

Computer Science IS Student/Advisor Guidelines

Independent Study is the student's opportunity to do a significant piece of work in an area of personal interest and to expand his or her understanding of computer science. This guide provides a description of what the IS advisor expects from the student.

Project Topics:

Although the faculty advisor must approve all topics, the student is free to pursue virtually any area of computer science that is of interest. The topic should be challenging, but manageable with the resources and time available. A typical I.S. involves a theoretical investigation of a topic in Computer Science accompanied by a software implementation that illustrates concepts developed in the theoretical investigation.

Project Submissions

Project Abstract: The project abstract is a formal document, not a slip of paper with a few vague ideas on it about what the student thinks would be interesting to do. In order to receive approval for a project, the student will present a proposal outlining the following:

1. The project's focus (e.g., examine artificial intelligence and speech synthesis, investigate microcomputer security, examine the importance of documentation (human factors, etc.).
2. The project's objectives in terms of the topics that the theoretical portion of the IS thesis will cover, the software or documents that the project will produce, and the learning that will result from accomplishing the project;
3. The efforts that will contribute to the project: programming, interviews, special library research, trips, and needed materials (languages, machines, documentation, etc.).
4. Potential problems in the project that might become trouble spots. Identify the challenges the student might encounter in accomplishing the project. The student should investigate whether these trouble spots could make the rest of the project impossible if they can't be surmounted.
5. A suggested timetable specifying the points throughout the two semesters at which the various phases of the project will be complete.
6. A minimum of five references (journal articles, technical reports, books) on your proposed topic. Online references are not, generally, acceptable.

Annotated Bibliography

An annotated bibliography is a bibliography in which each entry includes a description of the entry's content and the role it might take in the research. This description is *not* a copy of the entry's abstract.

Thesis Outline

A proposed table of contents (outline) for the thesis. The table of contents should include a title and a specification of chapters and sub-sections.

Project Research

The project should begin with a substantial amount of library research. The description of this research should involve a clear exposition of the problem or research area, an annotated bibliography, and an outline for conducting the research.

Completed Chapters

In mid-October, the student will reach an agreement with his/her advisor about which chapters are to be completed as a prerequisite to satisfactory completion of the first semester of Senior IS. These chapters must be submitted by the date given on the timeline later in this document. A completed chapter is not an outline or a draft, but a chapter that has been through at least one review by the advisor.

Preliminary Software

In mid-October, the student will reach an agreement with his/her advisor about the software component that is to be completed as a prerequisite to satisfactory completion of the first semester of Senior IS. The software component may consist of a prototype showing proof of principle, a set of software modules, etc.

CD

The I.S. text, source files and results are provided on CD to the advisor before the oral defense.

Web Document

This html document contains the author's name, graduation date, advisor's name, I.S. title, and project abstract and is provided to the advisor before the oral defense.

Poster

This document represents the I.S. in poster form and will be presented during the Senior I.S. celebration day.

Document Submission and oral presentation schedule.

The student will meet with the advisor once a week to discuss ideas relating to the project, review progress, and map out work to be done. All Computer Science I.S. students will meet as a group to give a brief presentation of their work to that point (dates are below).

With the exception of the oral defense, the student will submit a typed document for each item by 4:00 PM on the indicated day. The student will submit the final thesis to the Registrar's office on the indicated day; all other documents will go to the advisor. Advisors will not discuss assignments with students on the day they are due or the day before.

Schedule.

Email your advisor a copy of the following table, where the weeks have been replaced by the calendar date of your corresponding meeting day for the indicated week.	Week 1
Project Abstract	Week 3
I.S. Student Meeting, 308 Taylor, 11 – 12:00 A five-minute presentation on your I. S. topic	Week 6
Thesis outline and agreement on the chapters to be completed by the end of the semester	Week 6
Annotated bibliography	Week 8
Chapters and preliminary software specified in above agreement completed.	Last week of classes, Fall
Final draft	Last week before Spring break
Final thesis	End of Spring break
CD, Web Document, Poster, Senior Exit Survey	One week after Spring break
Oral Defense	TBA

Grading, Fall Semester:

The list below specifies point allocations. The maximum possible total points is 100. The number of points awarded in each category will measure promptness, clarity of presentation, thoroughness, and consistency with documents already submitted. To obtain a satisfactory (S) grade in CS 451, the student must complete all indicated submissions and receive *at least* 70 total points of credit.

Project abstract(s) **10 points**

Five-minute oral presentation on **10 points**
project abstract

Thesis Outline and annotated bibliography **30 points**

Completed chapters and preliminary software **35 points**

Attendance **15 points**

Grade for first semester:

S: 70 to 100 points

NC: 0 to 69 points

Grading, Spring Semester:

The spring semester grade (H, G, S, NC) will largely represent an evaluation of the final thesis, the oral presentation, and the organization of the project effort. The following criteria determine the final grade. You should also look at the attached evaluation rubrics for the IS thesis and oral presentation.

CONTENT:

The content of the independent study document must meet the requirements agreed upon by the IS advisor and advisee. These requirements will differ for each project.

FORM:

The final independent study document is evaluated for mechanical and grammatical errors. The text must be well organized, grammatically correct, and complete - including a table of contents, an introductory and conclusion chapter, a bibliography, and a user manual if necessary.

METHODOLOGY:

The essential factor here is the degree to which the student has approached the project in an organized and efficient manner and has applied effort consistently throughout the entire year. The quality and promptness of intermediate submissions is highly important. A major item is the promptness and quality of the rough draft submission since it measures the ability of the student to effectively coordinate the research effort in an efficient manner. Attendance and presentation issues from the first semester will carry a heavy weight for this criterion.

ORAL PRESENTATION:

Grading of the oral presentation evaluates the organization, spontaneity, flow, continuity, and comprehensibility of the presentation. It also evaluates the student's ability to respond to reasonable questions and explain points of confusion. The student should use visual aids as a means of guiding the presentation, but should avoid reading material to the audience. The presentation should last approximately thirty-five minutes to permit approximately fifteen minutes for questions and extended discussion. A major challenge of the presentation is to identify the key points to cover in giving a good description of the project in a relatively short time period.

FORM FILLED OUT BY FACULTY FOR GRADING OF I.S. ORAL PRESENTATION

Student:

I.S Title:

Advisor:

Form Completed by:

Date of Oral Presentation:

Directions: Please rate the presenter on each aspect of the presentation, using this scale:

E-excellent G-good A-average F-fair P-poor NO-not observed

INTRODUCTION						
Introduced the topic clearly	E	G	A	F	P	NO
Provided motivation for the study	E	G	A	F	P	NO
Introduced the terminology in an organized manner	E	G	A	F	P	NO
Explained all necessary definitions	E	G	A	F	P	NO
BODY						
Presented major results correctly and accurately	E	G	A	F	P	NO
Communicated with correct mathematical reasoning	E	G	A	F	P	NO
Provided adequate support for any conclusions that were drawn	E	G	A	F	P	NO

Summarized major points	E	G	A	F	P	NO
DELIVERY						
Voice and pace	E	G	A	F	P	NO
Language was clear and concise	E	G	A	F	P	NO
Used appropriate, high-quality visuals	E	G	A	F	P	NO
Body language, mannerisms	E	G	A	F	P	NO
Professionalism, audience awareness	E	G	A	F	P	NO
OVERALL EVALUATION						
Showed thorough understanding of the topic	E	G	A	F	P	NO
Talk was completed within an appropriate time frame	E	G	A	F	P	NO
Answered questions well	E	G	A	F	P	NO

Comments:

FORM FILLED OUT BY FACULTY FOR IS GRADING

Student:	
IS Title:	
Major #1:	Major #2:
Form Completed by:	
Date Form Completed:	I.S. Grade:

Directions to the advisor: For each question below, please circle the response which most accurately describes your perception of the student during the process of completing this independent study project.

Question 1: Depth of Material Covered. Based on the material covered in your weekly meetings with the student, and the final written document, which statement best describes the depth of the student's investigation?

Student did a thorough investigation into this topic, providing examples and going well beyond the minimum depth required of a 2-semester project

Student did a comprehensive summary of this topic, providing examples and personalizing the material

Student did a good summary of the material, and went into a depth appropriate for a 2-semester investigation.

Student covered some topics well, but failed to go into enough depth with others.

Student provided a brief summary of the material, but did not achieve the depth required of a 2-semester investigation.

Additional comments:

Question 2: Student Understanding and Mastery of the Subject. Based on the weekly meetings with your I.S. student and the final written project, which statement best describes this student's understanding of the content in the I.S.?

Student has a thorough understanding of this material and should be able to answer probing questions on any of the content	Student has a good understanding of this material but may have difficulty answering probing questions	Student had a good understanding of some portion of this material, but approximately _____% of the work was completed without the benefit of discussion with the advisor	Student had some difficulty understanding a significant portion of the material and will have difficulty answering questions	Student lacked a basic understanding of the fundamental ideas contained in the written document, and will not be able to answer questions
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Additional comments:

Question 3: Independence of Learning. Based on the weekly meetings with your I.S. student, which statement best describes the student's process?

Student demonstrated strong initiative and worked independently on the project, requiring only a minimal amount of guidance	Student demonstrated good initiative and worked mostly independently on the project, requiring an appropriate amount of guidance	Student was self-directed for some of the thesis, but required lots of guidance on other parts.	Student was unable to work on this project without strict deadlines and lots of guidance regarding the direction of the thesis.	Despite deadlines and guidance from the advisor, student failed to complete work in a timely manner.
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Additional comments:

Question 4: Assimilation of Material. Based on your discussions with this I.S. student, the bibliography, and the final written document, which statement best describes the student's assimilation of the material?

The student assimilated material from a wide variety of sources.	The student used material from multiple sources and did some assimilation of that material.	The student used material from multiple sources.	The student primarily used one source, but did use some material from at least one other source.	The student used one primary source from which all material is taken.
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Additional comments:

Question 5: Form/Writing Style. Based on the final written document, which statement best describes this I.S.?

The I.S. is written in a clear and well-organized manner, with excellent grammar, spelling,	The I.S. is very readable, with very few errors in spelling, grammar, or typesetting. The	The I.S. is readable, despite some errors in spelling, grammar, or typesetting. The thesis is well-organized.	A number of errors in spelling, grammar, or typesetting make this I.S. somewhat difficult to read. A	The I.S. lacks organization, the grammar is poor, and it is difficult to read.
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and typesetting. Moreover, it is written in the student's unique style and directed toward an audience of peers.

thesis is well-organized.

better organization of ideas would have made it clearer.

Additional comments:

Project goals, design, & relevance to the thesis	Project goals are clearly stated and are complete. The project is an excellent illustration of the thesis topic. Project design is excellent; it is detailed and covers all project goals.	Project goals are nicely stated and are mostly complete. The project provides a good illustration of the thesis topic. Project design is good; some details may be missing or some goals not clearly covered.	Project goals are presented and are understandable. The project adequately illustrates the thesis in broad terms with varying degrees of depth. Project design is present, but lacks detail or doesn't include all project goals.	Project goals are incomplete or unclear. Some aspects of the thesis are not covered or are covered only superficially by the project. The design exists in broad form only and doesn't clearly cover some of project goals.	Project goals are unclear, vague, or missing altogether. The link to the thesis is unclear or the project is not relevant to the thesis topic. Design is missing or very superficial.
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Additional comments:

Project Implementation completeness, quality, correctness, planning, use of resources	The project was completed as designed and is of high quality. Correctness can be demonstrated. Resources (equipment, software tools, library, etc.) were used creatively.	Most of the project was completed as designed and is of generally high quality. Some components may be missing, incomplete or incorrect. Good use of resources.	Most of the project was completed as designed and is of generally good quality. Some components are missing, incomplete or incorrect. Resource usage is adequate.	Many components are incomplete or incorrect. Overall quality of the project components is poor. Poor use of resources; lack of awareness of available resources.	Project largely incomplete or incorrect. Very poor use of available resources or resources used inappropriately.
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Additional comments:

Project Results relevance to thesis & completeness (Note: results need not be positive)	All components of the project produced results that are clearly relevant to the thesis. All of the thesis' goals are covered by the results.	All or most components produced results relevant to the thesis. Most of the thesis' goals are covered by the results.	Most project components produced results relevant to the thesis topic. Most of the thesis' goals are covered by the results.	Results are largely incomplete or are only loosely relevant to the thesis. Many aspects of the thesis are not present in the results.	No results or results irrelevant to the thesis. Much of the thesis is not demonstrated in the results.
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Additional comments: