

Computer Science MS Requirements

Admission Requirements: While there is some flexibility in our requirements, we generally require:

- A bachelor's degree from an accredited college or university
- A 3.0 GPA for the last 60 semester credits
- GRE scores above the 40th percentile on the verbal section and 80th percentile on the quantitative section. Those whose quantitative score on the GRE general test is less than the 80th percentile will need to show compensating strength in their background to be considered
- TOEFL score of 79 or IELTS overall score of 6.0 and a minimum score of 5 on each subscale (international students)
- Extensive experience in computing, programming experience in C++, and a course in Data Structures and Algorithms (CS 2420), as well as a working grasp of calculus and statistics
- These are in addition to the School of Graduate Studies (SGS) requirements that can be found at: <http://rgs.usu.edu/graduateschool/admissions>

Declare Plan: During the first semester of their program, all students must email the Computer Science Graduate Program Coordinator (GPC) to declare their plan (Plan A, Plan B, or Plan C). This is typically done as part of submitting the Supervisory Committee Approval Form (SCAF) for Plan A and Plan B students. NOTE: Beginning Fall 2021, new MS students cannot declare Plan C unless they indicated they were pursuing the Plan C option on their application. Beginning Spring 2022, Plan C is no longer an option. Students desiring the coursework-only master's option should transfer to the Master of Computer Science (MCS) program.

Supervisory Committee Approval Form (SCAF) for Plan A and B only: During the first semester of their program, all Plan A and B students must complete their SCAF. Plan C students should not complete a SCAF form—their committee will be comprised of the GPC. A SCAF confirms the individuals who will serve on the student's committee. Required committee members (must be indicated on the form):

- Major Professor (or advisor) – must be from within the department issuing the student's degree
- Committee member – may be co-chair if necessary and approved
- Outside member – outside area of emphasis, may be from within the student's department.

A master's Plan A or B committee must include three faculty members who have been approved to serve as graduate faculty by the department head and college dean. The major professor (or advisor), and one committee member must be from the department, and the outside member must be from outside the area of emphasis (but may be from the student's department). The student may have additional committee members if necessary. If the form does not have all required committee roles filled, it will be denied.

Program of Study (POS): The POS is a contract among the student, committee members, and the SGS outlining which courses the student will take to meet the SGS requirements and complete their degree program. Students joining the department in a Fall semester will need to submit a POS by April 1st of their second semester. Students joining the department in a Spring semester will need to submit a POS by November 1st of their second semester. In order to be approved, the POS must follow the Computer Science MS degree requirements listed on the USU Catalog.

The current catalog listing for the Computer Science MS in the 2021-2022 academic year is as follows:

Whether Plan A or Plan B (see School of Graduate Studies general requirements), all MS/CS students must meet the following general requirements:

- Complete four Computer Science courses numbered 6000 and above. CS 6250, CS 6970, and CS 6900 are *not* accepted for these four courses. CS 6950 can be counted as *only one* of these four courses, and in that case, must be taken for at least 3 credits in a single semester.
- Complete 1 credit of CS 6900.
- No more than 3 total credits in CS 5950, CS 6950, and CS 7950 and 1 credit of CS 6900 may be used to satisfy the MS degree requirements.
- CS 6250 can be taken only with the advisor's prior permission and a maximum of three credits will be allowed on the POS.
- A maximum of 15 credits of committee-approved coursework at the 5000 level may be used for the MS Plan B degree. For Plan A it is limited to 12 credits of 5000 level. No credits below 5000 will be allowed on the POS.
- CS 6990 or CS 7990 cannot be included on the POS.
- A maximum of 6 credits are allowed from outside the Computer Science Department. Any outside credits must be from ECE, MATH, STAT, or one of two approved courses: PSC 6150 and SOC 6150.
- No independent study courses outside the department are allowed on the POS.

Students completing a Plan A MS degree must fulfill the following additional requirements:

- Complete at least 24 credits of graduate coursework and 6 credits of CS 6970: Thesis and Research. The overall GPA must be at least 3.0, and no more than two class grades below *B-* and none below *C* may be included. Starting Fall 2020, the overall GPA must be at least 3.0 for degree-program courses, and grades of *C+* or lower will not be accepted.
- Meet the departmental placement requirement
- Complete a graduate thesis proposal
- Defend a graduate thesis based on original work

Students completing a Plan B MS degree must fulfill the following additional requirements:

- Complete at least 34 credits total, 31 or 32 credits of graduate coursework and 2 or 3 credits of CS 6970: Thesis and Research. The overall GPA must be at least 3.0, and no more than two class grades below *B-* and none below *C* may be included. Starting Fall 2020, the

overall GPA must be at least 3.0 for degree-program courses, and grades of C+ or lower will not be accepted.

- Meet the departmental placement requirement
- Complete a graduate report proposal
- Defend a graduate report

Students completing a Plan C MS degree should consult with the Computer Science GPC regarding requirements.

Requirements may change from time to time, so students are advised to check with the department or their advisor to determine whether the requirements at the time of graduation or in the first semester of registration as a graduate student will have an effect.

Individual Development Plan (IDP) & Annual Reviews: Once per year, students should complete an IDP. This is a College of Science requirement. Information on IDPs can be found at <https://www.usu.edu/science/pages/students/graduate-individual-development-plan>. In addition, Plan A and Plan B students must complete an annual review with their major professor to ensure progress in their program.

Thesis/Project Approval (TPA) for Plan A and B only: The Master's TPA form confirms you successfully defended a research proposal and have the necessary regulatory approvals to conduct the proposed research.

Responsible Conduct of Research (RCR): CITI Training is available for master's students whose committee deems it appropriate for the student's thesis/project.

For updates on Institution Review Boards (IRB) regulations and to determine whether your research requires IRB approval, visit the IRB website.

You, your major professor, committee members, department head, Vice Provost of Graduate Studies, and IRB (if needed) will receive an email notification from ServiceNow, to review and approve the TPA form. Once all signatures are obtained electronically, all parties will receive a final email from ServiceNow with a completed form.

Appointment for Examination (AFE) for Plan A and B only: Students should schedule their final defense during their final semester. At least four weeks prior to the defense, students should give a copy of the thesis/report to each member of the supervisory committee for approval or corrections. After tentatively scheduling a time for the defense with their committee, the AFE form must be completed by the student and submitted to the SGS to officially schedule the defense of the thesis/report. It must be submitted at least 10 business days prior to the student's defense. Submitting the AFE form allows the SGS to confirm that all required paperwork is complete and committee members have read the thesis/report ahead of time and agree that it's ready to be defended.

Defense (Plan A and B only):

- Any final defense held without following the proper procedures is invalid

- All defenses are public
- You must be registered for at least 3 credits the semester of defense (to be considered full-time at 3 credits, a Full-Time at 3 credits form must be approved).
 - If *all* credit requirements on an approved POS are met, you may qualify to register for 1 credit in the semester of defense. Registering for 1 credit will not qualify you to be considered as a full-time student (i.e. you will not qualify for an assistantship).
 - International students should check in with the Office of Global Engagement when making decisions on the number of credits needed.
- Your supervisory committee cannot be changed in the 6 weeks prior to the defense.
- All committee members *must* attend the defense at the date and time registered with the SGS
 - Up to 1 member of a master's committee may participate remotely (i.e. via Zoom or Skype). NOTE: This limit is currently suspended due to COVID precautions.
- No committee member should agree to proceed with a defense until they have carefully read and approved the thesis or Plan B paper
 - If the paper is not ready to be defended, notify the major professor and student, then reschedule the defense
- The student should be informed of the defense results after the defense
- Plan A students should review the Thesis/Dissertation requirements, and Plan B students should review the Plan B Report/Creative Project Submission requirements
- If the defense is not successful, the student will need to schedule a new defense and will need to be registered for the semester of redefense.

Record of Exam (ROE) for Plan A and B only: Once a student has completed their defense, the major professor must email the GPC the outcome of the defense. The GPC will submit the ROE.

Authorship & Copyright for Plan A only: The Authorship form specifies plans for publication. You must discuss your plans for publication with your chairperson and your committee to avoid misunderstanding about co-authorship or other acknowledgments as you publish parts or all of your thesis/dissertation. The form also asks for a date by which an acceptable draft will be submitted to your major professor or other USU faculty with whom you will publish. Establishing this timeline is crucial as it is important to get contributions to knowledge into the literature promptly. If the date for submission is not met, the faculty member may prepare the first draft of a manuscript for submission and, consequently, be listed as the first author. Your signature and those of your committee members indicate that you have discussed the plans and all are in agreement.

The rights to copyright and data are especially of concern if your thesis /dissertation research is carried out as part of a project with a Principal Investigator (PI) or in a laboratory using supplies and equipment furnished for you. Under certain circumstances, data gathered for use as part of a research project are the property of a federal, state, or private agency, Utah State University, or the principal investigator(s). Students using such data may be required to waive the right of ownership and/or the privilege of copyrighting the thesis/dissertation early in your program. You should discuss the ownership and the right to the data to be utilized in your thesis/dissertation with your committee chairperson and, if your thesis/dissertation involves work on a project or in a lab, with the PI or lab director.

Format & Style for Plan A only:

Format:

- **Monograph Format:** This, the ‘traditional’ format, consists of a multi-chapter document that uses the same style throughout. A single chapter is not acceptable for a thesis or dissertation.
- **Multiple-Paper Format:** A thesis or dissertation using this format consists of at least two chapters, typically written as independent papers, preceded by an introductory chapter that sets the context for the research, and followed by a summary and conclusions chapter that integrates all of the studies.

Style:

- The style defines the way that text is presented on the page (e.g., fonts, font sizes, margins, indents, line spacing, page numbering). For a document in the monograph format, the style should be consistent throughout the document. For a document in the multiple-paper format, the style may differ for chapters that are targeted for publication in different journals. However, the style should be consistent within each chapter. The style in which a thesis/dissertation is written is dependent upon the student’s departmental guidelines and the specifications of this document. The terms ‘journal style’ or ‘manual style’ refer only to the style guide a graduate student follows for citations, a reference list, headings/subheadings, table titles, figure captions, mathematical symbols, and other stylistic elements not specified by the USU Publication Guide. A journal style or a conventional style manual (such as APA or MLA) may be used as a guide for either a multiple-paper or a monograph format.
- The USU Publication Guide *and* department-approved style manuals are the final authority for format and style. Do not use previously approved theses or dissertations as models. Handling of special problems/materials not covered by this guide or by the departmental style manual should be discussed with and approved by the thesis and dissertation reviewer for the School of Graduate Studies (currently Erika Beckstrand).
- The USU publication guide *is not* a style guide. It should be referenced for your front matter and appendices.
- Individual departments have jurisdiction over stylistic elements not covered in the SGS Publication Guide. In Computer Science, the department requires its dissertations, theses, and reports to use the IEEE Transactions citation reference. The guide for IEEE citations can be found at <http://www.ieee.org/documents/ieeecitationref.pdf>
- In cases where the USU Publication Guide is unclear on stylistic elements, students are encouraged to confer with the IEEE author toolkit found at http://www.ieee.org/documents/info_authors_kit.pdf

You, your major professor, and your supervisory committee should agree on the format and style of your thesis or dissertation early in the writing process. The Dissertation/Thesis Format and Style form communicates which format and style have been chosen.

You are responsible for proofreading your thesis/dissertation and having it read and approved by all committee members and the department reviewer before having the GPC submit an electronic version (PDF format) of the document to Box.

The thesis and dissertation reviewer in the SGS will review your thesis or dissertation for proper format and conformity to departmental and SGS standards. If corrections are required, an annotated copy of the electronic file will be uploaded to Box where it can be accessed by the student, the major professor, and the department reviewer.

Signed Title Page for Plan A only: Once your committee has approved your thesis, they will need to sign the title page. Title pages are now signed digitally using the form on ServiceNow. By approving the form, the committee members agree that the student's final document is ready to be put before the SGS and the Vice Provost for final approval.

Final Draft Submission for Plan A only: Once your committee has approved your thesis, submit the final draft to the Computer Science GPC. The GPC will review it and submit it to SGS for their review. You will be informed if corrections need to be made. Once it has been approved, you will need to order two bound copies for the department: one copy for your major professor and one copy for the CS conference room. Please send the receipt to the GPC showing that you paid for them.

Plan B Report Submission for Plan B only: When you and your major professor agree that your Plan B report is ready for publication, you will complete the Plan B Creative Project/Report form. This form grants Utah State University a non-exclusive license to archive your work and make it accessible to the public. As the author, you retain ownership rights to the copyright and the right to use it in future works.

Plan B papers are not reviewed by the SGS and are filed directly with the library after department/committee approval. The GPC is the only one who will review your report.

After uploading a copy of your report to the library, you will need to order two bound copies for the department: one copy for your major professor and one copy for the CS conference room. Please send the receipt to the GPC showing that you paid for them.

Graduation Paperwork: Students are eligible to graduate when they have completed all coursework on an approved POS and successfully defended their thesis/report (Plan A and B only). If they have submitted all the above forms by the deadline for submitting paperwork (typically 3 weeks before the end of the semester), then they will be emailed the link for graduation paperwork. Plan C students must email the Computer Science GPC at the beginning of the semester that they plan to graduate. If they have informed the GPC of their intention to graduate by November 1st in Fall semesters, April 1st in Spring semesters, or July 1st in Summer semesters, then they will be emailed the link for graduation paperwork. Students must submit an application for graduation and pay the application fee before their degree can be awarded.