

# CPSC 445W: Information Systems Laboratory (Capstone)

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## Course Information

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Instructor:	Prof. Aaron Koehl
Department:	Physics, Computer Science and Engineering (PCSE)
Office:	Luter 346
Office Hours:	MW 11am-noon
Telephone:	(757) 594-7911
E-Mail:	aaron.koehl@cnu.edu
Homepage:	Scholar

## Catalog Description

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A major project that includes a study of the factors necessary for successful implementation and operation of information systems; the traditional life cycle approach to managing and controlling application development and alternative development approaches. Written and oral presentation of project. Partially satisfies the writing intensive requirement. May be taken as research intensive.

Pre-requisite: ENGL 223, CPSC 350, CPSC 440.

## Course Schedule

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**Systems analysts solve business problems;** that is, they see through the process of problem solving from planning, through analysis, design, implementation and support. Often times, the solution to a business problem is the creation of new technology, synthesized from hardware, software, data, processes, and people. As covered in Information Systems Analysis and Design, this course will provide an inherently difficult, unconstrained business problem, whereby you will engage in planning, scope and problem definition, do a requirements analysis, produce design documentation, and ideally implement an information system solution. You will be guided along the way with weekly status meetings in Luter 322, the time which may be allocated between your group meetings, or consulting hours as discussed below.

## Consulting Hours

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As part of your planning, you will identify stakeholders and other users of the proposed system. However, throughout the course, I will be there to guide you along the way. At times, you may find that you need technical assistance—for this each group will be allotted a fixed number of consulting hours (depending on the number of groups), as “hired help”, to help navigate you through difficult technical areas, identification of new technologies that you may wish to pursue, staffing, project management advice, and the like. How you use these hours is up to you, but be cognizant of and log their use, as they may run out.

## Course Deliverables

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### Project Proposal

Within the first two weeks of classes, the student either identifies a desired project on his/her own or selects one from a list of projects specified by the instructor. Note, the instructor might choose not to propose any projects, in which case it is solely the student’s responsibility to find one. On the other hand, the instructor might limit the selection of projects to only one or a few. In that case, no other projects will be accepted. Therefore, it is imperative that students talk to the instructor before preparing a written project proposal.

After identifying a topic, the student will submit a project proposal in writing. The project proposal is due no later than the Friday after the second class meeting. If the student is working with a mentor outside CNU, he/she must have a PCSE faculty advisor.

The project proposal has to be approved by the CNU mentor before its submission. Within one week of submission, project proposals will be reviewed by the instructor and approved or denied. If a project proposal is denied the student must restart the project proposal development and submission process.

A proposal document shall include the following:

- A project title: no more than forty (40) words long, that conveys the nature of the proposed work;
- Student's name, major and project course number;
- Student's mentor's (or advisor's) name(s) and organizational affiliation(s);
- Proposed start and finish dates; and
- 1-3 pages, which contain the following headings (in **bold**):
  - **Abstract** : Executive summary (1 paragraph) of the proposed system
  - **Business Profile** : Description of the customer and the context of the project
  - **Descriptive scenario** : Description of the current state and any problems as a result
  - **Normative scenario** : What should be the overall outcome?
  - **Motivation** : the motivation for the project (why is it relevant?), and
  - **Plan of Attack**: a list of high level objectives ordered by priority (which specific objectives need to be achieved to consider the project a great/good/decent success?).

### Logbook Updates

A **consistent** effort is required to successfully complete a capstone project. Therefore, to encourage ongoing progress throughout the semester, students are required to attend and contribute to a professional status update meeting each week. A sample agenda may be:

- Time spent on project (outside class and not counting writing reports and logbook updates)
- Detailed description of work completed (e.g., research of a specific problem, design of a system or module, specific implementation)
- Challenges encountered (problems that student came across and which have or have not been resolved yet)
- One-week Outlook (brief statement summarizing work to be done)

### You will record the result of this status meeting in a logbook.

The logbook will be checked and graded (Satisfactory, Unsatisfactory) by the course instructor. Any status meeting rated “unsatisfactory” will result in the project being on the chopping block by management—on probation. A second continuous unsatisfactory meeting will result in the project being chopped and a failing grade for the course. However, a satisfactory meeting the following week will remove the project from the chopping block, and the student will no longer be on probation.

(As a guideline, a minimum of three work hours per week per registered credit hour is required to receive a satisfactory for a Logbook Update. However, it should be noted that the three hours are only a technical minimum. They do not guarantee a successful project or a good grade in this course. *Students should expect to spend a lot more time on their capstone project.*

### Writing – (Documentation, Deliverables)

Requirements documentation and associated design documents are used to check a student’s performance and to evaluate the progress toward a successful completion of the project. *The reports will be graded for quality of writing* as well as content, and will serve as a basis for the final report. In either case, feedback will be provided to help improve the final document.

Headings for the documentation will be provided in class, but at the very minimum will include a discussion and models of data, processes, organization, hardware, and software comprising the proposed information system. The student will choose a previously learned methodology and use it consistently—object oriented, data flow. Each methodology prescribes a set of documentation requirements: for object oriented analysis and design, for instance, you will produce state diagrams, fully realized class diagrams, and data dictionary, for instance, using UML or a variant. Ideally, the documentation will be produced using Microsoft Visio or other approved system modeling software.

System documentation will be accompanied by a project **progress report**, expanded from the proposal document, and should contain those headings, but also list any challenges, completed tasks, and tasks to be completed as reaped from weekly logbook entries. The progress report will also contain any corrections from the proposal document.

Additionally, the progress report should describe any design alternatives uncovered during analysis, as well as a feasibility analysis for the proposed information system (cost, reliability, ethical considerations, schedule, etc.)

### Final Presentation

The final report will be due the last day of class, and will also contain a conclusion (lessons learned, and description of the work completed), bibliography, and acknowledgements of any contributions of others.

The PCSE Senior Theses presentations are scheduled twice a year on the last Friday before final exams. If you have completed your work and wish to be scheduled for a presentation, you must contact the instructor at least two weeks in advance of the presentation date. It is suggested that you rehearse your presentation prior to the formal presentation day. Presentation attire for the presenter is business attire.

### Software Fair

In the Spring Semester, students instead participate in a group software fair, held on grounds at Christopher Newport University. Faculty, students, and alumni will be present (as many as 100+) to rate your projects and help determine your grade. Each student group will be allotted a demo area (booth space) and will be required to staff their booth for the fair, answering questions (some very tough!) that the audience might have. Buffet lunch and music is usually provided by the department. Awards will also be given for top CS and IS capstone projects.

### Other Deliverables

In addition to the aforementioned submissions, following items have to be delivered at the end of the project:

- A CD containing electronic copies of all documentation produced during the project, in Microsoft Word or PDF format.
- Any software / hardware artifacts resulting from the work.

## Grading System

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### Grade Components

Item	Points	Week(s)
Project proposal (writing component) <sup>1</sup>	10	2
Project Progress Report / Documentation (writing component) <sup>1</sup>	15	8
Log book entries <sup>1</sup>	5	3 to 14
Technical content of Final Report (graded by mentor/advisor)	30	14
Final Report (writing component) <sup>1</sup>	30	15
Final Presentation <sup>2</sup>	10	15

<sup>1</sup>) Towards fulfillment of the CNU required writing component.

<sup>2</sup>) The oral presentation will be graded by the department faculty body.

## Iterative Feedback / Writing Intensive Requirement

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This course fulfills the requirements of a CNU Writing Intensive course. This means at least half of your grade will be determined by your writing. Furthermore, to make sure that you are able to improve your writing skills, the instructor and/or the mentor will provide feedback on each submission. After incorporating the feedback and suggestions, you will be required to resubmit the document, which then will be graded. This course uses a staged writing assignment approach, with changes incorporated into the each revision.

You will be given feedback for each writing assignment. It is expected that your logbook entries will become part of your midterm and final reports, thus, the feedback you receive for the logbook entries should guide you in your writing of these reports. Similarly, part of your midterm report will also be relevant for your final report. Again, the feedback you will receive for the midterm report will be relevant when you write your final report.

## Late Work

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Except for cases of demonstrable extenuating circumstances, an assigned work grade will linearly depreciated to zero over a period of seven (7) days from its due date.

## Writing Center

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As a writing-intensive class, writing becomes an important part of this course. You are encouraged to take advantage of the University Writing Center at any stage of the writing process. It is a policy of this course that your final report needs to be checked by the Writing Center before turning it in for grading.

Writing consultants can help you at any stage of the writing process, from invention, to development of ideas, to polishing a final draft. The Center is not a proofreading service, but consultants can help you to recognize and find grammar and punctuation errors in your work as well as provide assistance with global tasks. Go as early in the writing process as you can, and go often!

## Call for Papers

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Paideia (pi-DAY-uh) is the classical Greek education of liberal learning, which was believed to develop the intellectual, moral and aesthetic capacities. Christopher Newport University's Undergraduate and Graduate Research Council (UGRC) invites students to submit abstracts for its annual conference dedicated to fostering undergraduate and graduate research and scholarship in all disciplines and institutions. Check UGRC's web site for information on how to submit your research.

## Academic Success

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The Center for Academic Success offers free tutoring assistance for CNU students in math, science, and languages, as well as other subjects. The center also offers individual assistance and/or workshops on various study strategies that can assist you at performing your best in your courses. The center also houses the Alice F. Randall Writing Center. Writing consultants can help you at any stage of the writing process, from invention, to development of ideas, to polishing a final draft. The Center is not a proofreading service, but consultants can help you to recognize and find grammar and punctuation errors in your work as well as provide assistance with global tasks. Go as early in the writing process as you can, and go often!

You may drop by the Center for Academic Success to request a tutor, meet with a writing consultant, pick up a schedule of workshops, or make an appointment to talk one-on-one with a University Fellow for Student Success. The Center is located in the Tribble Library, second floor, room 240.

## Disabilities

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In order for a student to receive an accommodation for a disability, that disability must be on record in the Dean of Students' Office, 3rd Floor, David Student Union (DSU). If you believe that you have a disability, please contact Dr. Kevin Hughes, Dean of Students (594-7160) to discuss your needs. Dean Hughes will provide you with the necessary documentation to give to your professors.

Students with documented disabilities are required to notify the instructor no later than the first day on which they require an accommodation (the first day of class is recommended), in private, if accommodation is needed. The instructor will provide students with disabilities with all reasonable accommodations, but students are not exempted from fulfilling the normal requirements of the course. Work completed before the student notifies the instructor of his/her disability may be counted toward the final grade at the sole discretion of the instructor.