

Graduate Programs Student Handbook

Requirements and Procedures

**PhD Biochemistry
PhD Chemistry
MS Biochemistry
MS Biochemistry (Medicinal Chemistry)
MS Chemistry**

2018-2019

Table of Contents

Table of Contents	1
General Information	4
Introduction	4
Graduate Programs Committee	4
Graduate Programs	4
Dual Degrees	5
Members of the PhD Graduate Faculty	5
Temporary Faculty Mentor	5
Lab Rotations	5
Duration of Programs	5
Financial Support	6
Program Residency Requirement	6
Medical/Compassionate Withdrawal	7
Credit Hours per Semester	7
Absence Policy	7
Safety Seminars	8
Annual Poster Session	8
Academic Integrity	8
Student Responsibilities and Resources	8
Code of Conduct	9
Student Support/Resources	9
Master of Science in Biochemistry/Chemistry	10
Outline of MS Program	10
Program Fees	10
Duration of Program	10
Supervisory Committee	11
Who can serve as Research Advisor, i.e. Chair of the Supervisory Committee?	11
Who can serve as Research Co-Advisor (optional)?	11
Who can serve as a Supervisory Committee Member?	11
Supervisory Committee Member Summary: (See Appendix C)	11
Course Requirements	12
Interactive Plan of Study	12
Transfer Courses	13
Extracurricular Courses	13
Scholastic Requirements	13
Program Progression	14
Selecting a Research Advisor and Supervisory Committee	14
Annual Poster Session	14
Technical Review	14
Master's Thesis	14
Steps Toward Graduation or Graduation Requirements	15
Apply for Graduation	15
Schedule the Final Defense with the Supervisory Committee	15
Schedule of Defense Form and Format Review – 10 Day Rule	15

Request to Delay Thesis Publication.....	15
Announcement of the Master’s Final Defense	16
Master’s Final Defense.....	16
Documentation of Final Defense.....	16
Thesis Submission.....	16
The Awarding of the Degree.....	17
Master of Science in Biochemistry (Concentration in Medicinal Chemistry) – Accelerated	
BS/MS Degree.....	18
Outline of MS Program	18
Program Fees.....	19
Duration of Program.....	19
Supervisory Committee.....	19
Who can serve as Research Advisor, i.e. Chair of the Supervisory Committee?	19
Who can serve as Research Co-Advisor (optional)?.....	19
Who can serve as a Supervisory Committee Member?.....	20
Supervisory Committee Member Summary: (See Appendix C).....	20
Course Requirements	20
Scholastic Requirements	21
Extracurricular Courses.....	21
Shared Courses	21
Program Progression	21
Selecting a Research Advisor and Supervisory Committee	21
Annual Poster Session	22
Interactive Plan of Study	22
Applied Project.....	22
Apply for Graduation	22
Schedule Defense of the Research Portfolio/Applied Project.....	22
Documentation of the Completion of Degree Requirements	23
The Awarding of the Degree.....	23
Doctor of Philosophy in Biochemistry/Chemistry	24
Outline of PhD Program.....	24
Duration of Program.....	24
Supervisory Committee.....	24
Who can serve as Research Advisor, i.e. Chair of the Supervisory Committee?	25
Who can serve as Research Co-Advisor (optional)?.....	25
Who can serve as a Supervisory Committee Member?.....	25
Supervisory Committee Member Summary: (See Appendix D)	26
Comprehensive Examination Committee.....	26
Course Requirements	26
Transfer Courses	27
Extracurricular Courses.....	27
Scholastic Requirements	27
Program Progression	28
Selecting a Research Advisor and Supervisory Committee	28
Annual Poster Session	28
Interactive Plan of Study (iPOS).....	28

Comprehensive Examination	29
Written Part of the Comprehensive Examination	29
Oral Part of the Comprehensive Examination - “Oral Examination”	30
Results of the Comprehensive Examination	30
Documentation of Comprehensive Examination Results.....	31
Dissertation Prospectus	31
Documentation for Reporting Results of Dissertation Prospectus	32
Technical Review of the Dissertation	32
Dissertation.....	32
Steps Toward Graduation or Graduation Requirements	32
Apply for Graduation	32
Schedule the Final Defense with the Supervisory Committee	33
Schedule of Defense Form and Format Review – 10 Day Rule	33
Request to Delay Dissertation Publication.....	33
Announcement of the PhD Final Defense.....	33
Final Dissertation Defense	34
Documentation of Final Defense.....	34
Dissertation Submission.....	34
The Awarding of the Degree	34
Requirements for the awarding of the Master’s Degree in Passing	35
Paperwork Process for completing the Master’s Degree in Passing.....	35
Academic Standards	36
Results of Lack of Satisfactory Progress.....	36
Changing Research Advisor and/or Committee Members.....	37
Research Advisor:	37
Supervisory and Comprehensive Examination Committee Member:.....	37
Comprehensive Examination Committee:	37
Absent Committee Member for the Final Defense	37
Responsibilities of Teaching Assistants	38
Parental Leave	38
Continuous Enrollment - Leave of Absence	38
Registration – Late Registration and Add/Drop	39
Appendix A	40
Appendix B.....	41
Appendix C	42
Appendix D	43
Appendix E.....	44
Appendix F.....	45

Graduate Programs in Chemistry and Biochemistry

Student Requirements and Procedures Handbook

2018-2019

General Information

Introduction

The objective of this handbook is to outline the requirements set forth by the School of Molecular Sciences for graduate students enrolled in programs leading to the MS and PhD degrees. These requirements are established to enable students to progress through their program in a productive and timely manner. The graduate programs offered by the school are directed toward the attainment of excellence in chemistry and biochemistry as demonstrated by research accomplishment, coursework, and examination.

In addition to the requirements set by the School, students must follow those established by the Graduate College, which can be found in the Arizona State University [Graduate Catalog](#).

Graduate Programs Committee

The School of Molecular Sciences Graduate Programs Committee (GPC) is responsible for the development of new programs and serves as the governing board for the school in determining program requirements. The committee is responsible for informing students of these requirements, reviewing petitions when program requirements cannot be met and resolving other matters that may be brought before the committee. The Graduate Programs Committee, with the assistance of the Graduate Programs Coordinator, monitors each student's progress toward the completion of program requirements as stated in this handbook in an effort to maintain program consistency and encourage the awarding of the degree in a timely manner. The committee consists of School of Molecular Sciences tenured or tenure-track faculty who are assigned by the School Director and the Graduate Programs Coordinator. The faculty members represent the different research areas of study within the School. All members have a counting vote and meet as needed during the academic year.

Questions regarding these requirements and procedures may be referred to the Graduate Programs Coordinator, via email (smsgradadvising@asu.edu), by phone at (480) 965-4664 or in person in PSD 103. Current members of the Graduate Programs Committee can be found in Appendix A.

Graduate Programs

The School of Molecular Sciences offers the following graduate degrees:

Doctor of Philosophy in Chemistry
Doctor of Philosophy in Biochemistry

Master of Science in Chemistry (not admitting new students at this time)
Master of Science in Biochemistry (not admitting new students at this time)
Master of Science in Biochemistry (Medicinal Chemistry) – *Accelerated BS/MS Degree* only

Dual Degrees

The School of Molecular Sciences does not typically allow students to pursue other degrees in conjunction with a graduate degree in the School. Exceptions will be analyzed on a case by case basis by petition to the Graduate Programs Committee.

Members of the PhD Graduate Faculty

The Graduate Faculty model at ASU allows PhD programs to expand their PhD faculty membership to include faculty from other programs provided that they have the appropriate expertise. The members of the Graduate Faculty for the Chemistry and Biochemistry PhD degrees are listed on the Graduate College's [Graduate Faculty Directory](#). Each member's endorsement is listed indicating the roles he/she can have on a student's committee. All tenured or tenure-track faculty in the School of Molecular Sciences are endorsed to serve as the chair for student committees and are listed in the [faculty directory](#). The distinction between tenured/tenure-track School faculty and external Graduate Faculty becomes important when addressing who can serve as chair or member of dissertation and examination committees for the different programs. Students need to check the specifics for their program of study. Selection of a committee chair from outside of the department can also impact funding status.

Temporary Faculty Mentor

The central role of the Temporary Faculty Mentor is to assist the student in the selection of courses in a student's first semester in his/her program and guide the student, if needed, in selecting an area of research. *New students will choose their Research Advisor before the end of the first semester.* As soon as the student has chosen a Research Advisor, the Advisor takes over the responsibilities from the Mentor. Student's who wish to have a Temporary Faculty Member assigned, should contact the Graduate Programs Coordinator.

Lab Rotations

All first year graduate students must be active in a research lab, either through a lab rotation or advisor selection, within the first three weeks of their first semester in their program. A lab rotation is a "trial" period for the student to get a better understanding of current projects in a particular lab and how he/she might integrate within the group. A typical rotation is five weeks. The time can be extended or shortened upon mutual agreement of the research faculty and the student. Students are strongly encouraged to participate in lab rotations to ensure the selected lab provides a good fit for all parties and that potential research topics align with the student's preferences.

It is advised that a new graduate student wait until he/she has heard several faculty talks during the CHM 501 New Student Seminar before submitting a request and should plan to do multiple rotations. Students should contact interested faculty directly to make arrangements to do a rotation. When the new student has determined the lab he/she will join and has the agreement of the research faculty member, he/she completes the Committee Selection Form.

Duration of Programs

Research is a major component of the chemistry and biochemistry graduate programs. Therefore, the length of time to complete a degree is dependent on the individual student's research progress as well as meeting other degree requirements, including coursework and total semester hours in a program. The Research Advisor and the student's Supervisory Committee evaluate and determine the completeness of a student's research project as indicated in the program requirements that follow in this handbook.

Financial Support

The department provides financial support to PhD students enrolled in the Chemistry and Biochemistry programs, as indicated in the offer letter, by means of a Graduate Teaching Assistant, Graduate Research Assistantship or Fellowship. Specific information regarding the roles, responsibilities and university benefits of the TA/RA position can be found in the [TA/RA Handbook](#) maintained by the Graduate College.

Subject to available funding, students enrolled in the PhD degree programs are offered financial support for five years if they make satisfactory progress toward their degree, maintain good academic standing in the program, and receive satisfactory teaching evaluations. Support as a Graduate Teaching Assistant may be limited to eight semesters, i.e. four years. Financial support beyond the fifth year is contingent on approval from the student's Research Advisor, the Graduate Programs Committee, and availability of positions/funding.

Students enrolled in the MS degree in Chemistry, the MS degree in Biochemistry and the Accelerated BS/MS Biochemistry (Medicinal Chemistry) degree are not guaranteed financial support, unless explicitly outlined in the offer letter. Financial support is possible, but is contingent on approval from the student's Research Advisor. Students in MS programs are not eligible for TA positions per guidelines set by the College of Liberal Arts and Sciences.

Students funded by the School of Molecular Sciences or university may not hold additional employment of any kind.

Research Assistantships are contingent on funds available to research advisors and are awarded at their discretion.

Graduate Assistants/Associates must meet program requirements and be enrolled in at least six credit hours – the Graduate Programs Committee recommends twelve credit hours. Students supported by a fellowship must meet the requirements specified by the fellowship.

Students who have been in the Chemistry/Biochemistry PhD Program for more than two years and have dropped to a Chemistry/Biochemistry Master's Program will be given an additional two semesters of financial support to complete their Master's Program. Support is contingent on available funding, satisfactory progress toward the degree, good academic standing in the program, and satisfactory teaching evaluations. Students who need more than the additional two semesters to complete their degree requirements may petition the Graduate Programs Committee for additional support. The Graduate Programs Coordinator can assist students with this process.

Please note: If English is not a student's native language, he/she must pass the English language SPEAK Test to qualify for support as a teaching assistant. Full English Certification for TA positions must be obtained by the end of the student's first year in the program. Students are required to demonstrate continued progress in English language skills each semester as determined by one of the following: improved SPEAK Test scores, TA evaluations or Department Instructional Committee.

Program Residency Requirement

Graduate students must be continuously enrolled from the first semester of enrollment in their program - Fall and Spring semesters. If a student is unable to attend, he or she must apply for a leave of absence. This includes students requesting medical (including the birth of a child) or

military leave. Students complete the “Continuous Enrollment Doctoral” (for PhD students) or, “Continuous Enrollment Masters-Certificate” (for MS students) found on the Graduate College [forms page](#). The completed form is submitted to the Graduate Programs Coordinator who will present the request to the Graduate Programs Committee. Unless extenuating circumstances exist, this petition should be submitted the semester prior to when the student is requesting the leave, but must be submitted to the Graduate College before the first day of classes of the semester in which the leave of absence is being requested. If the student’s need is immediate, the Graduate Programs Coordinator will work with the student to be sure the petition is expedited. The student will be notified of the decision or contacted if additional information is needed. If the petition is approved by the Graduate Programs Committee, the Graduate Programs Coordinator will submit the petition to the Graduate College for final consideration.

Medical/Compassionate Withdrawal

If a situation arises during the middle of the semester that will prevent the completion of coursework, a student may seek a Medical/Compassionate Withdrawal. This process is coordinated through the College of Liberal Arts and Sciences and information about the procedures can be found on their [website](#). It is advised that you discuss the need to pursue this process with the Graduate Programs Coordinator prior to initiating to see if there are other options that might work as well, including discussing possible accommodations with course instructors and your research advisor.

Credit Hours per Semester

Students receiving funding as a Teaching Assistant or Research Assistant should enroll in 12 credit hours per semester during each of Fall and Spring semesters. Students with other funding (i.e. fellowship, scholarship, Fulbright, etc.) should register for as many hours as allowed by the funding agency. Summer session enrollment is contingent on the student’s financial support. Enrollment information will be sent to students by email at the beginning of summer registration. Registration for 12 credits per semester ensures that students achieve the required 84 credit hours in about 4 years.

Students must enroll in a 501 seminar each semester as indicated in their particular program. Students should not take more than two classes in addition to the 501 seminar in any semester so as to allow enough time for research. However, the student should discuss these recommendations with his/her advisor.

Absence Policy

Paid vacation is not an employment benefit for Teaching/Research Assistantships. Students supported on a Graduate Research Assistantship who desire to take time off during the winter holidays and summer months must have the approval of their research advisor. The decision to allow the leave is determined by the research advisor, based on the individual needs of the student and the research in progress. Students financially supported by a Graduate Teaching Assistantship should not plan to take time off during the semester in which they have an appointment and should consult their TA supervisor to determine completion date for the TA responsibilities prior to making travel plans. If a situation, such as an illness or an emergency occurs, the student must contact the professor who teaches the course and the TA Coordinator. Students assigned to a TA position are required to attend TA meetings prior to the beginning of the semester and should contact the TA Coordinator for the anticipated dates of the pre-semester meetings.

Safety Seminars

The department maintains a high standard of safety in the teaching and research laboratories. Therefore, all graduate students are required to attend and complete Safety Seminars before beginning work in the laboratory. Initial training in the areas of Fire Safety and Prevention, Laboratory Safety and Hazardous Waste Management is mandatory for all students entering the program. Students working in research laboratories that use blood or other potentially infectious materials are also required to take training on Blood Borne Pathogens. Safety Training refresher courses are also required to be taken on a yearly basis.

Annual Poster Session

All students enrolled in Chemistry and Biochemistry Programs (with the exception of PhD students in their first academic year) are required to present a poster during the annual recruitment Visitation Weekend to maintain their position of good-standing in the program.

The poster session has several purposes:

- Primarily, it is a way of keeping committee members up to date with research progress
- Preparing a poster gives the opportunity to demonstrate how the research project fits in the bigger picture of the research field, and how the student would present his/her work to others. Learning how to properly present research is an important part of graduate education.
- The poster session is an important part of the School's recruitment weekend, and serves as a vehicle to allow interaction between current students and prospective students.

Academic Integrity

Academic dishonesty will not be tolerated, and if uncovered, appropriate actions will be taken. Students are expected to familiarize themselves with what constitutes violations to the academic integrity policy. The provost maintains a detailed website, regarding the [Academic Integrity policy](#). Briefly, violations include, but are not limited to: cheating on exams and assignments, plagiarism, fabricating data or information, etc. Students are encouraged to pay special attention to the definition of plagiarism so as to avoid unintentional mistakes, and discuss the topic further with their advisors and instructors if they are unclear on whether a particular action constitutes plagiarism. The Graduate College also maintains a [website](#), devoted to preventing academic integrity issues that most often impact graduate students,

Violations of the academic integrity policy that occur within a course will be handled by the course instructor in accordance with the procedures outlined by the College of Liberal Arts and Sciences and Provost. Consequences of violating the academic integrity policy could result in receiving a zero on the specific assignment, a grade of XE for the course, or in some cases dismissal from the graduate program.

Allegations of academic dishonesty that occur outside of a specific course will be reviewed by the Graduate Programs Committee who will decide on the appropriate actions. This may include reporting the student to the College of Liberal Arts and Sciences and/or the Graduate College with a recommendation for dismissal from the program.

Student Responsibilities and Resources

As a student at ASU, you are responsible for abiding by all of the policies outlined in the Code of Conduct and are able to take advantage of the many resources that are available to students. The [Dean of Students](#) office is the unit under which most of the resources can be found. You are expected to comport yourself in a professional manner in all interactions at ASU, including the lab,

classroom, conferences, or while engaging in any official ASU business. Please also note the ASU Code of Conduct can extend to off-campus, non-student related activities as well.

Code of Conduct

The Student [Code of Conduct](#) is the list of standards the University has set for all students. The list of prohibited conduct can be found in Section F. The [Student Rights and Responsibilities](#) office is the unit charged with investigating allegations of student misconduct, including but not limited to threatening or disruptive behavior, sexual misconduct and relationship violence, harassment, and weapons. If you observe any Code of Conduct issues you should take the issue to your supervisor, Instructor of record for TA related issues, or your Research Supervisor if observed in the lab. If you are not comfortable taking this to your supervisor, you can speak with the Graduate Programs Coordinator, the Chair of the Graduate Programs Committee, or the Associate Director for Academic Services.

Student Support/Resources

There are many resources and offices available to assist you during your time as a student. Many of the resources can be accessed through your [MyASU](#) and at the Dean of Students [Resources page](#). Some of the most commonly accessed services/resources are listed below.

Career Services: <https://eoss.asu.edu/cs>

Counseling Services: <https://eoss.asu.edu/counseling>

Disability Resource Center: <https://eoss.asu.edu/drc>

Health Services: <https://eoss.asu.edu/health?destination=health>

International Student Engagement: <https://eoss.asu.edu/student-engagement/international>

International Students and Scholars Office: <https://students.asu.edu/international/issc>

Off-Campus Student Services: <https://eoss.asu.edu/offcampushousing>

OUT@ASU: <https://eoss.asu.edu/out>

Parent and Family Resources: <https://eoss.asu.edu/parents>

Parking and Transit: <https://cfo.asu.edu/parking>

Pat Tillman Veterans Center: <https://veterans.asu.edu/>

Student Advocacy: <https://eoss.asu.edu/dos/srr/StudentAdvocacyandAssistance>

Students with Families: <https://eoss.asu.edu/students-families>

Sun Devil Fitness: <https://fitness.asu.edu/>

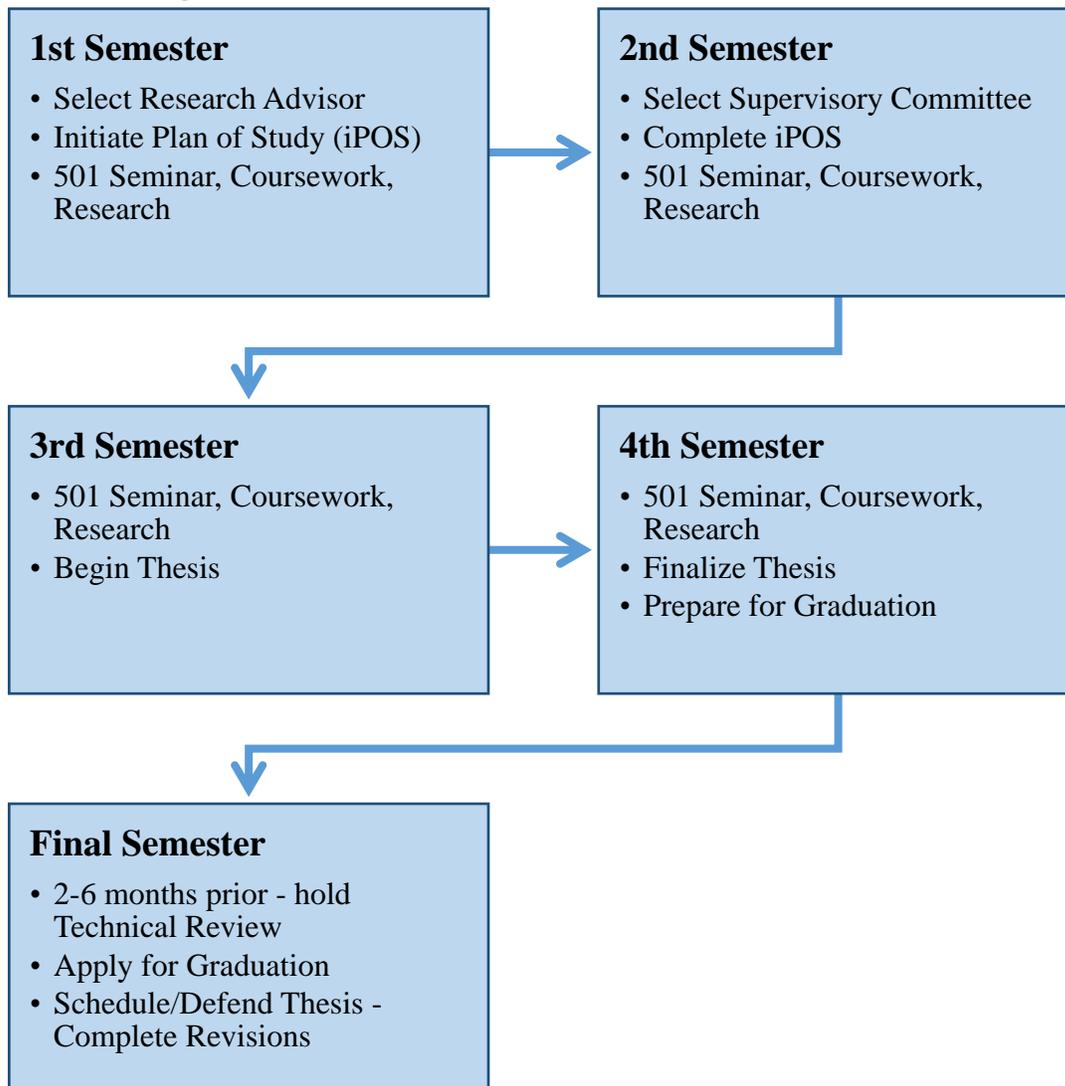
University Technology Office: <https://uto.asu.edu/>

Wellness: <https://eoss.asu.edu/wellness>

Master of Science in Biochemistry/Chemistry

The School of Molecular Sciences is not accepting applications for these degree programs.

Outline of MS Program



Program Fees

Please note that there is a \$300 Program Fee per semester for all students enrolled in Biochemistry MS Programs.

Duration of Program

The Master's Degree is typically completed in two years; however, more time may be needed depending on the research project. According to the Graduate College's requirements, the Master's degree must be completed within six consecutive years – continuous enrollment in all Fall and Spring semesters is required. The count begins from the first semester of admission to the student's program.

Students who have been in a Chemistry/Biochemistry PhD Program for more than two years and have dropped to a Chemistry/Biochemistry Master's Program will be given an additional two

semesters of financial support to complete their Master's Program, contingent on available funding, satisfactory progress toward the degree, good academic standing in the program, and satisfactory teaching evaluations. Students who need more than the additional two semesters to complete their degree requirements may petition the Graduate Programs Committee for additional support. The Graduate Programs Coordinator can assist students with this process.

Supervisory Committee

The Supervisory Committee consists of the student's Research Advisor, who is the student's main mentor and Chair of the Supervisory Committee, and two additional tenured or tenure track faculty members. The student has the option of having two Research Advisors who serve as Co-Advisors (Co-Chairs) and may have more than the two required members.

Who can serve as Research Advisor, i.e. Chair of the Supervisory Committee?

- The Research Advisor must be selected from tenured or tenure track members of the Chemistry and Biochemistry PhD Graduate Faculty. A complete listing of the faculty members can be found on the Department website at: <https://graduate.asu.edu/graduate-faculty>.

Who can serve as Research Co-Advisor (optional)?

- Members of the Chemistry and Biochemistry PhD Graduate Faculty.
- ASU Tenured or tenure-track faculty members from a science-related field or engineering may serve as co-advisors with approval from the Graduate Programs Committee and the Graduate College. (Student should see the Graduate Programs Coordinator)
- Emeritus faculty.
- Non-tenure-track faculty members, research professionals or non-ASU professors or researchers may serve as co-advisors with approval from the Graduate Programs Committee and the Graduate College. The member must be actively engaged in research associated with the student's research. (Students should see the Graduate Programs Coordinator.)

Who can serve as a Supervisory Committee Member?

Members of the Chemistry and Biochemistry PhD Graduate Faculty.

- Tenured or tenure-track faculty members from a science-related field or engineering
- Emeritus faculty
- Non-tenure-track faculty members, research professionals or non-ASU professors or researchers may serve as a Member with approval from the Graduate Programs Committee and the Graduate College. The member must be actively engaged in research associated with the student's research. (Student should see the Graduate Programs Coordinator)
- **Members cannot be directly involved in the student's research.**

The Supervisory Committee serves as the Thesis Committee for MS students. Additional faculty or researchers can be added to the committee after the Plan of Study has been completed. Students who want to add an additional Member should see the Graduate Programs Coordinator.

Supervisory Committee Member Summary: (See Appendix C)

The Chair of the Supervisory Committee must be selected from faculty members from the Chemistry or Biochemistry PhD Graduate Faculty. Members can be Chemistry/Biochemistry PhD Graduate Faculty, Emeritus ASU faculty or a tenured or tenure-track faculty member in a science-related field or engineering with the approval of the Graduate Programs Committee. A non-ASU professor or researcher who is actively engaged in research associated with the student's research may serve as a Member with approval from the Graduate Programs Committee and the Graduate

College. The Supervisory Committee is composed of a Research Advisor (and Co-Advisor if appropriate) and two additional members (can have more than two). **At least two Members of the Supervisory Committee (including the chair) must be tenured or tenure-track Faculty in the School of Molecular Sciences.** Members cannot be directly involved in the student's research. An eligible faculty member who is actively involved in the student's research may, with the approval of the advisor, act as a co-advisor.

Course Requirements

A total of 30 credit hours and a Master's thesis are required and must include:

- Four 500 level courses (2-3 credit hours each)
 - One of the four courses may be taken outside the School of Molecular Sciences, but must be related to the student's research and approved by the research advisor. (2-3 credit hours each)
 - A maximum of one 400 level course may be substituted for one required 500 level course. 400 level courses can only be taken with approval of the research advisor or mentor. (2-3 credit hours each)
- CHM 501 New Student Seminar for students entering in the Fall Semester
- CHM/BCH 501 each semester enrolled in the program (up to 4 semesters required)
- Research (CHM/BCH 592) is required for every semester the student is involved in research (total of 6 credits minimum)
- Six hours of Thesis (CHM/BCH 599) must be taken and included on the student's Program of Study.
- The remaining hours can be filled by taking additional courses, 400 or 500 level (2-3 credit hours each), related to the student's research, or additional research credit hours.

Note on Courses:

Students cannot take more than one 501 seminar per semester.

The Graduate Programs Committee does not recommend taking more than two classes per semester in addition to the 501 seminar, so as to allow enough time for research. However, the student should discuss these recommendations with his/her Research Advisor.

Interactive Plan of Study

The Interactive Plan of Study (iPOS) is an agreement between the student, SMS and ASU indicating the courses the student will take to complete the degree program requirements. It is not a transcript and is not used for employment purposes. The GPA calculated on an iPOS is used only to determine if a student has met the GPA requirement for the total semester hours required for his/her program. The iPOS needs to be completed by the end of the student's first semester in residency. The process of completing and submitting the iPOS is done through the student's MyASU. Instructions for completing the iPOS can be found on the Graduate College's [Plan of Study page](#). See Appendix C for an additional reference on completing the iPOS. The Graduate Programs Coordinator can assist students with the completion of the iPOS. Revisions to the Plan of Study are easily made online and should be made on a yearly basis if needed. The Graduate Programs Coordinator can assist you with this. All courses included on the iPOS, including research and thesis, hours must be completed and show a grade before the MS Degree can be verified and posted by the Graduation Office.

Transfer Courses

Courses taken as a graduate-non-degree student at ASU or at another university in the US or Canada **that have not been counted toward a previous degree** may be used toward the required number of courses and total semester hours needed for the MS degree. The courses must have been completed within three years prior to the admission to the student's current program. A maximum of two courses may be used toward the four required courses for the Master's Program. A minimum of two 500 level courses must be taken at Arizona State University. The Graduate College allows for up to 12 credits to counted as Pre-Admission Requirements. The request is made by submitting a copy of the course(s) syllabus, a copy of the transcript (original transcript must be on file with the Graduate College) showing the final grade for the course(s) and a written request to the Graduate Programs Coordinator who will present it to the Graduate Programs Committee. The student will be sent an email informing him/her of the committee's decision and instructions on how to proceed if the courses are approved.

Extracurricular Courses

Students interested in taking courses in addition to those included in their Plan of Study should obtain authorization from their research advisor regardless of the student's source of financial support. This includes classes outside their field of study (e.g. business, languages, religion, art, recreation, etc.). Authorizations are required for each course, and should be sent to the Graduate Programs Coordinator. Students that enroll in extracurricular courses without approval are subject to loss of financial support from the advisor and/or the department.

Scholastic Requirements

Students must maintain a GPA of 3.0 on the iPOS courses, graduate coursework (500-level and above) and the cumulative GPA (all ASU coursework). The GPA is checked at the end of each semester. A student whose GPA drops below 3.0 on any of the above GPAs is not considered to be progressing in the program satisfactorily and will be placed on academic probation and afforded one semester to bring the impacted GPA to 3.0 or better.

Lack of progress in research is determined by the Research Advisor and is reported to the Graduate Programs Committee. An appointment will be made for the student to meet with a member of the Graduate Programs Committee to explain the circumstances for the deficiency. The committee member will discuss this meeting with other members of the committee and the student will be sent an email or letter reviewing the deficiency and what must be done to relieve the deficiency within a specified time period.

Consequences of unsatisfactory performance are discussed in the [Academic Standards](#) sections of this manual and may include the following recommendations:

- The student is placed on academic probation until the deficiency is remedied
- Student is advised to find a different Research Advisor
- Recommendation that the student be dismissed from the program

If a student's GPA falls below 2.0 at any time, the Graduate Programs Committee may ask the School Director to write a letter to the College of Liberal Arts and Sciences and the Graduate College recommending immediate dismissal from the current graduate program.

Program Progression

Selecting a Research Advisor and Supervisory Committee

Students are required to join a research group by the end of their first semester and form a Supervisory Committee by the end of the second semester. (See procedures in selecting a Research Advisor and Supervisory Committee described earlier in this section.) Early completion of both of these tasks is strongly encouraged. Students who are unable to meet these deadlines should contact The Graduate Programs Coordinator to discuss the circumstances as to why this requirement was not met. Based on the discussion, a meeting with the Graduate Programs Committee Chair may be scheduled or the student may be required to write a formal petition to the Graduate Programs Committee. Students who do not follow this procedure and do not meet the conditions that have been set for them are not progressing in their program satisfactorily and will be reported to the Graduate Programs Committee. Based on the committee's decision, the student will receive an email or letter specifying a time period within which the requirement must be met. Consequences for not completing the requirement are presented in the [Academic Standards](#) section of this manual.

Annual Poster Session

All students enrolled in the Chemistry and Biochemistry MS Program are required to present a poster during the annual Visitation Recruitment Weekend to maintain their position of good-standing in the program. This includes first-year students.

The purpose of the poster session:

- Primarily, it is a way of keeping committee members up to date with research progress
- Preparing a poster gives the opportunity to demonstrate how the research project fits in the bigger picture of the research field, and how the student would present his/her work to others. Learning how to properly present research is an important part of graduate education.
- The poster session is an important part of our recruitment weekend, and serves as a vehicle to allow interaction between our current students and prospective students.

Technical Review

Two to six months prior to the thesis defense, the student is required to meet with his/her Supervisory Committee to present the research he/she has accomplished so that the student may receive feedback on the direction of the research and suggestions for improving any areas of weakness. This review commonly consists of a 20 minute presentation prepared by the student on his/her research progress and a discussion on any manuscripts in preparation. The committee will question and advise the student to guide him/her in the completion of his/her degree. At the conclusion of the Technical Review, committee members should sign the Technical Review for Final Master's Defense form. The form can be obtained from the Graduate Programs Coordinator. A final defense will not be approved for scheduling unless the signed form is on file with the Graduate Programs Coordinator.

Master's Thesis

A Master's Thesis, detailing the research accomplished at Arizona State University, is required as a demonstration of the student's research technique and ability to draw conclusions from his/her data. It must include an introduction, description of the research and a discussion of the results. Each student is required to present the results of his/her thesis during a final oral defense.

Steps Toward Graduation or Graduation Requirements

Apply for Graduation

The Graduate College has firm deadlines for graduation which all students must follow. Information on how to apply and follow the status of your application can be found on the Graduate College website: <https://graduate.asu.edu/completing-your-degree>. It is important to click on the link found on this website titled: “Graduation Deadlines and Procedures” for information on how and when to meet each deadline date.

There is a checklist on each student’s MyASU page in the My Programs and Degree Progress section that lists the items to be completed for graduation. It also shows the status of the student’s graduation application.

Schedule the Final Defense with the Supervisory Committee

Students contact the members of their Supervisory committee to determine the best date for the final defense. The date must meet deadlines set by the Graduate College. When the date and time have been established, the student should reserve a conference room for the defense. Conference rooms on the first floor of the Physical Science building are reserved in the main School of Molecular Sciences office – PSD 104.

A copy of the thesis must be submitted to each member of the Supervisory Committee **at least two weeks** prior to the final MS thesis defense. The document submitted should be a draft that has been reviewed by the advisor and is ready to defend. **Minor** revisions may be needed following the exam.

Schedule of Defense Form and Format Review – 10 Day Rule

Students must meet the Graduate College requirement of submitting a request to hold a final defense at least 10 working days before the planned defense. The Graduate College 10 Working Day Calendar must be used to determine the 10 days.

The student selects the “Defense” tab on his/her MyASU page and selects the option to schedule the defense.

The student must also submit the thesis document for format review to the Graduate College at least 10 calendar days prior to the scheduled defense date. The format must follow the Graduate College guidelines (<https://graduate.asu.edu/format-manual>). The Graduate College has designed a formatting tool to assist students with formatting the title page, table of contents, list of illustrations, acknowledgements, etc. The format tool and instructions for using it can be found at <https://graduate.asu.edu/completing-your-degree> under the “format” tab. It is suggested that the document is first completed and then cut and pasted into the formatting tool. If format revisions are required, students should make the necessary revisions and resubmit to the grad format office until format approval is received. Students should simultaneously complete format revisions and any revisions requested by the committee.

Request to Delay Thesis Publication

The student can request that the thesis document is not made public for a certain period of time in cases involving work of a sensitive nature. This decision should be made after consulting with the advisor or co-advisors. The request for a delay is referred to as an “embargo” and must be requested using the “Delaying Publication of Thesis/Dissertation (Embargo Status) form found at

<https://graduate.asu.edu/student-forms>. The student also indicates the need for an embargo when the final document is submitted to ProQuest.

Announcement of the Master's Final Defense

An email announcement of the final defense is sent to all students, faculty and staff in the School of Molecular Sciences. Two weeks prior to the defense, the student must email the following information to the Graduate Programs Coordinator:

- Thesis title
- Abstract
- List of publications
- Name as it should appear
- Committee member names as they should appear
- Date, time, and location of defense.

The student may also request that the announcement be sent to other departments with related research interests.

Master's Final Defense

The final defense of the thesis must take place by the deadline date specified by the Graduate College. It consists of a formal oral presentation of the student's thesis, open to the public, followed by a closed session with the student and his/her Supervisory Committee. The closed session involves an in-depth questioning by the committee to verify the student's knowledge of the research topic and its significance.

Documentation of Final Defense

When the student has passed the final defense, all members of the Supervisory Committee must sign the "Report for Master's Thesis/Practicum Defense" form provided by the Graduate College to the Chair of the Supervisory Committee (Research Advisor). Section B of this form must be completed by the Supervisory Committee Chair indicating if revisions need to be made. The committee then indicates their decision and signs in Section C.

The signed form is submitted to the Graduate Programs Coordinator who submits the form to the Graduate College. If revisions are required, a copy is made and submitted to the Graduate College to verify the defense took place. The original is retained by the student or advisor. When all required revisions are completed, the Chair signs the bottom of the form, Section D, verifying final approval of the thesis document, and is then submitted to the Graduate Programs Coordinator for submission to the Graduate College.

Thesis Submission

When the student has successfully completed the final defense, the final revisions of the thesis document have been approved by the Supervisory Committee Chair and the document has format approval, the student submits the thesis to UMI/ProQuest for publication. (Description and procedure for this process can be found through the link on the student's MyASU Defense tab.) The Graduate College format office reviews the final submission and, if there are no additional corrections, they will notify ProQuest the document has received final approval.

The thesis is uploaded to the digital repository of the library. Bound copies are no longer provided to the library. Students are not obligated to do so, but may purchase bound copies according to

his/her needs – a copy for the research advisor, family members and/or a copy for the student’s own reference or library.

Students should be aware that ProQuest can sell the thesis document through a third party (like Amazon.com) and the student receives no compensation. There is a drop down menu on the ProQuest form that can be selected to indicate the student’s request that the document not be sold through a third party. It will not default to this – the student must select it.

The Awarding of the Degree

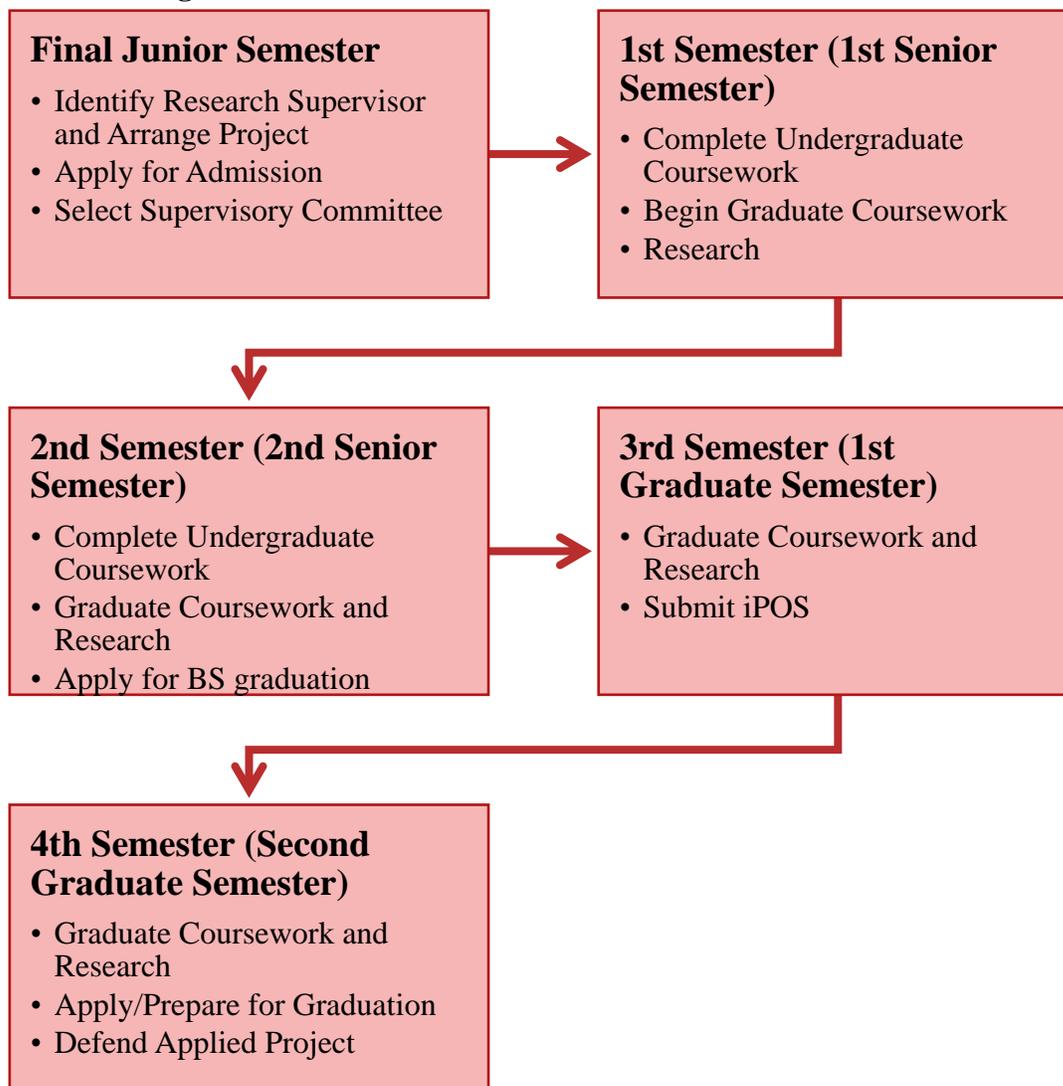
The degree is awarded when the student has accomplished the following:

- Satisfactorily completed required coursework with a cumulative GPA, Graduate GPA and iPOS GPA of 3.0 or better
- Conducted research at ASU under the direction of a tenured/tenure track faculty member in the School of Molecular Sciences
- Written MS thesis approved by the Supervisory Committee
- Successfully presented and received a grade of “pass” on the final oral defense of the thesis
- Met all deadline dates and requirements as set by the Graduate College and University Registrar’s Graduation Office.

Master of Science in Biochemistry (Concentration in Medicinal Chemistry) – Accelerated BS/MS Degree

This degree is only being offered as an Accelerated 4+1 BS/MS degree for students enrolled in an approved BS degree at ASU. Applications for study outside this framework are not being accepted.

Outline of MS Program



This Master's program is designed for students who are currently pursuing a Bachelor of Science degree in Biochemistry, Biochemistry (Medicinal Chemistry), Chemistry, or Molecular Biosciences and Biotechnology at ASU and want to improve their background in chemistry and biochemistry before entering professional schools of medicine, pharmacy and other health sciences. Emphasis is on organic chemistry, inorganic chemistry, and biochemistry with research encompassing chemical-biological relationships, mainly the relationship between molecular structure and biological activity or mode of action. It includes, but is not limited to the following:

- Design, synthesis, and biological evaluation of novel biologically active compounds and/or diagnostic agents.

- Molecular modifications of reported series that lead to a significantly improved understanding of their structure-activity relationships (SAR). Routine extensions of existing series that do not utilize novel chemical or biological approaches or do not add significantly to a basic understanding of the SAR of the series will normally not be accepted for publication.
- Molecular biological studies (e.g., site-directed mutagenesis) of macromolecular targets that lead to an improved understanding of molecular recognition.
- Structural biological studies (X-ray, NMR, CD, etc.) of relevant ligands and targets with the aim of investigating molecular recognition processes in the action of biologically active compounds.
- Molecular modeling and QSAR studies that provide fresh insight into the SAR of series that are of current general interest.
- Computational chemistry methods with demonstrated value for the identification or optimization of bioactive molecules.
- Effect of molecular structure on the distribution, pharmacokinetics, and metabolic transformation of biologically active compounds.

Program Fees

Please note that there is a \$300 Program Fee per semester for all students enrolled in Biochemistry MS Programs.

Duration of Program

The medicinal chemistry program is designed as an accelerated program for students continuing their education in a professional program; therefore, students are expected to complete requirements within four semesters. Students who do not complete the program by the end of their fourth semester must petition the Graduate Programs Committee for an extension to complete the degree. The count begins from the first semester of admission to the program.

Supervisory Committee

The Supervisory Committee consists of the student's Research Advisor, who is the student's main mentor and Chair of the Supervisory Committee, and two additional members. The student has the option of having two Research Advisors who serve as Co-Advisors (Co-Chairs) and may have more than the two required members.

Who can serve as Research Advisor, i.e. Chair of the Supervisory Committee?

- The Research Advisor must be selected from tenured or tenure track members of the Chemistry and Biochemistry PhD Graduate Faculty. A complete listing of the faculty members can be found on the Department website at: <https://graduate.asu.edu/graduate-faculty>. The research advisor should be conducting research that is medicinal in nature.

Who can serve as Research Co-Advisor (optional)?

- Members of the Chemistry and Biochemistry PhD Graduate Faculty.
- ASU Tenured or tenure-track faculty members from a science-related field or engineering may serve as co-advisors with approval from the Graduate Programs Committee and the Graduate College. (Student should see the Graduate Programs Coordinator)
- Emeritus faculty.

- Non-tenure-track faculty members, research professionals or non-ASU professors or researchers may serve as co-advisors with approval from the Graduate Programs Committee and the Graduate College. The member must be actively engaged in research associated with the student's research. (Students should see the Graduate Programs Coordinator.)

Who can serve as a Supervisory Committee Member?

- Members of the Chemistry and Biochemistry PhD Graduate Faculty.
- Tenured or tenure-track faculty members from a science-related field or engineering
- Emeritus faculty
- Non-tenure-track faculty members, research professionals or non-ASU professors or researchers may serve as a Member with approval from the Graduate Programs Committee and the Graduate College. The member must be actively engaged in research associated with the student's research. (Student should see the Graduate Programs Coordinator)
- **Members cannot be directly involved in the student's research.**

The Supervisory Committee serves as the Thesis Committee for MS students. Additional faculty or researchers can be added to the committee after the Plan of Study has been completed. Students who want to add an additional Member should see the Graduate Programs Coordinator.

Supervisory Committee Member Summary: (See Appendix C)

The Chair of the Supervisory Committee must be selected from faculty members from the Chemistry or Biochemistry PhD Graduate Faculty. Members can be Chemistry/Biochemistry PhD Graduate Faculty, Emeritus ASU faculty or a tenured or tenure-track faculty member in a science-related field or engineering with the approval of the Graduate Programs Committee. A non-ASU professor or researcher who is actively engaged in research associated with the student's research may serve as a Member with approval from the Graduate Programs Committee and the Graduate College. The Supervisory Committee is composed of a Research Advisor (and Co-Advisor if appropriate) and two additional members (can have more than two). Members cannot be directly involved in the student's research. An eligible faculty member who is actively involved in the student's research may, with the approval of the advisor, act as a co-advisor.

Course Requirements

A minimum of 30 credit hours and an applied project

- CHM 535 Medicinal Chemistry (3 Credits)
- Three additional 500-level or above courses related to the area of medicinal chemistry (2-3 credit hours each).
 - One 400-level course may be substituted if it is determined by the research advisor to be appropriate. (2-3 credit hours)
- Four credit hours CHM/BCH 501 – CHM/BCH 591 Department Seminars (Not CHM 501 New Student Seminar) – 1 credit hour each. Any combination of the CHM/BCH 591 and CHM/BCH 501 can be taken to meet the total of 4 credit hours of seminar
- Six credit hours of BCH 592 Research (6 total credit hours)
- Two Credit hours of BCH 593 – Applied Project – To be taken as a capstone course
- Six credit hours of electives – can be additional research credits or 500-level courses (only one 400-level course can be counted on the iPOS)

A cumulative GPA of 3.0 or better must be maintained on a yearly basis

Scholastic Requirements

Students must maintain a GPA of 3.0 on the iPOS courses, graduate coursework (500-level and above) and the cumulative GPA (all ASU coursework). The GPA is checked at the end of each semester. A student whose GPA drops below 3.0 on any of the above GPAs is not considered to be progressing in the program satisfactorily and will be placed on academic probation and afforded one semester to bring the impacted GPA to 3.0 or better.

Lack of progress in research is determined by the Research Advisor and is reported to the Graduate Programs Committee. An appointment will be made for the student to meet with a member of the Graduate Programs Committee to explain the circumstances for the deficiency. The committee member will discuss this meeting with other members of the committee and the student will be sent an email or letter reviewing the deficiency and what must be done to relieve the deficiency within a specified time period.

Consequences of unsatisfactory performance are discussed in the [Academic Standards](#) sections of this manual and may include the following recommendations:

- The student is placed on academic probation until the deficiency is remedied
- Student is advised to find a different Research Advisor
- Recommendation that the student be dismissed from the program

If a student's GPA falls below 2.0 at any time, the Graduate Programs Committee may ask the School Director to write a letter to the College of Liberal Arts and Sciences and the Graduate College recommending immediate dismissal from the current graduate program.

Extracurricular Courses

Students interested in taking courses in addition to those included in their plan of study should obtain authorization from their research advisor regardless of the student's source of financial support. This also includes classes outside their field of study (e.g. business, languages, religion, art, recreation, etc.) Authorizations are required for each course, and should be sent to the Graduate Programs Coordinator. Students that enroll in extracurricular courses without approval are subject to loss of financial support from the advisor and/or the department and/or removal from the program.

Shared Courses

Courses taken in the final two semesters of the undergraduate degree while admitted to the Accelerated BS/MS may be used toward the required number of courses and total semester hours needed for the MS degree with the approval of the Graduate Programs Committee. A total of 12 credit hours can be counted toward the MS degree as Pre-Admission credit, with up to 9 credit hours shared between the BS and MS degrees.

Program Progression

Selecting a Research Advisor and Supervisory Committee

Research Advisors must be selected at the time of application. The additional committee members should be selected during the first semester. Only the Research Advisor or Co-Advisor needs to be a tenured or tenure-track faculty member from the School of Molecular Sciences selected from the list provided.

Annual Poster Session

All students enrolled in the Biochemistry and Chemistry graduate programs are required to present a poster during the annual recruitment Visitation Weekend to maintain their position of good-standing in the program. This includes first-year students.

The purpose of the poster session:

- Primarily, it is a way of keeping committee members up to date with research progress
- Preparing a poster gives the opportunity to demonstrate how the research project fits in the bigger picture of the research field, and how the student would present his/her work to others. Learning how to properly present research is an important part of graduate education.
- The poster session is an important part of our recruitment weekend, and serves as a vehicle to allow interaction between our current students and prospective students.

Interactive Plan of Study

The Interactive Plan of Study (iPOS) is an agreement between the student, SMS and ASU indicating the courses the student will take to complete the degree program requirements. It is not a transcript and is not used for employment purposes. The GPA calculated on an iPOS is used only to determine if a student has met the GPA requirement for the total semester hours required for his/her program. The iPOS needs to be completed by the end of the student's first semester in residency. The process of completing and submitting the iPOS is done through the student's MyASU. Instructions for completing the iPOS can be found on the Graduate College's [Plan of Study page](#). See Appendix C for an additional reference on completing the iPOS. The Graduate Programs Coordinator can assist students with the completion of the iPOS. Revisions to the Plan of Study are easily made online and should be made on a yearly basis if needed. The Graduate Programs Coordinator can assist you with this. All courses included on the iPOS, including research and thesis, hours must be completed and show a grade before the MS Degree can be verified and posted by the Graduation Office.

Applied Project

The culminating experience is an applied project in the area of medicinal chemistry in which the student is required to prepare and defend a written research paper to his/her supervisory committee. This paper must be an original research paper written in publishable format by the student. There are two options.

- The research paper on the applied project must be at least 50 pages in length, double-spaced and typed in a 12 point font. The 50 page length can include the abstract, references list, and any tables or figures.
- The document can consist of a published, peer-reviewed, first-authored article in a scientific journal. (A conference proceedings paper CANNOT be used.) This article should be submitted with a 10-12 page introduction, summary and discussion. (Students who choose this option must show proof of publication or acceptance of the article.)

Apply for Graduation

The Graduate College has firm deadlines for graduation, which all students must follow. Information on how to apply and follow the status of your application can be found on the Graduate College website: <https://graduate.asu.edu/completing-your-degree>.

Schedule Defense of the Research Portfolio/Applied Project

Students should contact the members of their Supervisory committee to determine the best date for defending the Research Portfolio/Applied Project. The defense should be held no later than the last

day of classes. When the date and time is established, a conference room should be reserved. Conference rooms on the first floor of the Physical Science building are reserved in the main office – PSD 102. An email must be sent to the Graduate Programs Coordinator with the time and date of the exam so the “Report of Final Master’s Culminating Experience” form can be prepared and sent to the Research Advisor.

A copy of the written document must be submitted to each member of the Supervisory Committee **at least two weeks** prior to the final defense. The document submitted should be a draft that that was reviewed with the student and his/her advisor and ready to defend. **Minor** revisions may be needed following the exam.

Documentation of the Completion of Degree Requirements

The Student completes any necessary revisions to the applied project and the Supervisory Committee signs the “Report of Final Master’s Culminating Experience” form indicating that the student has “passed” the applied project requirement. The form is then submitted to the Graduate Programs Coordinator to obtain the final signature from the Head of the Academic Unit and reports the completion of the requirement to the Graduate College.

A final copy of the written document must be submitted to the Graduate Programs Coordinator and filed as part of the student’s academic record.

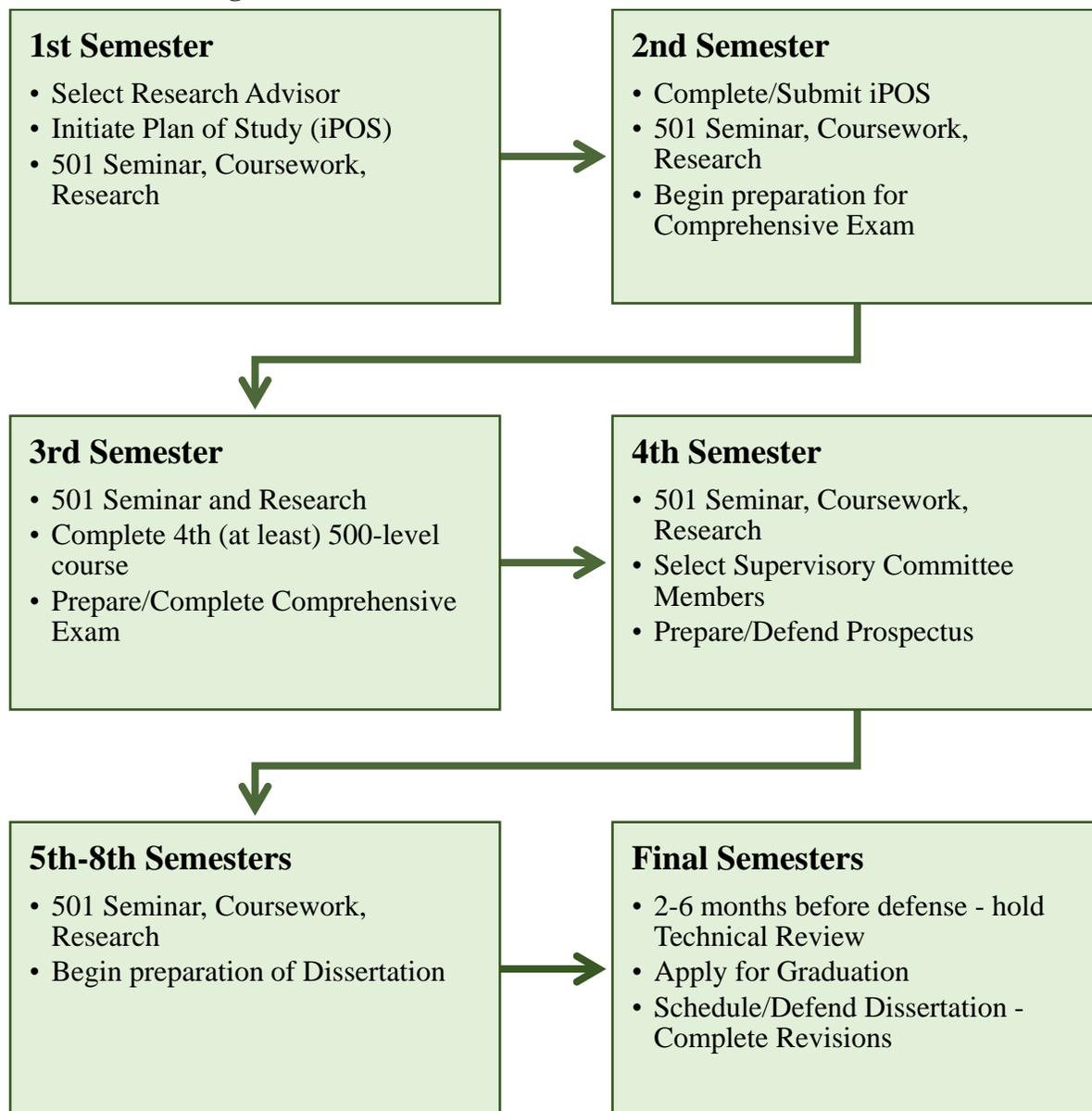
The Awarding of the Degree

The degree is awarded when the student has accomplished the following:

- Satisfactorily completed required coursework with a cumulative GPA, Graduate GPA and iPOS GPA of 3.0 or better
- Conducted research at ASU under the direction of an approved tenured or tenure-track faculty member in the School of Molecular Sciences
- Successfully presented and received a grade of “pass” on the final master’s culminating experience
- Meet all deadline dates and requirements as set by the Graduate College.

Doctor of Philosophy in Biochemistry/Chemistry

Outline of PhD Program



Duration of Program

Students in the PhD degree programs typically take four to six years to complete the program. The MS degree is not a prerequisite for the PhD program; however, students who enter the PhD program with a previously earned MS degree in Chemistry or Biochemistry may possibly complete their program in three to four years if they have achieved exceptional research accomplishments. The PhD degree must be completed within ten years from the time of initial enrollment. The graduation deadline can be found the iPOS and in MyASU under the My Programs section.

Supervisory Committee

The Supervisory Committee consists of the student's Research Advisor, who is the student's main mentor and Chair of the Supervisory Committee, and two additional tenured or tenure track faculty

members. The student has the option of having two Research Advisors who serve as Co-Advisors (Co-Chairs) and may have more than the two required members.

The Graduate Faculty model at ASU allows PhD programs to expand their PhD faculty membership to include faculty from other programs provided that they have the appropriate expertise. The members of the Chemistry/Biochemistry PhD Graduate Faculty are listed on the Graduate College's [Graduate Faculty website](#). This list includes all members of the School of Molecular Sciences and some faculty from other programs. Some of these additional faculty may not be endorsed to chair, so students should always check with the Graduate Programs Coordinator. Graduate Faculty membership is by degree, and the approved Graduate Faculty are not the same for the Chemistry and Biochemistry PhD degrees as some faculty from outside the School may not be approved for both degrees. Contact the Graduate Programs Coordinator if you have questions.

Who can serve as Research Advisor, i.e. Chair of the Supervisory Committee?

- The Research Advisor must be selected from the Chemistry/Biochemistry PhD [Graduate Faculty](#).
 - All tenured or tenure-track faculty of the School of Molecular Sciences are endorsed to chair for both Chemistry and Biochemistry PhD Degrees. (A complete listing of the faculty members can be found on the School website at: <http://chemistry.asu.edu/graduate/facultyResearch.asp>)
 - Most, but not all members of the Chemistry/Biochemistry PhD Graduate Faculty are endorsed to chair. Students should always check with the Graduate Programs Coordinator. If the selected Research Advisor does not have a tenure-home in the School of Molecular Sciences, additional paperwork will be required to verify the continuation funding. The funding guarantee outlined in the admission offer letter only applies if an advisor within the School of Molecular Sciences is selected.

Who can serve as Research Co-Advisor (optional)?

- Members of the Chemistry/Biochemistry PhD Graduate Faculty who are endorsed to chair may serve as Co-Advisors.
- Other tenured or tenure-track faculty members from a science-related field or engineering may serve as co-advisors with approval from the Graduate Programs Committee and the Graduate College.
- Emeritus faculty
- Non-tenure-track faculty members, research professionals or non-ASU professors or researchers may serve as a Co-Advisor with approval from the Graduate Programs Committee and the Graduate College. (Student should check with the Graduate Programs Coordinator)

Who can serve as a Supervisory Committee Member?

- Members of the Chemistry/Biochemistry PhD Graduate Faculty
- ASU tenured or tenure-track faculty members from a science-related field or engineering
- Emeritus faculty
- Non-tenure-track faculty members, research professionals or non-ASU professors or researchers may serve as a Member with approval from the Graduate Programs Committee and the Graduate College. The member must not be actively engaged in research associated with the student's research. (Student should see the Graduate Programs Coordinator)
- Members of the committee (outside of Advisor/Co-Advisor) cannot be directly involved in the student's research.

The Supervisory Committee serves as the Dissertation Committee for PhD students and will be responsible for approving both the Dissertation Prospectus and final Dissertation. Additional faculty or researchers can be added to the committee after the Plan of Study and/or the Comprehensive Examination has been completed. Students who want to add an additional Member should see the Graduate Programs Coordinator.

Supervisory Committee Member Summary: (See Appendix D)

The Chair of the Supervisory Committee must be selected from the Chemistry/Biochemistry PhD Graduate Faculty. Members can be Chemistry/Biochemistry PhD Graduate Faculty, Emeritus ASU faculty or a tenured or tenure-track faculty member in a science-related field or engineering with the approval of the Graduate Programs Committee and the Graduate College. A non-ASU professor or researcher who is actively engaged in research associated with the student's research may serve as a Co-Advisor with approval from the Graduate Programs Committee and the Graduate College. The Supervisory Committee is composed of a Research Advisor (and Co-Advisor if appropriate) and two additional members (can have more than two). **At least two Members of the Supervisory Committee (inclusive of Advisor/Co-Advisors) must be tenured or tenure-track faculty in the School of Molecular Sciences.** Members cannot be directly involved in the student's research. An eligible faculty member who is actively involved in the student's research may, with the approval of the advisor, act as a co-advisor.

Comprehensive Examination Committee

This committee determines whether the student is able to integrate his/her knowledge in chemistry and/or biochemistry with his/her current or future research and has the potential to continue to achieve the level of performance expected of a PhD candidate. The Comprehensive Exam Committee members will be made up of faculty members from School of Molecular Sciences graduate faculty and appointed by the School Director for an academic year. Multiple committees will be empaneled each year depending on the number of students and their research areas. Students will be asked to identify the area that is most applicable to their research to determine which committee will hear the exam. If a student's research advisor or co-advisor is on the committee, an alternate will be assigned, or the student will be assigned to a different committee.

Course Requirements

- Six 500 level courses related to the student's research (2-3 credit hours each)
 - Two of the six courses may be taken outside the School of Molecular Sciences, but must be related to the student's research and approved by the research advisor. (2-3 credit hours each)
 - A maximum of two 400 level course may be substituted for two of the six required 500 level courses. 400 level courses can only be taken with approval of the research advisor or mentor. (2-3 credit hours each)
 - Four 500 level courses, or three 500-level with a fourth in progress, must be completed before taking the comprehensive exam
- CHM 501 New Student Seminar for students entering in the Fall Semester
- CHM/BCH 501 each semester enrolled in the program (up to 8 semesters required)
- Research (CHM/BCH 792) is required for every semester the student is involved in research
- 12 semester credit hours of Dissertation (CHM/BCH 799).

Note on Courses:

Students cannot take more than one 501 seminar in any semester

The Graduate Program Committee does not recommend taking more than two classes in addition to the 501 seminar for each semester, so as to allow enough time for research. However, the student should discuss these recommendations with his/her Research Advisor.

Transfer Courses

Students enrolled in a PhD Program who have completed a master's degree in a science-related field may submit a request to the Graduate Programs Committee for permission to transfer 30 credit hours toward the PhD degree. Transfer credits will count toward the 84 total credit hours required **but not** toward the six required courses. Students with an MS degree from a university in the United States or Canada may submit a request to the Graduate Programs Committee to reduce the number of required courses from six to four. The request is made by submitting a copy of the course(s) syllabus, a copy of the transcript (original transcript must be on file with the Graduate College) showing the final grade for the course(s) and a written request to the Graduate Programs Coordinator who will present it to the Graduate Programs Committee. The student will be sent an email informing him/her of the committee's decision and instructions on how to proceed if the request is approved.

Courses taken as a non-degree student or at another university in the US or Canada **that have not been counted toward a previous degree** may be used toward the required number of courses and total semester hours needed for the PhD degree. The courses must have been taken within three years prior to the initial enrollment in the student's current PhD Program. A maximum of 3 courses may be transferred for the PhD program. A minimum of three 500 level courses must be taken at Arizona State University. The request is made by submitting a copy of the course(s) syllabus, a copy of the transcript showing the final grade for the course(s) and a written request to the Graduate Programs Coordinator who will present it to the Graduate Programs Committee. The student will be sent an email informing him/her of the committee's decision and instructions on how to proceed if the courses are approved.

Extracurricular Courses

Students interested in taking courses in addition to those included in their plan of studies should obtain authorization from their research advisor regardless of the student's source of financial support. This also includes classes outside their field of study (e.g. business, languages, religion, art, recreation, etc.). Authorizations are required for each course, and should be sent to the Graduate Programs Coordinator. Students that enroll in extracurricular courses without approval are subject to loss of financial support from the advisor and/or the department.

Scholastic Requirements

Students must maintain a GPA of 3.0 on the iPOS courses, graduate coursework (500-level and above) and the cumulative GPA (all ASU coursework). The GPA is checked at the end of each semester. A student whose GPA drops below 3.0 on any of the above GPAs is not considered to be progressing in the program satisfactorily and will be placed on academic probation and afforded one semester to bring the impacted GPA to 3.0 or better.

Lack of progress in research is determined by the Research Advisor and is reported to the Graduate Programs Committee. An appointment will be made for the student to meet with a member of the Graduate Programs Committee to explain the circumstances for the deficiency. The committee member will discuss this meeting with other members of the committee and the student will be sent an email or letter reviewing the deficiency and what must be done to relieve the deficiency within a specified time period.

Consequences of unsatisfactory performance are discussed in the [Academic Standards](#) section of this manual and may include the following recommendations:

- The student is placed on academic probation until the deficiency is remedied
- Student is advised to find a different Research Advisor
- Student is advised to change the degree of their program (ex. MS instead of PhD)
- Recommendation that the student be dismissed from the program

If a student's GPA falls below 2.0 at any time, the Graduate Programs Committee may ask the School Director to write a letter to the College of Liberal Arts and Sciences and the Graduate College recommending immediate dismissal from the current graduate program.

Program Progression

Selecting a Research Advisor and Supervisory Committee

Students are required to join a research group by the end of their first semester and select the remaining members of their Supervisory Committee by the end of their fourth semester. (See procedures in selecting a research advisor and Supervisory Committee described earlier in this section.) Students who have not selected a research advisor by the end of their first semester should contact the Graduate Programs Coordinator to discuss the circumstances as to why this requirement was not met. Based on the discussion, a meeting with the Graduate Programs Committee Chair may be scheduled or the student may be required to write a formal petition to the Graduate Programs Committee. Students who do not follow this procedure and/or continue to enroll in courses when the requirement has not been met are not progressing in their program satisfactorily and will be reported to the Graduate Programs Committee. Based on the committee's decision, the student will receive an email or letter specifying a time period by which the requirement must be met. Consequences for not completing the requirement are presented in the [Academic Standards](#) section of this manual.

Annual Poster Session

PhD students (with the exception of PhD students in their first academic year) are required to present a poster during the annual Visitation Recruitment Weekend to maintain their position of good-standing in the program.

The purpose of the poster session:

- Primarily, it is a way of keeping committee members up to date with research progress
- Preparing a poster gives the opportunity to demonstrate how the research project fits in the bigger picture of the research field, and how the student would present his/her work to others. Learning how to properly present research is an important part of graduate education.
- The poster session is an important part of our recruitment weekend, and serves as a vehicle to allow interaction between our current students and prospective students.

Interactive Plan of Study (iPOS)

The Interactive Plan of Study (iPOS) is an agreement between the student, SMS and ASU indicating the courses the student will take to complete the degree program requirements. It is not a transcript and is not used for employment purposes. The GPA calculated on an iPOS is used only to determine if a student has met the GPA requirement for the total semester hours required for his/her program. The iPOS needs to be completed by the end of the student's first semester in residency. The process of completing and submitting the iPOS is done through the student's MyASU. Instructions for completing the iPOS can be found on the Graduate College's [Plan of Study page](#). See Appendix C for an additional reference on completing the iPOS. The Graduate Programs Coordinator can assist students with the completion of the iPOS. Revisions to the Plan of Study are easily made online and should be made on a yearly basis if needed. The Graduate Programs

Coordinator can assist you with this. All courses included on the iPOS, including research and thesis, hours must be completed and show a grade before the MS Degree can be verified and posted by the Graduation Office.

Comprehensive Examination

All students in the PhD Programs must take the Comprehensive Examination to demonstrate their ability to integrate their knowledge of their research area and their potential to achieve the level of performance expected of a PhD candidate in chemistry and/or biochemistry. The examination is administered by the Comprehensive Examination Committee in the third semester of residency in the program. Students who began in the Fall Semester will complete their exam **between October 15 and November 15 of the second year**. Students who began in the Spring Semester will complete the exam **between March 15 and April 15 of the second year**. Students must have completed at least four 500 level courses and three CHM/BCH 501 seminars before taking the exam.

The Graduate Programs Coordinator will schedule the comprehensive exams, taking into account the student's teaching, research and coursework commitments.

The Comprehensive Examination consists of two components: written and oral. The written portion, referred to as the "written exam," is completed first and provided to the Comprehensive Exam committee by September 23 for fall exams and February 22nd for spring exams. Late reports will not be accepted. The oral portion of the examination, referred to as the "oral exam," is a 90-minute examination in which the student presents and defends the written research report. **No oral exam will be administered without receipt of a written exam in advance.**

If the written report is not received by the deadline, the student will not be allowed to complete the oral portion of the Comprehensive Examination, forfeiting the first attempt, and will be required to complete and pass both portions in the following semester. The student will be placed on department academic probation.

Students are encouraged to meet with their research advisor(s) and also organize two to three practice sessions that serve as "mock" oral exams including members of their own and related research groups.

Written Part of the Comprehensive Examination

Preparation of the written research report must adhere closely to the guidelines given below:

1. Academic Dishonesty
Using another's words, ideas, materials or work without properly acknowledging and documenting the source constitutes plagiarism. This includes materials taken from books, websites, journals, grant proposals, etc. Plagiarism will not be tolerated and will be sufficient cause for failing the examination. The Graduate Programs Committee may decide to take further actions, including reporting the student to the Graduate College with a recommendation for dismissal from the program. For more information, please refer to the *Academic Integrity* section of the handbook (p. 8).
2. English Language
Reports should be written in good English. Students are encouraged to visit the Writing Center (<https://tutoring.asu.edu/student-services/graduate>) for support as necessary.
3. Written Research Report
The report should introduce the research project and describe the research accomplished by

the student thus far. The report should provide: 1) a thorough background and literature review that motivates the research completed to date; 2) an account of completed research and results; and (3) a description of planned research not yet completed including issues to be addressed, experimental strategies to be used, anticipated results and alternative approaches or directions if initial attempts are unsuccessful. An abstract, not to exceed one double-spaced page, should be prepared, stating the reasons for the work, the significant results, and the main conclusions. The report, not including the abstract or references, should not exceed 15 double-spaced pages (12-point) including text, graphs, tables and figures. Figures must be included in the text. Appendices may be used for extensive data or methods. By way of reference, part 1 might be expected to be 3-5 pages; part 2 in the range of 5-7 pages, and part 3 in the range of 3-5 pages. Students should use articles from journals of the American Chemical Society (e.g. JACS, Biochemistry, JPC, JOC, Analytical Chemistry) as a reference in the preparation of this report for discipline-specific formatting considerations such as references, figure legends, and methods. A reference format including full titles for articles should be used. Reports that do not follow these guidelines may be considered unsatisfactory.

Oral Part of the Comprehensive Examination - "Oral Examination"

During the oral part of the Comprehensive Examination, ("oral examination"), students will be expected to provide a thorough account of the science underlying their proposed research topic and field and to demonstrate mastery of basic topics in chemistry and/or biochemistry. Students will be questioned in several areas relevant to their development as professional scientists. The successful candidate must clearly demonstrate:

- Mastery of basic concepts of chemistry/biochemistry
- Research proficiency, as evidenced by the progress and productivity level achieved in research including the ability to interpret data, draw conclusions, design experiments or hypotheses, and relate results to what has been established in the literature.

The oral examination is divided into two parts: 1) presentation of the student's current research project and 2) detailed questions from the exam committee related to the research presented and other applicable chemistry/biochemistry topics.

Results of the Comprehensive Examination

The Comprehensive Examination Committee will make one of the following recommendations at the conclusion of the Comprehensive Exam.

- Pass: Recommendation to admit to candidacy (pending prospectus approval) for the PhD degree.
- Pass: Recommendation that the student has passed at a level acceptable for an MS degree. Recommend student be allowed to pursue MS degree, but not continue in the PhD program (Graduate Programs Committee will provide information on the requirements).
- Fail: Recommendation that student not be allowed to continue in the PhD program

Examinations Requiring Revision: If the Comprehensive Examination Committee decides that a student has not met the threshold necessary to pass the exam but may possess the potential to do so, the exam committee may require the student to provide additional information or to retake either or both of the written or oral exams in the following semester. In this case, the Comprehensive Exam is held in abeyance until the following semester. The Committee Chair will provide the following:

- “***Comprehensive Examination Worksheet***” and the “***Memo to Student: Report on Comprehensive Examination***” outlining a summary of the further work to be done, and/or the requirements to be met, with a date by which the requirement(s) need to be completed.
- Submit the worksheet and memo to the Graduate Programs Coordinator within 10 days of the exam. The student should also receive a copy of the summary.
- The Graduate Programs Coordinator will contact the student to verify that he/she has the information.

Students who are asked to retake an exam, must do so in the following semester, unless granted special accommodation by both the Comprehensive Exam Committee and the Graduate Programs Committee. Students who do not pass after the second exam will receive a final recommendation from the Comprehensive Exam Committee.

Documentation of Comprehensive Examination Results

Examination Successfully Completed: Within 5 days of the successful completion of the exam, the Comprehensive Examination Committee Chair must submit the “***Final Report of Doctoral Comprehensive Examination***” form with the date of the exam and signatures of Comprehensive Examination Committee to the Graduate Programs Coordinator.

The Graduate Coordinator will obtain the signature of the Head of the Academic Unit and report the final results to the Graduate College.

Dissertation Prospectus

In the semester following successful passing of the Comprehensive Exam (i.e. fourth semester for those students passing on the first exam and fifth semester for those students attempting the candidacy exams twice), the student will prepare and defend the Dissertation Prospectus to their Supervisory Committee. The Dissertation Prospectus will be comprised of a revised version of the research report used in the written comprehensive exam that has been updated to include current results and a five-page document outlining the work being proposed to be completed for the dissertation with an anticipated time-line of the research. The Prospectus is reviewed and approved by the Supervisory Committee, including the Research Advisor, and is subject to questioning and exploration during an oral presentation/defense if required by the Supervisory Committee. The approval of the Dissertation Prospectus by the Supervisory Committee, along with the passing of the Comprehensive Exam will allow the student to advance to candidacy and proceed in the PhD program and focus on completing research associated with the PhD Dissertation. It should be noted that the Prospectus is an initial plan and will likely change as the research progresses and results shape the research direction. The Prospectus is meant to provide a snapshot of future research and ensure that the Supervisory Committee is supportive and has an opportunity to provide additional direction.

Failure to complete the dissertation prospectus by the relevant fourth or fifth semester, will constitute unsatisfactory performance and progress towards degree. Consequences of unsatisfactory performance are discussed in the [Academic Standards](#) sections of this manual and may include the following recommendations:

- The student is placed on academic probation until the deficiency is remedied
- Student is advised to find a different Research Advisor
- Recommendation that the student be dismissed from the program

Documentation for Reporting Results of Dissertation Prospectus

Results of the Dissertation Prospectus will be reported on the “Final Results of the Dissertation Proposal/Prospectus” form. Students should copy the Graduate Programs Coordinator when providing the prospectus to the committee. The Graduate Programs Coordinator will provide the form to the Research Advisor. The Research Advisor will then forward the signed form to the other members of the Supervisory Committee for signature. Once signed by the Supervisory Committee members, the form should be returned to the Research Advisor, who will then return the form to the Graduate Programs Coordinator who will get the Head of Academic Unit signature. The form should be returned within 10 days of the Prospectus defense.

Technical Review of the Dissertation

Two to six months prior to the dissertation defense, the student is required to meet with his/her Supervisory Committee to present the research he/she has accomplished so that the student may receive feedback on the direction of the research and suggestions for improving any areas that may be problematic or incomplete. The student should prepare a ~20 minute presentation outlining the work to be presented in the dissertation, including a summary of his/her research progress to date and a discussion of any work that is yet to be completed. The committee will question and advise the student to guide him/her in the completion of his/her dissertation and defense. At the conclusion of the Technical Review, committee members should sign the Technical Review for Final PhD Defense form. The form can be obtained from the Graduate Programs Coordinator. A final defense will not be approved for scheduling unless the signed form is on file with the Graduate Programs Coordinator.

Dissertation

The basic requirement for the PhD degree is for the candidate to demonstrate his/her competence to conduct independent, original research. The major research effort of the candidate will be embodied in the dissertation presented for the PhD degree. For the dissertation to be acceptable, it must contain new and unique contributions to scientific knowledge, publishable in primary research journals. Each student is required to present the results of his/her dissertation during a final oral defense.

The format of the dissertation must follow the Graduate College guidelines, <https://graduate.asu.edu/format-manual>. Examples of completed PhD dissertations are available in the university library.

Steps Toward Graduation or Graduation Requirements

Apply for Graduation

The Graduate College office has firm deadlines for graduation which all students must follow. Information on how to apply and follow the status of your application can be found on the Graduate College website: <https://graduate.asu.edu/completing-your-degree>. It is important to click on the link found on this website titled: “Graduation Deadlines and Procedures” for information on how and when to meet each deadline date.

There is a check list on each student’s MyASU page in the My Programs and Degree Progress section that lists the items to be completed for graduation. It also shows the status of the student’s graduation application.

Schedule the Final Defense with the Supervisory Committee

Students contact the members of their Supervisory committee to determine the best date for the final defense. The date must meet deadlines set by the Graduate College. When the date and time have been established, the student should reserve a conference room for the defense. Conference rooms on the first floor of the Physical Science building are reserved in the main School of Molecular Sciences office – PS D 104.

A copy of the dissertation must be submitted to each member of the Supervisory Committee **at least two weeks** prior to the final PhD dissertation defense. The document should be a draft that has been reviewed by the advisor and is ready to defend. **Minor** revisions may be needed following the exam.

Schedule of Defense Form and Format Review – 10 Day Rule

Students must meet the Graduate College requirement of submitting a request to hold a final defense at least 10 working days before the planned defense through MyASU. The Graduate College 10 Working Day Calendar must be used to determine the 10 days.

The student selects the “Defense” tab on his/her MyASU page and selects the option to schedule the defense.

The student must also submit the thesis document for format review to the Graduate College at least 10 calendar days prior to the scheduled defense date. The format must follow the Graduate College guidelines (<https://graduate.asu.edu/format-manual>). The Graduate College office has designed a formatting tool to assist students with formatting the title page, table of contents, list of illustrations, acknowledgements, etc. The format tool and instructions for using it can be found at <https://graduate.asu.edu/completing-your-degree> under the “format” tab. It is suggested that the document is first completed and then cut and pasted into the formatting tool. If format revisions are required, students should make the necessary revisions and resubmit to the grad format office until format approval is received. Students should simultaneously complete format revisions and any revisions requested by the committee.

Request to Delay Dissertation Publication

The student can request that the dissertation document is not made public for a certain period of time in cases involving work of a sensitive nature. This decision should be made after consulting with the advisor or co-advisors. The request for a delay is referred to as an “embargo” and must be requested using the “Delaying Publication of Thesis/Dissertation (Embargo Status) form found at <https://graduate.asu.edu/student-forms> (instructions are also included in the Pass/Fail form). The student also indicates the need for an embargo when the final document is submitted to ProQuest.

Announcement of the PhD Final Defense

An email announcement of the final defense is sent to all students, faculty and staff in the School of Molecular Sciences. Two weeks prior to the defense, the student must email the following information to the Graduate Programs Coordinator:

- Dissertation Title
- Abstract
- List of Publications
- Name as it should appear
- Committee member names as they should appear
- Date, Time, and Location of Defense.

The student may also request that the announcement be sent to other departments with related research interests.

Final Dissertation Defense

The final defense of the dissertation must take place by the deadline date specified by the Graduate College. The defense consists of a formal oral presentation of the student's dissertation, open to the public and approximately 45 minutes in length, followed by a closed session with the student and his/her Supervisory Committee. The closed session involves an in-depth questioning by the committee to verify the student's knowledge of the research topic and its significance.

Documentation of Final Defense

When the student has passed the final defense, all members of his/her Supervisory Committee must sign the "Announcement and Report for Doctoral Dissertation Defense" form provided by the Graduate College to the Chair of the Supervisory Committee (Research Advisor). Section B of this form must be completed by the Supervisory Committee Chair indicating if revisions need to be made. The committee then indicates their decision and signs in Section C. When all revisions are completed, the Chair signs the bottom of the form – Section D – verifying final approval of the thesis document. Section D is completed only if revisions are required and after they have been completed.

The signed form is submitted to the Graduate Programs Coordinator who submits the form to the Graduate College. If revisions are required, a copy is made and submitted to the Graduate College to verify the defense took place. The original is retained by the student or advisor and then submitted to the Graduate Programs Coordinator for submission to the Graduate College once final revisions have been completed and the Chair has signed in Section D.

Dissertation Submission

When the student has successfully completed and passed the final defense, the final revisions of the dissertation document have been approved by the Supervisory Committee Chair, if required, and the document has format approval from the Graduate College, the student submits the dissertation to UMI/ProQuest for publication. (Description and procedure for this process can be found through the link on the student's MyASU Defense tab.) The Graduate College format office reviews the final submission and, if there are no additional corrections, will notify ProQuest the document has received the final approval.

The dissertation is uploaded to the digital repository of the library. Bound copies are no longer provided to the library. Students are not obligated to do so, but may purchase bound copies according to his/her needs – a copy for the research advisor, family members and/or a copy for the student's own reference or library.

Students should be aware that ProQuest can sell the dissertation document through a third party (like Amazon.com) and the student receives no compensation. There is a drop down menu on the ProQuest form that can be selected to indicate the student's request that the document not be sold through a third party. It will not default to this – the student must select it.

The Awarding of the Degree

The degree is awarded when the student has accomplished the following:

- Satisfactorily completed required coursework with a cumulative GPA of 3.0 or better

- Conducted research at ASU under the direction of a tenured/tenure track faculty member in the School of Molecular Sciences or approved member of the Biochemistry/Chemistry PhD Graduate Faculty
- Written PhD dissertation approved by the Supervisory Committee
- Successfully presented and received a grade of “pass” on the final oral defense of the dissertation.
- Met all deadline dates and requirements as set by the Graduate College.

Requirements for the awarding of the Master’s Degree in Passing

Students who have achieved candidacy status in the PhD Program in Chemistry or Biochemistry by passing the Doctoral Comprehensive Examination are eligible to apply for the Master’s Degree in Passing (MIP). Students who hold an MS in Chemistry/Biochemistry degree from a regionally accredited U.S. institution or equivalent are eligible to apply for the master’s degree in passing only if no credit hours from this previously awarded degree have been counted towards the minimum credit hour requirement of the PhD in Chemistry/Biochemistry (currently 84 credit hours). Those who already hold an MS in Chemistry/Biochemistry degree from Arizona State University are not eligible to apply. Requirements include:

1. Successful completion of the oral and written parts of the Doctoral Comprehensive Examination required for all PhD students in Chemistry.
2. Prepare and successfully defend a written research portfolio to his/her supervisory committee. This portfolio must be an original research paper written by the student.
 - a. The portfolio must be at least 50 pages in length, double-spaced and typed in a 12 point font. The 50 page length can include the abstract, references list, and any tables or figures.
3. The minimum time frame between the completion of the Master’s Degree in Passing and the Final Doctoral Dissertation Defense should be at least one year. (Exceptions can be made on a case-by-case basis by a petition to the Graduate Programs committee.)

Paperwork Process for completing the Master’s Degree in Passing

1. Students should inform the Graduate Programs Coordinator of their intent to pursue the Masters in Passing so that paperwork can be filed with the Graduate College, who will create a Master’s iPOS.
 - a. The Plan of Study for the Master’s degree must include at least four 500 level courses (2 or 3 credits each), four CHM/BCH 501 seminars (1 credit each), and 14 credits of CHM 792 research. For the awarding of the master’s degree, students must meet the requirements of the Graduate College.
2. Students should submit a copy of their research portfolio to their Research Advisor six (6) weeks prior to the research portfolio defense for his/her advisor to review. The Supervisory Committee should receive a copy two (2) weeks before the defense.
3. The student presents and defends the Research Portfolio to his/her Supervisory Committee.
4. Committee Members sign the Report of Final Master’s Culminating Experience form provided by the Graduate Programs Coordinator. The form will be signed by the advisor and supervisory committee only after the successful defense of the research portfolio and after all revisions have been made to the satisfaction of all Committee Members.
5. The signed and completed Report of Final Master’s Culminating Experience form and a final copy of the completed research portfolio must be submitted to the Graduate Programs Coordinator who will then send a report to the Graduate College notifying them of the completed requirements.

6. Student will apply for graduation so the MS degree can be conferred.

Academic Standards

Students who meet program requirements as stated in each degree program description in this Student Handbook are considered to be in good academic standing. Students who are not able to fulfill a requirement by the timeline given must submit a petition to the Graduate Programs Committee requesting an extension to complete the requirement. The petition must include the following information:

- Explanation of extenuating circumstances as to why the requirement cannot be met
- Presentation of a plan and/or outline describing what has been done and will be done to get back on track
- The date(s) as to when the requirement will be completed
- A letter of support from the student's Research Advisor.

The petition in written form (can be done via email) is submitted to the Graduate Programs Coordinator who will bring it to the attention of the Graduate Programs Committee for review. The petition can be expedited if extenuating circumstances exist. Students will be notified of the committee's decision by email or letter.

Failure to complete a requirement by the specified deadline without having been granted an extension by the Graduate Programs Committee will constitute unsatisfactory performance. Consequences of unsatisfactory performance are detailed in the next section of this manual and may include the following recommendations:

- The student is placed on academic probation until the deficiency is remedied
- Student is advised to find a different Research Advisor
- Recommendation that the student be dismissed from the program

Results of Lack of Satisfactory Progress

Students who are not performing satisfactorily, as demonstrated by a GPA lower than that required for their program and/or are not meeting the time limits to meet program requirements will be sent a written notice from the Graduate Programs Coordinator on behalf of the Graduate Programs Committee explaining the deficiency and how it can be remedied. Based on the circumstances and the response from the student and his/her advisor, the student may be placed on Academic Probation or, in some cases, dismissed from the program.

If a student's GPA falls below 2.0, the Graduate Programs Committee may ask the School Director to write a letter to the Graduate College recommending immediate dismissal from the student's current graduate program

Academic Probation imposed by the Graduate Programs Committee is not reported to the Graduate College or put on a student's permanent academic record. The consequence of this probation can effect eligibility for financial support from the school. Students on academic probation are given a written notice with a specified time limit to improve academic performance and/or meet program requirements. As a result of not meeting the requirements, the school may not offer a Graduate Assistant position for future semesters. In rare cases, Academic probation may be imposed by the Graduate College, which is separate from the School and could be reflected on the permanent academic record.

Program Dismissal occurs when a student has been given notice of poor performance and has not met the requirements given by Graduate Programs Committee to remedy the deficiency within the time limit given. The School Director may write a letter to the Graduate College recommending that the student be dismissed from his/her academic program. The student will be sent a written notice and given a period of 10 business days to request a meeting with the Graduate Programs Committee to discuss his/her situation prior to the submission of the Director's letter to the Graduate College recommending the dismissal.

A recommendation for immediate dismissal of the student from his/her program may be submitted to the Graduate College as a result of a failed Comprehensive Examination, an academic integrity policy violation, overall GPA below 3.0, semester GPA below 2.0, poor performance in the laboratory (as determined by the student's research advisor and in agreement with Graduate Programs Committee review), and/or lack of establishing a Research Advisor and initiating an appropriate research project.

Changing Research Advisor and/or Committee Members

Research Advisor:

Changing a Research Advisor is not encouraged, but if circumstances justify the need, it is allowable. The student should first talk with the Research Advisor to see if the problems can be resolved and discuss alternatives. If both agree that it is in the best interest of those concerned, a School of Molecular Sciences "Change of Advisor" form, which can be obtained from the Graduate Programs Coordinator, should be completed and submitted to the Graduate Programs Coordinator for presentation to the Graduate Programs Committee.

Supervisory and Comprehensive Examination Committee Member:

Changing a member or adding a member to the student's Supervisory Committee or Comprehensive Examination Committee (with the exception of the Comprehensive Examination Chair) requires the completion of the School of Molecular Sciences "Change of Committee Member Form". The form can be obtained from the Graduate Programs Coordinator. The completed form is submitted to the Graduate Programs Coordinator to present to the Graduate Programs Committee.

After a change has been approved at the school level by the Graduate Programs Committee, be it for a new advisor (Supervisory Committee Chair) or a new Supervisory Committee Member, the student must request the change on his/her Program of Study (iPOS) so the change can be reflected on the student's official record.

Comprehensive Examination Committee:

Requests to change members of the Comprehensive Examination Committee must be submitted to the Graduate Programs Committee and will only be approved in extenuating circumstances. If approved, the Graduate Programs Committee will appoint a new exam committee member – The new committee member will not be selected by the student or the student's Research Advisor.

Absent Committee Member for the Final Defense

If a committee member is not be able to attend a final defense, either in person or via videoconference, and all efforts of changing the time and date have not worked, the student should contact the Graduate Programs Coordinator as soon as possible. Please note that any and all changes to your Committee must be approved by the Graduate Programs Committee and the Graduate College.

Responsibilities of Teaching Assistants

Graduate Teaching Assistants are assigned different roles depending on the qualifications of the individual, the needs of the school, and the funding available each semester. The time commitment is estimated to be approximately 20 hours per week for a full-time (0.50 FTE) position. If the assigned duties consistently exceed 20 hours per week, the student should contact the Chair of the Teaching Assistant Committee and/or Graduate Programs Committee.

Teaching Assistant contacts and coordinators are listed on Appendix E.

The Teaching Assistant Agreement, signed at the time of admission along with the offer letter, contains additional information about the specific duties of the TA position can be found in Appendix F.

Another great resource that outlines the policies of the position is the [TA/RA Handbook](#) that is maintained by the Graduate College.

Parental Leave

According to ASU policy, ACD 710, graduate students with a full-time Graduate Assistant appointment (FTE of .50 or more) who have completed at least one academic year of service are eligible for up to six weeks of paid parental leave for the purpose of recovery from childbirth and/or to care for and bond with a newborn or newly adopted child. The student must maintain a minimum enrollment of 6 credit hours in accordance with the TA/RA appointment during the semester the student is requesting the paid leave of absence. The amount of coverage within the six week period is affected by the dates of the appointment and students should contact the Benefits Office of Human Resources – Leaves and Disabilities with any questions.

If you have held a TA or RA appointment and are claiming a maternity/paternity benefit, there are additional forms that are required by Human Resources. Students should contact the School of Molecular Sciences Human Resources Office in PS D 203 for additional information.

Continuous Enrollment - Leave of Absence

It is a Graduate College requirement for all graduate students to be continuously enrolled every Fall and Spring semester from the first semester of enrollment to the completion of their program. Therefore, if a student wishes to take time off from the program, a formal request for a leave of absence must be submitted to the Graduate College. The request must be submitted to and approved by the Graduate College, no later than the first day of classes of the semester of the leave. The student completes the Graduate College form, “Maintain Continuous Enrollment: PhD” or “Maintain Continuous Enrollment: Masters and Certificate) found on their website: <https://graduate.asu.edu/student-forms>. The student will need to complete the form, provide a reason for the non-registration, and obtain the signature of the Research Advisor/Committee Chair and submit the form to the Graduate Programs Coordinator. The Graduate Programs Coordinator will present the request to the Graduate Programs Committee, obtain the signature of the Head of the Academic Unit and deliver the request to the Graduate College for final approval. Students may request to maintain continuous enrollment without course registration for a maximum of two semesters during their entire program.

Registration – Late Registration and Add/Drop

Students who miss the deadline to register for classes or to add/drop a course may incur a late fee. Students need to check the university academic calendar for registration dates - <http://students.asu.edu/academic-calendar>.

A course that is dropped online past the deadline date will result in a grade of “W” on the student’s transcripts.

Students needing to make a change to their enrollment after the Drop/Add deadline should see the Graduate Programs Coordinator to obtain an Enrollment Change Form (commonly referred to as the Late Add form).

Appendix A

Graduate Programs Committee 2017-2018

Chair

James Allen JAllen@asu.edu (480) 965-8241

Members

Giovanna Ghirlanda Giovanna.Ghirlanda@asu.edu (480) 965-6645

Sidney Hecht Sid.Hecht@asu.edu (480) 965-6625

Alexander Green AlexGreen@asu.edu (480) 727-7060

Wei Liu W.Liu@asu.edu (480)727-6452

Yuval Mazor Yuval.Mazor@asu.edu (480) 965-3221

Everett Shock Everett.Shock@asu.edu (480) 965-0631

Rebekka Wachter Rebekka.Wachter@asu.edu (480) 965-8188

David Nutt (staff) David.Nutt@asu.edu (480) 965-4664

Appendix B

Interactive Plan of Study (iPOS) Reference for Chemistry and Biochemistry Programs

The iPOS is an agreement between the student and the School of Molecular Sciences, the College of Liberal Arts and Sciences and the Graduate College outlining how the requirements needed for his/her degree will be met. It is not sent to prospective employers.

While completing the iPOS, keep in mind that it is a “plan” for completing your program requirements and changes, most likely, will need to be made as you progress through your program. Students should discuss course requirements with their Research Advisor and follow the guidelines outlined in the appropriate degree section in the Graduate Programs Handbook.

PhD students are required to submit the iPOS by the end of their second semester. Students are encouraged to begin discussing courses with the Research Advisor as early as possible. The iPOS should include CHM/BCH 501 for each semester enrolled (up to eight semesters), at least six courses (2-3 credits each), twelve hours of Dissertation (BCH/CHM 799), and research hours (CHM/BCH 792) to bring the total semester hours to at least 84. Student should enroll in research credits every semester for which they are conducting research.

MS students are required to submit the iPOS by the end of their first semester. It should include CHM/BCH 501 for each semester enrolled (up to four semesters), at least four courses (2-3 credits each) as described in the student handbook, six hours of Thesis (CHM/BCH 599) and research hours (CHM/BCH 592) for every semester in which research is performed. The total semester hours required is 30.

Courses completed from a university other than ASU, can be selected as transfer courses; however, they must be courses that were approved by the Graduate Programs Committee and an original transcript must be on file with the Graduate College.

While completing the iPOS, you will need to project courses for several years, and you may not know what courses you want to take or are available. Students are encouraged to speak with their Research Advisor regarding courses. In addition, students can review the course offerings from previous semesters to see what courses have been offered previously as most courses are offered on some sort of rotation, either every fall or spring or every other fall or spring. Remember, you can make changes to the iPOS even after a course is taken. The Graduate Programs Coordinator can assist with both identifying available courses and submitting the iPOS.

When the iPOS is complete:

- Student submits the iPOS for initial review by the Graduate Programs Coordinator.
- The Graduate Coordinator will submit the iPOS to the Research Advisor for approval.
- When approved the Graduate Programs Coordinator will present the iPOS to the Associate Director or Graduate Program Committee Chair for final approval, and if approved, forward it to the Graduation Office and the Graduate College for processing and final approval.

When Changes are needed: If the change is for the number of research hours taken in a semester or for a change in the 501 seminar taken, the advisor does not need to sign off. If it is a change in courses taken, ask your advisor to send an email to the Graduate Programs Coordinator verifying that the change was approved.

Appendix C

MS Chemistry and Biochemistry Programs

Supervisory Committee



MS Program

The research advisor is the Chair of the Supervisory Committee. He/she should be a Member of the Chemistry/Biochemistry Graduate Faculty. A list of the members of the chemistry and biochemistry programs is available at: <http://graduate.asu.edu/gradfaculty> .

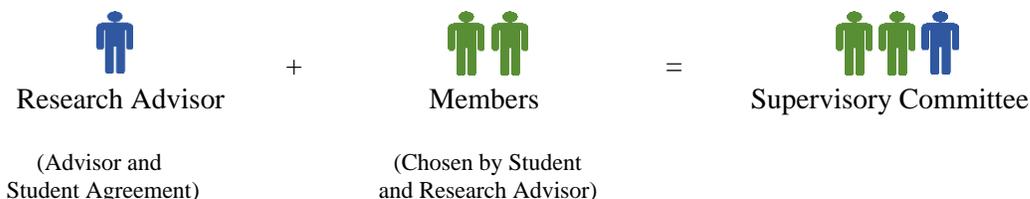
Members can be Chemistry/Biochemistry PhD Graduate Faculty, Emeritus ASU faculty or a tenured or tenure-track faculty member in a science-related field or engineering with the approval of the Graduate Programs Committee. A non-ASU professor or researcher may serve as a Member with approval from the Graduate Programs Committee and the Graduate College. The Supervisory Committee is composed of a Research Advisor (and Co-Advisor if appropriate) and two additional members (can have more than two). **Members cannot be directly involved in the student's research.**

At least two Members of the Supervisory Committee must be tenured or tenure-track faculty in the School of Molecular Sciences.

Appendix D

PhD Chemistry and Biochemistry Programs

Supervisory Committee



PhD Program

The research advisor is the Chair of the Supervisory Committee. He/she should be a Member of the Chemistry/Biochemistry PhD Graduate Faculty (<http://graduate.asu.edu/gradfaculty>). Note that some members of the graduate faculty who are not from the School of Molecular Sciences are not endorsed to chair, so students should always check with the Graduate Programs Coordinator.

Members can be Chemistry/Biochemistry PhD Graduate Faculty, Emeritus ASU faculty or a tenured or tenure-track faculty member in a science-related field or engineering with the approval of the Graduate Programs Committee. A non-ASU professor or researcher may serve as a Member with approval from the Graduate Programs Committee and the Graduate College. The Supervisory Committee is composed of a Research Advisor (and Co-Advisor if appropriate) and two additional members (can have more than two). **Members cannot be directly involved in the student's research.**

At least two Members of the Supervisory Committee must be tenured or tenure-track faculty in the School of Molecular Sciences.

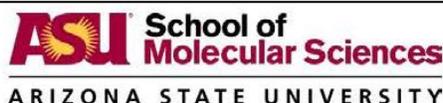
Appendix E

TA Contacts and Coordinators

Dr. Ron Briggs	PSH-240	ronbriggs@asu.edu	480-965-1905
Coordinates all TA assignments and hiring, makes TA assignments for all courses (except for the Organic and Biochemistry courses) and runs the General Chemistry Program.			
Dr. Ian Gould	PSD-109	igould@asu.edu	480-965-7278
Coordinates the Organic Chemistry laboratory program and is responsible for TA assignments in the Organic Chemistry courses.			
Dr. Scott Lefler	PSH-237	slefler@asu.edu	480-727-8282
Coordinates the Biochemistry laboratory program and is responsible for TA assignments in the Biochemistry courses.			
David Nutt	PSC-151	david.nutt@asu.edu	480-965-4664
Coordinates the SMS graduate programs (including TA offer letters and orientation).			
Chad McAllister	PSH-137	chad.mcallister@asu.edu	480-965-4158
Manages TA office hours in the Learning Resource Center (LRC).			
Theresa Shin	PSD-203	theresa.shin@asu.edu	480-965-7082
Manages the hiring paperwork and payroll processes.			
John Crozier	PSG-106	jcrozier@asu.edu	480-965-5492
Oversees all safety measures and ensures compliance in all classes and labs.			
Beatriz Smith	PSH-233	beatriz.smith@asu.edu	480-965-2726
Coordinates new TA training and manages the general chemistry laboratories.			

Appendix F

Teaching Assistant Agreement



Graduate Teaching Appointment Agreement

Graduate Teaching Appointments are available to students in the Chemistry/Biochemistry Graduate Programs based on the original admissions offer letter. This agreement is for the duration of your graduate program and is contingent on satisfactory academic standing, performance and Teaching Assistant evaluations in addition to the achievement and maintenance of satisfactory spoken English proficiency via the SPEAK test and continued improvement. Failure to pass the SPEAK test within 1 year will result in the loss of TA appointment privileges.

ASU stipends are paid biweekly. Benefits of this appointment include coverage of tuition and individual health insurance through a waiver that is applied to the student account to cover the costs. You must be enrolled as a full time student (min. 6 hours) and maintain at least a 3.0 grade point average. If you need health insurance, you will need to select that option when registering for classes – if you decline, you will be without coverage through ASU. If you have applied for and/or received financial aid, acceptance of this assistantship may decrease your financial aid funding eligibility. Additional information concerning graduate assistantship positions can be found at: <https://graduate.asu.edu/ta-ra-handbook>.

The time commitment is estimated to be approximately 20 hours per week for a full-time (50% FTE) position. If at any time the assignment consistently exceeds 20 hours per week, you should contact the TA Coordinator. You will be under the direct supervision of the faculty member teaching the class you are assigned and the TA Coordinator for the School of Molecular Sciences. You may not hold outside employment at the same time that you hold this position. All absences must be approved prior to the event and you must make arrangements for another TA to serve as a substitute during your absence. This substitute must be approved by the TA Coordinator. In cases where prior notice cannot be given, you must notify your immediate supervisor and the TA Coordinator as soon as possible. Teaching Assistants appointments begin with attendance at a general TA meeting which is held prior to the first day of class each semester and ends when final grades are submitted and final tasks completed. This appointment is binding and you may only be released from your teaching obligation upon approval of the TA Coordinator.

Duties for this position may include any combination of the following:

- Discuss lab procedures and course related topics
- Instruct and monitor students on lab experiments and procedures
- Enforce safety procedures
- Prepare quizzes, grade quizzes, tests, lab reports and various other assignments
- Hold office hours
- Attend weekly staff meetings
- Maintain grade books and submit grades by date specified by instructor and/or TA Coordinator
- Proctor and grade examinations
- Provide general assistance in the instructional process
- Prepare lab materials for demonstrations
- Setup experiments
- Attend lecture sessions
- Miscellaneous duties associated with the position

All new Teaching Assistants are required to attend and complete the Teaching Assistant Development (TAD) training conducted by Graduate Education as well as the TA training program offered through the School of Molecular Sciences.

I have read and understand the requirements for a Teaching Assistant Position

Printed Name _____

Signature _____

Date _____

School of Molecular Sciences
PO Box 871604 Tempe, Arizona 85287-1604
(480) 965-3461 Fax: (480) 965-2747
sms.asu.edu