LIS 7008 Information Technologies

School of Library and Information Science, LSU
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Office Hours: Wednesday 12:30-1:30PM and by appointment
Teaching mode: Online in Fall 2010 (online and face-to-face rotating by semester)
Class Website: http://www.csc.lsu.edu/~wuyj/Teaching/7008/fa10/index.html

COURSE OVERVIEW

This course introduces the students to (1) hardware, software, networking, and telecommunications issues relating to information technologies used in libraries information settings, (2) experience with appropriate software packages and search systems, (3) information retrieval techniques, (4) system specification and implementation issues, and (5) Website design techniques.

SERVICE-LEARNING

LIS 7008 is a service-learning course, which is defined as "a course-based, credit bearing educational experience in which students (1) participate in an organized service activity that meets identified community needs and (b) reflect on the service activity in such a way to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility" (Bringle & Hatcher, 1995).

Students will work in pairs or a team of three to design a Website for a real entity (preferably a public, non-profit entity) of their choice. The rationale for working with a real entity is for the students to integrate and extend knowledge acquired throughout the course and to apply that knowledge to solve a problem of substantial scope in the real world, while providing technological assistance to our community. Many non-profit organizations need a Web presence.

ACADEMIC GOALS
• Understand how computers and computer networks work.
• Learn to use common information management tools, e.g., FTP, database.
• Learn and demonstrate the skills of using Website design techniques (e.g., HTML, XHTML, XML, CSS, Javascript, PHP, multimedia, information architecture, HCI) to do the homework and the project.
• Demonstrate the ability of applying information science and technology knowledge to solve a practical technological problem associated with building a Website for a real entity, specifically learn and demonstrate the skills of
    ◦ soliciting information needs from the real client (or community partner)
    ◦ providing a technological solution that meets the needs, and fit the technical environment, of the client
    ◦ handling copyright and information ethics issues in a real information setting
    ◦ communication and collaboration when working with team members and the client
    ◦ applying software/system design models, Website design and evaluation guidelines
• Evaluate the role of information technology in information organizations and society.
• Develop a personal plan for further study of information technology.

CIVIC GOALS
• Demonstrate an understanding of the client's information needs, technical requirements,

information environment, and ability of maintaining the Website.
• Demonstrate an understanding of civic responsibility and information ethics through the project
  activities and reflective class discussions.

COURSE MATERIALS

The class web site at http://www.csc.lsu.edu/~wuyj/Teaching/7008/fa10/index.html contains the course description (which contains a number of useful links), the syllabus, homework assignments and project information, and sometimes homework solutions. Additional materials (such as tutorials) will be posted on Moodle.

The required text books are:
• the "2010" edition of Shelly and Vermaat, "Discovering Computers: Complete."
• the "2008" edition of Rob Huddleston, "HTML, XHTML, and CSS: Your visual blueprint for
  designing effective Web pages."

Additional required readings are also to be assigned on the syllabus page. All of these readings are Web-accessible. Material from assigned portions of the text books and all of the assigned readings is testable, regardless of whether the specific information is discussed in my slides.

GRADING

Course grades will be assigned based on homework assignments, a quiz, a midterm examination, both individual and group work on a term project, and the final examination. Scores on each component will be combined to produce a single overall score for each student as follows:

Component	Percentage	Computation
Midterm and Final	35%	Best=25%, the other=10%
Term Project	40%	30% for the Website (graded together with project report), 10% for two reflective essays and one Project Reflection Survey
Homework and Quiz	15%	3% each for best 5
Class Participation	10%	Active contribution to discussions on Moodle

Scores for each course requirement (homework assignment, exam, document, project, class participation) will be assigned on a 100 point scale (with 90-100=A, 80-89=B, 70-79=C, etc). No curve will be used when assigning final grades. Historically, about one-third of the students have earned at least an A-, and a small number of students (varying between zero and three each semester) have received grades below B-.

Students may work together on the homework assignments, but all of the material that is turned in for grading must be produced individually. The quiz and exams are open-book, but students are not allowed to consult any other person during the exams.

For the term project, teams (preferably three-person teams) will design and implement some type of application in a way that makes substantial use of advanced technologies learned in this class. See more information below about the project. Each group will submit one project (including one project report) and each member of the group will receive a same grade for the collaborative part of that project (excluding the Project Reflection Survey). However, please do not simply observe your team members doing the project because the project will be tested in the final exam. In addition, a self-evaluation and cross-evaluation sheet for the project will be distributed to the class to collect how much everybody has contributed to the project.

SPECIAL NEEDS

If you know of any type of disability or barrier to your success in this class, please let me know no later than the third class. The Office of Disability Services assists students in identifying and developing accommodations and services to help overcome barriers to the achievement of personal and academic goals. Students must provide current documentation of their disabilities at the time specialized support services are requested.

GRADE DISCREPANCIES

If you have a question about a grade you receive on an assignment or exam, you must discuss the grade with me within two week of getting the grade. After that grades will not be discussed or modified. Any request to re-grade all the assignments at the end of the semester with an attempt to get a higher course grade will not be responded.

ACADEMIC AND PROFESSIONAL INTEGRITY

All of the material that is turned in for grading must be produced individually or by approved project teams. Any instances of cheating or plagiarism will be reported to the Dean of Students.

PROJECT

Goal. This is a service-learning project. The goal of the project is to design, or overhaul/re-design, a Website for a real entity. The project is designed to allow students to integrate and extend knowledge acquired throughout the course and to apply that knowledge to solve a problem of substantial scope, while providing technological assistance to our community.

Teams. Students are required to work in groups. Groups of 3 are highly recommended; groups of 2 are allowed but not preferred; groups of 4 and working by oneself alone are not allowed. Experience suggests that successful teams require expertise in design, implementation, and project management, so please form teams with members whose skills complement each other. Teams should plan to devote approximately 125 hours outside of class to the project over the course of the semester (6 hours per person for 7 weeks). Every team will need a client and a project manager. The project manager can be different from the client liaison.

Client and Content Requirements. Your project should meet the needs of a real entity, preferably a public, non-profit entity, such as a government agency, a library, an information center, a school, a museum, an archive, a hospital, an association. It is important that the chosen project be sufficiently substantial to represent a significant accomplishment, but that it not be so complex that completion within the available time would be unlikely. Projects are required to include significant real content (such as 10-30 pages); mock-ups that contain only a limited quantity of content for demonstration purposes would not be acceptable.

Teams may select any topic for their project, but they should be careful to select a project for which the required content can be obtained in the available time. Therefore, please be careful not to select two extreme types of clients: (1) clients who just need a very simple Website without much content, and (2) clients who need a large Website with complicated technologies.

Technological Requirements. Projects are required to make substantial use of at least two of the key technologies introduced in the course, integrated in a manner that is appropriate for their intended application:
• Web-based content delivery (HTML with CSS); Note that your CSS can be browser-specific, but your Website needs to work with any main browser

• Programming (JavaScript, PHP)
• Synchronized multimedia content delivery (SMIL, flash). Note: some libraries have installed filters that disallow any streaming videos to be played
• Relational Databases (PHP, MySQL)
• XML

Since the Website is finally to be hosted on the client's server, please assess the client's technical environment carefully before selecting the technologies, and discuss the Web hosting issue with the client as early as possible.

Planning. Immediately following the midterm exam, project teams will meet on Moodle to discuss and nail down the details of their planned project. Each team will present their project plans to solicit feedback on their plans from other members of the class. Please briefly address at least the following aspects of your project:
• what Website you plan to work on
• what's the information needs of your client (what functions/features they require)
• where your client plans to host their Website
• what technologies you plan to use (or they require)
• how you plan to manage your project: who is going to do what and a work schedule
• how you plan to evaluate your Website (Note: you need test your Website using various browsers such as IE, Firefox, and Safari). Client evaluation is required; user evaluation is optional, but may improve your project grade.

The instructional staff will be available for consultation with project teams during office hours, by appointment, and by email or phone. Because project teams will be working with a diverse array of technologies and application environments, this assistance will necessarily focus more on strategies than details. Teams should submit a one-page plan to solicit my feedback one week before the planning session following the midterm exam.

Please do not start late! Very often, your client does not have a blueprint of the Website at the beginning stage. That is, he/she cannot clearly specify the technical and design requirements and does not give you enough content to start with. A good strategy is to build a prototype with the incomplete requirements and content, and ask for his/her feedback. Sometimes it takes time to figure out why your code does not work the way you expect. Getting feedback from your client and users, revising and debugging all take time. Therefore please plan ahead. Teams are expected to provide their client with a prototype Website (with major features) within three weeks following the midterm exam.

Please note that you are managing to meet two requirements: course requirements (academic goals) and your client's requirements (civic goals). It is possible that these two requirements are not completely consistent with each other. If the client demands more than what you can do, please talk to me and we will negotiate with your client. Making contractual negotiations is a part of the learning outcome.

Evaluation. You should consult your client for information needs, content, and feedback. Although your client evaluates your work, she/he is actually a part of your design team. Ideally you should meet with the users who will be using the Web site. However, if it is impossible to do a user evaluation, you should meet with your client at least three times - at the beginning of the project in which you collect their information needs and content, in the middle of the project in which you collect their feedback on your prototype, and at the end of the project in which they evaluate your Web site. Please leave at least a week for user evaluation and a final round of Website revision. Please document those meetings and submit the memos together with the project report. If you plan

to do a user evaluation, please provide at least two users' contact information (preferably one who gives you positive feedback and one who gives you somehow negative feedback).

Reflection. Reflection is an important part of the service-learning experience:

> Reflection is the "intentional consideration of an experience in light of particular learning objectives." Reflection activities provide the bridge between the community service activities and the educational content of the course. Reflection activities direct the student's attention to new interpretations of events and provide a means through which the community service can be studied and interpreted, much as a text is read and studied for deeper understanding (Bringle & Hatcher, 1999).

In this class formal reflection will take place three different ways:
1) Two reflective essays and one Project Reflection Survey. Every two weeks following the midterm exam, every team will be required to submit a 1-2 page essay in which you reflect on your experience including what you have experienced in terms of civic involvement and ethical considerations. Further, you should connect your experiences with the content of the course, analyzing how these fit together. Probing questions will be provided for you to address in each essay. The reflective essays are teamwork. The Project Reflection Survey will use open-ended questions for synthesizing your learning experience, and is to be completed by each individual (not teams).
2) In-class or online discussion sessions. These sessions will allow students an opportunity to share experience with other students and learn from one another.
3) Presentation of experience. Students will present their ideas and work to the client and the faculty/students at the end of the semester.

Project Report. Each team will produce a single written report. The sole role of the project report is to convey information that cannot be conveyed as effectively on your Website. The key here is the content, not the style of the report. So there are essentially no style guidelines except that I would like to be able to understand it (so it is helpful if it is well written), and I would like it to be reasonably concise (about 5-6 pages, single spaced). The content of the report should address at least:

• Why you did this. Describe your client's needs and preferably analyze their (and also your) users.
• How you went about it. This has three aspects:
> 1. How did you learn what your client really needed (how did you use their understanding of the true problem to guide your work? How often and how did you communicate with your client?), and
> 2. How did you organize your efforts - Mythical man-month kinds of issues.
> 3. Were you able to meet all of your client's requirements? If not, how did you negotiate with your client?
• What techniques were used to create what (e.g., what Webpage was created using what techniques).
• What you learned about the nature of your problem (e.g., design problem, project management problem, coding/debugging problem, information needs problem, client communication problem).
• What you learned about the capabilities and limitations of the technologies that you chose to work with.
• What software/system design model was used? Did it work well?
• What you know about how well your system meets the needs for which it was created? Did you test it? How? What insights did you gain?
• What plans are there for a continued life for what you have created? Will your client adopt it? Who will be maintaining it?
• Reflective thoughts that are not included in the reflective essays, or any new reflection.

Of course, different groups will devote more or less space to each of these, and some groups will add other things. For example, some groups might talk about changes that they made to their vision of who their customer really was along the way as they learned more. Others might talk about suggestions for supporting project groups in future semesters that would extend their capabilities. Others might want to write about group dynamics (perhaps as a form of "group therapy":-)). So there is no cookbook recipe and no fixed format for a good project report. The key is to reflect all sorts of issues in the process and learn a lot, and to describe what you have learned.

Other Deliverables:

• Two reflective essays and the Project Reflection Survey.
• Project evaluation form (signed by the client).
• User evaluation report (if any). This can be an appendix to the project report.
• User manual for your client to maintain the Website on their server.
• Project team self-evaluation and cross-evaluation form (to be filled by individual team member).
• Meeting memos.

Website Grading. Your Website will be evaluated (together with the project report) with the following 4 aspects:

• Technical implementation;
    ◦ A: three or more techniques applied; or two key techniques with some critical adds-on (such as Google Search)
    ◦ B: two key techniques applied, with some non-critical adds-on (such as Google map or calendar)
    ◦ C: fewer than two key techniques applied
• Design (structure/layout, navigation, presentation); please follow HCI and Website design principles (e.g., CRAP);
    ◦ A: working with all main browsers, excellent layout design, excellent navigation design, clean color/font presentation
    ◦ B: working with all main browsers, good layout design, reasonably good navigation design, clean color/font presentation, no broken links or typos
    ◦ C: browser-specific, poor layout design, poor navigation design, messy color/font presentation, broken links, lots of typos
• Content (or effort to build/collect content);
    ◦ A: more than 20 pages and/or great effort made to collect content
    ◦ B: at least 10 pages and/or good effort made to collect content
    ◦ C: fewer than 10 pages and no good effort made to collect content from client
• Test and user evaluation.
    ◦ A: excellent client evaluation, excellent user evaluation design and implementation, excellent user evaluation
    ◦ B: good client evaluation, good user evaluation design and implementation, good user evaluation
    ◦ C: bad client evaluation, no user evaluation design and implementation or bad user evaluation
Your Website grade is the average of the above 4 aspects.

SEMESTER SCHEDULE

Date	Topic	Assignments	Project Activity
Aug. 24	Computers	Homework 1	• Start to form project teams.

			• Start to look for a client. (I will provide several clients)
Aug. 31	Networking, FTP, Simple HTML	Homework 2	• Form project teams. • Look for a client for each team. • Distribute the faculty-client agreement, students-client agreement, project evaluation form.
Sept. 7	Structured Documents (HTML and XML)	Homework 3	• Find a client for each team, or pick a client (if two or more clients are available).
Sept. 14	Quiz, Multimedia	Homework 4	• Prepare the Collaboration Planning Guide.
Sept. 21	Relational Database	Homework 5	• Discuss copyright and information ethics issues that can emerge when working with a real client.
Sept. 28	Programming (Javascript)	Homework 6	• Discuss team collaboration issues and the man-month mythical theory. • Distribute the team member self-evaluation and cross-evaluation form.
Oct. 5	Web-based Integration (PHP); Mid-term Review		•Discuss with your client where to host the Website •Submit a one-page project plan
Oct. 12	Mid-term Exam; Brief Project Discussion		• Discuss project plan in class or on Moodle • Collect and document client's needs and initial requirements • Collect the faculty-client agreement, students-client agreement.
Oct. 19	Computer-mediated Communication		• Start to design the information architecture and build a rapid prototype • Submit reflective essay (topic: analyzing client and users)
Oct. 26	Human-Computer Interaction		• Build the prototype • Reflect how the man-month mythical theory works in your team.
Nov. 2	Web Characterization		• Solicit feedback from the client on the prototype, revise your design • Reflect how copyright and information ethics issues are involved when working with a real organization. • Submit reflective essay (topic: copyright and man-month mythical issue)
Nov. 9	Information Retrieval and Search		• Solicit feedback from the client and the users, revise your design, fix bugs, or collect more information. • Start to test your prototype Website on the client's server.
Nov. 16	Policy (Privacy and Security)		• Solicit feedback from the client and the users, revise your design, fix bugs. • Host your Website on your client's server, fix bugs. • Distribute the Project Reflection Survey.
Nov. 23	System Life Cycle; Final Review		• Solicit feedback from the client and the users, revise your design, fix bugs.

			• Reflect what software/system design model your team has used. • Host your Website on your client's server, fix bugs. • Prepare the Website Maintenance Manual (for your client).
Nov. 30	No Class; Project Due.		• Submit project report • Submit Project Reflection Survey • Submit the Project Evaluation Form (signed by your client), the self-evaluation and cross-evaluation form, and the Project Reflection Survey (open-ended questions for synthesizing learning). • Submit the Website Maintenance Manual (and send a copy to your client).
Dec. 7	Final Exam		• Host your Website on your client's server (if you have not done so)

Note: Please read the syllabus Webpage for detailed information.