SCHOOL OF ENGINEERING & TECHNOLOGY

UNIVERSITY *of* WASHINGTON | TACOMA

COMPUTER SCIENCE
AND SYSTEMS

GRADUATE HANDBOOK

All Master of Science in Computer Science and Systems students are responsible for understanding the information and policies contained in this handbook. This includes information linked to websites and documents. Information found on the websites for the School of Engineering and Technology, the Graduate School, and UW Tacoma supersedes information found in this handbook. This handbook is subject to change; please refer to the website for the most recent version
http://www.tacoma.uw.edu/set/graduate-resources

Information and Policies for CSS Graduate Degree Students

School of Engineering and Technology
University of Washington Tacoma
Campus: Cherry Parkes, Suite 133
Mailing:
1900 Commerce Street
Box 358426
Tacoma, WA 98402-3100
Ph: (253) 692-5860 Fax: (253) 692-5862 Email: uwtech@uw.edu
tacoma.washington.edu/tech

Dean: Raj Katti, PhD
Graduate Program Chair: Mohamed Ali, PhD
Graduate Program Coordinator: Mohamed Ali, PhD
Graduate Program Advisor (GPA): Rachel Crook
Schedule Advising Appointment: https://www.tacoma.uw.edu/set/academic-advising
Faculty Directory: http://www.tacoma.uw.edu/set/set-faculty

All graduate students are required to subscribe to the **UW TECH GRAD e-mail listserv**. This is very important, as we will post course information, deadlines, and other notices on a regular basis. You can subscribe online here: mailman1.u.washington.edu/mailman/listinfo/uwtechgrad.

In addition, please sign up with **UW Alert** to receive updates via text or email regarding emergency closures of campus:
washington.edu/alert/index.php

The **graduate program chair** oversees matters relating to the graduate curriculum and the courses, including the review process of proposals for capstone projects, theses, and course substitutions.

The **graduate program coordinator** provides advising of a substantive, academic nature. The graduate program coordinator also functions as the liaison to the Graduate School.

The **graduate program advisor** is responsible for helping students with the technical pieces of graduate student life, such as deadlines, forms, and formal procedures.

Masters students who choose to pursue a thesis or capstone project will work closely with a member of the graduate faculty to give direction and shape to the work leading up to the final product.

1. Overview of the Masters in Computer Science & Systems Program

The master's degree program in Computer Science and Systems at University of Washington Tacoma is designed primarily for students who plan to work in the field. It can also prepare students to enter a Ph.D. program in computer science. The degree requires 40-45 credits, depending on the option the student chooses (see Section 3 below for degree options). A student entering in autumn, taking a full load of two courses per quarter and making satisfactory academic progress, can complete the degree requirements in four quarters. Graduate courses are limited in the summer, though students may have the option to enroll in an elective, independent study, or capstone course.

VISION

The School of Engineering and Technology is a unique public/private partnership in higher education that serves as a catalyst for generating energy and interest in computing science and engineering disciplines by:

- Addressing the need to ensure the availability of well-educated bachelor's, master's, and doctoral computing science and engineering professionals in numbers sufficient to support and fuel the growth of Washington's high-tech industries.
- Providing every Washington citizen access and opportunity to prepare for – and advance in – outstanding and rewarding technology careers.

MISSION

The School of Engineering and Technology:

- Provides high quality education by engaging students in discovery, application, and integration of knowledge focusing on computing science and engineering disciplines.
- Serves as a center of excellence for the computing science and engineering disciplines primarily for the local and state communities.
- Proactively supports a diverse population of current and future students with emphasis on non-traditional and underrepresented students.
- Enhances the vitality and prosperity of our local and state community.

2. Important Dates

Please be aware of all important dates, including registration dates at:
tacoma.uw.edu/current-students/time-schedule-registration-guide

Graduate School deadlines at:
https://grad.uw.edu/for-students-and-post-docs/dates-and-deadlines/

3. Master's Degree Options

There are three options for completing the MS degree in CSS:
- Thesis option
- Capstone Project option
- Course-Only option

Thesis Option: The thesis option was designed for graduate students who are prepared and want to engage in a research project working with one or more faculty members of the School of Engineering and Technology. This research often results in one or more publications in journals or conference proceedings.

Students who select the thesis option must work with a faculty advisor to produce a thesis proposal. The proposal, along with a permission to enroll form, is submitted to the Graduate Committee for approval. See Graduate Resources on our website for the required form:
http://www.tacoma.uw.edu/set/graduate-resources

After the Graduate Committee approves the proposal, the student registers for TCSS 700. A total of ten (10) credits of TCSS 700 must be completed to meet the degree requirements. These units are taken over two quarters, though a third quarter may be added if necessary. TCSS 700 is graded credit/no credit, so the grades do not count toward the student's grade point.

Capstone Project Option: The capstone project option was designed for graduate students who want to work on a significant project as part of their graduate program without the responsibility of conducting detailed research that comes with a thesis. Capstone projects often involve the design, construction, and testing of a moderate to large programming project.

Students who select the capstone project option must work with a faculty advisor to produce a project proposal. The proposal, along with a Proposal to Enroll in MS CSS Capstone, is submitted to the Graduate Committee for approval. See Graduate Resources on our website for forms:
http://www.tacoma.uw.edu/set/graduate-resources

After the Graduate Committee approves the proposal, the student registers for TCSS 702. A total of ten (10) credits of TCSS 702 must be completed to meet the degree requirements. These units are taken over two quarters, though a third quarter may be added if necessary. TCSS 702 is graded the same way core and elective courses are graded, so the grades count toward the student's grade point average.
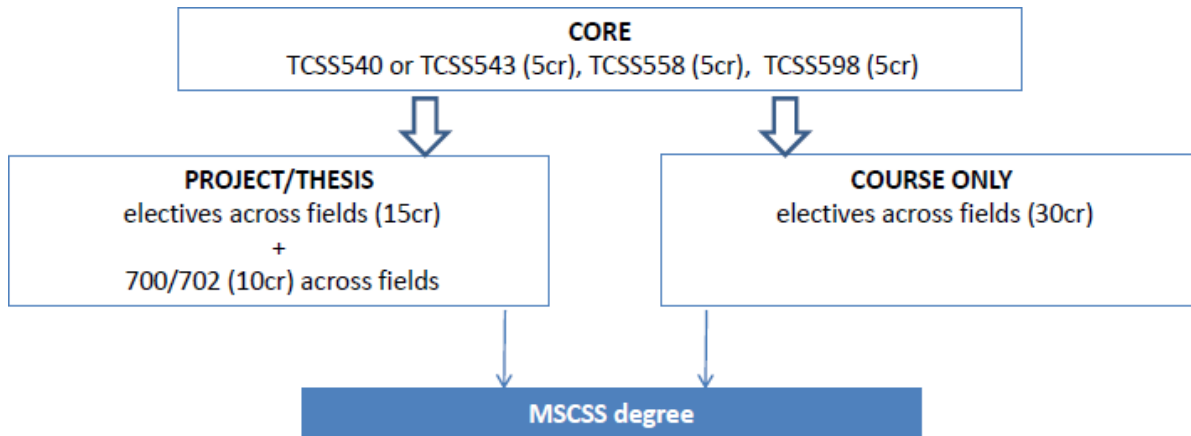
Course-Only Option: Students may choose to take an additional three (3) 500-level electives (15 credits) to satisfy their degree requirements in place of capstone courses. This option is provided for students who are primarily interested in maximizing the breadth of their background in computer science.

Credits awarded for 700, 701, and 702 cannot be counted toward the Course-Only Option.

4. Courses

The courses a student takes to satisfy the requirements for the MS degree fall into six categories:
- CORE Courses (required for all students),
- Elective Courses (required for all students)
- Research Seminars (TCSS 591, 592, 593, 594, 595, 597)
- Thesis / Capstone courses (required for thesis and project option students) and
- Independent Study
- Substitution courses taken on another UW campus

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                        │                  CORE                     │
                        │  TCSS540 or TCSS543 (5cr), TCSS558 (5cr), │
                        │              TCSS598 (5cr)                 │
                        └──────────────────────────────────────────┘
                               ⇓                    ⇓
        ┌─────────────────────────────┐   ┌──────────────────────────────┐
        │      PROJECT/THESIS          │   │         COURSE ONLY          │
        │ electives across fields (15cr)│  │ electives across fields (30cr)│
        │            +                 │   │                              │
        │ 700/702 (10cr) across fields │   │                              │
        └─────────────────────────────┘   └──────────────────────────────┘
                  │                  │
                  ↓                  ↓
           ┌────────────────────────────────┐
           │          MSCSS degree          │
           └────────────────────────────────┘
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Prerequisite Courses- Undergraduate
Students should have experience in the following areas before starting to take graduate-level courses in the MS program:
- object-oriented programming
- discrete mathematics
- data structures
- analysis of algorithms
- computer organization and architecture
- project management and software engineering

In some cases, work experience may substitute for formal courses in a given area.

Core Courses
All graduate students are required to take three core courses:
- TCSS 543 Advanced Algorithms or TCSS 540 Theory of Computing
- TCSS 558 Applied Distributed Computing
- TCSS 598 Research Seminar (03 credits in Autumn & 02 credits in Winter)

Elective Courses
The number of elective courses a student is required to take depends on the program option the student has chosen. For students in the 'course only option,' 30 elective credits are required. Students may request permission from the Graduate Committee to apply TCSS 600 credits, independent study, to this total. Internship credit, TCSS 701, will not be counted toward program

requirements. If you wish to take a 500-level elective in Seattle or Bothell, you must get prior approval. Go to Graduate Resources for the required form: http://www.tacoma.uw.edu/set/graduate-resources

Independent Study- TCSS 600
After taking the 15 credits of core courses, a student may decide that she or he has a strong interest in an area of computer science that is not covered in the scheduled courses. In this case, the student may propose that he or she be permitted to substitute an independent study course for an elective course. Students must find a graduate faculty member who will supervise the independent study.
Go to Graduate Resources for the required form:
http://www.tacoma.uw.edu/set/graduate-resources

Internships – TCSS 701
Internships do not count toward elective credit. A student may need to take an internship for credit for a variety of reasons, such as to maintain full-time status, or to satisfy a scholarship requirement. Internship packets should be turned in to the graduate advisor with a cc: to the Graduate Program Coordinator.

Thesis and Capstone Project Courses- TCSS 700 and 702
Students enrolled in the thesis option are required to take 10 units of TCSS 700 and students in the project option are required to take 10 units of TCSS 702. These courses are taken in place of 10 credits of elective courses. If a student chooses to switch from the thesis or project option to the course only option, 700 and 702 will NOT count as electives.

The general requirements for completing the capstone project are as follows. (These steps are directed to the student, so "you" and "the student" mean the same thing.)

A. **Finish all prerequisites and core courses**
    Students must finish all prerequisites and 15 credits of core courses before registering for a thesis or capstone project.

B. **Find a research topic with the help of a faculty advisor**
    Students should begin considering topics from the start of the master's program. One of the objectives of the Master's Seminar, TCSS 598, is to help you identify faculty with whom you may want to work. Become familiar with the faculty research areas, which can be found online: http://directory.tacoma.uw.edu/node/10 Faculty are approachable and open to new ideas. You may also attend a colloquium event to hear what other students are researching.

C. **Select your Capstone Committee Chair**
    All master's projects are evaluated by a *Capstone Committee*. It is your responsibility to find a primary advisor for the thesis or project, who will act as the chair of your committee. Usually this will be a faculty member in the School of Engineering and Technology, and by university rules the committee chair must be a member of the graduate faculty.

D. **Form the Capstone Committee**
    By university rules, the Capstone Committee must have between two and four members, at

least half of whom must be graduate faculty. It is you and your advisor's responsibility to find a committee that satisfies these rules.

E. Write the proposal and submit it to your Capstone Committee for approval
Your proposal will include the type, its title, and the members of your Capstone Committee. It will describe the technical content of the project, and will also specifically list all deliverables (code, written documentation, and oral presentation). All project deliverables must include a written final document and an oral presentation at a colloquium organized at the School of Engineering and Technology.

    a. The student completes the proposal form that is approved by the Capstone Committee. An electronic copy of the proposal with the signed form is submitted to the graduate advisor. The proposal must be submitted electronically using the easychair.org site (or a similar site announced by GPA) two weeks prior to the first day of the quarter.

    b. The Graduate Committee will review the proposals, and decisions regarding the proposals will be provided to the students and faculty advisors via email. Work on the project can begin when the Graduate Committee approves the proposal.

F. Enroll in project courses and do the project
Students will be given an add code by the graduate advisor to enroll in the capstone course once the graduate committee approves the proposal. Collaborate with your Committee Chair and meet often. Do not allow a problem to slow your progress. Your Committee Chair is there to help and support you complete your project/thesis. It is the responsibility of the student to provide frequent updates on their progress to the Committee Chair.

It is strongly recommended that the capstone be completed in two successive quarters. Students must maintain enrollment in the program from the time they enroll in the capstone sequence to the time the degree is granted. **On-leave petitions will not be accepted during that period** and the student must enroll in additional capstone credits if necessary to remain in the program. A student with an incomplete capstone who is not enrolled will be dropped from the program. Minimum enrollment is 2 credit hours.

Students enrolled in TCSS 700 or TCSS 702 are not eligible to use the state employee tuition exemption.

Any request to complete the capstone in a single academic quarter must include both an explanation of extraordinary circumstances, and a schedule approved by the Capstone and Graduate Committees indicating exactly how the thesis or project will be completed within the accelerated time frame**. Please note that the Graduate School will not allow submission of late work. If a project, thesis, or master's request isn't submitted prior to the end of the quarter, the student must register for additional credits the following quarter.**

G. Submit the Capstone deliverables for approval
Your committee must approve all deliverables listed in the project proposal. It is recommended that you submit your final draft to all members for review two (2) weeks prior to the colloquium date. (Although this item appears on this list before the oral

presentation, the written deliverables do not need to be completed before the oral presentation.)

H. **Thesis Requirements**
Students who are completing a Thesis (TCSS 700) have additional requirements to adhere to specifically regarding the style and submission of documentation. The Thesis and Dissertation Style Manual is located online at:
http://www.grad.washington.edu/students/etd/

Thesis students will also need to submit their documentation to the Graduate School for preliminary review prior to final submission. Details and dates can be found online at:
https://grad.uw.edu/for-students-and-post-docs/thesisdissertation/

I. **Sign up for a colloquium presentation**
You will present your project work at a departmental colloquium in your graduation quarter. You must sign up for a time slot to present your work. Check with the colloquium coordinator for the deadline for doing so, but the deadline will typically be no later than two weeks before the colloquium (or about the 8th week of classes). If you miss this deadline, you will not present at the colloquium, and if you don't present at the colloquium, your project will not be complete, and if your project is not complete you will not graduate!

J. **Capstone Committee approves all deliverables**
When all deliverables have been evaluated and approved by your Capstone Committee, the committee will fill out a form listing and approving those deliverables. The committee will assign grades for the capstone courses, and the student will be eligible for graduation provided all other requirements have been satisfied.

K. **Send final documentation to the Graduate Advisor**
The final thesis/project will need to be sent to the Graduate Advisor via e-mail. The deadline to submit the final documentation is the last day of final exams for each quarter. **Please note that the Graduate School will not allow submission of late work.** If a project or thesis isn't submitted prior to the end of the quarter, the student must register for additional credits the following quarter.

Academic Honesty

There can be a tremendous amount of pressure on students at a university to get good grades and finish a degree. Students at the University of Washington are expected to maintain the highest standards of academic conduct; cheating and plagiarism are not tolerated. Please review the Student Conduct Code for more information:
https://www.tacoma.uw.edu/node/38211

5. Degree Concentrations

Students are eligible to have one concentration listed on their final transcript. The transcript will include the name of the degree, Master of Science in Computer Science & Systems, and one concentration from six available categories:

- Bioinformatics
- Cybersecurity
- Data Science
- Distributed Systems
- Geographic Information Systems (GIS)
- Cyber-Physical Systems

In order to have a concentration listed on a final transcript, a student must earn 20 credits from graduate level courses listed in the corresponding tracks.[†]
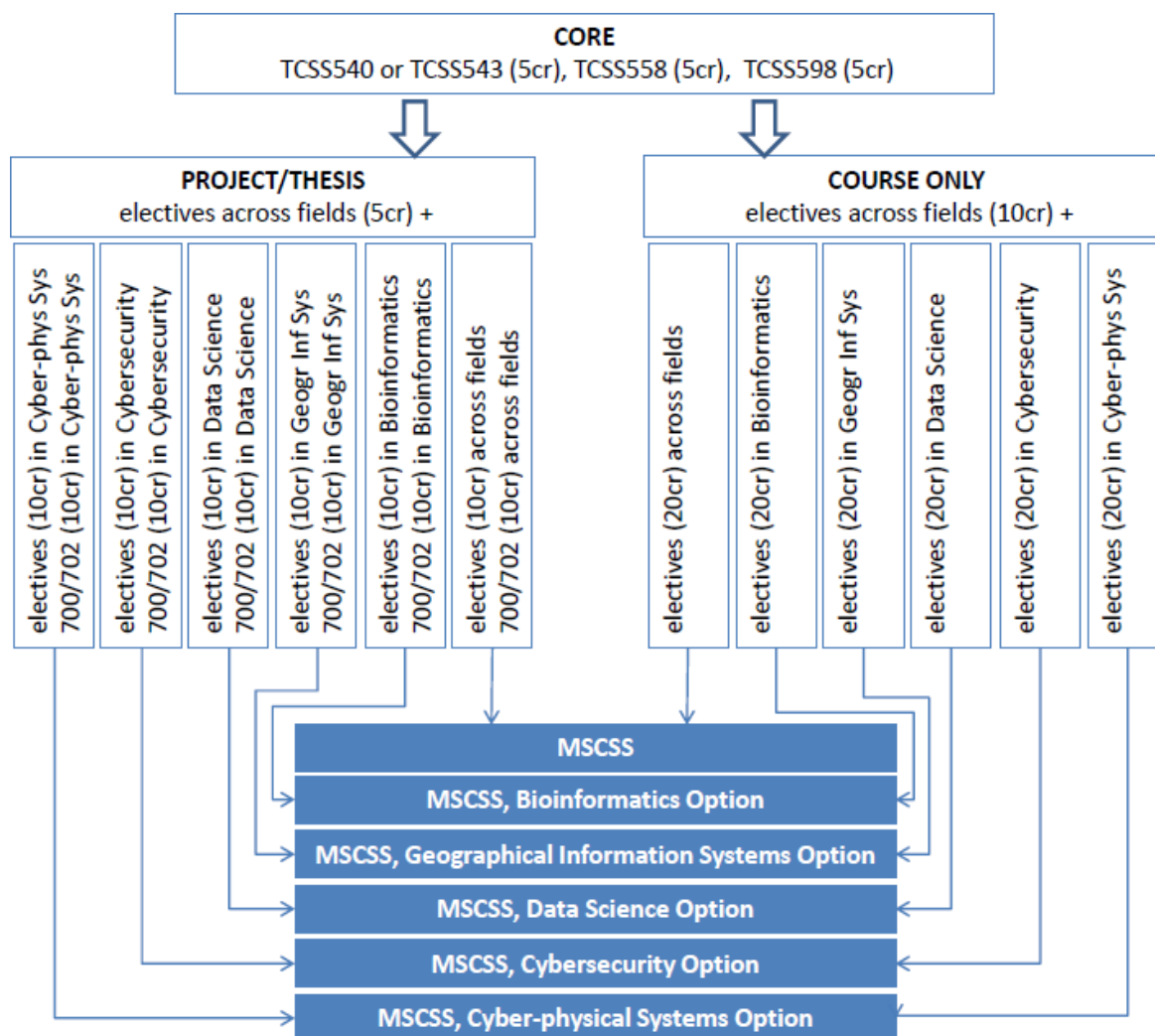
Bioinformatics:
TCSS 555, TCSS 588, TCSS 592, TCCSS 590,
TCSS 600, TCSS 700, TCSS 702

Distributed Systems:
TCSS 531, TCSS 559, TCSS 562, TCSS 570, TCSS 571, TCSS 573, TCSS 576, TCSS 590, TCSS 591,
TCSS 600, TCSS 700, TCSS 702

Cybersecurity:
TCSS 576, TCSS 581, TCSS 582, TCSS 583, TCSS 584, TCSS 595, TCSS 590,
TCSS 600, TCSS 700, TCSS 702

Data Science:
TCSS 551, TCSS 554, TCSS 555, TCSS 556, TCSS 590, TCSS 593,
TCSS 600, TCSS 700, TCSS 702

Geographic Information Systems:
TCSS 565, TCSS 594, TCSS 590,
TCSS 600, TCSS 700, TCSS 702

Cyber-Physical Systems:
TCSS 569, TCSS 573, TCSS 574, TCSS575, TCSS 597, TCSS 590,
TCSS 600, TCSS 700, TCSS 702

6. Course Days, Times, and Quarters Offered

The UW Time Schedule lists credit classes offered at the University of Washington - Tacoma. It is updated daily and is subject to change.
http://www.tacoma.uw.edu/office-registrar/registration-courses

7. Progression through the Program

Students must adhere to the following policies:

- **A student will not be allowed to enroll in more than 13 credits per quarter for 500-700 level courses.**
- Prerequisites must be completed prior to taking elective courses.
- Core courses may be taken with elective courses, as long as the prerequisites are met.
- All prerequisite and core courses must be successfully completed prior to enrolling in a capstone course.

Any deviation from the policies listed above must be approved by the Graduate Committee.

8. Course Substitutions, Independent Study Courses, and Research Seminar Courses

At times it may be in the student's best educational interest to take courses outside the Computer Science & Systems graduate program. A student may petition the Graduate Committee to be allowed to use one of the following course substitutions:

- take an equivalent prerequisite course at another institution
- take a graduate level elective in a computer science department at another institution
- take a relevant, graduate level, elective course from another program or department, either at UWT or elsewhere.

The following policies apply to course substitutions:
- a maximum of five (5) credits from out-of-program courses, independent study courses, or research seminar courses will be counted toward the credits required for a degree

Students have the option of taking an elective in Seattle or Bothell. Courses in Seattle fill quickly and it is the student's responsibility to contact the Graduate Advisor for Computer Science and Engineering in Seattle to inquire about space and permission to enroll once the Graduate Committee has approved the course. The form to request the substitution of a course is available on the graduate resources webpage: http://www.tacoma.uw.edu/set/graduate-resources. Capstone courses cannot be waived or substituted.

The TCSS 600 course, Independent Study, is taken under supervision of a graduate faculty member, involves some research, and has sufficient content to be comparable to a 500-level elective. Independent study courses cannot be used to work on the capstone project. As stated above, only five (5) credits can be substituted either by out-of-program courses, independent study courses, or research seminar courses.

To receive approval of TCSS600, a petition must be completed by the student, and approved by agraduate faculty member. Independent Study (TCSS 600) grades are **not** used in computing the GPA.

The form to request permission to enroll in TCSS 600, Independent Study is available on the resources webpage: http://www.tacoma.uw.edu/set/graduate-resources

9. Tuition-Exempt Status

Eligible University and State of Washington employees may enroll in up to twelve credits towards the requirements of any graduate degree program using a tuition exemption, provided they enroll on a space-available basis. Eligible students are allowed to enroll in courses that have been designated as available for tuition exemption. As of summer quarter 2021 the following courses are eligible for tuition exemption: TCSS 540, TCSS 543, TCSS 558, and TCSS 598. A maximum of 6 credits per quarter will be eligible for tuition exemption. Tuition-exempt students may register beginning the third day of the quarter (UW staff and faculty) or the fourth day of the quarter (all others).
More information about tuition exemption policies can befound online:
https://www.tacoma.uw.edu/uwt/registrar/tuition-exemption

Students enrolled in courses other than TCSS 540, TCSS 543, TCSS 558, or TCSS 598 are not eligible for tuition exempt status and must pay tuition and fees.

10. Filing for Graduation – Request a Master's Degree

Students will apply for graduation online at:

https://apps.grad.uw.edu/student/mastapp.aspx

Below is a timeline in which students may submit their Master's Degree Request. If students miss the deadline to file their request, they must register for credits in the following quarter. Please check the Graduate School's timeline often during your last quarter:

http://grad.uw.edu/for-students-and-post-docs/dates-and-deadlines/

Although students may complete the program in any quarter, the annual graduation and hooding ceremonies only occur once a year. Participation requires online or in-person registration. Please watch your email during your final quarter and contact the graduate advisor for information. Students completing in summer may participate in ceremonies in the spring prior to completing.

11. Funding Opportunities

The School of Engineering and Technology awards one to two scholarships to MSCSS students each year, as well as research assistantship positions. The William H. Phillip fellowship is awarded each fall and is awarded to residents of Pierce County pursuing their MSCSS degree at UW Tacoma.

The number of research assistantships and other paid research positions vary depending on grants awarded to the School. Students on H-4 visas may not be eligible for these positions or any other paid position. Positions will be advertised on the website and on uwtechgrad@uw.edu. Students must submit a separate application to be considered.

Students seeking funding should utilize the resources provided by the Graduate Funding Information Service at http://www.lib.washington.edu/commons/services/gfis and the UW

Tacoma Office of Fellowships and Awards at:
http://www.tacoma.uw.edu/student-fellowships- awards/student-fellowships-awards

12. International Students
Students on F-1 visas will pay non-resident tuition. F-1 students are eligible to apply for research assistantship positions and may work on campus for up to 20 hours per week. Students on H-4 visas can qualify for in-state tuition if they have lived in Washington for 12 consecutive months. H-4 students may not be eligible for any paid positions but may convert to an F-1 visa after three full-time quarters.

Students must contact the Residency Office in Seattle for residency petitions and all related information. Please visit the website for more information:
https://registrar.washington.edu/students/residency/

Students should contact the International Student Services office for advising prior to making any visa changes. In addition, the ISS coordinates the CPT and OPT approval process. Students should contact ISS first, then follow up with the graduate advisor. Please note that new students are not eligible for CPT.

13. Index of Graduate School Memoranda
The Index of Graduate School Memoranda includes graduate program policies maintained by the Graduate School. Content is reviewed and modified as needed. Final decisions regarding implementation or continuation of policies receive the advice of the Graduate School Council. Below are a few memorandums that the School of Engineering and Technology would like to make sure you are aware. All of the memoranda are available online at
https://grad.uw.edu/policies-procedures/graduate-school-memoranda/

Continuous Enrollment and On Leave Status
Graduate students are required to maintain graduate status during their program of study. Failure to maintain this status requires reinstatement to the University of Washington. Students who desire to take a quarter or quarters off without going through the reinstatement process must apply for on-leave status for each quarter they do not register. For complete details regarding the on-leave policy, refer to Memo 9.

On-leave Eligibility

- Must be a graduate student in good standing.
- Must have been registered or on-leave the previous quarter.
- Must satisfy any graduate program policies pertaining to going/remaining on-leave.
- US citizen and permanent residents must have registered for at least one quarter of graduate study at UW and have approval from their graduate program.
- International students must have registered full time (10 or more credits) for three consecutive quarters and have approval from both their graduate program and the International Student Services office.
- You may not go on leave after registering for capstone course credits.
- Pre-registered students must officially withdraw via MyUW or the Registration office prior to the first day of the quarter. Registered students are not eligible for on-leave status.

Students on-leave **are** entitled to:
- return as a graduate student to the graduate program
- use University libraries
- maintain access to the UW email account
- use Hall Health Primary Care Center on a pay-for-service basis
- use the IMA with additional fee

Students on-leave are **not** entitled to:
- faculty and staff counsel/resources (very limited counsel/resources are permitted)
- examinations of any type (except for language competency)
- thesis/dissertation filing
- University housing
- student insurance
- financial assistance

Procedure for Requesting Leave

Beginning September 28, 2011, students requesting on-leave status must submit an online Request for On-Leave Status via MyGrad Program. For a given quarter, students can submit the request as early as two weeks prior to the first day of instruction and must submit payment of the non-refundable fee no later than 11:59:59 p.m. PST on the last day of instruction. Leave is granted on a quarterly basis, though the following students may request up to four consecutive quarters of leave at one time: PCMI students, military personnel with deployment orders, and some UW Fulbright grantees (with the exception of military personnel with deployment orders, these students will be required to pay the fee for each quarter of leave requested).

Reinstatement to the Graduate School

Students previously registered in the Graduate School who have failed to maintain graduate student status (on-leave status was not secured and registration was not maintained) but wish to resume studies within the same degree program must file a request for reinstatement to the Graduate School. Requests will first be reviewed and approved by the department. Once the department has approved the request and the Graduate School has confirmed students' eligibility for reinstatement, students will be notified to pay a non-refundable reinstatement fee before registering for the requested quarter of reinstatement.

Time to Degree and Limits for On-Leave Status

The Graduate School normally allows six years from the quarter of admission to complete requirements for a master's degree. **Periods spent On-Leave or out of status are included in these limits**. Before approving a *Petition for On-Leave Status* for a student whose leave period will take them in excess of these limits, the department must first file a *Petition to the Dean of the Graduate School* (via MyGrad Program) explaining why this action is being requested. This *Petition to the Dean* must be approved by the Graduate School before the *Petition for On-Leave Status* is filed.

Grading system

Grades shall be entered as numbers, the possible values being 4.0, 3.9, . . . and decreasing by one-tenth until 1.7 is reached. Grades below 1.7 will be recorded as 0.0 by the Registrar and no credit is earned. A minimum of 2.7 is required in **each course** that is to be counted toward a graduate degree. A minimum cumulative grade-point average of 3.0 is required for graduation. See Memo 19 for more information.

Incomplete Grades

An Incomplete may be given only when the student has been in attendance and has done satisfactory work to within two weeks of the end of the quarter and has furnished proof satisfactory to the instructor that the work cannot be completed because of illness or other circumstances beyond the student's control.

To obtain credit for the course, a student must successfully complete the work and the instructor must submit a grade. In no case may an Incomplete be converted into a passing grade after a lapse of two years or more. An incomplete received by the graduate student does not automatically convert to a grade of 0.0 but the "I" will remain as a permanent part of the student's record.

Low Scholarship Status

Students in the Master's program are graduate students at the University of Washington, and as such must abide by general graduate-school regulations regarding progress through the program. Grades earned in prerequisite courses are considered when evaluating low scholarship status. Students should be aware of the following regulations detailed in Memo 16.
1. A minimum grade of 2.7 is required for a course to be counted toward the graduate degree.
2. A cumulative GPA of 3.0 is required for graduation.

The Graduate Program Coordinator and the CSS graduate faculty are expected to review the status of each student who violates the above polices and to transmit to the Dean of the Graduate School a specific recommendation: ***no action***, ***warn***, ***probation***, ***final probation***, or ***drop.***

No Action
May be recommended for those students whose cumulative GPA is above 3.0 but whose most recent quarter's work is below 3.0, if the review has determined that this condition is not cause for immediate concern.

Warn
May be recommended for those students whose cumulative GPA has dropped slightly below 3.0--i.e. 2.99-2.95.

May be recommended for those students who have failed to meet expectations for performance and progress as determined by the graduate program.

ACTION TAKEN AS INDICATED ABOVE WILL BE INITIATED BY THE GRADUATE PROGRAM, AND REPORTED TO THE GRADUATE SCHOOL, BUT WILL NOT APPEAR ON THE STUDENT'S

PERMANENT RECORD.

Probation
May be recommended for those students who have not corrected the deficiency which caused the warn action within the time limit specified by the graduate program.

May be recommended for those students who depart suddenly and substantially from scholarly achievement as defined by the graduate program. (A previous warn recommendation is not necessary).

Programs may determine the length of probationary status. (The Graduate School recommends no less than one quarter and no more than three quarters of probationary status). Students should be informed of the current program policy regarding the length of the probationary period.

Final Probation
May be recommended for those students who have not corrected the condition(s) that caused the probation recommendation within the time limit specified by the graduate program.

May be recommended for those students who fail to progress toward completion of the graduate program. A student will be carried on final probation status for one quarter before being changed to drop, probation, or some other status.

Drop
Final action to be recommended. A drop recommendation means immediate drop from the University of Washington. Therefore, this recommendation must be received in the Graduate School soon after the beginning of the quarter following the quarter on which the decision is based.

Recommendations for action on low grade point average or unsatisfactory performance and progress will be reviewed by the Dean of the Graduate School, and students will be informed of a change in status by letter from the Dean.

Appeals
Students may appeal change of status, as explained above, directly to the Chairperson of the graduate degree granting unit. Appeals beyond this point should follow the process outlined in Memo 33, Academic Grievance Procedure:
https://grad.uw.edu/policies-procedures/graduate-school-memoranda/

Repeating a Course

Graduate students may repeat any course. Both the first and second grades will be included in the cumulative GPA. Subsequent grades will not be calculated, but will appear on the permanent record. The number of credits earned in the course will apply toward degree requirements only once.

14. Campus Support

There are several campus resources that you can use to get additional help, either for counseling or for specific kinds of help (for example, reading, writing, math, study skills, etc.). Contact them for further information.

Teaching and Learning Center (TLC): The Teaching and Learning Center (TLC) is a place where all members of the UW Tacoma community (students, staff, and faculty) can come for feedback, help, and inspiration during their academic and learning careers. The TLC provides instructional support in areas such as reading, writing, math, science, statistics, public speaking, and others.

Student Counseling Center (SCC): The Student Counseling Center is an on-campus resource that provides counseling to the students at UW Tacoma. It is common for students to experience times when they feel overwhelmed by the responsibilities of college, work, family, and relationships. The Student Counseling Center is here to help students cope with stresses and personal issues that can interfere with their ability to perform in school.

Disability Support Services (DSS): The University of Washington Tacoma is committed to making physical facilities and instructional programs more accessible to students with disabilities. Disability Support Services (DSS) functions as the focal point for coordination of services for students with disabilities. In compliance with Title II or the Americans with Disabilities Act, any enrolled student at UW Tacoma who has an appropriately documented physical, emotional, or mental disability that substantially limits one or more major life activities [including walking, seeing, hearing, speaking, breathing, learning and working], is eligible for services from DSS.

<< ALL CONTENT NEW STARTING HERE >>

15. Overview of the PhD in Computer Science & Systems Program

The PhD program in Computer Science and Systems at University of Washington Tacoma is designed to develop scholars, educators, and interdisciplinary researchers who focus on computing principles for breadth, to become experts in one of many interdisciplinary areas in science and society characterized by substantial engineering and technology challenges requiring significant domain expertise to solve. The curriculum is built upon the existing Master's in Computer Science and Systems program (MSCSS) at UW Tacoma. Graduates from the PhD in Computer Science and Systems program will be scholars and contributors to local growth and use-inspired innovation. The program builds advanced computing knowledge, augments critical thinking skills, and helps inquiry, questioning and abstraction towards tool development while contributing to theoretical advances in the area of the student's emphasis. The curriculum includes courses in traditional areas of computer science, such as advanced algorithms and distributed computing, as well as courses in high demand fields where SET's faculty have strong expertise, such as machine learning, cryptography, cloud computing, and bioinformatics. Graduates of this program will be leaders and advanced explorers able to bridge the gap between technological and societal demands through collaborative research.

16. PhD CSS Program Curriculum

Overview of degree requirements: The PhD program builds upon the existing MSCSS program. Students need to satisfy the requirements for the MSCSS program (40 credits). Furthermore, they need to complete at least 20 credits of additional 500-level elective coursework and 30 credits of doctoral thesis. Overall, the PhD program will require completion of 90 credits, namely:

- 40 credits required to obtain the MS CSS degree with a master thesis option, namely:
  - TCSS 543 Advanced Algorithms or TCSS 540 Theory of Computing (5 credits)
  - TCSS 558 Applied Distributed Computing (5 credits)
  - TCSS 598 Master Seminar in CSS (5 credits)
  - 15 credits of 500-level TCSS elective courses (510 or above; see list below)
  - TCSS 700 Master's Thesis (10 credits)
- 20 credits of 500-level TCSS elective courses, chosen from at least 3 different concentration tracks (see Table 3)
- 30 credits of doctoral dissertation TCSS 800

In addition, to obtain the PhD degree, students need to successfully pass a:
- General examination with research proposal
- Final examination

More details are provided below. As explained in the "Admission" section, students who have completed a prior MS degree in a different institution might be able to transfer up to 30 credits, to be reviewed by the CSS Graduate Program Committee on a case-by-case basis.

The general catalog details a list of available graduate courses available online here:
https://www.washington.edu/students/crscatt/tcss.html

List of courses: All courses except for TCSS 800 Doctoral Dissertation already exist as part of the MSCSS program.

Prerequisite coursework: As the PhD program builds upon the existing MSCSS program, the prerequisite coursework requirements are the same as for the MSCSS program. All students admitted to the MSCSS program (and hence the PhD program) are expected to have competency in the following areas:

- Object-Oriented Programming (equivalent to TCSS 142, TCSS 143 and TCSS 305)
- Discrete Mathematics (equivalent to TCSS 321)
- Data Structures (equivalent to TCSS 342)
- Algorithms (equivalent to TCSS 343)
- Program Management/Software Engineering (equivalent to TCSS 360)
- Computer Organization (equivalent to TCSS 371)
- Computer Architecture (equivalent to TCSS 372)
- Calculus
- Science (Physics preferred)

Students without a degree or significant work experience in computer science can complete the prerequisites as a post-baccalaureate student. In rare circumstances, students lacking one or two prerequisites may be admitted on a space available basis.

Student learning goals: The PhD in Computer Science and Systems program prepares students for a research career in industry or academia. Graduates of the PhD in Computer Science and Systems program have a broad, comprehensive knowledge of computer science core areas, including algorithms and architecture. They have deep knowledge and expertise in a specific area of computer science research that enables them to create solutions that can change the world.

Program learning outcomes: Upon successful completion of the PhD in Computer Science and Systems program, graduates will be able to:
- Read, understand, and evaluate professional literature on advanced topics in computer science
- Use current techniques, skills, and tools necessary for computing practice
- Independently conduct original research by identifying important computer science problems (e.g. performing a gap analysis), developing solutions through creative problem-solving and rigorous design, designing and performing experimental evaluation, and conducting rigorous analyses of results
- Communicate computer science concepts in verbal and written forms to effectively disseminate results to a technical audience

Learning outcome	Relevant courses and exams
Read, understand, and evaluate professional literature on advanced topics in computer science	TCSS 598, TCSS 600, TCSS 700, TCSS 800, General Exam, Final Exam
Use current techniques, skills, and tools necessary for computing practice	TCSS 540, TCSS 543, TCSS 558 TCSS 500-level elective courses
Independently conduct original research: from identifying important computer science problems, to the development of solutions through creative problem-solving and rigorous design, to the design and implementation of experimental evaluations, and performing a rigorous analysis of results	TCSS 700, TCSS 800
Communicate computer science concepts and results to a technical audience	TCSS 598, General Exam, Final Exam

Table 1. Mapping of learning outcomes to program components

A mapping to the individual courses in which these learning outcomes are realized is given in Table 1. The courses have specific student learning outcomes that are measured through course assignments and exams, as documented in detail in the assessment and grading policy rubric of each course syllabus. The Graduate Program Committee, a committee consisting of Graduate Faculty at SET, oversees the curriculum and makes recommendations for changes as needed.

Logistics: The PhD program adopts many of the existing procedures and policies describes for the existing MSCSS program described in this document. PhD students are strongly encouraged to review all policies and procedures for both the MSCSS and PhD programs. Students in the PhD program need to regularly meet with their faculty advisor to report and discuss research progress. Students will be able to enroll in a part-time or full-time course of study while making meaningful progress towards the degree. A model trajectory for a full-time graduate student progressing through the PhD in CSS degree program is shown in Table 2. The table assume no transfer credits.

year	quarter	#credits	courses
year 1	Au	13	**TCSS 543 (5), TCSS 598 (3), TCSS 5xx (5)**
	Wi	12	**TCSS 558 (5), TCSS 598 (2), TCSS 5xx (5)**
	Sp	10	**TCSS 700 (5), TCSS 5xx (5)**
year 2	Au	10	**TCSS 700 (5)**, TCSS 5xx (5)
	Wi	10	TCSS 5xx (5), TCSS 5xx (5)
	Sp	10	TCSS 5xx (5), TCSS 800 (5)
year 3		8	TCSS 800 (8), General Exam
year 4		8	TCSS 800 (8)
year 5		9	TCSS 800 (9), Final Exam

Table 2. Academic trajectory for the PhD program. TCSS5xx refers to a 500-level elective course (TCSS 510 or above). Coursework needed to obtain the MSCSS degree is highlighted in bold. Once a PhD student has completed all course requirements, 2 dissertation credits are considered as full-time for F-1 status maintenance (cfr. year 3-5).

17. PhD in Computer Science and Systems Doctoral Process

Students in the PhD program progress through four major milestones: the **MSCSS degree** with the thesis option, **PhD elective courses**, the **General Exam** leading to PhD candidacy, and the **Final Exam**.

MSCSS degree: The PhD program builds upon the existing MSCSS program. In the MSCSS program, students graduate in one of three options: a thesis option, a capstone project option, and a course-only option. As shown in the model trajectory in Table 2, PhD students will complete the MSCSS degree as the first major milestone on the way to the PhD degree. Furthermore, PhD students are expected to complete the thesis option for the MSCSS degree to demonstrate their preparedness and aptitude to pursue independent doctoral research. Besides the master thesis, to obtain the MSCSS degree, students must successfully complete three core courses (TCSS 543, TCSS 558, TCSS 598), and 15 credits of TCSS 500-level elective courses.

The thesis option is the most rigorous option in the existing MSCSS program. The master thesis process starts with a master thesis proposal, prepared by the student under the guidance of a graduate faculty member who acts as the Master Thesis Committee Chair (primary faculty advisor). The Master Thesis Committee must consist of between two and four members, at least half of whom must be graduate faculty. The master thesis proposal describes the problem, the methods that will be used to solve the problem, the evaluation metrics, related work, the deliverables, and a week-by-week timeline with a detailed work plan to complete the thesis. The master thesis proposal is submitted by the student to the Graduate Program Committee in the quarter before the quarter in which the student intends to start the thesis. The Graduate Program Committee reviews the proposal. If the proposal is not approved by the Graduate Program Committee, the student is given the option to, depending on the quality of the proposal and the interests of the student, either start the work as a capstone project instead of a thesis, or refine the proposal and resubmit it in a later quarter. Students who opt to do a capstone project instead of a thesis can still complete the MSCSS degree in the capstone project option; they will no longer be able to complete the PhD degree without later completing an additional thesis project (e.g. 10-credits of TCSS 700).

After receiving approval, the student signs up for the required number of TCSS 700 credits and completes the thesis with the support of the primary advisor. It is the responsibility of the student to provide frequent updates on their progress to their Master Thesis Committee. The master thesis work often results in one or more publications in a conference(s) or journal(s).

The master thesis work culminates in an oral presentation and the submission of a master thesis to the UW Graduate School. The master thesis defense is public and more in depth than the presentation of a capstone project typically lasting 30 minutes or more. The master thesis presentation is attended by the Master Thesis Committee members and by other faculty and students. Questions are asked directly related to the project by those in attendance.

The Master Thesis Committee evaluates the work considering factors such as:
- Demonstration of the ability to work independently and think creatively
- Demonstration of mastery of the project area
- Quality of the written document
- Quality of the presentation

When all deliverables have been evaluated and approved by the Master Thesis Committee, the committee members fill out a form approving those deliverables. The student becomes eligible for the MSCSS degree provided all other requirements have been satisfied.

PhD elective courses: Once completing the MSCSS degree, PhD students then complete 20 credits of 500-level elective coursework chosen from three different concentration tracks as identified in the MSCSS program to provide subject matter breadth in computer science (see page 10 for list of courses and tracks).

General Exam: The General Examination is a formal requirement of the Graduate School. The General Exam is intended to ensure that graduate students are prepared to conduct independent research successfully. It culminates in the attainment of Candidacy of Philosophy, recognizing that the student has developed and demonstrated the necessary skills to pursue doctoral research. Prior to taking the General Exam, the student must successfully complete 20 credits of graded 500-

level coursework beyond the requirements for the MSCSS degree, and have started performing doctoral thesis related research. The General Exam is expected to be scheduled near the end of the third year in the model trajectory (see Table 2).

The preparation for the General Exam starts with the selection of a General Exam Chair (primary faculty advisor) and exam committee, adhering to the UW Graduate School policies on the formation of PhD Supervisory Committees. Through the General Exam, the PhD Supervisory Committee assesses that the student demonstrates a deep familiarity with the literature in the student's field; that the student is able to articulate a research plan that demonstrates knowledge, skill development, and makes a substantial contribution to the field of study; and that the student is able to demonstrate scientific critical thinking skills, including acknowledgement of areas to which their knowledge does not extend.

The steps of the General Exam include:

1. Identification of a General Exam Advisor (primary advisor), to be completed after obtaining the MSCSS degree.
2. Selection of remainder of exam committee. Graduate School Memo 13 details the rules for membership on the Ph.D. Supervisory Committee.
3. The student schedules the oral exam date with the Supervisory Committee after completing 20 credits of graded 500-level coursework (TCSS 510 or above) beyond the requirements for the MSCSS degree. Scheduling is performed well in advance of the exam date (see below).
4. The student prepares a research proposal in a format similar to the NSF Graduate Research Fellowship application. In this proposal, the student should include a description of the conceptual background and broad significance of the proposed research, a gap analysis with respect to existing work, and a research plan. The student sends the research proposal to the Supervisory Committee no later than 6 weeks before the General Exam date.
5. The student meets with each Supervisory Committee member individually to discuss the research proposal no later than 2 weeks prior to the General Exam date. The student revises the research proposal based on the feedback and suggestions received from the committee members.
6. The students submits a revised research proposal to the Supervisory Committee, no later than 2 days before the General Exam date.
7. The examination is to be held within 2 months of step 4, and usually by the end of three years in the program, or within 1.25 years after starting the TCSS500-level coursework beyond the MSCSS degree, whichever is later. A University requirement states that the exam may not be scheduled until the student has satisfied a 2 year minimum residency requirement, including one year of full-time study.

The oral portion of the General Examination consists of a presentation by the student (40 minutes), followed by questions from all faculty on the Supervisory Committee, in a round-robin style question format. By University rules, a minimum of 4 faculty members must attend the General exam (the primary advisor, the outside graduate school representative, and 2 others). The examiners will ask questions designed to determine the student's familiarity with the literature in their field, and preparedness to pursue research.

If the exam is not scheduled by the deadline identified above, and the Graduate Program Committee has not approved a petition for extension, the student is considered to have failed the exam.

At the conclusion of the oral exam, the committee will discuss and decide on one of the following outcomes:

1. Pass
2. Conditional Pass
   o By rewriting of the research proposal: this could happen if the examining committee feels the student has shown sufficient mastery of the literature and skills to conduct independent research, but has written an inadequate proposal (e.g. the research plan lacks detail). After the rewritten research proposal is approved, the student will pass the General Examination. The timeline for rewriting the research proposal is left to the discretion of the committee based on the perceived effort.
   o With adjournment of the examination. This could happen if the student has demonstrated competency in most of the learning objectives of the General Exam, but the examining committee requires further evidence of competency to ensure the student is prepared for independent research. The mechanics of the completion of the examination (e.g., new oral exam, a revised research proposal) and the timeline for completion are left to the discretion of the committee.
3. Fail: Students may retake the General Examination with permission of the Graduate Program Committee. In this case, the student will prepare a new research proposal and will have to give another oral examination. A change in subjects and/or examining committee may be recommended.

After passing the exam, a warrant is signed by the examining committee, a copy is placed in the student's file, and the result is delivered to the Graduate School. The student works on their dissertation with the support of the primary advisor, and seeks feedback from the Supervisory Committee members and the Graduate Program Committee faculty through an annual progress report (see below).

Final Exam: The final exam constitutes the dissertation defense. The student will confer with their primary advisor and committee to determine if they are ready to defend their dissertation approximately two months prior to the defense. The student, with approval from the primary advisor, will then confer with their committee to determine an agreed upon date and time for the oral defense when at least four members including the primary advisor can participate in the exam. At this time the student will notify the advisor of any changes to the committee in order to notify the Graduate School. Two weeks prior to the scheduled oral defense the student will submit a final draft of their dissertation to their committee.

The oral portion of the Final Exam will last approximately two hours, beginning with a forty-minute presentation by the student. Faculty and students are invited and are welcome to ask questions. Questions will then be asked in a closed session limited to the exam committee and possibly other faculty. By University rule, a minimum of 4 faculty members must attend the Final exam (the chairperson, the outside graduate school representative, and 2 others). The examiners will ask questions designed to determine whether the student has completed their dissertation

research and should be conferred with the Doctor of Philosophy degree. After passing the exam, a warrant is signed by the examining committee, a copy is placed in the student's file, and the result is delivered to the Graduate School.

18. PhD Student Annual Progress Report

PhD students are required to submit an annual progress report each year by May 1. This progress report consists of a standard form on which the students report milestones and progress, including courses and exams completed so far, a brief description of completed research and next steps, and research papers in preparation, submitted, or published. The annual progress report is prepared by the PhD student with guidance of the primary advisor. All progress reports are reviewed by the Graduate Program Committee, the outcome of which is communicated to the PhD student in the form of a letter with feedback. The purpose of this annual process is to solicit faculty-wide aid in identifying and remediating issues that may arise throughout a student's tenure helping to ensure student success.