education Research
- Fall 2017: EDP 540 Theoretical Views of Learning

- Spring 2018: BIO 584 Internship + BIO 593 Applied Project

Accelerated plan

- Fall 2015: BIO 530 Scientific Teaching + BIO 532 Recent Papers in Discipline-based Education Research + BIO 598 Biology Education Research
- Spring 2016: BIO 531 Advanced Scientific Teaching + EDP 540 Theoretical Views of Learning
- Fall 2016: BIO 584 Internship + BIO 593 Applied Project

Culminating capstone experience

You may choose one of the three following options:

- a significant teaching experience
- curriculum development
- discipline-based education research

Significant teaching experience

You will engage in a significant teaching experience during this program. Either as a co-instructor with a faculty member, or by yourself, you will teach an undergraduate course at ASU for one semester. You must teach in an evidence-based way (e.g., frequently assessing students and using peer evaluations to guide practice).

In coordination with, and under the supervision of the program chairs, you may also teach at another university or college (BIO 584 Internship). This option is an exception that will be decided on a case-by-case basis by the program directors.

Faculty who have offered to serve as teaching mentors:

- Mike Angilletta (biology)
- Shelley Haydel (microbiology)
- Bryan Henderson (physics)
- Miles Orchinik (biology)
- Amy Pate (biology — infusing technology into courses)
- Dave Pearson (biology — BIO 100)
- Yi Zheng (statistics)

Note: Other faculty members may be willing to serve as a teaching mentor.

Curriculum development

With guidance from a faculty member, you will either revise the curriculum for an existing course or create the curriculum for a newly developed course.

This curriculum should be aligned with the goals for evidence-based scientific teaching outlined in the Vision and Change of Undergraduate Teaching in Biology, detailed by AAAS and NSF, and taught in BIO 530 Scientific Teaching and BIO 531 Advanced Scientific Teaching. Additionally, you will provide learning goals and proposed assessments that test these learning goals.

Faculty who have offered to serve as curriculum

development mentors:

- Shelley Haydel (microbiology)
- Miles Orchinik (biology)
- Amy Pate (biology — infusing technology into courses)
- Dave Pearson (biology — BIO 100)
- Yi Zheng (statistics)

Discipline-based education research

For education research, you will work closely with a discipline-based education researcher over two semesters to conduct a research project. This project will examine the effectiveness of teaching strategies, classroom innovations, or other interventions that aim to improve higher education in science.

Faculty who have offered to serve as education research mentors:

- Sara Brownell (biology education)
- Ying-Chih Chen (science education)
- Bryan Henderson (science education)
- Joi Merritt (science education)
- Christian Wright (biology education)

Note: Scientific teaching faculty mentors for this track should be faculty who actively engage in education research.

Required applied project enrollment

For each of the culminating capstone experience options described above, you are required to enroll in BIO 590 Applied Project. You will work closely with a scientific teaching faculty advisor on your culminating capstone experience and will present your results as a poster in an annual spring symposium focused on Scientific Teaching in Higher Education open to the whole ASU community.

We also will have a set of faculty talks about innovations and research in scientific teaching. This symposium will be sponsored through the School of Life Sciences. Not only is this an opportunity to showcase your work, but it would also be a chance for faculty and staff to talk more deeply about effective teaching strategies.

Capstone Project Examples

Teaching

- Co-instructor of record for BIO 282: lecture in large class 50 percent of semester, develop class materials (e.g. PowerPoint slides, homework), write exam questions, etc. Teach in evidence-based way using student-centered strategies.
- Co-instructor of record for small, upper-level class on ethics in science. Help design the course and facilitate in-class discussions 50 percent of semester.
- Teach biology at Glendale Community College to class of 25 students, include prep work, grading, etc.



Curriculum Development

- Develop active learning exercises for approximately 10 recitation breakouts in cell biology.
- Help create a new, course-based undergraduate research experience for the lab component of BIO 151.
- Work with instructors in BIO 281 and BIO 282 to develop a set of weekly practice exam.
- Develop curriculum for a new, online, human genetics course.

Discipline-based education research

- Through student interviews, explore perceptions of being randomly called on in introductory biology for non-majors.
- Evaluate the effectiveness of a specific, in-class activity that helps students learn genetics in BIO 281: measure student understanding pre- and post-activity using the Genetics Concept Inventory and control for prior academic ability.
- Survey graduating students about how much active learning they have been exposed to, and what their perceptions are of it.
- Monitor student participation in animal physiology lab course to see whether there are gender differences in who participates.

SOLS Graduate Programs
Life Sciences Building A 181
Phone: 480-965-1768
Fax: 480-965-7599
SOLS.grad@asu.edu

sols.asu.edu

ASU School of
Life Sciences
Arizona State University