

Rules and Principles Governing
ASCS CIS 498 Project and Thesis
Course Coordinator
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**"These instructions are a modification of the original guidelines created by
Professor Max Mintz."**

Summary: The purpose of the document is to delineate the requirements that must be satisfied in order to successfully complete the ASCS/ASCC **CIS 498 (formerly known as EAS 499)** Senior Capstone Thesis. In addition to these stated requirements, this document also offers guidance on how to approach this project-oriented course.

Rules and Principles:

1. The degree of mix between theory and application for this project is, within reason, negotiable. The most important thing is that you find a suitable project that meets the requirements stated below, and one that you are really excited about. History shows that lack of excitement on your part leads to degraded performance or even disaster. With a suitable and exciting project, you are much more likely to work on it consistently throughout the term and not leave it all go to the end. Leaving it go to the end results, with high probability, in a disaster, i.e., failure to graduate for "May 2021" grads.
2. If you have not already developed a suitable and exciting proposal topic, you need to do this **now**. Ideally, the energy and insights needed to make this happen are generated internally. It is not unreasonable for us to expect that there are aspects of your educational experience in CIS and the wider world that define a set of possible projects. It is up to you to then sell one of these ideas to a faculty adviser in CIS, or SEAS, or outside SEAS. The adviser implicitly promises to guide you where needed. The adviser will not drag you kicking and screaming to the finish line. Obviously, the adviser needs to be knowledgeable about the project domain and be enthusiastic about the project. **The student is responsible for fully informing the thesis adviser about all CIS 498 course requirements and expectations.**
3. Since this is a CIS course, there should be a substantial substrate of CIS embedded in the resulting thesis. The amount of CIS substrate is a judgment call that, if necessary, I will help you make. There is no requirement that you write programs as part of this project. This project could be a very extensive literature review about some new CIS-related technology, "X," that you explore, and show its potential impact on the wider world. A literature review of this new technology must demonstrate that the author has a deep understanding of the scientific and engineering basis for this technology. A review that merely summarizes various sources without showing a deep integrated understanding of the technology will be deemed insufficient. A useful guide for **depth and breadth** appropriate to your thesis may be found by looking at feature articles published in the **Communications of the ACM**.
4. The project proposal should be about two single-spaced pages in length and include:
 - (i) your name and email address

- (ii) a short project title and date
- (iii) your adviser(s) name(s) and email address(es)
- (iv) an abstract
- (v) an introduction
- (vi) a description
- (vii) a paragraph about why we should care about this
- (viii) expected outcomes
- (ix) a schedule
- (x) references

Please submit your proposal online via forms.cis.upenn.edu. I will review all of these proposals. If there are required changes, the proposal will be returned for revision and resubmission, and iterated as needed. Once your proposal is approved, the department will register you for the course.

5. **The completed project proposal must be submitted by 12 noon, Wednesday, 16 September 2020. A form without a thesis adviser and his/her/their email contact information will be deemed incomplete. I will write to the listed advisor(s) to get their approval.** The proposal will be counted towards the final course grade.
6. There must be a written project final report (Thesis). **This report is expected to be at least a 20-page (single-spaced) document.** Computer programs, tabulated data, extensive figures, and extended bibliographies will not count towards the 20-page minimum requirement. The written project report will be reviewed first by your thesis adviser. The thesis adviser will submit a recommended grade and any comments to me, but I will be solely responsible for determining the final grade. A late or incomplete report will receive a reduced grade. **The final report must be submitted to Desirae Cesar in PDF format. The final report is due by: 12 noon, Thursday, December 10, 2020.**
7. When writing your thesis keep in mind that your audience should be **Penn CIS Seniors with appropriate undergraduate background knowledge.** You are **not** writing to reach High School students, other Penn students, or your families. This helps you decide what fundamental knowledge you may assume and where you need to describe new material.
8. Team projects are **NOT** permitted. Each thesis is deemed to be entirely the work of a single investigator.
9. **SPECIAL NOTE FOR M&T BAS students.** You have an **additional** requirement of using your learnings from the Wharton School and doing a business/economic analysis (maximum 5 pages) of the project. They should meet with Professor Sangeeta Vohra <vohras@wharton.upenn.edu> for the required expectations which can vary depending on the proposal content.
10. **Other Requirements:**
 - (a) It is understood that the work you submit is your original work. Thus, proper citations to all of your sources must be included.
 - (b) Since your work, in its entirety, should be subject to dissemination to the faculty and students in CIS and SEAS, the application of any **non-disclosure agreements is completely prohibited.**
 - (c) It is also understood that the academic work leading to this thesis was undertaken solely for CIS 498 in Fall 2020, and was not a derivative of other papers or other work

produced for or in conjunction with other courses, academic programs, or outside work, e.g., internships. In case of any doubts, please email or speak to me and provide evidence for the background material and how CIS 498 will go well beyond it.

11. **Honors Work in CIS 498:** Prior examples of superior EAS 499 Senior Capstone Theses (the previous course number for CIS498) can be found on the CIS Department's website at:

<http://www.cis.upenn.edu/current-students/undergraduate/courses/index.php>