CS 633 Syllabus

15 December 2011

Description

Welcome to CS 633, structured system analysis and design. Successful system development entails much more than just *coding*. We will survey various models of the software development process, learn how to elicit and analyze system requirements, and how to apply various design strategies, notations, and tools. In the end, you will understand why *quality* is so elusive in the development of information systems, and you will be comfortable with a range of processes, methods, and tools to help achieve it.

This course is offered in a **blended learning** format, which means that it replaces some of the traditional classroom time with interactive web-based assignments and communication. See the requirements and detailed schedule for more information about the time commitment.

- Monday 6–8:35pm in LLC 207(?), but not every week – see schedule
- Three credits, prerequisite: CS631

Contact information

Instructor: Prof. Christopher League, Ph.D.

Email: christopher.league@liu.edu – please include course number in subject.

Messaging: chrysleague (AIM), league@contrapunctus.net (MSN), chrisleague (Skype), cleague@gmail.com (GTalk/XMPP)

Phone: +1 718 488 1274 (office), +1 646 450 6278 (Google voice)

Office hours: Monday 12–1; Tuesday, Wednesday 11–12; other times by appointment.

Office location: LLC 206

Resources

Software: You will need regular access to a somewhat up-to-date computer with standard tools such as a word processor and presentation software. The non-standard tools that we'll use for some activities include the Subversion client and a diagramming tool such as Microsoft Visio (for Windows) or OmniGraffle (for Mac).

Web sites: `https://blackboard.liu.edu/` **and** `https://liucs.net/cs633f11/`

Text: There is **no required textbook;** instead we will rely heavily on readings and multimedia content on the course web site, and articles from the ACM digital library.

Library: Campus library resources tailored for computer science are available at `http://www2.brooklyn.liu.edu/library/wlp/LibPortal-CS-BC.htm` (also available in Blackboard).

Learning objectives

Upon completion of this course, I expect that you will…

1. understand the 'big picture' of software development, including all steps of the systems development life cycle.
2. be able to communicate technical ideas, detailed specifications, and intricate system designs orally and in writing.
3. be able to articulate the importance and limitations of various system analysis and design techniques.
4. be a capable user of a version control system.
5. be familiar with some sources of reliable information, interviews, and demonstrations on the system development process.

Assessment of learning

This course is part of an M.S. program in Computer Science. This section relates programmatic objectives with objectives and assessment instruments used in this course. At the completion of this M.S. program…

2.2: Students will effectively use tools for software development. Covered by course objective 4 and assignments 4 and 5. Measured using rubric.

4.1: Students will communicate technical ideas and complex specifications in writing. Covered by course objective 2 and assignment 2. Measured using rubric.

4.2: Students will give an effective oral presentation on some technical subject area. Covered by course objective 2 and assignment 3. Measured using rubric.

5.1: Students will exhibit awareness of professional organizations and technical opportunities. Covered by course objective 5 and assignments 1 and 6. Measured using survey at end of course.

Requirements

Your performance in the course will be scored on a 1,000-point scale. There are three categories of activities that count towards your grade:

- There will be an in-class **final exam,** worth **260 points.**
- The course content is chunked into 6 modules, and the activities required for each module are worth 110 points, so these produce a total of **660 points.** The activities are usually spread out over time with multiple deadlines, and the points are allocated accordingly.

- Finally, your attendance and participation in the face-to-face meetings is worth 10 points each, for a total of **80 points.**

On the 1,000-point scale, you can expect the following letter grades:

		≥ 870:	**B+**	≥ 770:	**C+**	≥ 670:	**D+**
≥ 930:	**A**	≥ 830:	**B**	≥ 730:	**C**	≥ 600:	**D**
≥ 900:	**A–**	≥ 800:	**B–**	≥ 700:	**C–**	else:	**F**

In the end, I may choose to adjust the scale slightly to compensate for assignments or questions that turned out to be trickier than I intended. Such adjustments would never *lower* your grade from what is designated in the above table; if you get 930 points, you are guaranteed an **A**.

Policies

No late assignments will be accepted, because we will discuss and evaluate your work promptly after the deadline. This helps to ensure that everyone receives timely feedback, and that you can learn from mistakes while they are still fresh in your mind.

There will be no extra credit. Students usually ask for extra credit late in the semester after they have already messed up their original opportunities. Be sure to start your work early, so that we can detect and solve any problems before they can affect your grade.

Plagiarism is the use or presentation of ideas, words, or work that is not one's own and that is not common knowledge, without granting credit to the originator. Plagiarism is a practice that is not only unacceptable, but which is to be condemned in the strongest terms possible on the basis of moral, educational and legal grounds. Under University policy, plagiarism may be punishable by a range of penalties from a failing grade in the assignment or course to dismissal from the School of Business, Public Administration and Information Sciences. All students are required to read the handbook on avoiding plagiarism by visiting `http://bit.ly/lVShWN`

Cheating includes, but is not limited to the following: falsification of statements or data; listing sources that have not been used; having another individual write your paper or do your assignments; writing a paper or creating work for another student to use without proper attribution; purchase of paper or research work for one's submission as his/her own work; using written, verbal, or electronic or other sources of aid during an examination (except when expressly permitted by the instructor, depending on the nature of the examination) or knowingly providing such assistance to aid other students.

Participation is essential to learning and fulfilling the outcomes of the course. In the blended format, that means attending face-to-face sessions as well as tracking and responding to posts on the web site, and staying consistently in contact with the instructor. I expect you to engage with the course (by logging in to Blackboard, posting to discussion forums, or responding to email) **at least twice every week.** I will endeavor to respond to any email message within 24 hours (often much faster on weekdays, up to 36 hours on weekends), and to be available for online appointments made 36 hours in advance.

Long Island University seeks to provide reasonable accommodations for all qualified persons with disabilities. This University will adhere to all applicable federal, state and local laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to register with Special Education Services (SES) as early as possible and to provide faculty members with the formal communication from SES for suitable accommodations. All accommodations must be approved through SES. Contact Information: 718 488 1221 or 718 488 1044.

Time commitment

New York State defines one credit as a total of 15 hours instructional time, plus 30 hours of student preparation. Thus, a typical three-credit course will amount to 45 hours instruction plus 90 hours preparation. (For these computations, an 'hour' actually consists of 50 minutes.)

In the blended format of this course, we interpret the New York State guidelines as follows. Face-to-face sessions last for three (50-minute) hours; eight such sessions yield 24 hours direct (face-to-face) instruction. Online resources and activities make up the rest.

The course is structured into six modules. Each module takes 2–2½ weeks and includes a set of readings, podcasts, videos, and other instructional formats, plus discussions and a substantial assignment to be submitted (often in multiple parts). Our estimates of time commitments for each component are given in the table below.

Module	Face-to-face instruction	Online instruction	Assignment preparation	Total hours
1	4	5	15	24
2	5	6	24	35
3	6	7	24	37
4	2	7	16	25
5	5	7	23	35
6	2	4	18	24
total	**24**	**36**	**120**	**180**

Schedule

Mon 19 Sep Meeting 1: (Module 1) The software 'crisis'.

Sun 25 Sep Assignment 1 due at 23:59: Research a software disaster.

Mon 26 Sep Meeting 2: (Modules 1–2) Introduction to the software development life cycle and the role of requirements analysis.

Thu 6 Oct Assignment 2a due at 23:59: Draft requirements document.

Mon 10 Oct Meeting 3: (Module 2) Feedback on your draft requirements documents, and an introduction to more specialized notations and formal specifications.

Sun 16 Oct Assignment 2b due at 23:59: Final requirements document.

Mon 24 Oct Meeting 4: (Module 3) Design strategies: CRC cards, objects, coupling and cohesion, and a brief intro to UML.

Sun 30 Oct Assignment 3a due at 23:59: Draft design document.

Sun 6 Nov Assignment 3b due at 23:59: Final design document.

Mon 7 Nov Meeting 5: (Modules 3–4) Simulated design meeting for assignment 3. Implementation concerns: selecting tools, languages, platforms, and libraries.

Sun 20 Nov Assignment 4 due at 23:59: Advanced version control workbook.

Mon 21 Nov Meeting 6: (Module 5) Introduction to the goals and kinds of testing, and procedures for test-case selection.

Thu 1 Dec Assignment 5a due at 23:59: Test plan.

Mon 5 Dec Meeting 7: (Module 5–6) General feedback on your test plans, assistance with the tools for automated testing and coverage.

Fri 9 Dec Assignment 5b due at 23:59: Testing report.

Sun 18 Dec Assignment 6 due at 23:59: Report on an agile technique.

Mon 19 Dec Final exam.