Software Development I: CSCI221
Spring 2012
Research Paper and Presentation

Instructor:	Daniel Plante
Assigned:	22 March 2012
Turn In By:	Deadlines given below

As stated in the course syllabus, you are required to write a research paper for this course. To give you a concrete idea of what I expect, I have provided a couple of "longer" papers on Blackboard that show the basic layout and idea of what you should aim for. The papers are not on Software Engineering topics, and the papers are longer than you are required to write, but they will provide you with a basis to start from.

Your research paper will be on some topic in software engineering that is approved by me. For the most part, it may be on any topic you choose, but I recommend that you don't make it to narrow (e.g. *Software Testing Methods used in Object Oriented Software Development of GUI Implementations of 3-D Emulations of Chicken Coops*) or too broad (e.g. *Software Engineering: The Discipline Explained*). You may also cross disciplinary lines, for example writing on the construction of software for the human genome project or process approaches to game development. Some more traditional possible topics, though this list is by no means exhaustive, include:

- Software Processes
- Computer-Aided Software Engineering
- Traditional versus Object Oriented Analysis
- Traditional versus Object Oriented Design
- Testing Metrics
- Extreme Programming
- Software Testing Techniques
- Cleanroom Software Engineering
- Code Reuse
- Formal Methods: Pros and Cons
- Component-Based Software Engineering
- Test Cases
- Client/Server Software Engineering
- Reengineering
- Reverse Engineering
- Designing Web-Based Applications

While there is no fixed-size limit on your paper, it should be about 10 pages long, double-spaced using either a 10 or 12-point sized font. The margins for your paper should be 1 inch on the top and bottom and 1 ¼ inch for the left and right sides. The 10 page "ballpark" size excludes the bibliography and pictures, so those of you with a couple of *BEAUTIFUL* 8 by 10 pictures of the eXtreme programming methodology are not down to only eight pages of writing ☺… (… Sorry…) However, I will point out that I am not out there with my ruler and a microscope. Rather this is to prevent the barrage of 14 pt, triple spaced, 2" border papers with a couple of 8 by 10 pictures that I *USED* to get in my naïve days when I simple stated that the paper needs to be 10 – 15 pages long. So if you turn in 13 pages of writing with 12 pt font and 1 ½ " borders because you prefer the look of it, I won't mind.

Also, there are other important details about the requirements. Firstly, you must use ***at least 5*** decent references for your paper! These may be papers off the web, papers from the ACM digital library (available through the library), papers from journals (from our library or elsewhere) or books. Please don't reference Wikipedia. You should put some time into picking your papers and reading them at least at some level beyond, "Hmm, nice font… Looks good to me!" Poorly chosen papers at the last second will make

your job of writing the paper *FAR* more difficult. Also, I expect that at least 5 of the sources you choose during the "Hand in your references" part of the paper will be in your list of references when you turn in your rough draft and the final paper. Therefore, you may find it advantageous to choose more quality references in the event you decide not to include some in the end. Also note that you will continue to get other assignments during this period! So be careful with your planning.

The paper will be completed in four phases with the following deadlines:

Phase	*Task*	*Deadline*	*Percent of Grade*
I:	Hand in your references	by class time, Wednesday, Apr. 4th	10% paper
II:	Turn in your outline	by class time, Wednesday, Apr 4th	10% paper
III:	Turn in your paper	by class time, Wednesday, Apr 25th	80% paper
IV:	Class presentations	on Apr. 25th, Apr. 30th and May. 2nd	100% presentation

Phase I:
You should choose your topic by first doing a literature search on the web and in the library. Also, a good starting point is to look through the software engineering text that I have placed in the cabinet in room 210 of Elizabeth Hall. You can look up subjects and some of the references. In software engineering, however, you will find that many of the references are books rather than papers. Therefore, this phase should be completed rather carefully. If you are late in getting me the references, you lose 10% per day of the grade for this phase, namely 10% of the 10%, or 1% of your final paper grade. If you are more than three days late, you lose the full 10%. Also, should your final paper not use your references in a useful way (e.g. if you only reference a single line from the paper or do not reference it at all), you lose an additional 20% of the 10%, or 2% of your final paper grade, for each poorly used reference. You can only lose a total of 10% of the total grade in this way. Therefore, for example, if you turn in your references three days late and then don't use these references, then you lose a total of 10% of your final paper grade. If any additional or different sources are used, you must provide them to me when you turn in the rough draft or final paper, whichever you use them in first.

To turn in a reference to me, you must provide me with the papers in pdf form on vir1 (in the Homework folder; make a new folder in your personal folder there and call it "Papers"). If you are using a paper but only have a photocopy of the paper, you may give me hard copies of the papers during class on the date the references are due. Also write up the bibliography for these references since the pdf files often do not contain the full reference. For books, you must give me the books to look over both when you turn in your references and when you turn in your paper.

Phase II:
You will need to complete an outline of your paper to show me where you are going with it. While I will not require that you stick to it religiously when writing the rough and final drafts of your paper, I will expect that you basically do so. You should have completely read the papers before writing your outline, so I expect your outline to be more than a simple, "I. Introduction, II. Background, III. Main Ideas, IV. Conclusions". Each section should be broken down, if necessary, into subsections with a brief description of what each will be. This outline will usually be between 1 and 2 pages long. You also need to complete an *Abstract* for this phase. Late submissions get penalized 10%, 20%, 30%, and 100% of the 10% portion of the final paper grade. Therefore, you may lose a maximum of 10% of the total paper grade from this component.

Phase III:
Your paper is worth 80% of the total paper grade. You will be graded based on content, use of references, grammar, spelling, and how well your paper holds together and flows. You must also have a "Reference" section with your sources listed. You should be careful not to write too "loosely", with the paper sounding more like a letter to your mother than a research paper. By this I mean that sentences such as, "Well, you know that software engineering is lots of fun, but did you know that it is a serious subject too? Bet you didn't! Let me tell you why it is important and maybe you will understand!" Also, do not write in the first person. Again, refer to the sample papers I have provided to provide a basis to work from. Late submissions lose 10%, 20%, 30%, and 100% of the 80% portion of the final paper grade for 1 to 4+ days late.

Phase IV:

Your talk should be about 13-15 minutes long using some form of presentation support (PowerPoint, Prezi, Keynote, etc.). In general, you should provide an overview of your topic and important recent perspectives or opinions of its applicability, pros/cons, and field-tested applications. There will be time for about 3 or 4 minutes of questions after the talk. The paper and presentation together constitute 15% of your final grade for the course, with the relative weights being 5% presentation, 10% paper. You *MUST* present at your designated time barring an emergency. Missing your presentation time means losing the entire 5% of your course grade. Also, everyone presenting on a given day should get together and get all of their presentation material together on the same computer without requiring logging in or out to prevent delays. If you must present on your own computer, have all attachments ready to go and make the transition quickly. Practice doing this so that you don't have unexpected surprises when doing so on presentation day. Also, practice your presentation well! Don't use notes or note cards, don't read your slides... Present like you know what you are talking about!

NOTE: Do not delay each of these Phases! You will continue to receive other reading, quizzing, programming, designing, etc. assignments during this time! So don't just put it off!