THE UNIVERSITY OF ARIZONA

Department of Chemical and Environmental Engineering

CHEMICAL AND ENVIRONMENTAL ENGINEERING

GRADUATE STUDENT HANDBOOK

2018-2019

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1. Introduction

This Graduate Handbook is intended to help you on your path through the Department's advanced degree programs and on to future career success. Here you will find information and guidance from the time you arrive until you become one of our many outstanding graduates. We strongly recommend that you review the entire document now and ask questions about it. Please be aware that the handbook is likely to be updated each year and that those revisions may be important to you. You should also become familiar with the information provided on the University of Arizona (UA) Graduate College website: http://grad.arizona.edu/. Specifically, general information about non-academic resources for graduate students can be found at: http://grad.arizona.edu/new-and-current-students.

2. General Program Information

The Department offers the following advanced degrees in both Chemical Engineering and Environmental Engineering: Master of Science (MS) with and without a thesis (MS Thesis and MS Non-Thesis), and the Doctor of Philosophy (PhD). Both programs also offer an Accelerated Master's Program (AMP) leading to an MS Non-Thesis degree or an MS Thesis degree. The MS Non-Thesis degree is intended for students who are seeking a broader education, while the MS Thesis degree is intended for students who additionally want to work closely with a faculty member on a research topic. The PhD degree is intended for students aiming to broaden their education and get deeper into a research topic as compared to what an MS degree is designed for.

Graduates of each of these degrees will be trained to seek employment in a number of different sectors such as industry, national laboratories and consulting firms. PhD graduates will be prepared to be leaders in chemical and environmental technology, and will additionally be prepared to seek postdoctoral research positions and academic positions in universities. Graduates in both chemical and environmental engineering will be suitable for positions in a variety of topics due to the diversity of the knowledge gained in these degree programs, with the environmental focus leading to more environmentally-relevant positions.

3. Information for New Students

3.1 Assignment of Research Projects and Advisors

The MS and PhD degrees are primarily research degrees. Consequently, one of the most important objectives for entering graduate students is to participate in the processes for determining your research topic and advisor(s). Developing and maintaining an early working relationship with an advisor, who is responsible for mentoring, is extremely important.

In general, new students who are supported by departmental research assistantships meet only with faculty members who have research projects with supported student positions available. Self-supported students or students with fellowship support should meet with all faculty members that have available research projects. All meetings with faculty regarding research should be completed within the first two weeks after arrival at the University of Arizona.

After completing these steps and no later than a specific date specified by the Graduate Study Committee (GSC), a new student should provide his/her first, second, and third choices for a faculty advisor on the Chemical and Environmental Engineering Advisor Selection Form (see Appendix A8 of this handbook). This form must be returned to the GSC.

The GSC for both Chemical Engineering and Environmental Engineering oversee the project requests by incoming students for the respective degree programs. Final assignment of students to projects and research advisor(s) is made for all degree programs by the GSC and Department Chair based on student preferences (see Appendix A8), availability of funding, and balance in accordance with the research objectives of the department. Please see the Department Chair if you have any questions during these processes.

Students who for some reason do not complete these explicit processes for project and advisor selection on time must meet with the GSC for their respective program to discuss whether they can remain in the graduate program. This meeting will take place before the end of the Fall semester of the first year of study and will be set up jointly with the GSC and student.

3.2 Satisfactory Academic Progress

Students must consult with both their research advisor and the graduate program coordinator to discuss issues pertaining to unsatisfactory progress, which includes conditions resulting in academic probation (https://grad.arizona.edu/policies/academic-policies/academic-probation) such as a GPA below 3.0 at the end of a given semester. The student is expected to work with these two mentors to improve their academic standing.

3.3 Help with Academic Issues

In most circumstances, graduate students should first pose questions on academic matters to their thesis or dissertation advisor. Other members of their committee should also provide guidance and mentoring. The Graduate Study Committees can help with advice especially on curriculum questions and deadlines. Students may also contact the Department Chair at any time concerning issues related to their graduate studies.

3.4 Safety Training

All entering graduate students are required to take safety training. **THIS IS REQUIRED PRIOR TO WORKING ON ANY PROJECT**. The safety training is available online through Desire2Learn (D2L). Students must submit an electronic copy of their completion certificate to their faculty advisor and to the Graduate Program Coordinator, Grace Fuller **(**gracefuller@email.arizona.edu**),** upon completion of the course.

3.5 University Policies

Students are responsible for being aware of the policies described at the following websites pertaining to academic conduct, conduct of research, and general student conduct.

- Academic Integrity: http://deanofstudents.arizona.edu/codeofacademicintegrity
- Responsible Conduct of Research: http://www.orcr.arizona.edu
- Student Conduct: https://public.azregents.edu/Policy%20Manual/5-308-Student%20Code%20of%20Conduct.pdf
- Graduate Policies and Procedures: https://grad.arizona.edu/policies

3.6 Departmental Graduate Seminar

All full-time graduate students enrolled in the chemical engineering or environmental engineering graduate programs are required to register for 1 seminar unit (CHEE 696A) each semester **unless it conflicts with another required course.** (Enrollment will not be waived for conflicting elective courses.) This is required even if the student has satisfied the seminar requirements for their degree. All graduate students in residence are required to attend the departmental seminar if course schedules permit.

3.7 Research and Teaching Assistantships and Other Funding Opportunities

Teaching and research assistantships, traineeships and fellowships provide the most common forms of support for graduate students. Assistantships at .50 FTE or higher include a stipend, health insurance, and full tuition. Assistantships at less than .50 FTE include a stipend, health insurance, out-of-state tuition, and 50% of in-state tuition: **http://grad.arizona.edu/financial-resources/ua-resources/employment/GA**.

Research assistantships (RAs) are awarded to graduate students by faculty advisors and funded by the faculty advisor's research program. Priority is given to PhD candidates. RA contracts may be for .25 FTE, .33 FTE or .5 FTE. The faculty advisor is responsible for supervising RAs whom they employ.

Teaching assistantships (TAs) are awarded/assigned by the GSC each semester. Priority is given to 2nd–5th year PhD students. All students must have the appropriate background for the course for which they will TA (e.g., they have taken an equivalent course as an undergraduate), and they must pass the Graduate College's Teaching Assistant Online Training and Orientation (TATO) test. Faculty mentors nominate graduate students for TA positions. The TA positions consist of academic training intended to provide the student with the opportunity to participate in the education of undergraduate students. Duties may include conducting laboratory and discussion sessions and holding office hours. FERPA training is required for all TA positions. Further information regarding FERPA requirements can be found at: http://registrar.arizona.edu/personal-information/ferpa-tutorial. TAs are supervised by their assigned course instructor.

Out of state tuition is waived with all RA and TA contracts.

RAs and TAs receive partial or full in-state tuition coverage as part of their employment benefit as follows:

.25 FTE: 50% in-state tuition covered

.33 FTE: 50% in-state tuition covered

.50 FTE: 100% in-state tuition covered

Students awarded less than .50 FTE are responsible for payment of 50% of their in-state tuition. For specific information on tuition costs, students can refer to the online Tuition Calculator at https://tuitioncalculator.fso.arizona.edu.

Students who are awarded TA/RA positions will receive an offer letter outlining their specific funding, including tuition coverage at 50% or 100%, prior to the beginning of the semester in which they will serve as a TA/RA.

Graders are hired as needed for core chemical engineering and environmental engineering courses. PhD and MS students with appropriate background for the course are eligible to apply for grader positions. Graders are hired on an hourly basis for 5 hours per week during the semester. There is no tuition coverage benefit with grader contracts.

Additional funding opportunities for graduate students are administered or funded by the UA Graduate College. A detailed listing is available at: https://grad.arizona.edu/funding/opportunities. Graduate students seeking funding for their studies or research can also find helpful information through the Office of Fellowships and Community Engagement. Many other funding resources are available to UA students through Scholarship Universe.

Among the scholarships that may be given by the UA Graduate College is the Thesis & Dissertation Tuition Scholarship for non-resident students who are taking only 900 level graduate courses. The scholarship can reduce tuition for these students to the in-state resident amount. More information on the scholarship can be found at
https://grad.arizona.edu/funding/opportunities/thesis-dissertation-tuition-scholarships.

3.8 Other Resources

The Graduate College offers students a number of resources for parents, for professional development, for health and wellness, and more. Information on the many resources available can be found at https://grad.arizona.edu/new-and-current-students.

3.9 Degree Requirements, Timelines and Deadlines

There are four graduate degrees offered by the Department of Chemical and Environmental Engineering: PhD in Chemical Engineering, MS in Chemical Engineering, PhD in Environmental Engineering, and MS in Environmental Engineering. Subsequent sections describe the particular requirements for each of these degree paths. The student's faculty advisor, other members of their committee, the members of the graduate study committees, and the staff graduate program coordinator are all sources of additional information regarding the department's degree requirements and deadlines. The staff graduate program coordinator is probably the student's most reliable source. The graduate program coordinator can help the student navigate required forms, timelines and deadlines and help keep the student on track to graduate on time. There are degree checklists in the Appendices (A3-A5) of this handbook that students should review and keep with them during their full period of study to make sure they are on track.

Specific information about steps to the degree can be obtained from the Graduate College website, which includes a list of official requirements, deadlines and procedures. Students must follow the specific instructions provided on the following links:

- http://catalog.arizona.edu/
- https://grad.arizona.edu/gsas/degree-requirements

All PhD and MS students must submit GradPath forms to the Graduate College electronically. Students must review the Graduate College information carefully and be cognizant of deadlines. From the website listed in the second bullet above, students can navigate to find the following two links that provide important information about dates/deadlines and resources for parents, professional development, and health/wellness:

- http://grad.arizona.edu/new-and-current-students
- http://grad.arizona.edu/gsas/degree-requirements/important-degree-dates-and-deadlines

3.10 CHEE Incomplete Policy

Students earning a grade of Incomplete, "I," for a course should submit a completed Report of Incomplete Grade form to the CHEE Graduate Program Coordinator for inclusion in their academic record (https://catalog.arizona.edu/policy/grades-and-grading-system#incomplete). Incomplete grades should be completed in a timely manner and are submitted at the discretion of the course instructor. Any grade of "I" must be completed no later than one year from the term of the course for which the student received the incomplete.

3.11 Annual Evaluation

Any CHEE graduate student may be evaluated annually with regard to satisfactory progress toward completing their degree requirements at the discretion of the student's faculty advisor, with the consent of the student.

3.12 Transitioning from MS to PhD

On the advice of the Faculty Advisor, a master's student who is in good academic standing (GPA of 3.0 or higher) may transition to pursuing a PhD. The student must apply and be accepted to the doctoral program through GradApp (and pay the application fee) to apply to the doctoral program. It is strongly suggested that the Faculty Advisor be selected as a reference for the PhD application. The reference letters used for the master's application may also apply to the PhD, but the applicant will need to see the Graduate Program Coordinator for information on how to navigate the application form to satisfy the references requirement.

3.13 Graduate Student Academic Grievance Procedures

A student with any type of grievance should first communicate with their graduate research advisor or chair of the Graduate Studies Committee, based on which is more appropriate in the student's view based on the matter at hand. This process aims to resolve grievances informally within the department. When issues cannot be resolved informally, the graduate student is encouraged to read the Grievance Policy of the University Graduate College: https://grad.arizona.edu/policies/academic-policies/grievance-policy.

3.14 International Student Requirements and Resources

Information specific to international students can be found on the Graduate College website:

- https://grad.arizona.edu/international-students

International students can also find resources specific to their needs at the International Student Services Office:

- https://global.arizona.edu/international-students

4.0 Degree Requirements: Chemical Engineering

	PhD	Thesis MS	Non-Thesis MS
Required Courses (CHEE 502, 505, 506, 530)*	12	12	12
PhD Required Course (CHEE 503)	3		
Electives (including minor)**	15	12	15
Seminar CHEE 696A	8	1	
CHEE 909 or CHEE 594 + 1 unit of CHEE 909			3
MS Thesis		5	
Dissertation (CHEE 920)	22		
CHEE 900 Research Independent of Dissertation (see 4.1.6)	3		
Total Units	63	30	30

* Required core courses are offered only once per academic year, either in the Fall or the Spring. Students must be aware of this when they are planning their studies.

** Note that the Graduate College requires 36 units of major coursework *exclusive* of the minor for the PhD. Therefore, if the PhD minor requires more than 9 units of minor coursework (e.g. 12 units), the student will need to take additional units of coursework in the major to meet the 36 unit minimum. Students should work with the Graduate Program Coordinator to make sure that they take the required number of major units. The Graduate College also requires that at least 22 units of the required 36 major units must be graded units (e.g. A, B, C)

The Graduate College website summarizes this information at: https://grad.arizona.edu/gsas/degree-requirements/doctor-philosophy. For more information about the Accelerated Master Program (AMP) leading to the Thesis or Non-Thesis MS degree, you may refer to the CHEE website for graduate programs at https://chee.engineering.arizona.edu/grad-programs/degrees, and then select the pdf file under the appropriate tab labeled “Accelerated MS-CHE” or “Accelerated MS-EE.”

Descriptions for the courses shown in subsequent pages can be found at this website: https://chee.engineering.arizona.edu/grad-programs/courses

4.1 PhD Program (Chemical Engineering)

Thirty-six units of coursework are required for the major subject, exclusive of dissertation research. Eight units of seminar (CHEE 696A) and 22 units of dissertation (CHEE 920) will be used as requirements for the PhD degree. Note also that minor unit requirements can vary by department. According to the Graduate College, if the student minors in a subject that requires more than 9 units of coursework, the student will still need to take a full 36 units of major coursework that must be reflected on the submitted Plan of Study (see Section 4.1.5). This may affect the number of elective units that the student must take under major coursework.

In addition to core courses (CHEE 502/503/505/506/530), students who enter the PhD program without an MS in chemical engineering must take 15 units of electives (including minor courses), 8 units of departmental seminar (CHEE 696A), and 3 units of CHEE 900 (see section 4.1.6 for further explanation of the CHEE 900 requirement). No more than six (6) units of elective courses can be in non-graded courses. Students who enter the PhD program with an MS may transfer up to 30 units of coursework after approval from the Graduate College, and will be evaluated individually to devise a Plan of Study (see Section 4.1.5).

4.1.1 Course Requirements (Chemical Engineering)

All Chemical Engineering PhD students are required to take the following core courses at the UA or an approved equivalent elsewhere:

- CHEE 502—Advanced Engineering Analysis
- CHEE 505—Advanced Chemical Engineering Transport Phenomena
- CHEE 506—Advanced Chemical Engineering Thermodynamics
- CHEE 530—Chemical Reaction Engineering
- CHEE 503—Oral and Written Communication

Additionally, Chemical Engineering PhD students will take a minimum of 15 units of electives, including their minor courses, 8 units of CHEE 696A (Graduate Seminar), 3 units of CHEE 900 (see Section 4.1.7), and 22 units of Dissertation Research. Note also that minor unit requirements can vary by department. According to the Graduate College, if the student minors in a subject that requires more than 9 units of coursework, the student will still need to take a full 36 units of major coursework that must be reflected on the submitted Plan of Study (see Section 4.1.5). This may affect the number of elective units that the student must take under major coursework.

4.1.2 Sample Course Plan—Chemical Engineering PhD

The following table is to be used as a ***general guide only***—please work with your Faculty Advisor and the Graduate Program Coordinator to determine your own Plan of Study (see Section 4.1.5). Specific course requirements are outlined in Section 4.1.1 above.

	Fall	**Spring**
Year 1	CHEE 502—Advanced Engineering Analysis CHEE 505—Advanced Chemical Engineering Transport Phenomena CHEE 506—Advanced Chemical Engineering Thermodynamics CHEE 696A—Graduate Seminar *Student should have an assigned research advisor by end of this semester.*	CHEE 530—Chemical Reaction Engineering Elective (or minor) Elective (or minor) CHEE 696A—Graduate Seminar CHEE 920—Dissertation Research *Any student with a GPA <3.75 in the four core courses (502/505/506/530) must take the written qualification exam in August. The exam is waived for GPA ≥ 3.75.*
Year 2	Elective (or minor) Elective (or minor) CHEE 696A—Graduate Seminar CHEE 920—Dissertation Research *The student's **Plan of Study** is due by the end of the third semester.* *Student works with their Faculty Advisor to determine their Graduate Committee by the end of their 3rd semester in the program.*	Elective (or minor) CHEE 503—Oral and Written Communication CHEE 696A—Graduate Seminar CHEE 920—Dissertation Research *All students must take the Comprehensive exam: (i) write their thesis proposal; and (ii) orally defend their thesis proposal by the beginning of the next fall semester.*
Year 3	CHEE 696A—Graduate Seminar CHEE 920—Dissertation Research *Students who have passed the Comprehensive exam should plan to TA at least one semester.*	CHEE 696A—Graduate Seminar CHEE 900—Research (see 4.1.6 for more information) CHEE 920—Dissertation Research
Year 4	CHEE 696A—Graduate Seminar CHEE 920—Dissertation Research	CHEE 696A—Graduate Seminar CHEE 900—Research (see 4.1.6 for more information) CHEE 920—Dissertation Research

4.1.3 Qualifying Examination

The PhD Qualifying Examination is a written exam, given in August of the 2nd year before the semester starts. The exam is given over 2 days and the subjects evaluated are Transport Phenomena, Thermodynamics, Reaction Engineering and Applied Mathematics. The material evaluated will be a mixture of graduate and undergraduate material. The written qualifying exam is waived for students with a GPA of 3.75 or greater in the core courses CHEE 502, 505, 506 and 530. (While CHEE 503 is a required course, it is not considered for purposes of determining whether a student must take the Qualifying Examination.) Students who have entered the PhD program with a BS in Chemical Engineering and do not qualify for an exam waiver must take the exam the first time it is offered after completing the required core courses (CHEE 502, 505, 506 and 530). For transfer students and those students entering with a degree other than chemical engineering, the GSC will work with the student to develop a Plan of Study (see Section 4.1.5). A student failing only one part of the qualifying exam can retake that one part, and those failing two or more parts must retake the entire exam; the retake will be offered during the following December. If the student fails any part of the exam again, then the student will have failed the written qualification exam and will be put on the MS track.

Transfer students from United States universities will be evaluated individually to devise plans for courses and the written qualification exam.

4.1.4 Choice of Minor

All PhD students must fulfill the requirements for a minor in a program of their choice. Selection of the minor should be compatible with the student's research interests and discussed with their research advisor. Minors are administered and approved by the minor department. They typically consist of 9 to 12 units of course work. These units are typically part of the 15 elective units mentioned in the Course Requirements Section of this Handbook (Section 4.1.1 above). Note that in the event that the student selects a minor that requires more than 9 units of minor coursework (e.g. 12 units), the student must take additional units of major coursework in order to meet the 36 units required by the Graduate College. The student should work with the Graduate Program Coordinator to make sure the correct number of units are included in the Plan of Study (see Section 4.1.5 below) to meet the Graduate College requirement.

4.1.5 Plan of Study

In conjunction with their advisor, each PhD student is responsible for developing a Plan of Study to be filed with the Graduate College during their third semester of study, sometime after passing the qualifying

examination. The Plan of Study identifies (1) courses the student intends to transfer from other institutions; (2) courses already completed at The University of Arizona that the student intends to apply toward the graduate degree; and (3) additional course work to be completed in order to fulfill degree requirements. The Plan of Study must have the approval of the student's advisor and chair of the GSC before it is submitted to the Graduate College. Students are responsible to be aware of the deadline to submit the GradPath Plan of Study for review.

4.1.6 Comprehensive Examination

Before admission to candidacy for the doctoral degree, the student must pass both a written and an oral Doctoral Comprehensive Examination. These examinations are intended to test the student's comprehensive knowledge of the major and minor subjects of study, both in breadth across the general field of study, and in depth within the area of specialization. The Comprehensive Examination is considered a single examination, although it consists of written and oral parts. The committee that will evaluate the comprehensive examination will consist of the dissertation committee and at least one University of Arizona faculty from the chosen minor. Committee members from other programs and institutions can be incorporated in addition to CHEE faculty and minor members as a courtesy and/or as special members. Special members must be approved by the program and the Graduate College for inclusion on the comprehensive exam committee (and dissertation committee, if desired). The GSC forms the thesis committee in consultation with the faculty. Before scheduling the exam all students must file the Comprehensive Exam Committee Appointment Form in GradPath.

The Comprehensive Examination must be completed during the spring semester following completion of the Qualifying Examination (i.e. 4th semester). The written part of the Comprehensive examination will be a research proposal that will be prepared as part of CHEE 503, which is a course that focuses on oral and written communication. Students must take this course and complete the proposal by the end of their fourth semester in residency. If a student does not submit a thesis proposal by the end of this semester, they will receive a failing grade in CHEE 503. The student's entire thesis committee will evaluate the written proposal.

The oral part of the Comprehensive examination will be a defense of the thesis proposal in which the student must demonstrate breadth of knowledge in chemical engineering and their minor field of study. The oral part of the examination must be completed before the beginning of the student's 5th semester in residency (i.e. fall semester of 3rd year). Students should be aware that they need to complete most of their coursework (at least 27 of the 30 graded units of core courses and electives) to be eligible to take the comprehensive examination.

Recall that these 30 graded units (A/B/C/D/E system) are comprised of the core CHEE courses (502, 503, 505, 506 and 530) and 5 elective courses that include those for the minor. The Oral Comprehensive Examination is conducted by the student's Comprehensive Examination Committee. The student must display a broad knowledge of the chosen field of study and sufficient depth of understanding on the major and minor fields to pass this exam. Discussion of proposed dissertation research may be included. The examining committee must attest that the student has demonstrated the professional level of knowledge expected of a junior academic colleague. The Graduate College allows no more than one re-take of the oral exam.

When the student has passed the written and oral portions of the Comprehensive Examination, and the Graduate Student Academic Services Office (within the Graduate College) has confirmed completion of the required courses on the approved doctoral Plan of Study, the student will advance to doctoral candidacy.

4.1.7 Annual Interaction with Thesis Committee

The overall goal is for students to complete their PhD degrees in four years. Hence, in the years after Completion of the Comprehensive Examination (years 3 and 4) all PhD candidates must register for one or two units of ChEE 900 for the spring semester. To complete the course each spring, the candidate must have a meeting with his/her committee and discuss progress toward degree completion. The meeting will consist of an oral presentation given to the committee. The presentation should review progress to date and, in particular, should include a discussion of the publications that will be submitted or are in progress (see Sections 4.1.9 and 4.1.10 following).

4.1.8 Dissertation Committee

When the student has an approved doctoral Plan of Study on file and approved in GradPath; has satisfied all course work, and passed the written and oral portions of the Comprehensive Examination, he or she must file a Doctoral Dissertation Committee Appointment form in GradPath. Any changes to the committee should be reported to the Graduate Student Academic Services office. Under normal circumstances, submission is expected at least six months before the Final Oral Examination (i.e., Defense). The Committee Appointment form reports the student's planned dissertation committee, dissertation title (subject to change) and the expected graduation term. It requires approval from the dissertation director and the major and minor departments. The approval signature from the minor department on this form indicates both approval of the reported dissertation committee and confirmation that the student has satisfied all requirements for the minor.

4.1.9 Final Oral Defense Examination

Upon the completion and successful approval of the dissertation research by the dissertation committee, the candidate is to submit to a Final Oral Defense Examination. A copy of the signed cover page of the dissertation document must be submitted to the GSC. The examination focuses on the dissertation itself, but it can also include general questioning related to the field(s) of study within the scope of the dissertation. The examining committee will be the same as the dissertation committee previously described. Committee members representing the minor program must be invited to the defense, but their participation is optional. There may be a public facing presentation as part of the candidate's defense, but the questioning of the candidate by the dissertation committee is closed to the public. The candidate must submit an announcement of their final Oral Defense via GradPath at least two weeks before their defense. Additional information on the dissertation defense may be found at https://grad.arizona.edu/gsas/degree-requirements/doctor-philosophy#final-oral-defense.

4.1.10 Publication Requirement

Prior to graduating, PhD students must have two publications either accepted, in press or published in peer-reviewed, indexed journals. These publications should form a major part of the dissertation. Copies of the publications must be submitted to the department chair, along with the Publication Compliance Form (see Appendix A6, but also available in the department's office), before the final oral examination is scheduled. When submitting copies of publications and the Publication Compliance Form, email a copy of the completed Publication Compliance Form to the Graduate Program Coordinator as well. In exceptional circumstances, a successful submission of a manuscript to a peer-reviewed journal can be counted as one of the required publications. When a publication has been accepted by a peer-reviewed, indexed journal, email the citation to the Graduate Program Coordinator.

4.2 MS Program (Chemical Engineering)

All Chemical Engineering MS students are required to take the following courses at the University of Arizona or an approved equivalent elsewhere:

- CHEE 502—Advanced Engineering Analysis
- CHEE 505—Advanced Chemical Engineering Transport Phenomena
- CHEE 506—Advanced Chemical Engineering Thermodynamics
- CHEE 530—Chemical Reaction Engineering

There are two MS degree options:

Thesis MS Students

The thesis MS track requires 30 units of graduate level coursework. In addition to the required courses listed above, all students undertaking the Master's thesis track must complete the following:

- CHEE 910—Thesis (5 units)
- CHEE 696A—Graduate Seminar (1 unit)
- Approved electives (12 units)

In this option, the student will develop a research project leading to the MS thesis. Upon the completion and successful approval of the MS thesis research by the thesis committee, the candidate is to submit to a Final Oral Defense Examination. A copy of the signed cover page of the research document should be submitted to the GSC. The examination focuses on the research. The examining committee will consist of the MS Thesis Committee. All members of the committee should be present during the examination while the presence of additional committee members is optional.

Non-thesis MS Students

The non-thesis MS track requires 30 units of graduate level coursework. In addition to the required courses listed above, all students undertaking the Master's non-thesis track must complete the following courses:

- CHEE 909—Master's Report (3 units) *or*
- CHEE 594 + 1 unit of CHEE 909—One semester industrial internship w/ Report
- Approved electives (15 units)

In this option, the student will participate either in a one-semester research project or in a one-semester industrial internship. The non-thesis MS can be completed in one year by taking an additional elective in either fall or spring semesters, and completing CHEE 909 or CHEE 594 + 1 unit of CHEE 909 in the summer.

4.2.1 Sample Course Plan—Thesis ChE MS

The following table is to be used as a ***general guide only***—please work with your Faculty Advisor and the Graduate Program Coordinator to determine your own Plan of Study (see Section 4.2.3).

	Fall	**Spring**
Year 1	CHEE 502—Advanced Engineering Analysis CHEE 505—Advanced Chemical Engineering Transport Phenomena Elective CHEE 696A—Graduate Seminar CHEE 910—MS Thesis Research *Student must have assigned research advisor by the end of the first semester.*	CHEE 530—Chemical Reaction Engineering Elective Elective CHEE 910—MS Thesis Research *Student must file Plan of Study no later than the end of the second semester.*
Year 2	CHEE 506—Advanced Chemical Engineering Thermodynamics Elective CHEE 910—MS Thesis Research *Student writes thesis proposal and orally defends it by end of the semester.*	

4.2.2 Sample Course Plan—Non-thesis ChE MS

The following table is to be used as a ***general guide only***—please work with your Faculty Advisor and the Graduate Program Coordinator to determine your own Plan of Study (see Section 4.2.3 below).

	Fall	**Spring**
Year 1	CHEE 502—Advanced Engineering Analysis CHEE 505—Advanced Chemical Engineering Transport Phenomena Elective Elective *Student must have assigned research advisor by the end of the first semester.*	CHEE 530—Chemical Reaction Engineering Elective Elective Elective *Student must file Plan of Study no later than the end of the second semester.*
Year 2	CHEE 506—Advanced Chemical Engineering Thermodynamics CHEE 909 (MS Report) *or* CHEE 594 (Practicum) + 1 unit CHEE 909	

4.2.3 Plan of Study (*MS Degree*)

In conjunction with their advisor, each MS student is responsible for developing a Plan of Study to be filed with the Graduate College using GradPath https://grad.arizona.edu/gsas/gradpath during their second semester of study. The Plan of Study identifies (1) courses the student intends to transfer from other institutions; (2) courses already completed at The University of Arizona that the student intends to apply toward the graduate degree; and (3) additional course work to be completed in order to fulfill degree requirements. The Plan of Study must have the approval of the student's advisor and chair of the GSC before it is submitted to the Graduate College. The student is responsible to be aware of the deadline to submit the GradPath Plan of Study for review.

4.2.4 Final Oral Presentation and Oral Defense Examination

MS Thesis: All MS Thesis students must report a thesis committee in GradPath, using the Master's/Specialist Committee Appointment Form. Upon completion and approval of the written MS research thesis by the Thesis Committee, the candidate must pass a Final Oral Defense Examination. The examining committee will consist of the MS Thesis Committee. All CHEE members of the committee must be present during the examination. The presence of additional committee members is optional.

MS Non-thesis: Non-thesis MS students do not need to have a thesis committee. In this option, the student will participate in a one-semester research project and write a research report that will be approved by the student's faculty advisor overseeing the research. Prior to completion of the degree, however, the student will still need to go into GradPath and complete the Master's/Specialist Committee Appointment Form. The non-thesis student will open the form and click on the "No" button next to the question "Do you have a Master's Committee?" and then submit the form.

4.3 Accelerated MS Program (AMP Chemical Engineering)

4.3.1 Overview

The Accelerated Master's Program in Chemical Engineering (AMP ChE) is a program designed to enable advanced University of Arizona undergraduate students to complete both the Bachelor of Science degree and the Master of Science degree in ChE in a total of 5 years. This program is available only for undergraduate students in chemical engineering at the University of Arizona.

4.3.2 Eligibility Criteria

To be considered elibible to apply for the AMP ChE, the student must:

- Be a continuing University of Arizona undergraduate
- Have a minimum cumulative GPA of 3.3
- At the time of application, have completed a minimum of 75 units of undergraduate course work; a minimum of 12 undergraduate units must have been completed in the student's major at the University of Arizona's main campus

Research experience as an undergraduate is not a requirement, but it is desirable.

4.3.3 How to Apply

Students who have completed a minimum of 75 units are eligible to apply, usually early in the second semester of the student's junior year (September or January). The student must create an account in GradApp (https://apply.grad.arizona.edu) and submit an online application to the Chemical Engineering AMP. (See https://grad.arizona.edu/catalog/programinfo/CHEMSCHEAMP) for more details. Once students have completed 90 units (usually at the end of their junior year's second semester) and have a 3.30 or higher GPA, they may be accepted into the AMP. After acceptance to the AMP program, students register during their senior (fourth) year to take a combination of undergraduate and graduate courses and are classified as undergraduate students. The graduate courses can double-count, serving both as electives for the BS degree and as core or elective courses for the MS. After completing the BS, student are then eligible to be fully accepted as MS degree students. In the fifth and final year, students focus on graduate course work and their thesis or project.

4.3.4 University of Arizona Graduate College policies on AMPs

Students will be considered undergraduates until they complete their undergraduate requirements, which should be no later than the end of their fourth year. Students must take at least 12 of their graduate credits while in graduate status.

Once admitted to the AMP, during the senior (or transition) year, students may take up to 12 units of graduate coursework, which may apply toward both the BS and the MS degrees. While an undergraduate, students are required to keep their graduate coursework cumulative GPA at 3.0 or higher to be admitted to the master's program.

During the senior (transition) year, students will be charged at the undergraduate rate and retain eligibility for undergraduate scholarships. After completion of all BS requirements, students will be granted graduate status, be charged at the graduate rate, and be eligible for graduate assistantships. Should a student have completed 12 graduate credits, but not yet completed the undergraduate degree, they will be considered a graduate for financial aid and tuition purposes and coded as "graduate" in SIS (Student Information Systems). They will no longer be eligible for undergraduate scholarships. Nor will they be eligible for graduate assistantships. Once all requirements for the undergraduate degree have been completed, at least 12 additional graduate units must be taken while in graduate status (with no pending undergraduate requirements to be completed). A total of 30 graduate credits (500 level courses or higher) should be taken.

AMP students should complete their undergraduate requirements no later than one semester before receiving their MS. Students who finish their undergraduate requirements later than one semester before earning their master's will no longer be eligible for undergraduate scholarships or for graduate assistantships. Neither degree will be awarded until all undergraduate degree requirements have been completed.

4.3.5 Program requirements and guidelines

After admission into the AMP ChE program, the student must select an advisor who will guide the student's research or development work toward the completion of a thesis or master's report. Writing either a thesis or a report project is required. CHEE 400 level courses that are convened with 500 level courses can be taken as electives for both the BS and the AMP programs, but the 500 version of the course must be taken if it is to be used toward the AMP. Exceptions are CHEE 420/520 and 477R/577R. These are required undergraduate courses and the 400 version must be taken and will not count toward the AMP. The AMP ChE can be either thesis or non-thesis and will follow the same requirements of the regular MS program.

Sample plans for both Non-thesis and Thesis AMP ChE follow (beginning with Senior year).

Sample Plan 1: BS in ChE and AMP in ChE (non-thesis)

The following tables are to be used as a ***general guide only***—please work with your Faculty Advisor and the Graduate Program Coordinator to determine your own Plan of Study (see Section 4.3.6 below).

Semester 7 (Fall – Senior Year)	**Semester 8 (Spring – Senior Year)**
CHEE 420*—Chemical Reaction Engineering CHEE 442—Chemical Engineering Design Principles CHEE 502—Advanced Engineering Analysis Grad/undergrad elective**	CHEE 413—Intermediate Engineering Analysis CHEE 443—Chemical Engineering Plan Design Grad/undergrad elective** Grad/undergrad elective** Other undergraduate elective or requirement
Semester 9 (Fall—Grad Year)	**Semester 10 (Spring—Grad Year)**
CHEE 505—Advanced Chemical Engineering Transport Phenomena CHEE 506—Advanced Chemical Engineering Thermodynamics Graduate elective** *Student must have assigned research advisor by the end of the first semester in the grad program.* *Student must file Plan of Study no later than the end of the second semester.*	CHEE 530—Advanced Chemical Reaction Engineering Graduate elective** CHEE 909 (MS Report) *or* CHEE 594 (Practicum) + 1 unit CHEE 909

* Students must *not* take the 500 level of this course as it will not count for graduate credit. (See Section 4.3.5)

** Student should take a 500-level elective course. Up to two electives can be from Math or Science graduate programs. At least one elective must be from an Engineering graduate program; 400/500 level courses are acceptable for the AMP only if the 500 level version of the course is taken. (See Section 4.3.5 for exceptions.)

Sample Plan 2: BS in ChE and AMP in ChE (thesis)

Semester 7 (Fall—Senior Year)	**Semester 8 (Spring—Senior Year)**
CHEE 420*—Chemical Reaction Engineering CHEE 442—Chemical Engineering Design Principles CHEE 502—Advanced Engineering Analysis Graduate elective**	CHEE 413—Intermediate Engineering Analysis CHEE 443—Chemical Engineering Plan Design Graduate elective** Graduate elective** Other undergraduate elective

Semester 9 (Fall—Grad Year)	**Semester 10 (Spring—Grad Year)**
CHEE 505—Advanced Chemical Engineering Transport Phenomena CHEE 506—Advanced Chemical Engineering Thermodynamics CHEE 910—Thesis (2 units) CHEE 696A—Graduate Seminar *Student must have assigned research advisor by the end of the first semester in the grad program.* *Student must file Plan of Study no later than the end of first semester of graduate work.*	CHEE 530—Advanced Chemical Reaction Engineering Graduate elective** CHEE 910—Thesis (3 units)

* Students must *not* take the 500 level of this course as it will not count for graduate credit. (See Section 4.3.5)
** Student should take a 500-level elective course. Up to two electives can be from Math or Science graduate programs. At least one elective must be from an Engineering graduate program; 400/500 level courses are acceptable for the AMP only if the 500 level version of the course is taken. (See Section 4.3.5 for exceptions.)

4.3.6 Plan of Study (*ChE AMP Degree*)

In conjunction with their advisor, each AMP student is responsible for developing a Plan of Study to be filed with the Graduate College during their first semester of graduate study (after undergraduate coursework has been completed). The Plan of Study identifies (1) courses already completed at The University of Arizona that the student intends to apply toward the graduate degree; and (2) additional course work to be completed in order to fulfill degree requirements. The Plan of Study must have the approval of the student's advisor and chair of the GSC before it is submitted to the Graduate College. The student is responsible to be aware of the deadline to submit the GradPath Plan of Study for review.

4.4 Minor in Chemical Engineering

Twelve units of courses are required. At least six units must come from the following core courses of the Chemical Engineering graduate program:

- CHEE 502—Advanced Engineering Analysis
- CHEE 505—Advanced Chemical Engineering Transport Phenomena
- CHEE 506—Advanced Chemical Engineering Thermodynamics
- CHEE 530—Advanced Chemical Reaction Engineering

The other six units must come from courses in the previous or the following list:

- CHEE 500R—Water Chemistry for Engineers*
- CHEE 520—Chemical Reaction Engineering
- CHEE 537—Surface Science
- CHEE 571—Rheology: Principles and Applications
- CHEE 574—Environmental Transport Processes*
- CHEE 581A—Engineering of Biological Processes
- CHEE 581B—Cell and Tissue Engineering
- CHEE 605—Advanced Mass Transport Theory

* If the student minoring in Chemical Engineering is majoring in Environmental Engineering, this elective cannot be used for the minor because it is a required course for the major in Environmental Engineering.

A member from the Chemical Engineering graduate faculty will serve as the student's minor advisor and will serve as a member of the student's Doctoral Comprehensive Exam Committee.

5.0 Degree Requirements: Environmental Engineering

	PhD*	Thesis MS	Non-Thesis MS
Required Courses (500R, 500A, 576A&B, 577R, 676)**	19	19	19
Electives (including minor)***	18	6	6
Seminar 696A	8	1	1
CHEE 909			4
MS Thesis		4	
Dissertation (CHEE 920)	18		
Total Units	63	30	30

* Students who enter the PhD program with an MS in Environmental Engineering or equivalent may transfer course work as part of the requirements for the PhD according to regulations stipulated by the Graduate College and approval by the Environmental Engineering GSC.

** Core courses are offered only once per academic year, either in the Fall or the Spring. Students must be aware of this when they are planning their studies.

*** Note that the Graduate College requires 36 units of major coursework *exclusive* of the minor for the PhD. Therefore, if the PhD minor requires more than 9 units of minor coursework (e.g. 12 units), the student will need to take an additional 3 units of coursework in the major. Students should work with the Graduate Program Coordinator to make sure that they take the required number of major units. The Graduate College also requires that at least 22 units of the required 36 major units must be graded units (e.g. A, B, C). Some examples of possible electives: ChEE 525 *Emerging Issues in Water Quality*, ChEE 573 *Biodegradation of Organic Compounds*, ChEE 578 *Hazardous Waste Management*, ChEE 482/582 *Analysis of Emerging Environmental Contaminants*, ChEE 510 *Logistics of Writing a Manuscript for Chemical and Environmental Engineering*, ChEE 569A *Air Pollution;* ChEE 696c *Topics in Mine Reclamation and Environmental Management* (a Seminar-based Course).

The Graduate College website summarizes this information at: https://grad.arizona.edu/gsas/degree-requirements/doctor-philosophy. For more information about the Accelerated Master Program (AMP) leading to the Thesis or Non-Thesis MS degree, you may refer to the CHEE website for graduate programs at https://chee.engineering.arizona.edu/grad-programs/degrees, and then select the pdf file under the appropriate tab labeled “Accelerated MS-CHE” or Accelerated MS-EE.”

Descriptions for the courses shown in subsequent pages can be found at this website: https://chee.engineering.arizona.edu/grad-programs/courses.

5.1 PhD Program (Environmental Engineering)

The department requires thirty-seven units of coursework for the major subject, exclusive of dissertation research. Eight units of seminar (CHEE 696A) are included in the 37 required units, and 18 units of dissertation (CHEE 920) are the additional requirement for the PhD degree. Note also that minor unit requirements can vary by department. According to the Graduate College, if the student minors in a subject that requires more than 9 units of coursework, the student will still need to take at least 36 units of major coursework that must be reflected on the submitted Plan of Study (see Section 5.1.5). This may affect the number of elective units that the student must take under major coursework.

In addition to core courses (CHEE 500R, 500A, 576A&B, 577R and 676), students who enter the PhD program without an MS in environmental engineering must take 18 units of elective (including minor courses) and 8 units of departmental seminar (CHEE 696A). No more than six (6) units of elective courses can be in non-graded courses. According to the Graduate College, at least 22 units of the major course work must be in courses in which regular grades (A, B or C) have been earned. Students who enter the PhD program with an MS in environmental engineering may transfer up to 30 units of coursework after approval from the Graduate College and the Environmental Engineering Graduate Studies Committee (GSC), and will be evaluated individually to devise a Plan of Study (see Section 5.1.5).

5.1.1 Course Requirements (Environmental Engineering)

All Environmental Engineering PhD students are required to take the following core courses at the UA or an approved equivalent elsewhere:

- CHEE 500R—Water Chemistry for Engineers (3 units)
- CHEE 500A—Environmental Engineering Laboratory (1 unit)
- CHEE 574—Environmental Transport Processes (3 units)
- CHEE 576A—Water Treatment System Design (3 units)
- CHEE 576B—Wastewater Treatment System Design (3 units)
- CHEE 577R—Microbiology for Engineers (3 units)
- CHEE 676—Advanced Water and Wastewater Treatment (3 units)

Additionally, Environmental Engineering PhD students will take a minimum of 18 units of electives, including their minor courses and 8 units of CHEE 696A (Graduate Seminar). The degree also requires 18 units of Dissertation Research. Note also that minor unit requirements can vary by department. According to the Graduate College, if the student minors in a subject that requires more than 9 units of coursework, the student will still need to take a full 36 units of major coursework that must be reflected on the submitted Plan of Study

(see Section 5.1.5). This may affect the number of elective units that the student must take under major coursework.

5.1.2 Sample Course Plan—Environmental Engineering PhD

The following table is to be used as a ***general guide only***—please work with your Faculty Advisor and the Graduate Program Coordinator to determine your own Plan of Study (see Section 5.1.5). Specific course requirements are discussed in Section 5.1.1 above.

	Fall	**Spring**
Year 1	CHEE 500R—Water Chemistry for Engineers CHEE 500A—Environmental Engineering Laboratory CHEE 576A—Water Treatment System Design CHEE 577R—Microbiology for Engineers CHEE 696A—Graduate Seminar CHEE 920—Dissertation Research *Student should have an assigned research advisor by end of this semester.*	CHEE 574—Environmental Transport Processes CHEE 576B—Wastewater Treatment System Design Elective (or minor) CHEE 696A—Graduate Seminar CHEE 920—Dissertation Research *Any student with a GPA <3.75 in the four core courses (502/505/506/530) must take the written qualification exam in August. The exam is waived for GPA ≥ 3.75.*
Year 2	Elective (or minor) Elective (or minor) CHEE 696A—Graduate Seminar CHEE 920—Dissertation Research *The student's **Plan of Study** is due by the end of the third semester.* *Student works with their Faculty Advisor to determine their Graduate Committee by the end of their 3rd semester in the program.*	CHEE 676—Advanced Water and Wastewater Treatment Elective (or minor) CHEE 696A—Graduate Seminar CHEE 920—Dissertation Research *All students must take the Comprehensive exam: (i) write their thesis proposal; and (ii) orally defend their thesis proposal by the beginning of the next fall semester.*
Year 3	Elective (or minor) Elective (or minor) CHEE 696A—Graduate Seminar CHEE 920—Dissertation Research *Students who have passed the Comprehensive exam should plan to TA at least one semester.*	CHEE 696A—Graduate Seminar CHEE 920—Dissertation Research
Year 4	CHEE 696A—Graduate Seminar CHEE 920—Dissertation Research	CHEE 696A—Graduate Seminar CHEE 920—Dissertation Research

5.1.3 Qualifying Examination

The PhD Qualifying Examination is a written exam offered once per year. The subjects evaluated are Environmental Transport, Water Chemistry, Environmental Microbiology, and Water Treatment and Wastewater Treatment System Design. The written qualifying exam is waived for students with a GPA of 3.75 or greater in the core courses (CHEE 500R, 500A, 574, 576A, 576B, 577R and 676). Students must take the exam the first time it is offered after they have completed the required core courses. A student failing the Qualifying Examination can retake it once, provided that their advisor agrees. If consent is obtained, a student failing only one part can retake that one part and those failing two or more parts must retake the entire exam; the retake will be offered three months after the student is informed of the grade obtained in the initial exam. If the student fails any part of the exam again, then the student will have failed the written qualification exam and will be put on the MS track. The Qualifying Examination should be taken at the end of the second academic year or earlier.

5.1.4 Choice of Minor

All PhD students must fulfill the requirements for a minor in a program of their choice. Selection of the minor should be compatible with the student's research interests and discussed with their research advisor. Minors are administered and approved by the minor department. They typically consist of 9 to 12 units of course work. These units are typically part of the 18 elective units mentioned in the Degree Requirements Section of this Handbook (Section 5.0 above). Note that in the event that the student selects a minor that requires more than 9 units of minor coursework (e.g. 12 units), the student must take additional units of major coursework in order to meet the 36 units required by the Graduate College. The student should work with the Graduate Program Coordinator to make sure the correct number of units are included in the Plan of Study (see Section 5.1.5 below) to meet the Graduate College requirement.

5.1.5 Plan of Study

In conjunction with their advisor, each student is responsible for developing and filing a Plan of Study as described in the Graduate College requirements. The Plan of Study identifies (1) courses the student intends to transfer from other institutions; (2) courses already completed at The University of Arizona that the student intends to apply toward the graduate degree; and (3) additional course work to be completed in order to fulfill degree requirements. The Plan of Study must have the approval of the student's Dissertation Advisor, minor advisor, and the Chair of the Environmental Engineering GSC before it is submitted to the Graduate College.

The Graduate College recommends that PhD students submit their Plan of Study in the third semester in residence at University of Arizona.

5.1.6 Comprehensive Examination

Before admission to candidacy for the doctoral degree, the student must pass both a written and an oral Doctoral Comprehensive Examination. These examinations are intended to test the student's comprehensive knowledge of the major and minor subjects of study, both in breadth across the general field of study, and in depth within the area of specialization. The Comprehensive Examination is considered a single examination, although it consists of written and oral parts. The minor department controls the minor portion of the written examination and may waive it at their discretion. The examining committee must consist of a minimum of four members, three of whom are selected from the Chemical & Environmental Engineering Faculty and one of whom represents the candidate's minor. All must be University of Arizona tenured, tenure-track, or approved as equivalent. Before scheduling the exam all students must file the Comprehensive Exam Committee Appointment Form in GradPath.

Written Comprehensive Examination. The written part of the Comprehensive Examination consists of a written research proposal. This document should contain a thorough literature analysis of the subject of the dissertation research (i.e. the state of the art), and a detailed research plan on which subsequent dissertation-related work will be premised. The entire document, not including appendices and references, must be a minimum of 10 and not more than 20 pages (single-spaced in a normal research article format and font). The written document, after approval by the Dissertation Advisor, must be submitted to the other members of the examining committee not less than two weeks prior to the oral comprehensive exam and must be approved by all committee members prior to the oral comprehensive exam.

The written Comprehensive exam must be completed successfully prior to undertaking the oral Comprehensive exam.

Oral Comprehensive Examination. The Oral Comprehensive Examination is conducted by the student's Comprehensive Examination Committee. The student must display a broad knowledge of the chosen field of study and sufficient depth of understanding on the major and minor fields to pass this exam. Discussion of proposed dissertation research may be included. The examining committee must

attest that the student has demonstrated the professional level of knowledge expected of a junior academic colleague. The Graduate College allows no more than one re-take of the oral exam.

When the student has passed the written and oral portions of the Comprehensive Examination, and the Graduate Student Academic Services Office (within the Graduate College) has confirmed completion of the required courses on the approved doctoral Plan of Study, the student will advance to doctoral candidacy.

5.1.7 Timeline for Comprehensive Examination and Requirements

The written and oral portions of the comprehensive examination must take place at least six months prior to the Final Oral Examination (defense of dissertation). The Oral Comprehensive Examination is performed upon successful completion of the written examinations in the major and minor(s). The exact time and place of the oral comprehensive examination must be scheduled with the department and approved in GradPath using the Announcement of Doctoral Comprehensive Exam form before the exam can take place.

To satisfy the requirements of the Comprehensive Examination a student must:

- File a Plan of Study with the Graduate College through GradPath (as approved by the Graduate Study Committee)
- Satisfy all requirements stipulated by the minor department or program
- Complete all required courses, and a minimum of 90% of *all* coursework
- Complete the Written Comprehensive Examination as described above
- Take and successfully pass the Oral Comprehensive Examination as described above

5.1.8 Dissertation Committee

The Dissertation Committee must include a minimum of three members, all of whom must be University of Arizona tenured, tenure-track, or approved as tenure-equivalent for the purposes of serving on graduate committees. It must include the dissertation director and two other members of the Chemical and Environmental Engineering Department faculty. Additional committee members may be an eligible member of the CHEE department, the candidate's minor department, another UA department faculty or be a specially approved member from outside the UA faculty. Students must submit the names of their doctoral committee to GradPath.

When the student has an approved doctoral Plan of Study on file and approved in GradPath; has satisfied all course work, and passed the written and oral portions of the Comprehensive Examination, the student must file a Doctoral Dissertation Committee Appointment form in GradPath. Any changes to the committee should

be reported to the Graduate Student Academic Services office. Under normal circumstances, submission is expected at least six months before the Final Oral Examination (i.e., Defense). The Committee Appointment form reports the student's planned dissertation committee, dissertation title (subject to change) and the expected graduation term. It requires approval from the dissertation director and the major and minor departments. The approval signature from the minor department on this form indicates both approval of the reported dissertation committee and confirmation that the student has satisfied all requirements for the minor.

5.1.9 Final Oral Defense Examination

Upon the completion and successful approval of the dissertation research by the dissertation committee, the candidate must successfully complete a Final Oral Defense Examination. A copy of the signed cover page of the dissertation document must be submitted to the GSC. The examination focuses on the dissertation itself but can include general questioning related to the field(s) of study within the scope of the dissertation. The examining committee will be the Dissertation Committee previously described. Committee members representing the minor program must be invited to the defense, but their participation is optional. The candidate must submit an announcement of their final Oral Defense via GradPath at least two weeks before their defense. Additional information on the dissertation defense may be found at https://grad.arizona.edu/gsas/degree-requirements/doctor-philosophy#final-oral-defense.

5.1.10 Publication Requirement

Prior to graduating, PhD students must have two publications either accepted, in press or published in peer-reviewed, indexed journals. These publications should form a major part of the dissertation. Copies of the publications must be submitted to the department chair, along with the Publication Compliance Form (see Appendix A6, but also available in the department's office), before the final oral examination is scheduled. When submitting copies of publications and the Publication Compliance Form, email a copy of the completed Publication Compliance Form to the Graduate Program Coordinator as well. In exceptional circumstances, a successful submission of a manuscript to a peer-reviewed journal can be counted as one of the required publications. When a publication has been accepted by a peer-reviewed, indexed journal, email the citation to the Graduate Program Coordinator.

5.2 MS Program (Environmental Engineering)

All Environmental Engineering MS students are required to take the following courses at the University of Arizona or an approved equivalent elsewhere:

- CHEE 500R—Water Chemistry for Engineers (3 units)
- CHEE 500A—Environmental Engineering Laboratory (1 unit)
- CHEE 574—Environmental Transport Processes (3 units)
- CHEE 576A—Water Treatment System Design (3 units)
- CHEE 576B—Wastewater Treatment System Design (3 units)
- CHEE 577R—Microbiology for Engineers (3 units)
- CHEE 676—Advanced Water and Wastewater Treatment (3 units)

Thesis MS students

The thesis MS track requires 30 units of graduate level coursework. In addition to the required courses listed above, all students undertaking the Master's thesis track must complete the following:

- CHEE 910—Thesis (4 units)
- CHEE 696A—Graduate Seminar (1 unit)
- Approved electives (6 units)

In this option, the student will develop a research project leading to the MS thesis. Upon the completion and successful approval of the MS thesis research by the thesis committee, the candidate is to submit to a Final Oral Defense Examination. A copy of the signed cover page of the research document should be submitted to the GSC. The examination focuses on the research. The examining committee will consist of the MS Thesis Committee. All members of the committee should be present during the examination while the presence of additional committee members is optional.

Non-thesis MS students

The non-thesis MS track requires 30 units of coursework. In addition to the required courses listed above, all students undertaking the Master's non-thesis track must complete the following courses:

- CHEE 909—Master's Report (4 units)
- CHEE 696A—Graduate Seminar (1 unit)
- Approved electives (6 units)

5.2.1 Sample Course Plan for Thesis or Non-thesis EEN MS

The following table is to be used as a ***general guide only***—please work with your Faculty Advisor and the Graduate Program Coordinator to determine your own Plan of Study (see Section 5.2.2).

	Fall	**Spring**
Year 1	CHEE 500R—Water Chemistry for Engineers CHEE 500A—Environmental Engineering Laboratory CHEE 576A—Water Treatment System Design CHEE 577R—Microbiology for Engineers CHEE 696A—Graduate Seminar CHEE 910—MS Thesis Research *or* CHEE 909—MS Research Report *Student must have assigned research advisor by the end of the first semester.*	CHEE 574—Environmental Transport Processes CHEE 576B—Wastewater Treatment System Design Elective CHEE 696A—Graduate Seminar CHEE 910—MS Thesis Research *or* CHEE 909—MS Research Report *Student must file Plan of Study no later than the end of the second semester.*
Year 2	Elective CHEE 696A—Graduate Seminar CHEE 910—MS Thesis Research *or* CHEE 909—MS Research Report	CHEE 676—Advanced Water and Wastewater Treatment CHEE 696A—Graduate Seminar CHEE 910—MS Thesis Research *Student writes thesis proposal and orally defends it by end of the semester.* *or* CHEE 909—MS Research Report *Student conducts a non-thesis research project and presents it in front of a non-thesis committee.*

5.2.2 Plan of Study (*MS Degree*)

In conjunction with the advisor, each student must file a Plan of Study with the Graduate College using GradPath https://grad.arizona.edu/gsas/gradpath during their second semester of study. The Plan of Study identifies (1) courses the student intends to transfer from other institutions; (2) courses already completed at The University of Arizona that the student intends to apply toward the graduate degree; and (3) additional course work to be completed in order to fulfill degree requirements. The Plan of Study must have the approval of the student's advisor and the chair of the Environmental Engineering GSC before it is submitted to the Graduate College via GradPath. The student is responsible to be aware of the deadline to submit the GradPath Plan of Study for review.

5.2.3 Selection of Thesis or Non-Thesis Committee and Final Oral Presentation

After completion of the plan of study, it is the responsibility of the student and their thesis advisor to select a Thesis or Non-thesis Committee (depending on whether the student is pursuing a thesis or non-thesis degree). The committee will consist of the student's faculty advisor and two other members of the CHEE Faculty. Committee members from other institutions can be incorporated in addition to the CHEE Faculty as a courtesy and/or adjunct appointment as special members with the approval of the department and Graduate College.

MS Thesis: All MS Thesis students must report a thesis committee in GradPath, using the Master's/Specialist Committee Appointment Form. Upon completion and approval of the written MS research thesis by the Thesis Committee, the candidate must pass a Final Oral Defense Examination. The examining committee will consist of the MS Thesis Committee. All CHEE members of the committee must be present during the examination. The presence of additional committee members is optional.

MS Non-thesis: Upon the completion and approval of the written MS research report by the MS non-Thesis Committee, the candidate must give a Final Oral Presentation and answer questions from the Committee and the audience. The examining committee will consist of the MS non-thesis Committee. All CHEE members of the committee should be present during the presentation. The presence of additional committee members is optional.

5.3 Accelerated MS Program (AMP Environmental Engineering)

5.3.1 Overview

The Accelerated Master's Program in Environmental Engineering (AMP EEN) is a program designed to enable advanced University of Arizona undergraduate students to complete both the Bachelor of Science degree and the Master of Science degree in Environmental Engineering in a total of 5 years. This program is available only for undergraduate students in 1) environmental engineering, 2) chemical engineering, 3) civil engineering, and 4) soil, water and environment science at the University of Arizona.

5.3.2 How to apply

Students who have completed a minimum of 75 units are eligible to apply, usually early in the second semester of the student's junior year (September or January). The student must create an account in GradApp (https://apply.grad.arizona.edu) and submit an online application to the Environmental Engineering AMP. (See https://grad.arizona.edu/catalog/programinfo/CHEMSCHEAMP) for more details. Once students have completed 90 units (usually at the end of their junior year's second semester) and have a 3.30 or higher GPA, they may be accepted into the AMP. After acceptance to the AMP program, students register during their senior (fourth) year to take a combination of undergraduate and graduate courses and are classified as undergraduate students. The graduate courses can double-count, serving both as electives for the BS degree and as core or elective courses for the MS. After completing the BS, student are then eligible to be fully accepted as MS degree students. In the fifth and final year, students focus on graduate course work and their thesis or project.

5.3.3 Eligibility criteria

To be considered eligible to apply for the AMP EEN, students must:

- Be a continuing University of Arizona undergraduate
- Have a minimum cumulative GPA of 3.3
- At the time of application, have completed a minimum of 75 units of undergraduate course work; a minimum of 12 undergraduate units must have been completed in the student's major at the University of Arizona's main campus

Research experience as an undergraduate is not a requirement, but it is desirable.

5.3.4 University of Arizona Graduate College policies on AMPs

Students will be considered undergraduates until they complete their undergraduate requirements, which should be no later than the end of their fourth year. Students must take at least 12 of their graduate credits while

in graduate status. In other words, during years 1–3 (or approximately 0–90 credits) students will be taking undergraduate coursework and charged at the undergraduate rate.

Once admitted to AMP, during the senior (or transition) year, students may take up to 12 units of graduate coursework, which may apply toward both the BS and the MS degrees. Students will be charged at the undergraduate rate and retain eligibility for undergraduate scholarships. After completion of all BS requirements, students will be granted graduate status, be charged at the graduate rate, and be eligible for graduate assistantships. Should a student have completed 12 graduate credits, but not yet completed the undergraduate degree, they will be considered graduate for financial aid and tuition purposes and coded as "graduate" in SIS (Student Information Systems). They will no longer be eligible for undergraduate scholarships. Nor will they be eligible for graduate assistantships. Once all requirements for the undergraduate degree have been completed, at least 12 additional graduate units must be taken while in graduate status (with no pending undergraduate requirements to be completed). A total of 30 graduate credits (500 level courses or higher) should be taken.

AMP students should complete their undergraduate requirements no later than one semester before receiving their MS. Students who finish their undergraduate requirements later than one semester before earning their master's will no longer be eligible for undergraduate scholarships or for graduate assistantships. Neither degree will be awarded until all undergraduate degree requirements have been completed.

5.3.5 Program requirements and guidelines

After admission into the AMP EEN program, students must select an advisor who will guide their research or development work toward the completion of a thesis or master's report. Writing a thesis or a project report is required.

CHEE 400 level courses that are convened with 500 level courses can be taken as electives for both the BS and the AMP programs—the 500 version of the course must be taken in this case.

However, Chemical Engineering BS students must take the 400 version of CHEE 420/520 and 477R/577R. These two courses are required for the Chemical Engineering BS program and, therefore, the 500 level course will not count toward the AMP. In order to meet the 30 units of graduate work required for the AMP, these students will need to take other graduate electives for the MS.

A sample plan for both versions of the AMP EEN (thesis or non-thesis) follows, beginning with the 7th semester (senior year) of undergraduate work:

The following table is to be used as a ***general guide only***—please work with your Faculty Advisor and the Graduate Program Coordinator to determine your own Plan of Study (see Section 5.3.6).

Semester 7 (Fall – Senior Year)	**Semester 8 (Spring – Senior Year)**
CHEE 420/520*—Chemical Reaction Engineering CHEE 442—Chemical Engineering Design Principles CHEE 500R—Water Chemistry for Engineers CHEE 500A—Environmental Engineering Lab Undergrad elective	CHEE 413—Intermediate Engineering Analysis CHEE 574—Environmental Transport Processes Undergrad elective Undergrad elective
Semester 9 (Fall—Grad Year)	**Semester 10 (Spring—Grad Year)**
CHEE 576A—Water Treatment System Design CHEE 577R—Microbiology for Engineers CHEE 696A—Graduate Seminar Graduate elective** *Student must have assigned research advisor by the end of the first semester in the grad program.* *Student must file Plan of Study no later than the end of the first semester of graduate work..*	CHEE 576B—Wastewater Treatment System Design CHEE 696A—Graduate Seminar Graduate elective** CHEE 910—MS Thesis Research *Student writes thesis proposal and orally defends it by end of the semester. or* CHEE 909—MS Research Report *Student conducts a non-thesis research project and presents it in front of a non-thesis committee.*

* If the student is an undergraduate Chemical Engineering major, the CHEE 420 course must be taken, as it is a requirement of the program. If the student has another undergraduate major, the CHEE 520 course may be taken and counted toward the AMP degree.

** These are 500-level courses. The courses **CHEE 576A** (offered in the Fall) and **CHEE 576B** (offered in the Spring) are required for the MS degree. Examples of electives include CHEE 578 and CHEE 573, among many others. Up to two of the electives can be from Math or Science graduate programs. Note that 400/500 level courses are acceptable for the AMP only if the 500 level version of the course is taken.

Note for Civil Engineering BS students and Soil, Water and Environmental Science BS students: The courses **CHEE 577R** (offered in the Fall), **CHEE 576A** (offered in the Fall) and **CHEE 576B** (offered in the Spring) are required for the MS degree.

5.3.6 Plan of Study (*EEN AMP Degree*)

In conjunction with the advisor, each student must file a Plan of Study with the Graduate College during the first semester of graduate work (i.e. Semester 9). The Plan of Study identifies (1) courses already completed at The University of Arizona that the student intends to apply toward the graduate degree; and (2) additional course work to be completed in order to fulfill degree requirements. The Plan of Study must have the approval of the student's advisor and the chair of the Environmental Engineering GSC before it is submitted to the Graduate College via GradPath. The student is responsible to be aware of the deadline to submit the GradPath Plan of Study for review.

5.4 Minor in Environmental Engineering

The minor in Environmental Engineering consists of 12 units of environmental engineering coursework. At least 9 units must be selected from the following courses:

- CHEE 500R—Water Chemistry for Engineers (3 units)
- CHEE 576A—Water Treatment System Design (3 units)
- CHEE 576B—Wastewater Treatment System Design (3 units)
- CHEE 577R—Microbiology for Engineers (3 units)
- CHEE 578—Introduction to Hazardous Waste Management (3 units)
- CHEE 676—Advanced Water and Wastewater Treatment (3 units)

The additional 3 units may correspond to other graduate environmental engineering courses upon approval of the minor advisor. Depending on the student's background, the minor advisor might recommend preparatory undergraduate courses to be taken to cover prerequisite deficiencies.

A member from the Environmental Engineering graduate faculty will serve as minor committee member.

APPENDIX

A1. Chemical & Environmental Engineering Personnel

Faculty

Name	Title	Phone	Office	Email
Achilli, Andrea	Assistant Professor	520-621-6586	CE 306C	achilli@email.arizona.edu
Arnold, Robert G.	Professor Emeritus	520-621-2410	CE 306A	rga@email.arizona.edu
Baygents, James C.	Associate Dean, Academic Affairs	520-621-6032	ENGR 200	baygents@email.arizona.edu
Blowers, Paul	Distinguished Professor	520-626-5319	JWH 128	blowers@email.arizona.edu
Farrell, James	Professor	520-621-2465	CE 306F	farrellj@email.arizona.edu
Field, James A.	Professor	520-621-0704	ENGR 208	jimfield@email.arizona.edu
Gervasio, Dominic	Associate Professor	520-621-4870	JWH 146A	gervasio@email.arizona.edu
Roberto Guzman	Professor	520-621-6041	JWH 134D	guzmanr@email.arizona.edu
Hickenbottom, Kerri	Assistant Professor	520-626-9323	CE 306E	klh15@email.arizona.edu
Muscat, Anthony J.	Professor / Department Chair	520-626-6580	JWH 134	muscat@erc.arizona.edu
Ogden, Kimberly L.	Professor	520-621-9484	JWH 108C	ogden@email.arizona.edu
Philipossian, Ara	Professor	520-621-6101	ECE 223	ara@email.arizona.edu
Printz, Adam	Assistant Professor	520-626-6769	JWH 146C	aprintz@email.arizona.edu
Sáez, Eduardo	Distinguished Professor	520-621-5369	JWH 142C	esaez@email.arizona.edu
Shadman, Farhang	Regents' Professor	520-621-6051	JWH 134	shadman@erc.arizona.edu
Sierra, Reyes	Professor	520-626-2896	JWH 130	rsierra@email.arizona.edu
Snyder, Shane	Professor	520-621-2573	CE 306G	snyders2@email.arizona.edu
Sorooshian, Armin	Professor	520-626-5858	JWH 108E	armin@email.arizona.edu

RESEARCH FACULTY

Name	Title	Phone	Office	Email
Li, Guangbin	Research Assistant Professor	520-626-6781	JWH 134B	guangbinli@email.arizona.edu
Ogden, Greg	Research Associate Professor	520-621-4422	JWH 105E	gogden@email.arizona.edu
Park, Minku	Research Assistant Professor	520-820-6619	BIO5 400A20	minkyupark@email.arizona.edu

STAFF

Name	Title	Phone	Office	Email
Altman, Holly	Program Manager	520-621-2591	JWH 108	haltman@email.arizona.edu
Durazo, Armando	Principal Research Specialist	520-626-6748	CE 314C	armandodurazo@email.arizona.edu
Fuller, Grace	Graduate Program Coordinator	520-621-9341	JWH 108B	gracefuller@email.arizona.edu
Rodriguez, Ana	Manager, Finance and Admin.	520-621-2415	JWH 141	rodrigua@email.arizona.edu
Wik, Michelle	Undergrad Program Coordinator	520-621-1897	JWH 10C	michelles@email.arizona.edu

GRADUATE COLLEGE REPRESENTATIVE FOR CHEE (not part of CHEE department)

Name	Title	Phone	Office	Email
Cindy Nguyen	Graduate Degree Counselor	520-621-0119		mailto:cnguyen@email.arizona.edu

A2. Graduate Study Committees

CHEMICAL ENGINEERING

Dominic Gervasio, Chair and Director of Graduate Studies

Armin Sorooshian

Adam Printz

ENVIRONMENTAL ENGINEERING

Jim Farrell, Chair and Director of Graduate Studies

Reyes Sierra

Shane Snyder

Andrea Achilli

A3. MS Non-thesis Checklist

Review Graduate college policies.		
Review CHEE Graduate Student Handbook.		
GradPath forms completed (please complete all GradPath forms in a timely manner.) You can get assistance by clicking on "GradPath Videos."		
Proposal, publications and Master's report drafts and finals submitted electronically to Committee Chair/Faculty Advisor for review prior to final submission(s). Final submitted to Grad Advisor for filing.		
Master's report defense date confirmed and approved by report committee and room reserved. (Applies only to Environmental Engineering students.)		
Provide hard copy of evaluation rubric to each defense committee member (rubric must be completed at Defense by each member). Committee Chair returns all rubrics to Holly Altman, Program Manager. (Applies only to Environmental Engineering students.)		
Review defense procedures from Grad College with Committee Chair/Faculty Advisor.		
Defense date announced and completed. (Submit GradPath form with date at least 2 weeks prior to your defense date.)		
Master's report revisions completed and approved.		
Change of K grade for 900 (completed by faculty advisor) and given to Graduate Advisor.*		
Change of K grad for 920 (completed by faculty advisor) and given to Graduate Advisor.*		
**** Note that Grad Advisor/Coordinator will email all three of the above docs to Grad College and submit GradPath final completion form.***	N/A	
Thesis revisions requested by Graduate College completed.		
Exit survey completed. 2018-2019 Survey Link: https://uarizona.co1.qualtrics.com/jfe/form/SV_54uMrxsNjifP4q1		
Exit interview completed. Please contact Holly Altman at haltman@email.arizona.edu to schedule exit interview.		
Only do the following if you are not going on to complete your PhD here at UA. If you are going on to complete your PhD, please let your Academic Advisor know.		
Keys turned in to Key Desk.		
Desk cleaned out and Grad Advisor notified that you are no longer using it.		

If all this is completed and checked off, congratulations! You did it!!

Please drop by and say good-bye to Michelle and Grace, and keep in touch. If you can, come back for Homecoming. We love to hear how you are doing.

A4. MS Thesis Checklist

Review Graduate college policies.		
Review CHEE Graduate Student Handbook.		
GradPath forms completed (please complete all GradPath forms in a timely manner.) You can get assistance by clicking on "GradPath Videos."		
Proposal, publications and thesis drafts and finals submitted electronically to Committee Chair/Faculty Advisor for review prior to final submission(s). Final submitted to Grad Advisor for filing.		
Thesis defense date confirmed and approved by thesis committee and room reserved.		
Provide hard copy of evaluation rubric to each defense committee member (rubric must be completed at Defense by each member). Committee Chair returns all rubrics to Holly Altman, Program Manager.		
Review defense procedures from Grad College with Committee Chair/Faculty Advisor.		
Defense date announced and completed. (Submit GradPath form with date at least 2 weeks prior to your defense date.)		
Committee revisions completed and approved.		
Thesis submitted electronically to Grad College by deadline.		
Thesis Approval page signed and dated with defense date and given to Graduate Advisor.		
Distribution rights form completed and given to Graduate Advisor.*		
Change of K grade for 900 (completed by faculty advisor) and given to Graduate Advisor.*		
Change of K grad for 920 (completed by faculty advisor) and given to Graduate Advisor.*		
**** Note that Grad Advisor/Coordinator will email all three of the above docs to Grad College and submit GradPath final completion form.***	N/A	
Thesis revisions requested by Graduate College completed.		
Exit survey completed. 2018-2019 Survey Link: https://uarizona.co1.qualtrics.com/jfe/form/SV_54uMrxsNjifP4q1		
Exit interview completed. Please contact Holly Altman at haltman@email.arizona.edu to schedule exit interview.		
Only do the following if you are not going on to complete your PhD here at UA. If you are going on to complete your PhD, please let your Academic Advisor know.		
Keys turned in to Key Desk.		
Desk cleaned out and Grad Advisor notified that you are no longer using it.		

If all this is completed and checked off, congratulations! You did it!!

Please drop by and say good-bye to Michelle and Grace, and keep in touch. If you can, come back for Homecoming. We love to hear how you are doing.

A5. PhD Checklist

Review Graduate college policies.		
Review CHEE Graduate Student Handbook.		
GradPath forms completed (please complete all GradPath forms in a timely manner, prior to exams and defenses.) You can get assistance by clicking on "GradPath Videos"		
Review Grad College Policies and Procedures with Comp Exam Chair/Faculty Advisor.		
Comp exam completed. (Please make sure your GradPath form with date is submitted at least 2 weeks prior to your comp exam date.)		
Review formatting guide required by Grad college.		
Drop proposal, publications, dissertation drafts and finals in D2L.		
Two required Publications form turned in with publication(s). Email is OK. (See Section A6 of Graduate Student Handbook for form.)		
Provide hard copy of evaluation rubric to each defense committee member (rubric must be completed at Defense by each member). Committee Chair returns all rubrics to Holly Altman, Program Manager.		
Review defense procedures from Grad College with Committee Chair/Faculty Advisor.		
Defense date announced and completed. (Submit GradPath form with date at least 2 weeks prior to your defense date.)		
Committee revisions completed and approved.		
Dissertation submitted electronically to Grad College by deadline.		
Dissertation Approval page signed and dated with defense date and given to Graduate Advisor.		
Distribution rights form completed and given to Graduate Advisor.*		
Change of K grade for 900 (completed by faculty advisor) and given to Graduate Advisor.*		
Change of K grad for 920 (completed by faculty advisor) and given to Graduate Advisor.*		
**** Note that Grad Advisor/Coordinator will email all three of the above docs to Grad College and submit GradPath final completion form.***	N/A	
Dissertation revisions requested by Graduate College completed.		
Exit survey completed. 2018-2019 Survey Link: https://uarizona.co1.qualtrics.com/jfe/form/SV_8iciKlhFQalnEpL		
Exit interview completed. Please contact Holly Altman at haltman@email.arizona.edu to schedule exit interview.		
Keys turned in to Key Desk.		
Computer/laptop turned in (if applicable).		
Desk cleaned out and Grad Advisor notified that you are no longer using it.		

If all this is completed and checked off, congratulations! You did it!!

Please drop by and say good-bye to Michelle and Grace, and keep in touch. If you can, come back for Homecoming. We love to hear how you are doing.

A6. PhD Publication Requirement Compliance Form

Date: _____

Name PhD Candidate: _____

Name(s) PhD Faculty Advisor(s): _____

PhD students must have two peer reviewed journal publications either accepted, in press or published in peer reviewed indexed journals in order to fulfill the Departmental requirements for a PhD degree. In exceptional circumstances, a successful submission of a manuscript to a Journal can count towards this requirement.

Publication 1
Authors:
Year:
Title:
Journal:
Volume, issue and pages:
One Year Impact Factor Journals:

Publication 2
Authors:
Year:
Title:
Journal:
Volume, issue and pages:
One Year Impact Factor Journals:

Attachments:
For each article, please attach reprint(s). If manuscript is in accepted or in press status, please attach correspondence with editor indicating the status or the page proofs. If you have a submission in lieu of an accepted publication please attach evidence that journal has been received by journal and that your submission conforms with journal submission requirements

Comments (optional):

Approval Signatures

PhD Advisor: Name_____ Signature:_____ Date: _____

Grad Prog Chair: Name_____ Signature:_____ Date: _____

Dept Chair: Name_____ Signature:_____ Date: _____

A7. Graduate Student Department Petition

Date: _____

Student Name:_____

Student ID: _____

Mailing Address:_____

Phone: _____ Email:_____

Degree Program: _____

Subject of Petition: _____

Request:_____

_____

_____

_____

Reason for Request: _____

_____

_____

_____

APPROVED: _____

DENIED:_____

Approval Signature: _____

DGS's / Department Head's comments:_____

_____

A8. Chemical and Environmental Engineering Advisor Selection Form

New graduate students should spend the first three weeks after arrival at the University of Arizona to meet potential research advisors. After these meetings, students should fill out this form and email it to the appropriate chair of the Graduate Studies Committee (Chemical Engineering: gervasio@email.arizona.edu / Environmental Engineering: farrellj@email.arizona.edu) no later than Friday of the third week of classes.

Student Full Name: _____

First Choice: _____

Second Choice: _____

Third Choice: _____

If you already have an advisor before the semester begins, please note the advisor's name below:

Advisor Name: _____

Date: _____