# Clinical Translational Sciences Graduate Program Handbook

The University of Arizona Health Sciences

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# INTRODUCTION AND PROGRAM OBJECTIVES

Welcome to the Graduate Program in Clinical Translational Sciences (CTS)! The purpose of this handbook is to introduce you to the curricula, policies and requirements for earning either a Master of Science (M.S.), or Doctor of Philosophy (Ph.D.) degree in CTS from the University of Arizona (UA). The CTS Graduate Program is designed to provide a strong foundation in clinical translational sciences, either for postgraduate students already granted a terminal degree in a health science-related field (e.g., M.D., Pharm.D., Doctor of Public Health, D.N.P., etc.), or for post-baccalaureate students seeking training in translational sciences.

What is now the CTS Graduate Program was initially approved by the UA Board of Regents in April, 2009, offering degrees in the major of Medical Sciences, and enrolled its first postgraduate students the same year. The name and scope of the Program were changed in 2014, broadening it to include all aspects of health sciences research and establishing the Clinical Translational Sciences major. The CTS program now welcomes applicants from within or outside UA who have either a clinical or basic science background and are interested in gaining translational science expertise.

The Program is intended to provide the foundation for a research career in the Clinical Translational Sciences. To achieve this aim, the student requires:

a) An adequate base knowledge of biostatistics, professional development and CTS coursework that is specific to the student's health-related discipline or clinical interest (e.g. Surgery, Cardiology, Neurology, etc.).
b) Experience and training in research, culminating in a major research project.
c) Experience and training in presentation and publication of research findings, preparation of grant applications and teaching.

For Ph.D. students, a Minor program of study is also required in a discipline that is relevant to the student's long-term scholarly goals. All Ph.D. students carry out an original research project that is reported in their dissertation. M.S. students complete a research project which they report in the master's thesis.

Timely completion of this graduate program depends on the student's pro-active coordination with their faculty mentor, the CTS Director of Graduate Affairs, the CTS Coordinator of Administrative Affairs and the Graduate College. This handbook should be read carefully and completely upon entering the Program, and used henceforth as a reference regarding the policies and procedures of the CTS Program.

# CTS PROGRAM LEADERSHIP

## CTS EXECUTIVE COMMITTEE

All communication to the CTS Executive Committee may be sent to the general CTS e-mail address, CTSsupport@email.arizona.edu.

CTS Executive Committee members include the Tucson and Phoenix Co-Directors of the program, the Tucson and Phoenix Co-Associate Directors, and the Director of Graduate Affairs.

### CTS CO-DIRECTORS

**Casey Romanoski, Ph.D.**
CTS Co-Director – ***Tucson***

cromanoski@arizona.edu
520-626-7244

**Sally Radovick, M.D.**
CTS Co-Director - ***Phoenix***

sradovick@arizona.edu

### CTS CO-ASSOCIATE DIRECTORS

***Selection pending***
CTS Co-Associate Director – ***Phoenix***

***Selection pending***
CTS Co-Associate Director – ***Tucson***

## CTS DIRECTOR OF GRADUATE AFFAIRS

The CTS Director of Graduate Affairs is charged with daily management of the CTS program, reporting to the CTS Co-Directors. The CTS Director of Graduate Affairs will serve as the liaison with the Graduate College, and as mediator between the students and their mentors. The Director will ensure that CTS policies and procedures comply with Graduate College requirements and will actively participate in the recruitment and admissions process, while also providing routine advising to students on matters of curriculum and other degree requirements.

**Mike Renning**
mrenning@arizona.edu
(520) 626-9561
UA – Tucson (Health Sciences Innovation Building, Rm. 920M)

## CTS COORDINATOR OF ADMINISTRATIVE AFFAIRS

The CTS Coordinator of Administrative Affairs supports the members of the CTS Executive Committee and is available to help with students' questions or concerns. She maintains student records for the CTS Program, manages hiring of CTS-supported Graduate Research Assistants and oversees the CTS program's fiscal accounts.

**Anabel Moreno**
anabelg@arizona.edu
(520) 626-8627
UA – Tucson (Health Sciences Innovation Building, Rm. 925B)

GRADUATE TRAINING PROGRAMS COORDINATOR (PHOENIX)

The Graduate Training Programs Coordinator supports graduate students at the Phoenix campus and dedicates part of her time to support of CTS students specifically. She is available to help with students' questions or concerns and assists the CTS Administrative Affairs Coordinator with administrative functions as needed. She also supports the Phoenix faculty by assisting with their room and videoconferencing needs for teaching CTS courses, as well as proctoring instruction, exams and quizzes as needed for remote instruction of courses taught in Tucson.

Katharine Gonzales
Coordinator, Graduate Training Programs
kgonzales@arizona.edu
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## ADMISSIONS COMMITTEE

The CTS Admissions Committee consists of CTS-appointed faculty from both the Tucson and Phoenix campus. Together, they perform the essential function of evaluating candidates for admission to the CTS M.S. and Ph.D. degree programs in order to ensure the high standards and diversity of the accepted students. The membership of the CTS Admissions Committee is not public.

# POSTGRADUATE VS. POST-BACCALAUREATE STUDENTS

The CTS program distinguishes between applicants who have a terminal clinical degree and those who have earned just a bachelor's or non-terminal master's degree. An applicant with a terminal degree, such as a M.D., D.O., D.N.P., Pharm.D., or M.B.B.S, is considered a "postgraduate" student, while those without a terminal degree are considered "post-baccalaureate." And once the applicant is accepted into the CTS program, the curricular requirements and options at either the Ph.D. or M.S. are somewhat different for postgraduate students compared to post-baccalaureate students, given that postgraduate students can be expected to have already secured some fundamental knowledge of biological science or clinical practice. These distinctions are detailed below.

## POST-BACCALAUREATE STUDENTS

The CTS Program opens doors for post-baccalaureate graduate students to translational and basic medical research relevant to clinical practices. The Program prepares students for careers in industry or academic medicine or public health in fields of clinically-relevant biomedical science and biotechnology.

Post-baccalaureate students may require additional time to complete coursework relevant to their studies. Typically, such students complete the Ph.D. in four to six years, or the M.S. in one to two years. Students entering the CTS Program after completion of a baccalaureate or Master's degree, with or without relevant work experience, will require a high degree of motivation, a pro-active approach, diligence and self-discipline in order to complete the degree within this time frame. After research rotations with CTS-appointed or other suitablefaculty, the student should identify a faculty mentor and research project by the end of their first year. Completion of the CTS Individual Development Plan (IDP) for first year students supports this process, as it gives the student the opportunity to reflect on their goals for their research training and associated skills. The curricula for the M.S. and Ph.D. programs are well defined, with the addition of the minor program of study for Ph.D. students, for which the requirements are determined by the minor department or graduate program (e.g. Cancer Biology, Physiological Sciences, Immunobiology, etc.). Alternatively, a Ph.D. student can add a specialized component of the CTS curriculum to satisfy the minor requirement with a minor in CTS.

## POSTGRADUATE STUDENTS

The CTS Program provides a valuable avenue for broader learning for students who have earned a terminal health sciences degree, such as a M.D., O.D., D.N.P., Pharm.D., or M.B.B.S. Students with a clinical background can get exposure to basic science principles and methods that can elucidate issues that arise in clinical treatment; similarly, students whose background is in basic science can learn about the clinical applications of the discoveries made in the lab. Medical residents and fellows at UA and nearby institutions are among those who have taken advantage of the training provided by the CTS program. The CTS program also participates in the M.D./Ph.D. dual-degree training programs at both of the University's Colleges of Medicine in Tucson and Phoenix; it is currently the sole Ph.D. program for Phoenix M.D./Ph.D. students.

The postgraduate student typically can complete the Ph.D. in three to four years, or the M.S. in one year or slightly longer. Obtaining a degree within this time frame depends in large part on the motivation, pro-active approach, diligence and self-discipline of the student. M.S. students ideally choose a faculty mentor by the end of the first semester in the CTS Program, and Ph.D. students select a mentor by the end of their second semester. The mentor assists the student in identifying a research topic for the student's thesis or dissertation and advises the student on elective coursework in addition to thesis/dissertation preparation. Because of the need to complete the Program in a timely manner, the curricula for the M.S. and Ph.D. programs are well defined, with the addition of the minor program of study for Ph.D. students, the requirements for which are determined by the minor department or graduate program (e.g. Cancer Biology, Physiological Sciences, Immunobiology, etc.). Alternatively, a specialized component of the CTS curriculum can be added to satisfy the minor requirement with the minor declared as CTS. Students are expected to be proactive in knowing the requirements and policies for their degree and in ensuring they are taking the needed steps to complete their degree in a timely manner.

# MASTER'S PROGRAM

The mission of the CTS M.S. Program is to provide an avenue for the student to gain more experience in and exposure to the diverse areas of clinical translational sciences and to offer a mechanism for the student to obtain in-depth knowledge in a specific area of biomedical research. To this end, students will participate in a specific laboratory, clinical research or other translational research project with training and supervision from of a faculty mentor. All M.S. students are expected to know and abide by the Graduate College's degree policies for master's degrees, available at https://grad.arizona.edu/degree-services/degree-requirements/masters-degrees.

## PROGRAM TIMING

The following is a list of steps necessary for admission to and completion of the CTS M.S. Program. Any questions may be directed to CTSsupport@email.arizona.edu. Note that the timeline from step 6 onward may be somewhat delayed for a post-baccalaureate student, but all students should plan and strive to complete the M.S. program within no more than two years.

### PRIOR TO ADMISSION

1. Applicant expresses interest in the CTS program. Initial inquiries may be directed to CTSSupport@email.arizona.edu. At the request of the applicant, the Director of Graduate Affairs or one of the CTS Co-Directors may help identify potential faculty mentors. (See Selection of Mentor/Research Advisor, below.)
2. Applicant applies to the Graduate College using the online admission application, GradApp (http://apply.grad.arizona.edu/). All requested documents must be uploaded, and at least two people who can provide professional letters of recommendation must be identified. The application should specify the Main (Tucson) or Phoenix campus – admission requirements are the same for both campuses. Applicants should identify and contact faculty members of interest as prospective mentors; the applicant will report which faculty they have contacted in their application, as well as any positive responses received. Questions about the online application system may be directed to Graduate Admissions (520-621-3471 or gradadmissions@grad.arizona.edu).
3. Test scores for admission: Applicants are not required to submit GRE scores. The Graduate College requires international students from non-English speaking countries to submit scores from any of the accepted English proficiency exams (see http://grad.arizona.edu/admissions/requirements/international-applicants#english-proficiency).

1ST SEMESTER [POST-BACCALAUREATE: 1ST-3RD SEMESTER]

1. Following an offer and acceptance of admission, student should register for classes for the first semester. For questions about initial course enrollment, students may contact CTSsupport@email.arizona.edu. Students should take at least some of the required courses for the M.S. in the first semester (see Sample Curricula for Tucson or Phoenix campus students below). Students enroll themselves via the UAccess Student Center (see tutorial at https://registrar.arizona.edu/records-enrollment/enrollment/how-register-classes). Note that students must have a current vaccination for measles and mumps on file with the Campus Health office prior to registering (see https://health.arizona.edu/new-student-immunization-requirements).
2. As soon as possible after accepting admission, the student selects a faculty mentor to provide specialized research training, guide choices of elective courses and oversee the thesis research and writing. The student should proactively arrange research rotations with prospective mentors before or by the start ofthe semester. A typical rotation lasts about two months, so it is possible to complete two rotations during the first semester if needed.
3. Student works with faculty mentor and the CTS Director of Graduate Affairs to prepare a Master's Plan of Study, including all proposed future coursework, to be submitted via GradPath, the Graduate College's online student forms system (see user guide at https://grad.arizona.edu/degree-services/gradpath/gradpath-user-guides). Note that students planning to bring in graduate transfer coursework from another institution must first submit the Transfer Credit form in GradPath. Only transfer courses deemed eligible by the Graduate College and approved for use by the CTS program may be included on the Plan of Study.
4. Student forms a Thesis Committee. [*Note: For post-baccalaureate students, this may occur in the second or even third semester.*] Within the first semester in the program, each M.S. student will select a formal Master's Thesis Committee consisting of the mentor/research advisor and two other faculty members. The Thesis Committee must meet the standard set by the Graduate College (see https://grad.arizona.edu/degree-services/degree-requirements/masters-degrees#thesis-committee). The student must submit the Master's Committee Appointment form in GradPath to have the Thesis Committee approved. The mentor should meet with the student on a regular basis. The Thesis Committee should meet with the student at least once per semester to evaluate student progress and advise the student on appropriate options and actions for completing the Thesis requirements.

2ND SEMESTER [POST-BACCALAUREATE: 3RD OR 4TH SEMESTER]

1. Student should register for required 6 units of thesis (CTS 910), or any remaining units, if not yet taken.
2. Student completes remaining courses on approved Plan of Study, including required M.S. coursework listed in Sample Curricula (below).
3. The Thesis Defense should be scheduled far enough ahead of the Graduate College's semester graduation deadline to allow for final, post-defense revisions. The Graduate College posts

graduation deadlines at https://grad.arizona.edu/degree-services/degree-requirements/important-degree-dates-and-deadlines. The thesis defense procedure includes the following steps:

a. A complete thesis document sent to the Thesis Committee at least two weeks prior to the Defense. At the discretion of the Thesis Committee, the thesis may consist mainly of one or more submission-ready, first author manuscripts organized into chapters or appendices. The student should ensure the Thesis formatting is consistent with the Graduate College's thesis formatting guide at https://arizona.box.com/grad-gsas-thesisformat.
b. The thesis defense begins with the student's publicly announced oral presentation of the thesis research. When the student schedules the thesis defense with the Thesis Committee, he or she must also inform the CTS program by e-mail to CTSsupport@email.arizona.edu. The program can assist with scheduling a room for the defense at either the Tucson or Phoenix campus and will also set up a Zoom meeting for any remote attendees to hear the student's presentation of their research. The CTS program will prepare an announcement of the student's thesis defense and distribute it to all CTS students and faculty so they will have the opportunity to attend.
c. Following the defense presentation, the student meets with the Thesis Committee to discuss the thesis. The Thesis Committee may require the student to complete specific revisions following the defense before granting final approval to the thesis.
d. At conclusion of the defense, or upon final approval of thesis after post-defense revisions, the student must secure the approval signature of the mentor and thesis committee members on the thesis approval page – sample available at https://grad.arizona.edu/degree-services/dissertations-theses/sample-pages. If requested by the student, the CTS Director of Graduate Affairs can assist by creating and routing the thesis approval page on behalf of the student using the Graduate College's workflow in Adobe Sign.

4. On or before the Graduate College graduation deadline: Once the thesis has been defended and has final committee approval (with any post-defense revisions accepted), the student must submit it online for Graduate College review and public archiving. Information about the thesis archiving procedure can be found on the Graduate College site at https://grad.arizona.edu/degree-services/dissertaions-theses/submitting-and-archiving-your-thesis. The student must make their initial submission of the approved thesis by the Graduate College's deadline to qualify for graduation in a specific semester or term – see https://grad.arizona.edu/degree-services/degree-requirements/important-degree-dates-and-deadlines. All steps of the submission procedure must be completed (including any formatting revisions the Graduate College requests) before the Graduate College accepts the thesis for archiving and awards the M.S. degree.

Post-baccalaureate students may elect to spread their course work and research across two years, in which case the committee review and thesis defense dates stated above could be postponed to the

student's second year. For all students whose M.S. programs extends beyond one year, the Thesis Committee must meet together with the student by the end of the student's first year to evaluate student progress, including grades, research potential and skills. The Thesis Committee should report to the student on his or her progress within two weeks of the meeting, noting any concerns. Any concerns about the student's progress should be reported by the student's mentor to the CTS program by e-mail to CTSsupport@email.arizona.edu. If progress is not satisfactory, the CTS Co-Directors may issue a letter notifying the student their progress toward completing their degree is insufficient, with a clearly stated remediation plan including specific deadlines for required steps. In this case, a copy of the progress letter and remediation plan also will be shared with the Graduate College. If the student fails to complete specified remediation steps by the stated deadline(s), the CTS program may request that the Graduate College dismiss the student from the program.

## COURSEWORK

The Graduate College mandates that at least 30 units of coursework, including up to 6 units of thesis credit, be completed by all M.S. students. These courses must be graduate level (numbered 500 or above), and at least half of the required units (min. 15) must be letter-graded (i.e., A, B, C). Upon approval by the student's mentor and the CTS Director of Graduate Affairs, the equivalent of up to 6 graduate units can be transferred from an accredited graduate or professional school if the grade earned is "B" or better, and the course(s) was taken no more than 6 years before the planned M.S. completion. There are also limits on use of courses taken at UA in a professional degree program (e.g. Medicine or Pharmacy Practice) or in non-degree seeking status (see https://grad.arizona.edu/degree-services/degree-requirements/masters-degrees#credit-requirements). Incomplete grades must be resolved within one year; the student can have no more than 2 courses with incomplete grades to remain in good academic standing.

### WAIVERS/SUBSTITUTIONS FOR REQUIRED COURSES

In some cases, certain program requirements may be waived if equivalent coursework has been completed previously. Substitute courses at UA may also be used in place of normally required courses with the approval of the faculty mentor and the CTS Director of Graduate Affairs (or a CTS Co-Director). To request a waiver or substitution for a normally required course, the student should make a written request (which can be sent as an e-mail) to the faculty mentor and the CTS Director of Graduate Affairs (via CTSsupport@email.arizona.edu). Both the mentor and the Director of Graduate Affairs (or a CTS Co-Director) must approve the request for the student to be granted the waiver or substitution. The approved waiver or substitution is recorded on the CTS Course Substitution/Waiver Form, which is kept on file by the CTS Coordinator of Administrative Affairs. (The form can be downloaded from https://healthsciences.arizona.edu/academics/clinical-translational-sciences/programs/handbook-forms.)

## TRANSFER COURSES

Transfer credit from other institutions can be applied to an advanced degree if approved by the faculty mentor, the Director of Graduate Affairs and the Graduate College. The Graduate College will accept a transfer course if the grade earned is "B" or better, and it was awarded graduate credit at the institution where the work was completed (see https://grad.arizona.edu/degree-services/degree-requirements/masters-degrees#Transfer%20Credit). Because the Graduate College limits use of transfer courses to no more than 20% of the units required for a master's degree, a maximum of 6 units of transfer coursework may be used toward the requirements for the M.S. in CTS (i.e. 20% of the 30 units required). Use of courses from a professional college (including Medicine) toward a graduate degree is limited to no more than 12 units; according to Graduate College policy, professional courses may only be used if A/B/C letter grades were used to grade the courses, with the exception of courses taken at either of the University of Arizona's Colleges of Medicine. The first step for using transfer courses from another institution is to submit the Transfer Credit form in GradPath. (Instructions for using the Transfer Credit form are found at https://arizona.box.com/v/grad-gsas-transfercredit.) This form is reviewed by the Graduate College degree counselor, who will identify the courses that are eligible for transfer under their policy. Any courses marked eligible on the Transfer Credit form may then be included on the Plan of Study to count toward the M.S. degree requirements, subject to the approval of the faculty mentor and CTS Director of Graduate Affairs.

## PLAN OF STUDY

All coursework being counted toward the M.S. degree requirements, including transfer courses, must be listed on the Master's Plan of Study form. This form must be submitted in GradPath by all students during the first academic year in the CTS Program. The submitted Plan of Study will route online for approval by the CTS Director of Graduate Affairs, the faculty advisor (i.e. mentor) the student identifies on the form, the CTS Co-Director, and finally by the Graduate College. Instructions for preparing the Master's Plan of Study in GradPath are available at https://arizona.box.com/s/vmhkgbjh3r1t7a3qnvj72nq6roxtfz2z. Students with questions about GradPath may ask the CTS Director of Graduate Affairs or the Graduate College degree counselor (see http://grad.arizona.edu/tools/degreecounselors).

## SAMPLE CURRICULA INCLUDING REQUIRED COURSES

### Sample Curriculum for Tucson Students:

**Required Courses***

- Principles:
    - ***Fundamentals of Clinical Translational Science (CTS 500)*** – 4 units, offered every other Spring semester; OR
    - ***Molecular, Cellular and Cancer Biology (CTS 555A)*** – 6 units, offered Fall semester *[for post-baccalaureate students]*;
    - ***Principles of Clinical Research I or II (CTS 501 and/or CTS 502)*** – 4 units each, offered Fall and Spring semester, respectively; OR

  - ***Principles of Surgery*** or ***Principles of Medicine (CTS 610 or CTS 620A/B/C)*** – 3-6 units *[for postgraduate students]*.
- Professional Development Series - minimum 4 units, including:
  - ***Responsible Conduct of Research (CTS 595C)*** – 1 unit/semester; taken Fall and Spring semesters [required]

  And an additional 2 units chosen from:
  - ***Individualized Scientific Writing (CTS 585)*** – 2 units; OR
  - ***Professional & Career Training Series (CTS 595D)*** – 2 units, offered each Fall semester;
  - Or similar courses in other departments by prior approval of the CTS program.
- Biostatistics:
  - ***Biostatistics in Public Health (BIOS 576A)*** – 3 units, offered in person each Fall and fully online each Spring semester.
- Seminar and/or journal club/colloquium – 2 units total (1 unit per enrollment; 2 total enrollments), including any of the following:
  - CTS seminar options available to Tucson students include ***Medical Sciences Seminar (CTS 696A)***, ***Biomedical Sciences Seminar (CTS 696B)***, or ***Neuroscience Research in Progress (CTS 696N)***. *Students may earn credit in CTS 696A for attendance at relevant grand rounds series in a clinical department.***
  - The CTS journal club/colloquium course available to Tucson students is ***Biomedical Sciences Journal Colloquium (CTS 595)***. Topic-specific sections of CTS 595 are offered as available in either Fall or Spring semester. *Postgraduate students may earn credit in CTS 595 for participation in clinical case conferences or a clinical department journal club.***
  - Any seminar or journal club/colloquium course offered by another graduate program.
- ***Thesis (CTS 910)*** – 6 units total; available any semester for 1-9 units by request to CTS.

* May substitute other courses with CTS approval with the exception of CTS 910.
** Seminar or journal club credit for activities other than CTS courses toward M.S. requires prior approval from CTS.

**Elective Options**

Students may use any graduate courses approved by their faculty mentor and CTS as electives to meet the remaining M.S. unit requirements.

## Sample Curriculum for Phoenix Students:

**Required Courses** *

- Principles:
  - ***Molecular, Cellular and Cancer Biology (CTS 555A)*** – 6 units, offered Fall semester; OR
  - ***Fundamentals of Clinical Translational Science (CTS 500)*** – 4 units, offered every other Spring semester; OR
  - Either ***Principles of Clinical Research I or II (CTS 502 or CTS 503)*** - 4 units each), offered Fall and Spring semester, respectively; OR
  - ***Principles of Surgery or Principles of Medicine (CTS 610 or CTS 620A/B/C)*** – 3-6 units, any semester *[for postgraduate students]*
- Professional Development Series - minimum 4 units chosen from:
  - ***Responsible Conduct of Research (CTS 595C)*** – 1 unit/semester; taken Fall and Spring semesters [required]

  And an additional 2 units chosen from:
  - ***Individualized Scientific Writing (CTS 585)*** – 2 units, any semester by request to CTS; OR
  - ***Professional & Career Training Series (CTS 595D)*** – 2 units, offered Fall semester;
  - Or similar courses in other departments with CTS approval.
- Biostatistics:
  - ***Biostatistics in Public Health (BIOS 576A)*** – 3 units, offered fully online/asynchronous in Spring semester.
- Seminar and/or journal club/colloquium – 2 units total (1 unit per enrollment; 2 total enrollments).
  - Seminar options available to Phoenix students include ***Medical Sciences Seminar (CTS 696A)***, ***Biomedical Sciences Seminar (CTS 696B)***, or ***Neuroscience Research in Progress (CTS 696N)***. *Students may earn credit in CTS 696A for attendance at relevant grand rounds series in a clinical department.***
  - The journal club/colloquium course available to Phoenix students is ***Biomedical Sciences Journal Colloquium (CTS 595)***. Topic-specific sections of CTS 595 are offered as available in either Fall or Spring semester. *Postgraduate students may earn credit in CTS 595 for participation in clinical case conferences or a clinical department journal club.***
  - Any seminar or journal club/colloquium course offered by another graduate program based in Tucson if available for remote enrollment.
- ***Thesis (CTS 910)*** – 6 units total; available any semester for 1-9 units by request to CTS.

* May substitute other courses with CTS approval with the exception of CTS 910.
** Seminar or journal club credit for activities other than CTS courses toward M.S. requires prior approval from CTS.

**Elective Options**

Students may use any graduate courses approved by their faculty mentor and CTS as electives to meet the remaining M.S. unit requirements.

Note: Phoenix students who find a course of interest that is offered in Tucson (and not via online instruction) may ask the CTS Director of Graduate Affairs to contact the offering department/program to ask whether the student can join the course and participate remotely from Phoenix.

## INDIVIDUAL DEVELOPMENT PLAN

Starting in the first year, the student is expected to work with their mentor to complete a CTS Individual Development Plan (IDP) annually for submission to CTS by October 1. (A student who has not yet selected a mentor should complete the IDP independently.) The IDP is a tool for students to ensure they achieve the academic and professional goals they wish to meet during their time in the CTS program.

The student should discuss the annual IDP with their faculty mentor to develop an action plan to better achieve career goals and work-life balance. The IDP review can include discussion plans for laboratory rotations, elective courses, publications and conference presentations, clinical case conferences, biotechnology industry internships, or any other activities relevant to the student's goals. This annual process will assist with the rigorous process of introspection required to create an optimized career path. The annual IDP should be completed and discussed with the mentor by October 1 of each year, beginning with the student's first year in the program. CTS IDP forms are available online at https://cts.uahs.arizona.edu/programs/forms.

The completed IDP should be submitted to CTS at CTSsupport@email.arizona.edu no later than October 1 of each year. The CTS program collects the IDP to ensure it is completed, but does not review or respond to each student's IDP.

## MASTER'S THESIS

### THESIS COMMITTEE

As soon as possible after selecting a faculty mentor, the student forms a Thesis Committee to help the student select a thesis topic and oversee the thesis research. A postgraduate student normally forms the Thesis Committee by the end of the first semester in the program; a post-baccalaureate student may form the Thesis Committee in the second or even third semester. The Thesis Committee must meet the requirements of the Graduate College as stated in the policy at https://grad.arizona.edu/degree-services/degree-requirements/masters-degrees#thesis-committee. The student's faculty mentor serves as Chair of the Thesis Committee. The student reports the Thesis Committee on the Master's Committee Appointment Form in GradPath. (Note that this form is available to the student once the Plan of Study has been approved.) Any questions regarding the status of a faculty member for service on a graduate committee may be directed to the CTS Program at CTSsupport@email.arizona.edu.

## THESIS PROPOSAL AND THESIS COMMITTEE MEETINGS

Once the student has formed the Thesis Committee, he or she should prepare a proposal outlining the research question to be examined in the thesis. The significance of the proposed research question should be briefly explained (with reference to literature as needed), and the student should present a research plan for addressing the chosen question. The student will send the proposal to the Thesis Committee members and arrange for a meeting of the Committee to discuss the proposal. The Committee must agree to accept the thesis proposal – and may suggest any needed modifications to the research plan – before the student begins the thesis research. The Committee may also consider and decide on a request from the student to use the manuscript-based format for the thesis if desired (see Standard or Manuscript-Based Thesis section below).

When the student's thesis proposal has been accepted and the research is underway, the student should work with the Committee to ensure they are aware of developments in the research. The student may ask the Committee to meet one or more times to provide guidance, or he or she may seek feedback or advice from Committee members individually or collectively by other means (e-mail, phone, one-to-one meetings, etc.). It is incumbent on the student to keep the Committee informed of the state of the thesis research and thesis preparation.

## STANDARD OR MANUSCRIPT-BASED THESIS

The CTS Program and the Graduate College allow master's students to prepare the thesis in either the standard chapter-based format or a format in which the substance of the thesis research is presented as one or more manuscripts prepared for publication (as in professional journals). The Thesis Formatting Guide available from the Graduate College at https://arizona.app.box.com/v/grad-gsas-thesisformat outlines the formatting requirements for either form of thesis. A manuscript-based thesis presents the manuscripts as appendices and must also include one or more chapters that summarize the research presented in the manuscripts, situate it in the context of the discipline and clarify the student's contribution to any shared research. Simply compiling the manuscripts without this contextual information is not acceptable.

A student who wishes to prepare a manuscript-based thesis must have that decision approved by the Thesis Committee. The student should ask the Committee for approval to use the manuscript-based format at an early stage to ensure he or she is preparing an acceptable thesis. Students are encouraged to submit manuscripts for publication in professional journals regardless of the format of the final thesis.

## THESIS DEFENSE

Once the student and Thesis Committee agree that the thesis is complete and ready to defend, the student will arrange a date and time for the thesis defense with the Committee. The thesis defense date should be set far enough in advance of the end of the graduation semester or term to allow for the student to make any post-defense revisions and still meet the Graduate College deadline for submitting the thesis for archiving (see Submission of Thesis for Archiving section below). Once the thesis defense date and time are set, the student should contact the CTS Coordinator of Administrative Affairs (via e-mail

to CTSsupport@email.arizona.edu) for assistance in reserving a room and/or arranging videoconferencing (via Zoom or other means) for the defense and to have the defense announced to the CTS student body.

At least one week prior to the thesis defense (or longer in advance if the committee requires), the student must send the penultimate copy of the thesis to the Thesis Committee members to review. The thesis defense consists of a public presentation of the thesis research by the student, followed by questions from the Thesis Committee that are not open to the public. The Thesis Committee will deliberate without the student present following the defense. The Committee will either approve the thesis at this point, or they may require final revisions of the thesis by the student. If final revisions are required, the Committee decides whether the Chair (i.e. the faculty mentor) will be solely responsible for review of the revisions, or if the full Committee will review them.

The Chair will inform the student and the CTS Executive Committee (via e-mail to CTSsupport@email.arizona.edu) when the thesis receives final approval with any final revisions accepted. The CTS Director of Graduate Affairs will report to the Graduate College in GradPath that the student has satisfied the requirements for the degree, releasing the Graduate College to accept the thesis submission for archiving and, upon completion of the submission, to award the student's degree. This results in the addition of the Master's Completion Confirmation form to the student's forms in GradPath; i.e. the student does not submit the completion confirmation form him- or herself. The student is still responsible for completing the final submission of the thesis to the Graduate College for archiving (see below).

## SUBMISSION OF THESIS FOR ARCHIVING

Once the student receives final approval of the thesis from the Thesis Committee, the final requirement is to submit the thesis to be archived. The Graduate College reviews the thesis, which will ultimately be archived in the national archive of dissertations and theses maintained by ProQuest and in the UA Campus Repository. The link for the online submission site and the other steps required to complete the archiving procedure are provided on the Graduate College web site at https://grad.arizona.edu/degree-services/dissertaions-theses/submitting-and-archiving-your-thesis.

For a student to qualify for graduation in a particular semester or term, he or she must submit the final, approved thesis for archiving by the Graduate College's deadline for completing master's requirements. These deadlines are posted at https://grad.arizona.edu/degree-services/degree-requirements/important-degree-dates-and-deadlines. The Thesis Committee must give final approval to the thesis before it is submitted for archiving. If the student's initial online submission to the Graduate College is made by the stated deadline, the student will qualify for graduation in that semester or term upon completion of the submission (i.e. following any formatting revisions or submission of supporting documents requested by the Graduate College).

Once the student completes all steps of the thesis submission procedure, including Graduate College acceptance of the submitted thesis as properly formatted, the M.S. degree will be awarded. The degree

can be officially awarded once the graduation semester or term has ended. A student who completes the thesis submission procedure before the end of the graduation semester or term may request a Certificate of Completion of Degree Requirements from the Graduate College if he or she needs to provide proof the degree has been completed.

## FINANCIAL SUPPORT AND FUNDING

Financial assistance for M.S. students is dependent on the availability of funds by individual laboratories. M.S. students are responsible for finding their own funding to complete the program. The resources (supplies, laboratory or clinic costs, etc.) required to complete the Thesis Research project typically will be supplied by the faculty mentor. M.S. students may be able to find a faculty mentor who can offer them funding. If funding from the mentor is essential, the student should ask a faculty member about availability of funding before beginning a research rotation in search of mentorship.

## REQUIRED ENROLLMENT AND LEAVE OF ABSENCE

The Graduate College continuous enrollment policy (https://grad.arizona.edu/degree-services/degree-requirements/masters-degrees#continuous-enrollment) requires master's students to enroll in at least 1 unit for graduate credit each Fall and Spring semester. A student graduating in Summer or Winter term who maintained continuous enrollment through the preceding semester (Spring or Fall) and has fulfilled all other degree requirements is not required to enroll in order to complete, defend and/or archive the master's thesis. A student who is graduating in Summer or Winter without enrolling for credit may secure continued library privileges by requesting enrollment in the zero-unit course GRAD 922 by e-mail to CTSsupport@email.arizona.edu. (Please note that "continuous enrollment" is not the same as "full time enrollment" for financial aid or visa purposes. Please refer to the University policy on Full-Time Status.)

A student who needs to take one or more semesters off without enrolling should request a Leave of Absence from the Graduate College. The Leave of Absence request form is available in the GradPath student forms system, which is incorporated in UAccess. Instructions for submitting a Leave of Absence request in GradPath are found at https://grad.arizona.edu/degree-services/gradpath/graduate-petition-and-graduate-petition-user-guides. Leave of Absence requests are typically approved unless the Leave will present an obstacle to completion of the degree. The Graduate College will send an e-mail to the student to confirm the Leave has been granted.

## SATISFACTORY ACADEMIC PROGRESS

A high level of performance is expected of students enrolled in a graduate degree program. In addition to maintaining a minimum 3.0 GPA as required by the Graduate College, students are required to demonstrate satisfactory academic progress toward degree completion. The CTS Program and each student's faculty mentor regularly review the student's activities in the program to ensure the student is making progress toward completing the M.S. degree. An evaluation of "not making Satisfactory Academic Progress" is grounds for potential removal of funding by the mentor and/or potential dismissal from the CTS Program. Students judged not to be making sufficient academic progress (e.g. due to poor grades,

failing or at risk of failing to satisfy program requirements, difficulty forming a committee or selecting an acceptable thesis topic, etc.) will receive written notice from the CTS Program. The notice will include specific instructions for steps the student must take to remediate the situation and the date(s) by which such actions must be taken. Failure to satisfy the stated requirements by the given deadlines may result in the CTS Program recommending to the Graduate College that the student be dismissed from the M.S. program.

The Graduate College has established guidelines which departments must follow in order to dismiss graduate students from their programs. Students should familiarize themselves with the details of this process so they will know their rights, responsibilities, and remedies should such a situation develop. The procedure for disqualifying a student from a graduate program is outlined at https://grad.arizona.edu/policies/academic-policies/satisfactory-academic-progress. Students who fail to remediate academic problems by the deadlines specified by the CTS Program risk dismissal from the program.

If a CTS M.S. student receives a written warning from the CTS Executive Committee or faculty mentor that he or she is not making satisfactory progress toward completing the degree, he or she may appeal that decision to the CTS Co-Directors. The appeal must be sent to the Co-Directors via e-mail to CTSsupport@email.arizona.edu no more than 7 days after the warning is issued. The student's appeal should provide any information or justification the student wishes the CTS Co-Directors to consider. The Co-Directors will respond to the student in writing (by e-mail or other means) no more than 7 days after receiving the student's appeal. The decision of the CTS Co-Directors regarding the appeal is final in determining whether the program will recommend dismissal from the M.S. program to the Graduate College.

## M.S. GRADUATE CONTINUING TO PH.D. PROGRAM

A CTS M.S. student who wishes to continue his or her studies in pursuit of the Ph.D. in CTS must apply for admission to the Ph.D. program. All normal application steps must be completed, and the same admission requirements for the Ph.D. program apply to current CTS M.S. students or CTS M.S. graduates as to other applicants. Details of the application process are found in the "Application to the CTS Program" section of this handbook. The Ph.D. application will be considered on a competitive basis with other Ph.D. applications in the same admission cycle; a student who is successfully pursuing (or has completed) the CTS M.S. degree and who has an identified faculty mentor prepared to work with them for the Ph.D. will have a strong application for Ph.D. admission.

M.S. students should think early about whether they are interested in pursuing the Ph.D. as well. The application to the Ph.D. program must be made well in advance of the Fall semester when the student plans to begin the program – application deadlines are found in this handbook (in the "Application to the CTS Program" section) or on the Graduate College web site at http://grad.arizona.edu/programs/programinfo/CLTRSCIPHD.

# DOCTORAL PROGRAM

At the University of Arizona, the Graduate College defines general goals and requirements for the doctoral program. Within the parameters set by the Graduate College, the CTS Program establishes specific requirements for CTS Ph.D. students. The overall aims are to ensure:

- sufficient breadth of knowledge in Clinical Translational Sciences
- sufficient depth of knowledge in the student's area of specialty
- sufficient breadth of knowledge in the student's Minor subject
- rigorous research training
- professional development training (writing, speaking, critical evaluation of the literature, grant crafting)

In addition, the guidelines and requirements that are described in this handbook have been established to ensure the protection of student interests and successful completion of the doctoral degree in a timely manner. The student is expected to comply with the regulations of the Graduate College with respect to coursework and dissertation unit requirements, the comprehensive examinations, and preparation, defense and archiving of the dissertation. A high level of performance is expected of students who are enrolled in the CTS Program, and students are expected to take responsibility for ensuring they are meeting the Program requirements in a timely manner. Students must maintain a grade point average of 3.00 (letter grade of B) or better to receive financial support and to be awarded a Ph.D. degree.

Students are expected to know and abide by the Graduate College's degree policies for the Ph.D., available at Doctor of Philosophy | Graduate College, in addition to the requirements of the CTS program detailed in this handbook.

## PROGRAM TIMING

### APPLYING TO THE CTS PH.D. PROGRAM

The following is a list of recommended actions necessary for admission to and completion of the CTS Ph.D. Program. Any questions may be directed to CTSsupport@email.arizona.edu.

1. Applicant expresses interest and asks any initial questions. Initial inquiries may be directed to CTSSupport@email.arizona.edu.
2. Applicant applies to the Graduate College using the online admission application, GradApp (http://apply.grad.arizona.edu/). All requested documents must be uploaded and at least two people who can provide professional letters of recommendation must be identified. Note that applications should specify the Main (Tucson) or Phoenix campus – admission requirements are the same for both campuses. Questions about the online application may be directed to Graduate Admissions (520-621-3471 or gradadmissions@grad.arizona.edu).

3. Test scores for admission: Applicants are not required to submit GRE scores. International students from non-English speaking countries are required to submit scores from any of the accepted English proficiency exams (see http://grad.arizona.edu/admissions/requirements/international-applicants#english-proficiency).

## PROGRAM REQUIREMENTS

Note that the timeline presented below is the ideal timing of steps a post-graduate student should take. Post-baccalaureate students may proceed somewhat more slowly – e.g. they may form the Comprehensive Examination Committee early in their second year in the program and take the Comprehensive Examination close to the end of the second year rather than the first. All students, however, must submit the Individual Development Plan by October 1 of each year, and submit the Annual Progress Report at the end of each academic year, no later than June 1.

### 1ST SEMESTER

1. After accepting admission, the student registers for classes for the first semester. Questions about initial course enrollment may be directed to CTSsupport@email.arizona.edu. Students should take at least some of the required courses for the Ph.D. in the first semester (see Sample Curricula for post-baccaluareate or post-graduate students below). Students enroll themselves via the UAccess Student Center (see instructions at How to Register for Classes | Office of the Registrar) with the exception of select courses requiring departmental permission to enroll, including 900-level courses (CTS 900, Research, and CTS 920, Dissertation) and CTS 585 (Individualized Scientific Writing). Enrollment in departmentally controlled courses should be requested from the CTS Program by e-mail to CTSsupport@email.arizona.edu. Note that students must have a current vaccination for measles and mumps on file with the Campus Health office prior to registering (see https://www.health.arizona.edu/immunization-requirements).
2. Student begins process of selecting a mentor. Except for students who may have already identified a faculty mentor, students should contact potential faculty mentors to request a lab rotation. Most rotations last approximately 2 months, at the discretion of the hosting faculty member, making it possible to complete two rotations in the first semester. Students seeking faculty for rotations may request assistance if needed from a CTS Co-Director or the Director of Graduate Affairs to identify suitable faculty given their research interests.
3. By October 1, all students complete the CTS Individual Development Plan (IDP) and review it with their assigned advisor or research mentor.

### 2ND OR 3RD SEMESTER

4. Student selects a doctoral minor and minor faculty advisor. The student works with the CTS advisor/mentor and minor advisor to prepare a doctoral Plan of Study including all current and future coursework to be counted toward the degree requirements. Students may use the form "Tracking Progress Toward Completion of Ph.D. Requirements" found on the CTS website to

ensure their planned major and minor courses will satisfy all CTS and Graduate College requirements. The student submits the Plan of Study via GradPath, the Graduate College's online student forms system (see user guide for Doctoral Plan of Study at https://grad.arizona.edu/degree-services/gradpath/gradpath-user-guides). The Plan of Study should be submitted in the second semester if possible, but no later than the third semester in the program.

5. Student selects the Comprehensive Exam Committee, including at least one member to represent the minor program. The Graduate College's requirements for the comprehensive exam committee are found at https://grad.arizona.edu/degree-services/degree-requirements/doctor-philosophy#comprehensive-exam-committee. The student must submit the Comprehensive Examination Committee Appointment Form in GradPath and have that form as well as the Doctoral Plan of Study approved prior to beginning the written Comprehensive Exam process with their committee. The CTS comprehensive examination process is detailed, with specific steps and timelines, in the document "CTS Ph.D. Comprehensive Examination Procedure" available on the program's website.

2ND SEMESTER

6. Any student who has not yet selected a faculty mentor may wish to continue lab rotations and/or interviews with prospective mentors. Post-graduate students in particular should focus on finding a mentor by early in the second semester.
7. The written comprehensive exam should be scheduled by the end of the first year of study for postgraduate students, or by the end of the second year of study for post-baccalaureate graduate students. The first step in scheduling the exam is for the student to convene a meeting of the approved Comprehensive Examination Committee, including the member(s) representing the minor. The CTS written comprehensive exam will consist of preparation of a research proposal similar to an NIH NRSA fellowship application. (See the Comprehensive Examination section below for details.) Note that the minor program has the right to administer a written exam according to their program rules or may waive the written exam if they choose. The student should contact the graduate program coordinator or Director of Graduate Studies for the minor, if not declared as CTS, in advance to determine the minor's written comprehensive examination requirement (see http://grad.arizona.edu/tools/programcontacts). The Graduate College's policy regarding the comprehensive examination is available online at https://grad.arizona.edu/degree-services/degree-requirements/doctor-philosophy#comprehensive-exam.
8. Student schedules and completes the Oral Comprehensive Exam after passing the written exam(s). Once the CTS written comprehensive examination and any for the minor have been approved, the student will set the date and time for the oral exam with the Comprehensive Examination Committee members. The CTS Coordinator of Administrative Affairs can assist with reserving a room for the exam if needed. The student must submit the Announcement of Doctoral Comprehensive Exam form in GradPath to formally schedule the oral comprehensive exam. Following the oral exam, the Committee Chair will submit the Results of Comprehensive

Exam form in GradPath to report the exam results on behalf of the full committee. A student who has passed the Comprehensive Examination (written and oral) and has completed the coursework on the Plan of Study (aside from the Dissertation units) will be advanced to doctoral candidacy by the Graduate College; the Graduate College advises the student of the advancement by e-mail.

9. [*All students*:] By June 1, each student must prepare an Annual Progress Report (APR) consisting of a narrative describing their progress, including courses and grades, an update on their research projects or activities, a list of any current publications, and a description of any other academic activity (e.g. presentations at conferences). The student submits the APR to their faculty mentor to review and add their comments. The completed APR must be submitted to the CTS program (via e-mail to CTSsupport@email.arizona.edu) no later than June 1. All Annual Progress Reports will be reviewed by the CTS Executive Committee, which will respond to each student in writing by August 1. If progress is not satisfactory, the CTS program will identify changes or improvements the student must make. If necessary, the CTS program may issue a warning letter with a clearly stated remediation plan to the student. The remediation plan will include specific steps with required completion date(s); failure to remediate by the stated deadline(s) may risk dismissal from the Program.

3RD SEMESTER

10. By October 1, the student completes the second-year CTS Individual Development Plan and meets with their mentor to discuss it, including career goals and action items.
11. Students continue to register for and complete courses on Plan of Study, including required courses listed in Sample Curricula below and courses for minor, as well as elective courses to complete the overall units needed for the degree.
12. *All students who have passed the Comprehensive Examination* should select a Dissertation Committee. The student must submit the Dissertation Committee Appointment form in GradPath to have the Committee formally approved. The composition of this committee may be the same as the Comprehensive Exam Committee or can be different. The Dissertation Committee section below provides more detailed information.
13. *Students who have passed the Comprehensive Examination and formed a Dissertation Committee* must prepare and submit a Dissertation Research Proposal for review and acceptance by the Dissertation Committee. The format of this research proposal can be designated as needed by the Dissertation Committee. After the Committee has approved the dissertation proposal, the Committee Chair (i.e. the faculty mentor) will send a copy of the approved Proposal to the CTS program at CTSsupport@email.arizona.edu; the CTS Director of Graduate Affairs will then submit the Prospectus/Proposal Confirmation form in GradPath on behalf of the student to confirm the program has the approved proposal on file. More information about the Dissertation Proposal and subsequent steps in completion of the dissertation are found below in the Dissertation Timeline section.

## 3RD-4TH SEMESTER

14. Students who have an approved Dissertation Proposal may begin to request enrollment in dissertation units (CTS 920) and perform dissertation research. They should also convene semiannual meetings with the Dissertation Committee to apprise them of progress in the research and get advice and feedback.
15. Student should continue to register for and complete any remaining courses on Plan of Study, including required courses listed in Sample Curricula below and courses for minor, as well as elective courses they are using toward their degree.
16. [*All students*:] By June 1, each student must prepare an Annual Progress Report (APR) consisting of a narrative describing their progress, including courses and grades, an update on their research projects or activities, a list of any current publications, and a description of any other academic activity (e.g. presentations at conferences). The student submits the APR to their faculty mentor to review and add their comments. The completed APR must be submitted to the CTS program (via e-mail to CTSsupport@email.arizona.edu) no later than June 1. All Annual Progress Reports will be reviewed by the CTS Executive Committee, which will respond to each student in writing by August 1. If progress is not satisfactory, the CTS program will identify changes or improvements the student must make. If necessary, the CTS program may issue a warning letter with a clearly stated remediation plan to the student. The remediation plan will include specific steps with required completion date(s); failure to remediate by the stated deadline(s) may risk dismissal from the Program.

## YEAR 3 AND BEYOND

- By October 1 of each academic year, each student must complete a CTS Individual Development Plan and meet with their mentor to discuss career goals and action items.
- The student should continue the dissertation research and conduct semiannual meetings with the Dissertation Committee. The student should continue to request enrollment in Dissertation units as needed by contacting the CTS Director of Graduate Affairs. Remember that all Ph.D students must enroll in a total of 18 units of Dissertation Research (CTS 920) by their final semester in order to graduate.
- By June 1 of each year, each student must submit the Annual Progress Report with comments from their faculty mentor to the CTS program for the CTS Executive Committee to review.

## PENULTIMATE SEMESTER

The student should hold a meeting with the Dissertation Committee to present final research data and receive permission to proceed with writing the dissertation. The mentor or Dissertation Committee members may give advice about the proposed organization and contents of the dissertation. If the student may wish to present the dissertation using the manuscript-based format rather than in standard chapter-based format, they should discuss this with the Dissertation Committee to get their approval. (The manuscript-based format is explained in

section IV of the Graduate College's Dissertation Formatting Guide.)

## FINAL SEMESTER

The dissertation must demonstrate the student's ability to conduct original research and must meet required standards of scholarship. The quality and accuracy of the writing will represent the student's knowledge and professionalism, so it is vital to proof-read carefully and correct the document thoroughly. The required format for preparation of the dissertation is described in the Dissertation Formatting Guide, available at https://arizona.box.com/grad-gsas-dissformat.

When the Dissertation Committee agrees the student is ready to defend the dissertation, the student works with the Committee to determine a date and time for the Final Oral Defense of the dissertation. Because the Graduate College's deadline for completing a Ph.D. falls before the end of the semester, the student should be sure to consult the deadline for the final dissertation submission for archiving (following the defense) and plan the Final Oral Defense early enough to be able to meet the deadline – deadlines are published at https://grad.arizona.edu/degree-services/degree-requirements/important-degree-dates-and-deadlines. The student must pass their dissertation defense and gain final approval of the dissertation from the Dissertation Committee (after completing any revisions the Committee requires following the defense) before making their online submission for archiving to meet the Graduate College's deadline. Penultimate copies of the completed dissertation manuscript must be distributed to the Dissertation Committee members far enough in advance of the Final Oral Defense to allow the committee time to read the draft before the defense date. The CTS Coordinator of Administrative Affairs can assist with reserving a room for the defense if needed.

The date, time and location of the Final Oral Defense should ideally be scheduled with the Graduate College at least three (3) weeks in advance of the presentation using the Announcement of Final Oral Defense form in GradPath. The Graduate College will announce the defense to the University community and the public on the UA Master Calendar. Because UA is a public, land-grant university that is expected to share its scholarship with the public, the Final Oral Defense should be scheduled during normal business hours on days when the University is in session so it is open for anyone to attend. The CTS program also sets up a Zoom call for each student's dissertation defense to allow CTS students and faculty as well as the student's guests to attend remotely in order to hear the student present their dissertation research.

The initial seminar presentation (maximum one hour) is open to the public, but the Dissertation Committee's discussion with the student (maximum two hours) and subsequent deliberations are closed to the public. The Committee evaluates the candidate's performance and decides whether revisions to the written dissertation are required. The faculty mentor, as Chair of the Dissertation Committee, reports the outcome (Pass, Pass with Revisions, or Fail) in GradPath. Additional information from the Graduate College regarding the Final Oral Defense is available online at https://arizona.app.box.com/v/grad-gsas-finaldefnsinstr.

The final dissertation as approved by the Dissertation Committee (after completion of any post-defense revisions) is submitted electronically by the candidate to be archived. Instructions for completing the archiving procedure can be found at https://grad.arizona.edu/degree-services/dissertaions-theses/submitting-your-dissertation. The student's initial submission of the approved dissertation must meet the Graduate College's deadline to qualify for graduation in the desired semester or term; submission deadlines for the current year are found at https://grad.arizona.edu/degree-services/degree-requirements/important-degree-dates-and-deadlines. Once the archiving procedure is completed, the dissertation is made available to the public in the UA Campus Repository and in the national archive maintained by ProQuest. (The student may elect to have the dissertation withheld from the public temporarily or permanently if needed.) Once the Graduate College has accepted the dissertation submission and the end of the graduation semester/term has been reached, the Graduate College will award the Ph.D. degree.

Questions regarding submitting forms and/or deadlines should be directed to the CTS Director of Graduate Affairs and may be e-mailed to CTSsupport@email.arizona.edu.

## COURSEWORK

### MINIMUM REQUIREMENTS

The Graduate College's minimum course requirements for the Ph.D., exclusive of the dissertation, are 36 units of coursework counted toward the major and 9 units toward the minor the student declares. Students declare a minor, either one offered by a different graduate program or by proposing a topic with appropriate courses as a minor in CTS. (Note that some programs require more than the minimum 9 units for their minor.) At least half of the required units of coursework (i.e. at least 22 of the minimum 45 units) must be in courses receiving regular letter grades (A, B or C), while the remainder may receive S or P grades. All courses used toward the Ph.D. must be taken for graduate credit, i.e. in courses numbered 500-799 or 900 and above (or be transfer courses that earned graduate credit). In addition to the major and minor coursework, all doctoral students are required to take a minimum of 18 units of dissertation (CTS 920) to complete the program. A course with an Incomplete grade must be completed within one year.

### WAIVERS/SUBSTITUTIONS FOR REQUIRED COURSES

In some cases, certain program requirements may be waived if equivalent coursework has been completed previously. Substitute courses may be used in place of normally required courses with the approval of the CTS program. To request a waiver or substitution for a normally required course, the student should make a written request (which can be sent as an e-mail) to the faculty mentor and the CTS Director of Graduate Affairs (via CTSsupport@email.arizona.edu). The CTS Co-Directors must approve the request for the student to be granted the waiver or substitution; they will typically ask to review the syllabus of the course the student has taken in order to determine whether it may substitute for a normally required course. The approved waiver or substitution is recorded on the CTS Course

Substitution/Waiver Form, which is kept on file by the CTS Coordinator of Administrative Affairs. (The form is available from https://healthsciences.arizona.edu/academics/clinical-translational-sciences/programs/handbook-forms.)

## TRANSFER COURSES

Transfer credit from other institutions can be applied to the Ph.D. requirements if approved by the faculty mentor, the CTS program and the Graduate College. The Graduate College will accept a transfer course if the grade earned is "B" or better, and it was awarded graduate credit at the institution where the work was completed (see https://grad.arizona.edu/degree-services/degree-requirements/doctor-philosophy#credit-requirements. A maximum of 30 units of transfer coursework may be used toward the Ph.D. requirements under Graduate College policy; the CTS program may restrict the use of transfer coursework to a smaller number of total units. Use of courses from a professional college (including Medicine) toward a Ph.D is limited to no more than 12 units; according to Graduate College policy, professional courses may only be used if A/B/C letter grades were provided for the courses, with the exception of courses taken in the M.D. program at either of the University of Arizona's Colleges of Medicine. All Ph.D. students must take a minimum of 12 units of graduate coursework receiving A/B/C letter grades at the University of Arizona in order to establish their graduate GPA as noted in the Graduate College's policy.

The first step for a student who plans to use transfer courses from another institution is to submit the Transfer Credit form in GradPath. Instructions for using the Transfer Credit form may be found at https://arizona.box.com/v/grad-gsas-transfercredit. This form is reviewed by the Graduate College, who will identify courses that are eligible for graduate transfer credit under their policy and designate the unit value of each prospective transfer course. Any courses marked eligible on the Transfer Credit form may then be included on the Plan of Study to count toward the Ph.D. coursework requirements, subject to the approval of the faculty mentor and CTS program.

## PLAN OF STUDY

All coursework being counted toward the major and minor requirements for the Ph.D, including transfer courses, must be listed on the Doctoral Plan of Study form submitted in GradPath. This form should be submitted by all students during the first or second year in the CTS Program once they have selected a faculty mentor, but no later than the student's fourth semester. The student officially declares their doctoral minor on the Plan of Study, including the courses they will use for the minor. The Plan of Study must be approved in GradPath by the faculty mentor (as major advisor), the minor advisor designated by the student and the Director of Graduate Studies for the minor, and by the CTS program and Graduate College.

Instructions for completing the Doctoral Plan of Study are available at https://arizona.box.com/s/1s1ecsf35mvrlxnlbe97vtjfafoo2cbj. Students with questions about GradPath may ask the CTS Director of Graduate Affairs or the Graduate College degree counselor (see http://grad.arizona.edu/tools/degreecounselors). Students may wish to use the form "Tracking Progress

Toward Completion of Ph.D. Requirements" available on the CTS website at https://healthsciences.arizona.edu/academics/clinical-translational-sciences/programs/handbook-forms to check that their courses for their major and minor will satisfy all CTS and Graduate College requirements. Students may contact the CTS Director of Graduate Affairs at CTSsupport@email.arizona.edu with any questions.

## SAMPLE CURRICULA INCLUDING REQUIRED COURSES

### Sample Curriculum for Tucson Students:

**Required Courses***

- Principles:
  - ***Fundamentals of Clinical Translational Science (CTS 500)*** – 4 units, offered every other Spring semester; OR
  - ***Molecular, Cellular and Cancer Biology (CTS 555A)*** – 6 units, offered Fall semester *[for post-baccalaureate students]*;
  - ***Principles of Clinical Research I and II (CTS 501 and CTS 502)*** – 4 units each, offered Fall and Spring semester, respectively, taken in either order; OR
  - ***Principles of Surgery*** or ***Principles of Medicine (CTS 610 or CTS 620A/B/C)*** – 3-6 units *[for postgraduate students]*.
- Professional Development Series - minimum 4 units, including:
  - ***Responsible Conduct of Research (CTS 595C)*** – 1 unit/semester; taken Fall and Spring semesters in either order [required]

  And an additional 2 units chosen from:
  - ***Individualized Scientific Writing (CTS 585)*** – 2 units, available any semester/term by request; OR
  - ***Professional & Career Training Series (CTS 595D)*** – 2 units, offered Fall semester;
  - Or similar courses in other departments by prior approval of the CTS program.
- Biostatistics:
  - ***Biostatistics in Public Health (BIOS 576A)*** – 3 units, offered in person in Fall or fully online/asynchronous in Spring
- Seminar and/or journal club/colloquium – 4 units total (1 unit per enrollment; 4 total enrollments), including any of the following:
  - CTS seminar options available to Tucson students include ***Medical Sciences Seminar (CTS 696A)***, ***Biomedical Sciences Seminar (CTS 696B)***, or ***Neuroscience Research in Progress (CTS 696N)***. *Postgraduate students may earn credit in CTS 696A for attendance at relevant grand rounds series in a clinical department.***
  - The CTS journal club/colloquium course available to Tucson students is ***Biomedical Sciences Journal Colloquium (CTS 595)***. Topic-specific sections of CTS 595 are offered as

available in either Fall or Spring semester. *Postgraduate students may earn credit in CTS 595 for participation in clinical case conferences or a clinical department journal club.***

- Any seminar or journal club/colloquium course offered by another graduate program.

- ***Dissertation (CTS 920)*** – 18 units total; available any semester for 1-9 units by request to CTS.

* May substitute other courses with CTS approval with the exception of CTS 920.
** Seminar or journal club credit for activities other than CTS courses toward Ph.D. requires prior approval from CTS.

**Elective Options**

Students may use any graduate courses approved by their faculty mentor and CTS as electives to meet the remaining Ph.D. unit requirements.

## Sample Curriculum for Phoenix Students:

**Required Courses** *

- Principles:
  - ***Molecular, Cellular and Cancer Biology (CTS 555A)*** – 6 units, Fall semester; OR
  - ***Fundamentals of Clinical Translational Science (CTS 500)*** – 4 units, Spring semester; OR
  - Either ***Principles of Clinical Research I and II (CTS 501 and CTS 502)*** - 4 units each), Fall/Spring, respectively, taken in either order; OR
  - ***Principles of Surgery or Principles of Medicine (CTS 610 or CTS 620A/B/C)*** – 3-6 units, any semester *[for postgraduate students]*
- Professional Development Series - minimum 4 units chosen from:
  - ***Responsible Conduct of Research (CTS 595C)*** – 1 unit/semester; taken Fall and Spring semesters in either order [required]

  And an additional 2 units chosen from:
  - ***Individualized Scientific Writing (CTS 585)*** – 2 units, any semester/term by request to CTS; OR
  - ***Professional & Career Training Series (CTS 595D)*** – 2 units, Fall semester;
  - Or similar courses in other departments with CTS approval.
- Biostatistics:
  - ***Biostatistics in Public Health (BIOS 576A)*** – 3 units [offered fully online/asynchronous in Spring semester].
- Seminar and/or journal club/colloquium – 4 units total (1 unit per enrollment; 4 total enrollments).
  - Seminar options available to Phoenix students include ***Medical Sciences Seminar (CTS 696A)***, ***Biomedical Sciences Seminar (CTS 696B)***, or ***Neuroscience Research in Progress***

***(CTS 696N)***. *Postgraduate students may earn credit in CTS 696A for attendance at relevant grand rounds series in a clinical department.***

- The journal club/colloquium course available to Phoenix students is ***Biomedical Sciences Journal Colloquium (CTS 595)***. Topic-specific sections of CTS 595 are offered as available in either Fall or Spring semester. *Postgraduate students may earn credit in CTS 595 for participation in clinical case conferences or a clinical department journal club.***
- Any seminar or journal club/colloquium course offered by another graduate program based in Tucson if available for remote enrollment.

- ***Dissertation (CTS 920)*** – 18 units total; available any semester for 1-9 units by request to CTS.

* May substitute other courses with CTS approval with the exception of CTS 920.
** Seminar or journal club credit for activities other than CTS courses toward Ph.D. requires prior approval from CTS.

**Elective Options**

Students may use any graduate courses approved by their faculty mentor and CTS as electives to meet the remaining M.S. unit requirements.

Note: Phoenix students who find a course of interest that is offered in Tucson (and not via online instruction) may ask the CTS Director of Graduate Affairs to contact the offering department/program to ask whether the student can join the course and participate remotely from Phoenix.

MINOR REQUIREMENTS

The Graduate College requires all Ph.D. students to complete a doctoral minor. The requirements for successful completion of a minor field of study are determined by the program in which the minor is obtained. All minors require at least 9 units per Graduate College policy, but some programs have a somewhat higher unit requirement. The course requirements or acceptable courses for each minor may be found in the Graduate College's program guide at https://catalog.arizona.edu/programs. Note that some minors may require courses unavailable to Phoenix students.

A student should identify a faculty member in the minor department or program to serve as Minor Advisor. If the student knows a faculty member in the minor program, he or she may ask that faculty member to serve as Minor Advisor. Students who have questions about a minor or need assistance in finding a Minor Advisor should contact the Graduate Coordinator in the graduate program of interest. (See http://grad.arizona.edu/tools/programcontacts for departmental contact information.) The Minor Advisor advises the student in selection of

courses for the minor. The Minor Advisor and Director of Graduate Studies must approve the minor coursework on the Plan of Study submitted by the student in GradPath. The minor is added to the student's official record when the Plan of Study receives final approval from the Graduate College.

Alternatively, a student may elect to declare a CTS minor, which should focus on a specific area within the biomedical sciences that is distinct from and complements the student's area of focus for their research and major coursework. The student and the faculty mentor must agree about the topic of the minor and the courses to be used. The student will designate a minor advisor on the Plan of Study to oversee the CTS minor; the minor advisor may be the student's faculty mentor or another faculty member who holds a CTS faculty appointment. The student and the minor advisor should select courses totaling a minimum of 9 units for the minor, including at least 6 units earning regular letter grades (A, B or C); these courses may be offered by CTS or by other graduate programs. The student, with the approval of the faculty mentor, will identify the subject of the minor and a brief rationale for the courses selected for the minor on the "Proposal for CTS Doctoral Minor" form (available on the CTS website at https://healthsciences.arizona.edu/academics/clinical-translational-sciences/programs/handbook-forms). The student will submit the signed form to CTSsupport@email.arizona.edu; the CTS Co-Directors will consider the request and will respond to the student informing her or him whether the request for the minor is approved. With approval of the minor from the CTS Co-Directors, the student will submit the Plan of Study in GradPath using the agreed courses to officially declare the CTS minor.

The comprehensive examinations cover both the major and the student's declared minor. When the student forms the comprehensive exam committee, a member or members must be included who can examine the student on the minor subject; a non-CTS minor may include specific requirements for minor faculty to be included on the committee. Typically the Minor Advisor is included on the comprehensive exam committee, but a different faculty member can be included instead if allowed by the minor, provided they can examine the student on the minor subject area to the satisfaction of the minor program. A student who declares a CTS minor does not need to complete a separate written comprehensive examination for the minor in addition to the normal written exam for the major. A minor outside CTS may administer a written comprehensive exam or may waive the minor written exam. In all cases the oral comprehensive examination covers both the major and minor subjects.

## INDIVIDUAL DEVELOPMENT PLAN

Starting in the first year, the student is expected to work with their mentor to complete a CTS Individual Development Plan (IDP) annually for submission to CTS by October 1. (A student who has not yet

selected a mentor should complete the IDP independently.) The IDP is a tool for students to ensure they achieve the academic and professional goals they wish to meet during their time in the CTS program.

The student should discuss the annual IDP with their faculty mentor to develop an action plan to better achieve their training and career goals and work-life balance. The IDP review can include discussion of plans for laboratory rotations, elective courses, clinical case conferences, conference presentations, publication of manuscripts, or any other activities relevant to the student's goals. This annual process will support the rigorous process of introspection required to create an optimized career path. The annual IDP should be completed and discussed with the mentor by October 1 of each year, beginning with the student's first year in the program. CTS IDP forms are available online at https://healthsciences.arizona.edu/academics/clinical-translational-sciences/programs/handbook-forms.

The completed IDP should be submitted to CTS at CTSsupport@email.arizona.edu no later than October 1 of each year. The CTS program collects the IDP to ensure it is completed, but does not review or respond to each student's IDP.

## ANNUAL PROGRESS REPORT

By June 1 of each year in the program, each Ph.D. student must prepare and submit an Annual Progress Report (APR). The APR consists of a narrative describing his or her academic progress, including courses and grades, a list of any recent publications, and a description of any other academic activity (e.g. presentations at conferences) as well as a brief summary of the student's progress in their research. The template for the APR is available online at https://cts.uahs.arizona.edu/programs/forms. The student submits the APR to the mentor/advisor (if selected) to add their comments regarding the student's progress and upcoming plans. By June 1, the completed APR with the mentor's comments is submitted via e-mail to CTSsupport@email.arizona.edu. All Annual Progress Reports will be reviewed by the CTS Executive Committee, which will respond to each student in writing by the beginning of August, including any recommendations for steps the student should take in the coming year. If progress is not satisfactory, the Committee will issue a clearly stated remediation plan to the student. The remediation plan will include specific steps with required completion date(s), and a copy of the remediation plan will be filed with the Graduate College. Failure to remediate by the deadline may result in dismissal from the Program.

## COMPREHENSIVE EXAMINATION

### OVERVIEW OF THE COMPREHENSIVE EXAMINATION AND THE DISSERTATION PROPOSAL

The Comprehensive Examination consists of written and oral components as required by the Graduate College. In the CTS Program, postgraduate students will normally complete the Comprehensive Examination at the end of their 1st year in the Program, while post-baccalaureate graduate students must complete the Comprehensive Examination by the end of their 2nd year in the Program. The Graduate College's policy regarding the Comprehensive Examination is found at

http://grad.arizona.edu/gsas/degree-requirements/doctor-philosophy#comprehensive-exam, immediately followed by the policy regarding the Comprehensive Examination Committee.

## OBJECTIVES OF THE COMPREHENSIVE EXAMINATION

a) To confirm the student has attained adequate breadth of knowledge in clinical translational sciences, as well as in the minor subject area, reflecting the material covered in the required courses.
b) To confirm the student has attained a sufficient depth of knowledge in selected sub-disciplines of translational sciences, including knowledge of the relevant literature, concepts and experimental approaches in the area of specialization.
c) To assess the student's ability to think clearly and independently about CTS topics and to express these thoughts orally and in writing.
d) To confirm the student's ability to prepare a formal request for research funding.

## TIMING OF THE COMPREHENSIVE EXAMINATION

The Comprehensive Examination will ordinarily take place soon after completing the required coursework, though the student may have a few remaining courses when they take the exam. All students should complete the Comprehensive Examination (written and oral) by the end of the second year in the Program (i.e. in the fourth semester or the Summer or Winter term that follows it). In exceptional circumstances, such as illness or a family crisis, students may petition the CTS Executive Committee for extension of the deadline by sending a request to CTSsupport@email.arizona.edu. The request should be made no later than one month before the end of the student's fourth semester in the Program. The CTS Executive Committee will respond with a decision within two weeks.

## THE COMPREHENSIVE EXAMINATION COMMITTEE

As described above, students will select a Comprehensive Examination Committee consisting of four or more members (including the faculty mentor), selected to reflect the student's specialized area of interest as well as the student's declared minor. The student's faculty mentor or another member may serve as Chair. The student should acquire the signature of each committee member on the CTS Ph.D. Comprehensive Exam Committee Agreement Form, available from https://cts.uahs.arizona.edu/programs/forms. (It is acceptable for different members to sign separate copies of this form.) The student submits the Agreement Form to the CTS Program via e-mail to CTSsupport@email.arizona.edu. The student must also submit the Comp Exam Committee Appointment form in GradPath to have the committee formally approved. Faculty members who join a Comprehensive Exam Committee or are considering doing so may consult the "Expectations for CTS Comprehensive Exam Committee Members" document at https://cts.uahs.arizona.edu/programs/forms.

The student will arrange a meeting of the members of the Comprehensive Examination Committee – including the member(s) representing the minor – before beginning work on the written comprehensive examination. At this meeting the general research interests and background of the student will be discussed. The student and committee will discuss a time-table for the Comprehensive Examination, and

the Committee will inform the student of its expectations, given the requirements detailed in this handbook. The Committee will also approve a specific NRSA application for the student to prepare as the Written Comprehensive Examination for the CTS major, and the student and Committee decide on a date by which the student will submit the completed NRSA application (see section 5 below). The Committee member(s) for the minor will explain to the student what the minor requires for the written comprehensive examination, and the minor member(s) and the student will determine the schedule for completing those requirements. (Note that the minor program may waive the written portion of the comprehensive examination; the major CTS Written Comprehensive Examination must be completed in all cases.)

The Chair of the Comprehensive Examination Committee will report to the CTS Executive Committee (by e-mail to CTSsupport@email.arizona.edu) that the initial Committee meeting has been held. The Chair will inform the CTS Executive Committee of the date when the student's major written examination will be due, as well as the specific NRSA application the student has been assigned to complete. The Chair will also report whether or not the student will complete a written comprehensive exam for the minor.

## THE WRITTEN COMPREHENSIVE EXAMINATION

### Major

To satisfy the CTS written comprehensive exam requirement, the student provides the Comprehensive Examination Committee with a written research proposal on the topic discussed in the earlier meeting. The student must submit the completed proposal by e-mail to all Committee members by the deadline set in the initial Committee meeting (see section 4 above). A Committee member representing the minor may vote and provide written feedback or may recuse him/herself from evaluation of the CTS written comprehensive exam.

The format of the written research proposal will follow the guidelines for National Research Service Award (NRSA) proposals submitted to the NIH, with two exceptions:

a. The Background & Significance section must be at least 5 pages long, but no longer than 8 pages long. This section must include a more in-depth discussion of alternative approaches and perspectives to the research problem than that which is being proposed. The goal of this requirement is to ensure that the student has a broad perspective on the research problem and is knowledgeable of multiple approaches that may be used to address the problem.
b. The research plan should be presented in 3 to 5 pages.

Information about NIH NRSA grant proposals and guidelines for preparing the proposal can be found at https://researchtraining.nih.gov/programs/fellowships. Students may use the F30, F31, F32 or F33 NRSA applications for completion of the CTS written Comprehensive Examination – the Comprehensive Examination Committee specifies which of these applications the student will prepare (see section 4 above).

This proposal is prepared without direct scientific input from the mentor, though advice on general aspects of grant writing is acceptable from the mentor and from others (faculty, students, and postdocs).

Further, the research project presented must not overlap significantly with proposed research from the Advisor. In other words, the student's proposal must not represent a simple reworking of proposed research in the Advisor's grants. Preliminary data are not required, but may be included if available. As a guideline, the students may review the style and content of sample grants available from NIH: (https://www.nichd.nih.gov/grants-funding/grants-process/application-samples/Pages/default.aspx).

The proposal will be reviewed by the members of the Comprehensive Examination Committee representing the CTS major. Each member reviews the proposal and provides feedback to the Committee chair within 2 to 3 weeks. The feedback includes a vote for "pass" (proceed to the oral exam), "provisional pass" (minor revisions which must be approved before scheduling oral exam), or "fail" (one opportunity to rewrite the proposal), in addition to suggestions or advice to the student about how the proposal might be strengthened. The standard for review is not competitiveness for funding in a Study Section. Rather, reviewers should decide whether the student has delineated an important scientific question and offered a reasonable experimental plan to address the question, while considering the interpretations and limitations of the results. The intention of the written critique is to provide constructive feedback on the proposal, as well as to provide the student with a sense of how grant applications are reviewed. Given the early stage of the students, some shortcomings in the proposal are anticipated and acceptable.

No later than 4 weeks after the student submits the proposal, the Chair will determine the committee's decision: "Pass," "Provisional Pass" (with revisions required), or "Fail." The Chair will also compile all relevant written feedback from the Committee members to provide to the student. If the Committee's initial decision was a "provisional pass," the student will have to complete the needed revisions and resubmit the proposal within 2 weeks. If the Chair feels the Committee should meet once more to come to a consensus decision, he or she will request an additional 1 or 2 weeks by e-mailing the CTS Executive Committee at CTSsupport@email.arizona.edu. The CTS Executive Committee will respond within two business days and will notify the student if the Committee's request for additional time is approved. Students should not interpret the need for additional time as an indication they have performed poorly; the Committee may need more time even if the ultimate decision is positive. The Chair reports the committee's decision to the student and the CTS Executive Committee via e-mail. (The Chair will not disclose the individual votes of the Committee members.)

- If the Committee initially gives the student a "Fail," the student must rewrite and resubmit the proposal within 4 weeks. General or specific suggestions for rewrites may be provided by the Committee members. The student will again submit the revised or rewritten proposal by e-mail to all Committee members. The members must then provide their feedback to the Chair within 1 week of receiving the revision. At this point each Committee member provides a vote of "pass" or "fail," along with any further narrative feedback for the benefit of the student. The Chair determines the Committee's decision and reports it to the student and the CTS Executive Committee (by e-mail to CTSsupport@email.arizona.edu). The decision of "pass" or "fail" following the student's submission of the revised proposal shall be final.
- If the Committee gives the student a "Provisional Pass," the student must make revisions required by the Committee and resubmit the proposal. The revised proposal must be sent to all Committee members by e-mail within 2 weeks. Committee members must then report to the Chair within 1 week, either confirming the revised proposal is acceptable and receives a

"Pass," or specifying revisions the student must still make. The Chair will decide whether the student receives a "Pass" on the revised proposal, or if one final round of revisions is needed. If the student is asked to make a second round of revisions, the second revision of the proposal must be sent to the Chair by e-mail within 2 weeks. The Chair then decides whether to distribute the second revision to the other Committee members for comments before issuing a "Pass" to the student. The Chair informs the student and CTS Executive Committee of the final "Pass" via e-mail.

Once the student has received a grade of "Pass" from the Committee, he or she is considered to have passed the major written Comprehensive Exam. The student may schedule the oral exam once he or she has also passed the minor written Comprehensive Exam, if any (see below). Should the Committee's final decision be a "Fail," the student shall be dismissed from the Ph.D. program at the end of the current academic term. A student who is dismissed from the Ph.D. program due to a failed comprehensive exam has the opportunity to switch to the M.S. program to earn the M.S. as the final degree, presuming he or she completes all M.S. requirements. (See the "M.S. as Exit Degree" section of this handbook for details.)

Minor

The program in which the student has declared a minor has the right to administer a written comprehensive exam (or may waive it). The minor program determines the form and outcome of the minor written exam. The member(s) of the Committee representing the minor will explain the requirement to the student at the Committee's initial meeting (see section 4 above), as well as setting any needed deadlines for the student.

The student must pass both the major and minor written Comprehensive Examinations before scheduling the oral exam. The student works with the Committee to set the date and time for the oral exam; the student should contact the CTS Coordinator of Administrative Affairs to schedule a room for the exam. The student then submits the Announcement of Doctoral Comprehensive Exam form in GradPath to formally schedule the exam; the Announcement should be submitted at least 2 weeks prior to the date of the oral exam.

## THE ORAL COMPREHENSIVE EXAMINATION

The Oral Comprehensive Examination centers on the student's presentation of the grant proposal submitted as the CTS written comprehensive examination, with questions and critiques from the Committee. The Committee must ensure that the student is well versed in the specific scientific questions and techniques described in the student's research proposal, and that the student can describe and state the advantages and disadvantages of alternative approaches to the research problem. The Committee also confirms the student can situate their specific proposal within the broader field of their studies. The Committee may also ask questions related to the major and minor coursework, as well as any topics of specific relevance to the student's research in the minor subject.

Immediately after the Oral Comprehensive Examination, the Committee meets in private to decide whether the student has passed the Comprehensive Examination. Per Graduate College policy

(https://arizona.app.box.com/v/grad-gsas-comporalexam), more than one negative or abstain vote from the Committee constitutes a failed exam. The Chair informs the student of the Committee's decision and submits the Results of the Comprehensive Exam form in GradPath to report the exam result. If the student does not pass the oral component of the Comprehensive Examination, the Committee decides whether to re-examine the student or, if no re-examination is offered, to dismiss the student from the Ph.D. program. If a re-examination is approved, written feedback from the Committee, compiled by the Chair, will be provided to the student, who may retake the entire examination within six (6) months. The second oral exam must again be scheduled with the Graduate College using the Announcement of Doctoral Comprehensive Exam form in GradPath. (The CTS Coordinator of Administrative Affairs can again secure a room for the exam.) Failure of the second oral Comprehensive Examination will result in dismissal from the Ph.D. Program (see http://grad.arizona.edu/gsas/degree-requirements/doctor-philosophy#comprehensive-exam). A student who fails the Comprehensive Examination and is dismissed from the Ph.D. program has the opportunity to switch to the M.S. program to complete the M.S. as the final degree. (See the "M.S. as Exit Degree" section of this handbook.)

## GRANT APPLICATION REQUIREMENT

Once the student passes the Comprehensive Examination, the next required step is to prepare a complete grant application; this means the student must prepare all portions of the grant application except any portion that is meant to be completed by their faculty mentor. Domestic students (i.e. United States citizens and permanent residents) are ***strongly encouraged*** to use the NRSA proposal prepared for the Comprehensive Examination, editing and augmenting it so it is ready to submit (except for the mentor's portion of the application). A domestic student may then work with their mentor to complete the NRSA application and submit it for consideration of funding. International students are instead required to complete a NIH D43 or D71 International Research Training grant application (see https://researchtraining.nih.gov/programs/training-grants), as appropriate to the student's current level of training/employment. Similar to the requirement for domestic students, the proposal developed by an international student should be complete in the sense that the student must complete all portions of the application except any portion their faculty mentor would be expected to complete. International students are also encouraged to submit their prepared proposals for consideration of funding unless they have no need of funding.

If a student has identified a different research grant opportunity more appropriate for their research than those specified above, he or she may request approval to complete the chosen application in lieu of those specified. The request should be made in writing to the faculty mentor and the CTS Executive Committee (by e-mail to CTSsupport@email.arizona.edu). The mentor and the CTS Executive Committee will respond to the request within three weeks.

***All students benefit from learning the skill of applying for grants, even if they have no current need for funding – learning this skill is vital preparation for a career as a clinical translational scientist.***

For all students, the completed grant application is due by the relevant funding agency's **next application deadline** following the oral Comprehensive Examination; in all cases it must be completed before the student begins the 6th semester in the program. The completed application must be submitted to the faculty mentor and to the CTS Executive Committee (by e-mail to CTSsupport@email.arizona.edu). The mentor will review the grant application and respond to the student (copying to the CTS Executive Committee) within 2 weeks. The mentor's written response (which may be sent via e-mail) includes any feedback that can help the student to improve the application, as well as the mentor's determination that the application is either Accepted or Needs Revision. If the mentor requires the student to revise the grant application, the student will have 2 weeks to make the revisions and again submit the application to the mentor and CTS Executive Committee. There may be several rounds of revisions if needed, though the mentor and student should strive to finalize the grant application as quickly as possible. Once the mentor agrees the grant application is complete, he or she will inform the CTS Executive Committee that it has been Accepted.

## THE DISSERTATION COMMITTEE

Students must select a Dissertation Committee after successfully completing the Comprehensive Examination. The Dissertation Committee advises the student on the dissertation research and preparation of the dissertation itself and must ultimately accept the dissertation following the student's final oral defense in order for the student to graduate. The Dissertation Committee may include the same members as the student's comprehensive examination committee, or it may be different. The Dissertation Committee must meet with the student at least once each year, although semiannual meetings are strongly encouraged.

The faculty mentor will be the Chair of the Dissertation Committee. (Note that a Dissertation Committee with a mentor who does not hold a University of Arizona faculty title requires a Co-chair from within the University.) The Dissertation Committee must include at least three members – including the Chair or one of the Co-chairs - who are tenured or tenure-eligible UA faculty or UA faculty who have been approved as members of the University's Graduate Faculty. The CTS Director of Graduate Affairs or the Graduate College degree counselor can confirm any prospective member's status for service on the Committee. The Graduate College policy regarding the Dissertation Committee is available at http://grad.arizona.edu/gsas/degree-requirements/doctor-philosophy#dissertation-committee.

Once the student establishes the Dissertation Committee, he or she must submit the Dissertation Committee Appointment form in GradPath to have the committee formally approved. Submission of this form is normally expected at least 6 months in advance of the Final Oral Defense, and early submission ensures the student may proceed with the selected committee as they work on the dissertation. The student also reports the working title of the dissertation on this form; the Graduate College will include the dissertation title in the student's listing in the Commencement program in the student's graduation year. (The title may be updated with the Graduate College as needed.)

Note: Students whose dissertation project will involve research using human or animal subjects **must** secure approval from the IRB or IACUC **before** beginning the research.

SELECTION OF DISSERTATION COMMITTEE

Note: The composition of the Comprehensive Exam and the Dissertation Committees need not be the same.

The student, in consultation with the faculty mentor, should select members to form the Dissertation Committee. The members of the Dissertation Committee should have relevant expertise to be able to oversee and help guide the student's dissertation research. The Dissertation Committee also advises the student on the format and presentation of the research in the dissertation. The Dissertation Committee grants final approval to the student's dissertation following the Final Oral Defense, upon satisfactory completion of any required post-defense revisions.

An outstanding scholar at UA who is not in a tenure-eligible position and does not hold Graduate Faculty status, or an individual from outside UA, whose participation on the Dissertation Committee will strengthen the academic quality of the student's program may be appointed as a "special member" of the Committee with approval of the Graduate College. A request for approval of a "special member" to serve on a student's committee can be made by the CTS Director of Graduate Affairs. The student should send a request to CTSsupport@email.arizona.edu with a copy of the CV of the proposed special member. An approved special member included in the Dissertation Committee is a voting member of the committee. The Dissertation Committee must meet the requirements of the Graduate College as stated in the policy at http://grad.arizona.edu/gsas/degree-requirements/doctor-philosophy#dissertation-committee.

EXTERNAL REVIEWER

Although not required, occasionally an external reviewer may be included to complement the official Dissertation Committee. Most often this person is from outside the University of Arizona. It is expected that the mentor will cover any and all costs incurred by the participation of the external reviewer. This external reviewer is not a voting member of the student's committee, nor do they require any official approval by CTS or the Graduate College (unless the student includes him or her in the official Committee as a "special member" as noted above). By consensus agreement of the Dissertation Committee, the external reviewer may be included in private discussions of the Committee, including the one that follows the student's presentation of the dissertation research at the final oral defense.

## THE DISSERTATION TIMELINE

## ADVANCEMENT TO CANDIDACY

After successful completion of the comprehensive written and oral examinations, the student is advanced to doctoral candidacy by the Graduate College, presuming the student's coursework on the Plan of Study has been completed. The Graduate College's policy regarding advancement to candidacy is found at https://grad.arizona.edu/degree-services/degree-requirements/doctor-philosophy#comprehensive-exam. The Graduate College notifies the student of the advancement by e-mail, including the attendant graduate candidacy fees the student is charged ($35 billed to the UA Bursar's account).

## APPOINTMENT OF DISSERTATION COMMITTEE

Following the comprehensive exams, the student selects and officially appoints the Dissertation Committee. (See above section of handbook for details.)

## DISSERTATION PROPOSAL

The student may utilize the detailed research proposal submitted for their successful Comprehensive Examination and/or the grant proposal developed following the Comprehensive Examination as a dissertation proposal, or he or she may modify or expand this proposal. The goal is to develop a rigorous and feasible experimental plan with appropriate supporting rationale that will serve as a guide for the dissertation research, although the experiments may be modified if necessary as the work proceeds. The student is strongly encouraged to submit this more comprehensive version of the proposal in competition for outside funding, such as an NRSA. Committee feedback at this early stage may help to improve the proposal prior to extramural review.

The completed draft of the proposal should be provided to the Dissertation Committee members for review. The student should then convene a meeting with the Committee at which the student will field questions about the rationale, design, and interpretation of the proposed experiments. Once the dissertation proposal has been revised to the satisfaction of all members of the Dissertation Committee, the Committee Chair must send a copy of the approved proposal to the CTS Director of Graduate Affairs (via CTSsupport@email.arizona.edu), who will submit the Prospectus/Proposal confirmation form in GradPath on behalf of the student. The Graduate College requires this confirmation that the program has the student's approved dissertation proposal on file before the student can schedule their dissertation defense.

## STANDARD OR MANUSCRIPT-BASED DISSERTATION

The CTS Program and the Graduate College allow Ph.D. students to prepare the dissertation in either the standard chapter-based format or a format in which the substance of the dissertation research is presented as manuscripts prepared for publication (as in professional journals). The Dissertation Formatting Guide available from the Graduate College at https://arizona.box.com/grad-gsas-dissformat outlines the formatting requirements for either form of dissertation. A manuscript-based dissertation presents the manuscripts as appendices and must also include one or more chapters that summarize the

research presented in the manuscripts, situate it in the context of the discipline and clarify the student's contribution to any shared research. As noted by the Graduate College: "The published or publishable work must be logically connected and integrated into the dissertation in a coherent manner. Simply binding reprints or collections of publications together is not acceptable as a dissertation in either format or concept."

A student who wishes to prepare a manuscript-based dissertation must have that decision approved by the Dissertation Committee. The student should ask the Committee for approval to use the manuscript-based format at an early stage to ensure he or she is preparing an acceptable dissertation. Students are encouraged to submit manuscripts for publication in professional journals regardless of the format of the final dissertation.

## PENULTIMATE DRAFT OF DISSERTATION

A penultimate draft of the completed dissertation must be distributed to the Dissertation Committee members at least three (3) weeks before the Final Oral Defense. Students should be sure the dissertation is prepared consistently with the instructions in the Graduate College's Dissertation Formatting Guide, available from https://arizona.box.com/grad-gsas-dissformat.

## FINAL ORAL DEFENSE

When the Dissertation Committee agrees that the dissertation is ready to be defended, they and the student set a date and time for the Final Oral Defense. The Final Oral Defense consists of the student's public presentation of the dissertation research, followed by the (non-public) defense of the dissertation before the Dissertation Committee. The student should bear in mind the Graduate College's deadline for submitting the approved dissertation to ensure he or she will graduate in the intended term (see https://grad.arizona.edu/degree-services/degree-requirements/important-degree-dates-and-deadlines); this deadline always falls before the end of Fall or Spring semester. The CTS Coordinator of Administrative Affairs can assist in reserving a room for the defense and/or arranging videoconferencing (via Zoom or other means) if the student or any of the committee members will participate remotely. The CTS program will announce the defense to the CTS student body.

The student must schedule the Final Oral Defense with the Graduate College at least two (2) weeks in advance by submitting the Announcement of Final Oral Defense form in GradPath. The student should prepare the committee approval page for the dissertation and either bring the hard copy to the defense or initiate its routing for signatures via the Graduate College's standard workflow (see https://grad.arizona.edu/degree-services/dissertations-theses/sample-pages). The committee may sign the approval page at the conclusion of the Final Oral Defense, or they may withhold their signatures until final, post-defense revisions have been completed. A copy of the fully signed approval page is included

when the student submits the final approved dissertation to the Graduate College for archiving (see point 6 below).

To defend and/or submit the final copies of the dissertation in the Fall or Spring semester, a student must be registered for a minimum of 1 unit (or a minimum of 3 units if he or she has not already taken the 18 required dissertation units). Defense and/or graduation in Summer or Winter term does not require registration in that term. The Graduate College's continuous enrollment policy is found at https://grad.arizona.edu/degree-services/degree-requirements/doctor-philosophy#continuous-enrollment.

## ARCHIVING OF APPROVED DISSERTATION

The final step in the Ph.D. program after the dissertation defense is the student's submission of the approved dissertation for archiving. Note that the deadline to qualify for graduation in a given semester or term is the Graduate College's deadline for the online submission of the dissertation following the defense, which falls before the end of the semester – see https://grad.arizona.edu/degree-services/degree-requirements/important-degree-dates-and-deadlines.

Once the student has defended the dissertation and gained final Dissertation Committee approval, having completed any revisions required by the Committee following the defense, he or she must submit the dissertation to be archived. The dissertation must meet all the specifications of the Dissertation Formatting Guide (see sections above). The submitted dissertation will be reviewed by the Graduate College degree counselor, who will e-mail the student to state whether any formatting changes are needed; the e-mail is sent from the ProQuest submission site and appears as coming from sender "ETD Administrator." The student must also complete the other steps of the submission procedure outlined on the Graduate College web site https://grad.arizona.edu/degree-services/dissertaions-theses/submitting-your-dissertation.

## AWARD OF THE PH.D. DEGREE

Upon completion of the submission procedure and acceptance of the final dissertation for archiving, the Graduate College will award the student's Ph.D. once the official degree award date for the semester or term has been reached (see https://grad.arizona.edu/degree-services/degree-requirements/important-degree-dates-and-deadlines). The awarded degree appears on the student's transcript, and the diploma will be mailed to the student one to two months after the degree is awarded. A student who completes the submission before the official degree award date may request a Certificate of Completion of Degree Requirements from the Graduate College as proof the degree has been completed and will be awarded.

Students should note that the diploma will be mailed to their Permanent address as listed in UAccess unless they have set up a specific Diploma address – see https://registrar.arizona.edu/types-addresses-

and-how-change-your-address. Any questions about diploma mailing may be directed to the CTS Director of Graduate Affairs or the Graduate College degree counselor.

## REQUIRED ENROLLMENT AND LEAVE OF ABSENCE

The Graduate College continuous enrollment policy (https://grad.arizona.edu/degree-services/degree-requirements/doctor-philosophy#continuous-enrollment) requires Ph.D. students to enroll in at least 1 unit for graduate credit each Fall and Spring semester throughout their doctoral program from initial matriculation until all degree requirements have been completed. A student taking any portion of the Comprehensive Examination, taking the Final Oral Defense, or graduating in Summer or Winter term is not required to register in that term. (Please note that "continuous enrollment" is not the same as "full time enrollment" for financial aid or visa purposes. Please refer to the University policy on Full-Time Status at https://catalog.arizona.edu/policy/registration-tuition-fees/registration-enrollment/enrollment.)

A student who is supported as a Graduate Research Assistant or Graduate Teaching Assistant must enroll in a minimum of 6 units in Fall or Spring semester to qualify for the support. International students on a visa must maintain full-time enrollment as defined by the International Student Services office – see https://international.arizona.edu/international-students/full-time-enrollment-graduates.

A student who needs to take one or more semesters off without enrolling should request a Leave of Absence from the Graduate College. A Leave of Absence request for medical or non-medical reasons is made using the Petition form in the GradPath student forms system, which is incorporated in UAccess. Instructions for submitting the Leave of Absence request are available at https://grad.arizona.edu/degree-services/gradpath/graduate-petition-and-graduate-petition-user-guides. A non-medical Leave of Absence request requires the approval of the CTS program before it will be considered by the Graduate College; CTS approval is not needed for a medical Leave of Absence request. Leave of Absence requests are typically approved unless the Leave will present an obstacle to completion of the degree. The Graduate College will send an e-mail to the student with the decision on their Leave of Absence petition.

## SATISFACTORY ACADEMIC PROGRESS

A high level of performance is expected of students enrolled in a graduate degree program. In addition to maintaining a minimum 3.0 GPA as required by the Graduate College, students are required to demonstrate satisfactory academic progress toward degree completion. The Graduate College has established guidelines which departments must follow in order to dismiss graduate students from their programs. Students should familiarize themselves with the details of this process so they will know their rights, responsibilities, and remedies should such a situation develop. The procedure for dismissing a student from a graduate program due to unsatisfactory academic progress is outlined at https://grad.arizona.edu/policies/academic-policies/satisfactory-academic-progress.

There are several steps all CTS Ph.D. students must take by a specific deadline to be considered to be making satisfactory academic progress toward completion of their degree:

- The student must submit the Individual Development Plan by October 1 of each year (see Individual Development Plan section of handbook).
- The student must submit the Annual Progress Report by June 1 of each year (see Annual Progress Report section of handbook).
- The student's Plan of Study must be approved in GradPath before the beginning of the student's 3rd semester in the program. (Note: Approval of a GradPath form means that all approvers must approve the form, including final approval from the Graduate College.)
- The student's Comp Exam Committee Appointment form must be approved in GradPath before the beginning of the student's 3rd semester in the program.
- The student must pass the comprehensive examination (both the written and oral portions) before the beginning of the student's 5th semester in the program.
- The Grant Application requirement must be completed (i.e. application accepted as complete by the student's mentor) before the beginning of the student's 6th semester in the program.

If the student does not meet any of these requirements by the specified deadline, the CTS Executive Committee will issue a written warning to the student. The warning will specify the final deadline by which any step above must be completed; if the student does not meet the final deadline as stated, he or she may face dismissal from the CTS Program.

In addition to meeting these specific requirements, each Ph.D. student is subject to annual review by the faculty mentor upon submission of the student's Annual Progress Report. The faculty mentor, who may elect to consult with other members of the student's committee, will note any issues regarding the student's academic progress. If the mentor considers the student not to be making satisfactory progress toward completion of the degree, he or she will state the issue in writing, specifying a step or steps the student must take with a deadline (or deadlines) for completing those steps. This information is provided to the student and to the CTS Executive Committee (via e-mail to CTSsupport@email.arizona.edu.). The student must complete the specified step(s) by the deadline(s) given or may face dismissal from the CTS Program.

If a CTS Ph.D. student receives a written warning from the CTS Executive Committee or faculty mentor that he or she is not making satisfactory progress toward completing the degree, he or she may appeal that decision to the CTS Executive Committee. The appeal must be sent to the Executive Committee via e-mail to CTSsupport@email.arizona.edu no more than 7 days after the warning is issued. The student's appeal should provide any information or justification the student wishes the CTS Executive Committee should consider. The Executive Committee will respond to the student in writing (by e-mail or other means) no more than 7 days after receiving the student's appeal. The decision of the CTS Executive Committee regarding the appeal is final.

## SCIENTIFIC CONFERENCES

All CTS students are encouraged to attend and ideally present a talk or poster at relevant disciplinary or professional conferences. The student's faculty mentor should provide support to the student (i.e. for travel, lodging and per diem expenses) to attend at least one conference annually if at all possible. The CTS Program does not provide funding to students for conference attendance.

## TEACHING ACTIVITY

Students in the CTS Program are strongly encouraged to participate in a broad selection of teaching activities. Teaching, and the communication skills it develops, is a central part of graduate training regardless of whether the student intends to seek a faculty position or a different line of work. Teaching may involve didactic or clinical instruction, or it may more specifically entail presentation of the student's research to various audiences. Teaching opportunities for CTS students include, but are not limited to, preparing and delivering lectures in didactic sessions, organizing and conducting Journal Clubs, presenting seminars and/or Grand Rounds, presentation of research or related literature to lab groups, etc. The CTS program does not offer undergraduate courses, so no CTS students are supported as Graduate Teaching Assistants.

## CTS DOCTORAL MINOR

The doctoral minor in Clinical Translational Sciences is available to CTS Ph.D. students and to doctoral students in other related majors. A CTS student who wishes to declare the CTS minor should work with their mentor to prepare the "Proposal for CTS Doctoral Minor" form available at https://healthsciences.arizona.edu/academics/clinical-translational-sciences/programs/handbook-forms and submit it to CTS for approval of the proposed minor, including the specific courses proposed as the minor coursework. With the approval of the CTS Co-Directors, the student may proceed with submission of the Plan of Study in GradPath declaring the CTS minor. A CTS Ph.D. student who declares a minor in CTS may work with their mentor or another CTS faculty member as their minor advisor to select courses that make up a cohesive focus on a part of CTS, complementary to the work the student is doing in the major area.

The comprehensive examination requirements for a CTS student minoring in CTS are the same as what is required for the CTS major, though the oral comprehensive examination may also include questions about the minor focus area. A non-CTS student who declares the CTS minor will not have a separate written comprehensive exam for the minor, but will be examined on the minor topic in the oral comprehensive examination.

## M.S. AS EXIT DEGREE

A student who is unable to complete the Ph.D. may have the opportunity to switch to the M.S. program to earn the M.S. as the final degree in the program. (Note that this option is not available to a student who has already earned the M.S. in Clinical Translational Sciences at the University of Arizona.) Any student who fails the Ph.D. Comprehensive Examination and is dismissed from the Ph.D. program has approval to switch to the M.S. program. A student who is unable to complete the Ph.D. for any other reason may submit a request to the CTS Executive Committee to switch to the M.S. program; the request should be made in writing by e-mail to CTSsupport@email.arizona.edu**.** A Ph.D. student submits the Graduate College's Program Additions and Changes form, requiring approval by the CTS program, in order to switch to the M.S. program; the Program Additions and Changes form is available from https://webforms.grad.arizona.edu/degree-services/program-additions-and-changes**.** A student approved to switch to the M.S. program must satisfy the M.S. degree requirements as presented in this handbook in order to earn the degree; however, at the discretion of the student's thesis committee – and with approval from the CTS Co-Directors – the thesis presented for the terminal M.S. degree may present work other than a completed original translational research project.

# SELECTION OF MENTOR/RESEARCH ADVISOR

The choice of a mentor may be the single most important decision a CTS student makes during their graduate training. Each student must select a mentor as soon as possible after admission into the CTS Program. The mentor is a UA faculty member who will serve as an advisor, supporter, tutor, master, sponsor and role model. The mentor is expected to interact with the student on a regular basis providing guidance, advice, and the intellectual challenge necessary for the student to complete the degree program. The mentor is ***expected to supply the resources*** (e.g., financial, facilities, etc.) necessary to successfully conduct the dissertation or thesis research project. Students may consider working with any UA faculty member with relevant research interests as their mentor. A student can identify potential mentors by searching for pertinent research activities and expertise at https://arizona.pure.elsevier.com/.

While some students may have already identified their mentor when they enter the program, it is more typical for a student to ask one or more potential mentors to accept him or her for a rotation in the faculty member's lab. Lab rotations allow a student to learn more about the faculty member, their research, and how business is conducted in the faculty member's lab. The student can also learn who the other lab personnel are and what dissertation/thesis research projects might be possible should the faculty member become the student's mentor. A typical lab rotation will last approximately two months, though the duration may vary from one lab to another. The student should inform the CTS program (by e-mail to CTSsupport@email.arizona.edu) when a rotation has been arranged. When the rotation concludes, the student is responsible for getting a signature from the hosting faculty member on the Completion of Laboratory Rotation form available on the CTS website.

The following questions may be of assistance to graduate students in choosing a mentor. There are two broad areas that come into play when choosing a mentor. The first area has a professional basis and the second a personal basis. When considering the professional aspects of your selection of a mentor, the following questions may prove helpful:

a) What is this individual's reputation OUTSIDE the University? Remember, when you have completed your dissertation and you are looking for a position, your mentor's reputation will initially be your reputation.
b) Does your prospective mentor have the funding and other resources available to support your research for the duration of your program? This issue is probably the most problematic for graduate students. The money needed to fund your research project will most likely come from your mentor's laboratory.
c) How does your prospective mentor's laboratory or clinical research program operate? You should critically evaluate the day-to-day operations of the lab or clinical research setting and understand the goals of the program and exactly where you will "fit in." You should also understand the role of your mentor in those operations. Some principal investigators have lab managers, research assistants or research nurses who run their

research program. Therefore, it may benefit you to learn almost as much about these individuals as about your prospective mentor.

d) What are the professional requirements of the prospective mentor on issues such as work habits, ethics, sharing of ideas, research group meetings, journal clubs, and authorship on papers?

On the personal side, the answers to the following questions may be extremely helpful:

1. Is the personality of your prospective mentor compatible with your own?
2. Is this individual going to be responsive to your needs and, just as important, are you going to be responsive to his or her needs? When someone joins a research group, laboratory or clinical, the mentor will have certain expectations of him or her, and these should be identified when evaluating a prospective mentor. By the same token, what are your expectations of a mentor?
3. What do other students and faculty think about your prospective mentor? The collegial relationship of your prospective mentor with others will influence your interaction with other laboratories and clinical research groups.

It is essential that a student not underestimate the importance of the choice of a mentor, nor make that choice without a great deal of thought. The student should talk to other people about the prospective mentor and ask probing (but not inflammatory) questions. The student should provide him- or herself with HONEST answers to questions about the professional, financial and personal aspects of this decision.

# APPLICATION TO THE CTS PROGRAM

## APPLICATION PROCEDURE

It is advisable to contact the CTS Program (CTSsupport@email.arizona.edu) to express interest prior to submitting an application. All applications are to be submitted through the Graduate College's online GradApp system (http://apply.grad.arizona.edu/).

The following items must be uploaded to the application in GradApp as part of the application process.

- Official transcripts of all college and university work.
- Statement of Interest (including any specific research interests).
- Current Curriculum Vitae.
- Letters of Recommendation: All applicants must identify at least two people who can provide professional letters of recommendation in support of admission.

Some international applicants must also submit test scores to the Graduate College in support of their application:

- International applicants from non-English speaking countries are required to submit TOEFL or IELTS results to the Graduate College (see http://grad.arizona.edu/admissions/requirements/international-applicants#english-proficiency).
- No GRE scores are required with the application.

### APPLICATION DEADLINES

An application to GradApp must be submitted with all supporting materials and at least two letters of recommendation must be uploaded by the recommenders by the following deadline in order to be considered.

**Domestic and International Applicants**:

Applications for Fall admission accepted through February 1

(The CTS program no longer admits students in Spring.)

### INTERNATIONAL APPLICANTS

According to the Graduate College, international applicants must demonstrate proficiency in spoken and written English. All applicants from countries where English is not the/an official language, and who do not have a college degree from a U.S. institution, must have a minimum score of 550 (paper based) or 79 (iBT) on the Test of English as a Foreign Language (TOEFL) or a minimum composite score of 7 on the International English Language Testing System (IELTS), with no subject area below 6, to qualify for admission. These test scores should be reported to the Graduate College. The Graduate College's English

proficiency requirement is detailed at http://grad.arizona.edu/admissions/requirements/international-applicants#english-proficiency.

## NEW STUDENT ORIENTATION

Orientation for newly admitted students is conducted during the first week of classes in August. The Graduate and Professional Student Council provides information about the Graduate Orientation event at http://gpsc.arizona.edu/Graduate-Orientation. New *international students* are **required** to complete the International Student Orientation prior to the beginning of their first semester in the CTS program. Information about the International Student Orientation can be found at https://global.arizona.edu/international-students/admitted-graduates.

## DEFERRAL OF ADMISSION

An applicant who has been offered admission to the CTS Ph.D. or M.S. may encounter circumstances that make it impossible to begin the program in the semester for which admission has been offered. Having been offered admission for a given semester, the applicant may request a deferral of the admission until the subsequent semester by writing to CTSsupport@email.arizona.edu. The CTS Executive Committee will determine whether the requested deferral can be granted and will inform the applicant as soon as possible. A deferral of admission for more than one semester is not allowed; in that situation the applicant must submit a new admission application in GradApp with all required accompanying materials.

# ACADEMIC ADVISING AND CTS COURSE ENROLLMENT

## APPROVAL FOR COURSE REGISTRATION

CTS students enroll in courses each semester that have been approved by their faculty mentor or by the CTS Director of Graduate Affairs or another member of the CTS Executive Committee. A student whose Plan of Study has final approval in GradPath may register for any of the remaining courses listed, all of which are considered to be approved by the mentor and the CTS program. A student who does not have an approved Plan of Study must get approval for each semester's (or Summer/Winter term's) course registration on the CTS Advising Agreement form (available at https://cts.uahs.arizona.edu/programs/forms). The completed and signed Advising Agreement must be returned to the CTS Coordinator of Administrative Affairs by e-mail (to CTSsupport@email.arizona.edu).

In general CTS students register themselves for courses using the self-service enrollment feature of UAccess. (There is a tutorial for self-service enrollment available at https://learning.uaccess.arizona.edu/ELPRD/UITS/UAccess_Student/Student_Center/Video/Main/story.html). There are a few CTS courses (i.e. offered with the CTS prefix as part of the course number) that require departmental consent for enrollment, and some courses offered by other departments or programs also require the consent of the home department for a student to enroll.

## DISSERTATION AND THESIS ENROLLMENT

While CTS students must take the prescribed number of dissertation (CTS 920) or thesis (CTS 910) units to earn the Ph.D. or M.S. degrees, respectively, these courses must be taken at the appropriate time for the student's dissertation or thesis research. The CTS program observes the following policies regarding dissertation or thesis enrollment:

- The M.S. degree requires a minimum of 6 units of CTS 910 (Thesis). A M.S. student may begin enrolling in CTS 910 once the faculty mentor has been selected and with the mentor's approval. The mentor authorizes the student's thesis registration by sending an e-mail to the CTS Director of Graduate Affairs (to CTSsupport@email.arizona.edu), stating the number of units for which the student should be enrolled. The Director of Graduate Affairs will directly enroll the student in the requested units in the mentor's section. The mentor will assign a grade of S, P or F for their student's thesis units each semester or term. 6 units of CTS 910 must be completed with a grade of S or P as a requirement for the M.S.
- The Ph.D. degree requires a minimum of 18 units of CTS 920 (Dissertation). A Ph.D. student may begin enrolling in CTS 920 once the student and faculty mentor have agreed about the student's dissertation project. The faculty mentor requests enrollment in CTS 920 (or approves the student's request)by e-mail to the CTS Director of Graduate Affairs (to CTSsupport@email.arizona.edu), including the appropriate number of units. The Director of Graduate Affairs will directly enroll the student in the requested units in the mentor's section.

The mentor will assign a grade of S, P or F for their student's dissertation units each semester or term. 18 units of CTS 920 must be completed with a grade of S or P as a requirement for the Ph.D.

- A student who does not yet meet the requirement to enroll in CTS 910 or 920 and who is doing research may request enrollment in CTS 900 (Research) by sending an e-mail to the CTS Director of Graduate Affairs (at CTSsupport@email.arizona.edu). Alternatively, the faculty member who will oversee and grade the research may make the request. The student and supervising faculty member must have an agreement in writing explaining what research activities the student will undertake, what work the student will present for grading, and the number of units for which the student should be enrolled. Note that a student who meets the requirement to take CTS 920 or 910, but who is doing research unrelated to the dissertation or thesis may also take CTS 900. Units of CTS 900 may be counted toward the coursework requirements for the degree (M.S. or Ph.D.) with the approval of the faculty mentor; in this case the student includes the units on the Plan of Study submitted in GradPath.

## CTS SEMINAR/JOURNAL CLUB ENROLLMENT

CTS students are required to take graduate seminar and/or journal club courses to meet the requirements of either the M.S. or Ph.D. degree. Four enrollments in a seminar or journal club are required for the Ph.D. and two enrollments are required for the M.S. (Enrollment in the CTS Student Seminar does not count toward this requirement for either degree – see information about the CTS Student Seminar below.)

CTS offers two seminar courses under the CTS prefix: CTS 696A (Medical Sciences Seminar) and CTS 696B (Biomedical Sciences Seminar). CTS 696B is the weekly seminar series of the Department of Basic Medical Sciences at the College of Medicine-Phoenix and is available for self-enrollment by any Tucson or Phoenix student; Tucson students may attend the seminar via videoconference. A postgraduate student who wishes to enroll in CTS 696A to attend a grand rounds series or other seminar not offered as a graduate course may request enrollment by e-mailing the CTS Director of Graduate Affairs (at CTSsupport@email.arizona.edu). The student should provide information about the topic(s) and meeting times for the proposed seminar activity, as well as the name and contact information for the person managing the seminars or other activities. The Director of Graduate Affairs will determine if the proposed activity is appropriate for the student. If it is deemed appropriate, the Director of Graduate Affairs will enroll the student in CTS 696A. At the end of the semester, the Director of Graduate Affairs will confirm the student's participation in the seminar activities and will award a passing grade to the course.

CTS offers journal clubs as separate sections of CTS 595 (Biomedical Sciences Journal Colloquium); sections focusing on different research areas (e.g. translational neuroscience, cancer immunology, or cardio-metabolic disease) are scheduled according to the availability of the faculty instructors. Some sections of CTS 595 are available for self-enrollment by CTS students, while others may require the instructor's approval for enrollment by the CTS Director of Graduate Affairs. A postgraduate student who has been given permission to join the journal club of a clinical residency or fellowship program may

request permission to enroll in CTS 595 to earn journal club credit; the request should be made to the CTS Director of Graduate Affairs at CTSsupport@email.arizona.edu.

CTS students may also fulfill the seminar/journal club requirement for the M.S. or Ph.D. degree by taking established graduate seminar or journal club courses offered by other departments, as appropriate to their research interests. The decision to use a CTS seminar course or one from another department is made by the student and their faculty mentor. A student who does not yet have a faculty mentor may request approval to take another department's seminar course from the CTS Director of Graduate Affairs by sending a request to CTSsupport@email.arizona.edu. The Director of Graduate Affairs can also inquire on behalf of a Phoenix student whether they can join and participate remotely in a seminar or journal club course offered by a Tucson-campus program.

## CTS STUDENT SEMINAR (CTS 696S)

One objective of the training CTS students receive is to prepare them for professional activity in their future research careers. Among the vital skills that researchers require is the ability to clearly and effectively present their research findings. To support the development of CTS students' oral presentation skills, the CTS program holds the CTS Student Seminar every Fall and Spring semester, offering academic credit under course number CTS 696S. Barring a schedule conflict, all CTS students are expected to attend the Student Seminar weekly to hear their fellow students present their research and provide them with constructive feedback to improve their presentation skills; each student is expected to present once per academic year in the Student Seminar. A student who is self-funded may receive permission from CTS to participate in the Student Seminar without enrolling in the CTS 696S class. A student with an unavoidable regular schedule conflict preventing them from attending the Student Seminar weekly during a semester may request a waiver from both enrollment and regular attendance prior to the beginning of the semester. (A student granted a waiver from weekly participation may be asked to attend once during the semester in order to present if possible.)

Note: Enrollment in the CTS Student Seminar does not count toward the enrollments in seminar and/or journal club classes required for the CTS Ph.D. or M.S., as the student seminar is focused on practicing and improving scientific presentation skills rather than discussion of current scientific advances. A limited amount of credit earned in the CTS Student Seminar may be counted toward either degree as elective coursework. Specifically, up to 6 units earned in the CTS Student Seminar may be counted toward the CTS Ph.D., and up to 2 units earned in the CTS Student Seminar may be counted toward the CTS M.S.

## MINIMUM ENROLLMENT FOR DEGREE COMPLETION

A CTS student who has completed all degree requirements except for completion/defense of the dissertation or thesis may enroll for just 1 unit in what is expected to be his/her final semester. Should the student need one or more subsequent semesters to complete the degree, he or she will be required to enroll in a minimum of 3 units per semester. A student who intends to complete the degree requirements in Summer or Winter term may enroll for only 1 unit. (Note that these minimum

enrollment requirements are not the same as the requirements for full-time enrollment; a student requiring full-time enrollment status should consult the relevant policy.)

# FINANCIAL SUPPORT

## M.S. STUDENTS

The CTS program does not offer funding support to M.S. students. Domestic students may contact the Office of Scholarships and Financial Aid (https://financialaid.arizona.edu/) to inquire about standard forms of financial aid. All students are encouraged to consider employment opportunities in the faculty mentor's laboratory and/or applying for relevant grants or fellowships. All University students have access to Scholarship Universe, a matching database of internal and extramural scholarship opportunities (http://scholarshipuniverse.arizona.edu/). The Graduate College's Office of Fellowships also compiles a regular newsletter with a wide range of grant and fellowship opportunities for graduate students (https://gradcenter.arizona.edu/gcof/gradfunding-opportunities-newsletter).

## PH.D. STUDENTS

The CTS Program is able to offer support to nearly all admitted Ph.D. students for their first year in the program within the limits of available funds. By the end of the first year in the program, each Ph.D. student identifies a faculty mentor who will advise them and guide their research. The mentor generally funds the student via employment in the mentor's laboratory. Ph.D. students should discuss prospects for funding with a faculty member they are considering as a prospective mentor to ensure they select a mentor who can meet their funding needs.

## COMPETITIVE PRE-DOCTORAL FELLOWSHIPS

The Program encourages students to seek supplementary funding. In addition to the prospect of funding, the advantages of seeking pre-doctoral fellowships are that doing so provides the student with an opportunity to develop grant-writing skills, and it brings prestige to the student and the Program. In addition, such funding enables more students to join the Program, and gives the individual student more opportunity and authority to shape the scope and aims of their project. Students may seek advice regarding fellowship opportunities from their mentors or the CTS Co-Directors.

## MENTOR FUNDING FOR STUDENTS

The mentor of a CTS graduate student will in some cases provide funding support for the student. A mentor who agrees to work with a CTS Ph.D. student who has been supported by the CTS program as a Graduate Research Assistant is expected to continue the student's support at or above the same funding level. Mentors are encouraged to provide support if possible to CTS students who have not been previously funded by the program; the support can be in the form of a Graduate Research Assistantship or by other means. Note that a mentor should not hire a graduate student in a staff position solely for the purpose of supporting the student's expenses for their graduate degree.

The CTS Coordinator of Administrative Affairs will assist any faculty mentor with processing their student's hiring as a Graduate Research Assistant. Mentors who have any questions about funding for a CTS student or who wish to request assistance with hiring should contact the CTS program at CTSsupport@email.arizona.edu.

All policies regarding Graduate Assistants (including Graduate Research Assistants) may be found on the Graduate College website at https://grad.arizona.edu/funding/ga. The costs of supporting a student as a Graduate Research Assistant include the salary paid to the student, ERE (as a percentage of the salary) and full or partial payment of the student's tuition at the Arizona resident rate. The salary paid to the student – if they were not previously supported by the CTS program – is not set by the Graduate College or CTS, but should be consistent with any rules or norms in the mentor's home college or department. (Note that a student supported as a Graduate Research Assistant can enroll in student health insurance at no cost, but the premium is paid centrally, not by the mentor or hiring department.)

A CTS student who is already employed by the University in a benefits-eligible position may use the Qualified Tuition Reduction (QTR) benefit to reduce the cost of tuition to a lump sum of $25 per semester, regardless of the number of courses or units enrolled. Note that the student will still pay the standard mandatory student fees based on their enrollment level.

Any questions regarding student funding, hiring, or use of QTR may be directed to CTS at CTSsupport@email.arizona.edu.

# TUITION AND FEES

## TUITION AND FEES

Please refer to the UA Bursars Office for up-to-date information regarding tuition and fees. The Bursar's tuition and fee calculator tool is found at https://tuitioncalculator.fso.arizona.edu/#/. Note that the CTS program is considered a Main campus graduate program (even for students on the Phoenix campus) and does not require any program fee or differential tuition.

A student supported as a Graduate Research Assistant (GRA) has their tuition calculated at the Arizona resident rate (regardless of the FTE level of the GRA appointment). A student supported as a 0.5 FTE GRA will have 100% of their tuition paid by their mentor or hiring department; a student on a 0.25 FTE GRA will have 50% of their tuition paid by the mentor or hiring department and will be responsible for paying the remaining 50% (at the Arizona resident level). All students, including those supported as GRA's, will be responsible for paying their mandatory student fees (as shown in the Bursar's tuition calculator).

## QTR, RESIDENCY AND OTHER QUESTIONS

Benefits-eligible UA employees and their spouses and dependents may take advantage of the QTR (Qualified Tuition Reduction) benefit, which drastically lowers the tuition they are charged. Information about QTR, including eligibility and the application procedure, can be found on the Bursar's web site at http://bursar.arizona.edu/students/qtr.

Tuition is calculated at a lower rate for students who are classified as Arizona residents. Information about Arizona residency classification is available from the Registrar at http://registrar.arizona.edu/residency/residency-classification-tuition-purposes.

For any other questions regarding tuition and fees, students should contact the Bursar (http://bursar.arizona.edu/) or the CTS Director of Graduate Affairs.

# STUDENT RESPONSIBILITIES AND RIGHTS

## GENERAL STUDENT RESPONSIBILITIES

The CTS Graduate Program stresses to the student the following issues of utmost importance. First, all students are responsible for knowing and following the policies and procedures of the CTS program (as presented in this handbook), the Graduate College and the University. Policies may be updated periodically, and it is the student's responsibility to comply with current policies. Graduate College policies can be viewed on-line at http://grad.arizona.edu/new-and-current-students. University policies can be found at http://catalog.arizona.edu/. (The UA Student Code of Conduct and Academic Integrity policies can be found at https://deanofstudents.arizona.edu/policies-codes.)

All CTS students are expected to complete the required and elective coursework in a timely manner under the ethical constraints of the College in which the courses are offered and in accordance with student conduct policies of the University. Additionally, students are required to maintain a 3.0 GPA as calculated based on all completed graduate coursework. A student whose graduate GPA falls below 3.0 following a Fall or Spring semester will be placed on academic probation by the Graduate College (see http://grad.arizona.edu/policies/academic-policies/academic-probation.)

CTS students register themselves for courses using the self-service enrollment feature of UAccess (see guides and tutorials at https://registrar.arizona.edu/records-enrollment/enrollment/how-register-classes). The only exceptions are: (a) 900-level CTS course registration (i.e. Thesis, Dissertation or Research units) and registration in the Individualized Scientific Writing course (CTS 585) or the post-graduate CTS seminar or journal club courses (CTS 696A or dedicated section of CTS 595) must be requested from the CTS Director of Graduate Affairs or Coordinator of Administrative Affairs by e-mail to CTSsupport@email.arizona.edu; or (b) any course offered by another department or program for which departmental permission is required for enrollment. To enroll in a course in another department that requires departmental permission, please contact the department's graduate coordinator (see http://grad.arizona.edu/tools/programcontacts).

A CTS student is generally expected to be physically present and available for consultation on the appropriate UA campus throughout the calendar year. If a student will be away for an extended period of time (generally more than one week), they must notify their faculty mentor in advance and make any arrangements needed for continuation of their research work.

Students are expected to regularly monitor their UA e-mail accounts, as the UA e-mail address is used for all official CTS and University communication. Students contacting the CTS Program regarding academic matters or other official business must either send an e-mail from their UA e-mail address or provide a document with their official signature (hard copy or by other means). E-mail sent from an address other than the student's UA e-mail address is not considered official.

Students are responsible for updating their personal information in UAccess, including addresses and telephone numbers. Note that upon completion of the degree, the student's diploma is mailed to the Permanent address on his or her UAccess record unless the student has established a Diploma address.

Students are expected to secure their possessions and health by procuring appropriate insurance. The Campus Health office offers information on student health insurance and other services at https://www.health.arizona.edu/fees-insurance. Students should also be aware of current tax laws which impact salaries or stipends from graduate student employment, fellowships, and stipends. Contact the IRS as 1-800-829-1040 and ask for the scholarship/ fellowship publication or visit the IRS website at http://www.irs.gov. CTS faculty and staff are not qualified to give tax advice.

## STUDENT COMPLAINTS/GRIEVANCES

Should a graduate student feel he or she has been treated unfairly, there are a number of resources available. With few exceptions, students should first attempt to resolve difficulties informally by bringing those concerns directly to the person responsible for the action, or with the student's graduate advisor, the department head, or the immediate supervisor of the person responsible for the action. If the problem cannot be resolved informally, the student may be able to file a formal grievance. The Graduate College's grievance policy is found at http://grad.arizona.edu/policies/academic-policies/grievance-policy.

A student has the right to appeal a grade awarded for a course. The grade appeal policy and procedure can be found in the UA catalog (http://catalog.arizona.edu/) by searching for "grade appeal." The CTS program does not have authority to change students' grades, nor does the program have a role in a grade appeal filed by a CTS student for any course offered by another department.

Allegations of discrimination based on race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, or genetic information are handled by the Office of Institutional Equity (http://equity.arizona.edu/). The Ombuds Program (http://ombuds.arizona.edu/) is another resource available to assist students who have concerns or complaints.

# STUDENT SERVICES

## CAMPUS HEALTH

Campus Health provides high-quality, primary medical and psychological care to University of Arizona students, and is a campus resource for counseling on health, nutrition, and addition problems. Licensed physicians, nurse practitioners, nurses, psychologists, and mental health professionals comprise the staff, in addition to community specialists who conduct clinics in orthopedics, surgery, sports medicine, and dermatology.

Regularly enrolled students become eligible for services at the beginning of the semester for which registration fees have been paid. Continuing students who were registered during the spring semester but are not registered for summer session may become eligible for summer services by paying a special fee. Medical conditions requiring immediate care can be seen on a walk-in basis, but students are encouraged to call (520) 621-6490 for appointments, available Monday through Friday between 8:30 a.m. and 4:30 p.m., for all non-urgent situations. A pharmacy on the premises provides medicines and over-the-counter drugs at prices competitive with those in the private sector.

Every student born after December 31, 1956 must submit proof of measles and rubella vaccines since 1980; these vaccines are available at Campus Health for a charge. International students must also obtain a tuberculosis skin test at Campus Health before registering for classes for the first time. Many services are free (prepaid by the student's tuition) after a nominal first visit fee.

Charges are incurred for prescriptions, x-rays, laboratory tests, physical therapy, special supplies, and some specialist physician visits. Charges for all services may be paid at the Campus Health Business Office by 5:00 p.m. on the day they are incurred or will be automatically added to the student's university account. Campus Health Insurance, required for all international graduates and optional for all other students, is also available at the Health Insurance Office located on the ground floor of Campus Health.

For further information, contact Campus Health, 1224 E. Lowell St., Tucson, AZ 85721 (Northwest corner of Highland & 6th Street), and phone: (520) 621-6490 or http://www.health.arizona.edu/

## CAREER SERVICES OFFICE

Career Services offers a variety of programs which assist students and alumni to develop and implement career plans, gain work-related experience, seek part-time work, and gain professional employment after graduation. For further information, contact The University of Arizona Career Services at (520) 621-2588 or http://www.career.arizona.edu/.

The UA Colleges of Medicine also have Career Advising offices. Information about the College of Medicine – Tucson's Career Advising service can be found at http://medicine.arizona.edu/students/student-affairs/career-advising; for the College of Medicine –

Phoenix Career Advising service, please see http://phoenixmed.arizona.edu/contact/administrative-offices/advising.

## CAMPUS RECREATION

For students in Tucson, Campus Recreation combines programs and facilities offering a wide variety of recreational, fitness, and wellness opportunities. The Student Recreation Center (S.E. corner of Sixth St. and Highland Ave.) is a state-of-the-art, national award-winning, physical fitness and recreation center offering two gymnasia, fourteen racquetball courts, two squash courts, a weight room, an elevated indoor track, two multipurpose dance rooms, two sand volleyball courts, an outdoor Olympic size pool, the Outdoor Adventures Center, a Wellness Center, a juice bar, and short-term child care facilities. Campus Recreation also coordinates more than fifty organized sports events through its Intramural and Recreational Sports Program, and over forty-five active sports clubs including rugby, soccer, water polo, and martial arts.

For further information contact the Student Recreation Center, 1400 E. Sixth St., 626-3396 or http://campusrec.arizona.edu/

Students in Phoenix are not charged the Recreation Center fee since they do not have access to the Center or the other Campus Recreation services. Note that the Health and Recreation fee will still appear as a fee charged on the student's account, but will not include the Recreation portion of the fee, which is specific to Tucson students.

## DISABILITY RESOURCE CENTER

The University is committed to equal working and learning opportunities for disabled students, faculty, and staff and recognizes that accommodations or modifications may be necessary to ensure access. The mission of the Disability Resource Center is to equalize the educational opportunities for students and provide support services for students, faculty, and staff with disabilities. The program is designed to promote full inclusion and participation in the educational experience and campus life. The Disability Resource Center is the designated office that reviews disability documentation, certifies eligibility for services, determines reasonable accommodations, and provides or arranges for reasonable accommodations.

Other services and programs provided by the center include information/referral, problem-solving/support, Sign Language interpreters, test accommodations, alternate print formats, adaptive technology, adaptive athletics/recreation, and wheelchair/equipment repair. Training and technical assistance are also provided to the campus community.

For more information about the programs and services available, including academic accommodations for students with disabilities and the admissions process, contact the center: Disability Resource Center, The University of Arizona, 1224 East Lowell Street Tucson, AZ 85721; phone: (520) 621-3268 (TTY); or visit the DRC homepage at http://drc.arizona.edu/.

## INTERNATIONAL STUDENT PROGRAMS AND SERVICES

The International Student Programs and Services (ISPS) serve both the incoming international student population and University of Arizona students studying abroad. ISPS assists international students in complying with existing federal, state, and local regulations, provides information and gives authorization (as appropriate) concerning visa and immigration matters, and offers personalized counseling and advisory services to students in all phases of the adjustment to the University and to the United States. It also sponsors an International Student Orientation and Registration Program each semester for newly-arrived international students, and cross-cultural workshops and seminars on issues affecting the international student population. There are also dozens of international student clubs supported by the Center.

For more information, ISPS is located adjacent to the campus, at 915 N. Tyndall Ave., (520) 621-4627, or visit the International Student Programs and Services at http://internationalstudents.arizona.edu/.

## COUNSELING AND PSYCHOLOGICAL SERVICES

A unit of Campus Health, Counseling and Psychological Services (CAPS) offers crisis intervention; brief individual, couple, and group psychotherapy; and medication evaluation and prescriptions to University of Arizona students. Other services include biofeedback training, and HIV counseling and testing. Services are confidential. The first visit is free; there is a minimal charge for subsequent visits. A Self-Help Library, free of charge, is available on the premises. Students can be seen on a walk-in basis the same day they seek services, and by appointment after the first visit.

For more information, CAPS is located within the Campus Health Bldg., 1224 E. Lowell St., Tucson, AZ 85721 (Northwest corner of Highland & 6th Street); phone: (520) 621-6490; or visit Campus Health Counseling and Psychological Services at http://www.health.arizona.edu/webfiles/caps_about_us.htm.

## DEAN OF STUDENTS

The Dean of Students office is committed to student learning and success at The University of Arizona. In addition to ensuring community standards and high-quality student life programs, the office handles withdrawals from the University, Code of Conduct, Code of Academic Integrity, Policy on the Use of Campus and First Amendment Rights, and other types of policy interpretation and dissemination. The office provides campus-wide leadership in managing student crisis situations. The office also maintains several student advisory groups which include graduate student participation.

The Dean of Students office is located in Old Main 203; by phone at (520) 621-7057; or visit the Dean of Students homepage at http://deanofstudents.arizona.edu/.

## MULTICULTURAL PROGRAMS AND SERVICES

The University of Arizona supports cultural resource centers designed to provide academic, social and cultural support to ethnic minority students. A few cultural organizations of note are:

- The **American Indian Graduate Center** provides a home-like gathering place and support program for Native-American graduate students. The Center offers student academic counseling, advisement, emergency loans, computer assistance, and social and community activities with other graduate students and the Tucson Indian community. It is located near the campus at 1439 E. Helen St., 621-7989.
- The **Asian Pacific American Student Affairs** organization (http://apasa.arizona.edu/) provides academic, educational and cultural programs and resources, as well as individual support, to Asian and Asian-American students.
- The **African American Student Affairs** organization (http://aasa.arizona.edu/) provides a support system for African American students to help them achieve academic success and enjoy enriching cultural experiences.
- The **African Students' Association** (https://arizona.collegiatelink.net/organization/wwwafricaclubsarizonaedu) provides a network for African students to meet and support one another, as well as engaging in various activities.
- The **Adalberto & Ana Guerrero Student Center** (http://chsa.arizona.edu/) offers culturally affirming programs for Hispanic and Chicano students, supporting their academic and personal success.

Information on other culturally oriented organizations and programs may be found at http://diversity.arizona.edu/support-centers-research-units and http://diversity.arizona.edu/cultural-student-clubs.

## TESTING OFFICE

The Testing Office offers the GRE, LSAT, MCAT and GMAT, as well as preparation courses for these examinations for a fee.

For additional information, contact the Testing Office, 1600 E. 1st Street, Tucson, AZ 85719; by phone at (520) 621-7589; or visit the Testing Office homepage at http://www.testing.arizona.edu/.

# IMPORTANT LINKS

**ACADEMIC INTEGRITY** – http://deanofstudents.arizona.edu/codeofacademicintegrity
It is the responsibility of the student to familiarize him- or herself with the University's policy regarding academic integrity.

**BURSAR** - http://bursar.arizona.edu/. The Bursar collects all tuition and student fees. The Bursar's site also includes information about the QTR (Qualified Tuition Reduction) benefit for UA employees.

**CATALOG** - http://catalog.arizona.edu/. This is UA's general catalog, including University policies.

**GRADPATH** - https://grad.arizona.edu/gsas/gradpath
GradPath is the UA Graduate College's electronic degree audit process that makes tracking and monitoring simple. Students are able to fill out and submit the required forms online through the UAccess Student Center. GradPath forms include the Plan of Study, Committee Appointment forms, Announcements used to schedule doctoral exams, a request for evaluation of Transfer Coursework and more. Students are responsible for submitting forms in a timely manner to document completion of their degree requirements. Use the link to "Student FAQs" for instructions for first-time users of GradPath (http://grad.arizona.edu/gsas/gradpath/faq?audience=35).

**GRADUATE COLLEGE** – http://grad.arizona.edu
From here students may access Graduate College policies, contacts, information about resources, deadlines, and other useful information. In particular, **all students** are expected to be aware of the policies relevant to the degree they are seeking and the steps they must take with the Graduate College: http://grad.arizona.edu/gsas/degree-requirements.

**REGISTRAR** - http://registrar.arizona.edu/, 621-3113. The Registrar's office can assist with issues regarding course registration, including registration changes.

**RESPONSIBLE CONDUCT OF RESEARCH (IRB)** - http://www.orcr.arizona.edu/. Students should inform themselves of the regulations governing **research with human or animal subjects**. All such research must be approved **in advance**.

**RESEARCH OPPORTUNITIES** - http://research.uahs.arizona.edu/research-development/core-services-current-research
Research opportunities and prospective faculty mentors within UA Health Sciences can be explored here. All faculty listed are available for mentoring or committee service for CTS students.

# TELEPHONE NUMBER DIRECTORY

## UNIVERSITY RESOURCES

Bursar
520-621-3232

Campus Health Services
520-621-6490

Career Services
520-621-2588

Counseling and Psychological Services (CAPS)
520-621-6490

Dean of Students
520-621-7057

Disability Resource Center
520-621-3268

Equal Opportunity and Affirmative Action
520-621-9449

Financial Aid
520-621-1858

International Student Services
520-621-4627

Legal Services ASUA
520-621-2782

Multicultural/Academic Student Affairs
520-321-1094

Parking & Transportation
520-621-3550

Registration and Transcripts (Registrar's Office)
520-621-3113

Residence Life
520-621-6501

Residency Classification (domicile)
520-621-3636

SafeRide (free nighttime campus transportation)
520-621-7233

Speech & Hearing Clinics
520-621-1826 or 520-621-7070

Women's Resource Center
520-621-3919

Veteran's Certification
520-621-9501

## DIVERSITY RELATED RESOURCES

African American Student Affairs
520-621-3419

International Affairs
520-621-1900

African Studies
520-621-5665

American Indian Graduate Center
520-621-3535

APEX (Academic Preparation for Excellence)
520-626-2307

Asian Pacific American Student Affairs
520-621-3481

Center for English as a Second Language
520-621-1362

Chicano/Hispanic Student Affairs
520-621-5627

Hillel
520-624-6561

Latin American Area Center
520-626-7242

Muslim Student Association
520-624-3233

Native American Student Affairs
520-621-3835

Pride Alliance (Bisexual, Gay and Lesbian Student Assoc)
520-621-7585

SALT Center for Learning Disabilities
520-621-1242

Women's Resource Center
520-621-3919

# REVISIONS TO CTS GRADUATE PROGRAM HANDBOOK

## CHANGES TO HANDBOOK

In general, all policies, requirements and procedures included in this handbook apply to all current CTS graduate students. Any exceptions to this – i.e. cases in which current students follow the requirement, policy or procedure that was in place when student was admitted to the CTS program – will be noted where the information appears in the handbook.

## CURRENT VERSION

This handbook was most recently revised March 9, 2026.

# APPENDIX A. TIMELINES FOR COMPLETING CTS DEGREES

The timelines presented below represent the typical timing for completing necessary steps for the Ph.D. or M.S. degree. The pace of progress in either degree program depends in part on the background and prior education of the student. The timeline for a post-baccalaureate student to complete either the M.S. or Ph.D. is normally expected to be slightly longer than for a postgraduate student. (The distinction between these categories of student is explained in the "Postgraduate vs. Post-Baccalaureate Students" section earlier in this handbook.) An individual student should strive to maintain the relevant timeline in completion of steps to earn the degree, but may in fact proceed at a different pace depending on many factors. Students must continually display progress toward completion of their degrees even if their progress does not exactly match what is presented in these timelines.

## TIMELINE FOR POST-BACCALAUREATE PH.D. STUDENTS

| Semesters 1-2 | Semesters 3-4 | Semesters 5-6 | Year 4 and Beyond |
|---|---|---|---|
| - Review initial Individual Development Plan with Mentor/Advisor<br>- Select Faculty Mentor or Participate in Lab Rotations<br>- Decide Minor and Select Minor Advisor<br>- File Plan of Study<br>- Form Comp Exam Committee<br>- Submit Year 1 Annual Progress Report | - Review 2nd year Individual Development Plan with Mentor<br>- Select Mentor and Comp Exam Committee if not yet selected<br>- Meet with committee to initiate written comp exam<br>- Complete written comp exams (CTS and minor).<br>- Schedule and complete oral comp exam<br>- Complete Grant Application requirement<br>- Submit Year 2 Annual Progress Report | - Review 3rd year Individual Development Plan with Mentor<br>- Complete Grant Application requirement (if not yet completed)<br>- Form Dissertation Committee<br>- Prepare and submit Dissertation Proposal<br>- Begin Dissertation research and CTS 920 units (if proposal approved)<br>- Submit Year 3 Annual Progress Report | - Review Individual Development Plan with Mentor by Oct. 1 each year<br>- Submit Annual Progress Report by June 1 each year<br>- Complete any remaining courses and CTS 920 units<br>- With committee approval, schedule dissertation defense<br>- Defend dissertation and complete any final revisions<br>- Submit dissertation to Graduate College for archiving |
| **GradPath Forms:**<br>- Plan of Study<br>- Comp Exam Committee Appointment | **GradPath Forms:**<br>- Announcement of Doctoral Comp Exam *[for oral exam]* | **GradPath Forms:**<br>- Dissertation Committee Appointment | **GradPath Forms:**<br>- Announcement of Final Oral Defense |

# TIMELINE FOR POSTGRADUATE PH.D. STUDENTS

| Semester 1 | Semester 2 | Semester 3 | Semester 4 | Year 3 and Beyond |
|---|---|---|---|---|
| - Review initial Individual Development Plan with Mentor/Advisor<br>- Select Faculty Mentor or Participate in Lab Rotations<br>- Decide Minor and Select Minor Advisor<br>- File Plan of Study<br>- Form Comp Exam Committee | - Select Mentor and Comp Exam Committee if not yet selected<br>- Meet with committee to initiate written comp exam<br>- Complete written comp exams (CTS and minor).<br>- Schedule and complete oral comp exam<br>- Complete Grant Application Requirement<br>- Submit Year 1 Annual Progress Report | - Review 2nd year Inividual Development Plan with Mentor<br>- Form Dissertation Committee<br>- Prepare and submit Dissertation Proposal | - Begin Dissertation research and CTS 920 units (if proposal approved)<br>- Submit Year 2 Annual Progress Report | - Review Individual Development Plan with Mentor by Oct. 1 each year<br>- Submit Annual Progress Report by June 1 each year<br>- Complete any remaining courses and CTS 920 units<br>- With committee approval, schedule dissertation defense<br>- Defend dissertation and complete any final revisions<br>- Submit dissertation to Graduate College for archiving |
| **GradPath Forms:**<br>- Plan of Study<br>- Comp Exam Committee Appointment | **GradPath Forms:**<br>- Announcement of Doctoral Comp Exam *[for oral exam]* | **GradPath Forms:**<br>- Dissertation Committee Appointment | | **GradPath Forms**:<br>- Announcement of Final Oral Defense |

# TIMELINE FOR POST-BACCALAUREATE M.S. STUDENTS

| Semesters 1-2 | Semesters 3-4 |
| --- | --- |
| - Select Faculty Mentor or Participate in Lab Rotations<br>- With mentor, decide on courses for Plan of Study<br>- Form Thesis Committee<br>- Decide thesis topic with approval of Thesis Committee<br>- Complete courses on Plan of Study | - Select Mentor and Thesis committee (if not already selected)<br>- Decide thesis topic with approval of Thesis Committee (if not already decided)<br>- Complete any remaining courses on Plan of Study<br>- Take required 6 units of CTS 910<br>- With Thesis Committee approval, schedule thesis defense<br>- Submit thesis to Graduate College for archiving |
| GradPath Forms:<br>- Plan of Study<br>- Master's Committee Appointment | GradPath Forms:<br>- Master's Committee Appointment (if not already submitted) |

# TIMELINE FOR POSTGRADUATE M.S. STUDENTS

| Semester 1 | Semester 2 |
| --- | --- |
| - Select Faculty Mentor or Participate in Lab Rotations<br>- With mentor, decide on courses for Plan of Study<br>- Form Thesis Committee<br>- Decide thesis topic with approval of Thesis Committee<br>- Complete first semester courses on Plan of Study | - Select Mentor and Thesis committee (if not already selected)<br>- Decide thesis topic with approval of Thesis Committee (if not already decided)<br>- Complete any remaining courses on Plan of Study<br>- Take required 6 units of CTS 910<br>- With Thesis Committee approval, schedule thesis defense<br>- Submit thesis to Graduate College for archiving |
| GradPath Forms:<br>- Plan of Study<br>- Master's Committee Appointment | GradPath Forms:<br>- Master's Committee Appointment (if not already submitted) |