CS 600 – Professional Software Development (4+0)
Fall 2015 Syllabus

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Office Hours: TBD or by appointment

Prerequisites: CS 472
Required Text: *Professional Software Development: Shorter Schedules and Higher Quality Products* by Steve McConnell, Addison-Wesley, 1st ed
Location/Time: TBD (4 lecture hours per week)

Catalog description: Participate in a group project to explore the technical, social and ethical aspects of software development. Topics include: requirements engineering, enterprise-level data storage, software architecture, security, software testing, legal issues, computer ethics, risk management and project management.

Course goals: To expand your knowledge of software engineering and project management, which will enable you to develop larger software systems. After reviewing software process models, your group of 2 or 3 students will develop a distributed software system during the semester using an Agile process.

Student Outcomes:

- Ability to determine software requirements for a software system
- Ability to develop a distributed software system using an Agile process
- Ability to create effective developer and end-user documentation
- Ability to effectively use a version control system to develop a software system
- Ability to create and deploy effective automated tests
- Ability to give effective oral technical presentations

Grading:

Scrum #1 Report (returned with comments)	0%
Scrum #2 Report	10%
Scrum #3 Report	10%
Scrum #4 Report	10%
Scrum #5 Report	10%
Scrum #6 Report	10%
Final Project Results & Presentation	10%
Mid-term Exam **(2 hours in-class)**	20%
Final Exam **(during schedule time)**	20%

Final grades will be assigned based on the following percentage intervals: A+ [95%,100%], A [90%,95%), A- [85%,90%), B+ [80%,85%), B [75%,80%), B- [70%,75%), C+ [65%,70%), C [60%,65%), C- [55%,60%), D+ [50%,55%), D [45%,50%), D- [40%,45%), F [0%,40%).

Group Project: The group project will reinforce lecture concepts and demonstrate application of critical thinking skills.

Instructional Methods – Classroom lectures, case studies, software system development, written/oral assignments.

Policies: Examinations **must** be taken at the scheduled time. In particular, there **will be no** early final exams. You may discuss homework assignments with others, but everything you turn in **must** be your own work with appropriate citations.

Disabilities Services – The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. I will work with the Office of Disabilities Services (208 Whitaker Bldg, 474-5655) to provide reasonable accommodation to students with disabilities.

Tentative Schedule: (lecture topics are listed in 1-hour increments to facilitate something other than 2 2-hour lectures per week)

Week	Lecture	Class topic (first hour)	Class Topic (second hour)	Assignment
1	1	Review Software Processes Models	Review Waterfall & Agile Models	
	2	Software Requirements Elicitation	Create groups & select project	
2	3	Software Requirements Analysis	Software Requirements Validation	**Scrum #1**
	4	Project Management for Agile Projects	**Discuss/Review Scrum #1**	
3	5	Local Data Storage for Applications	Enterprise-level Data Storage Systems	
	6	Database/Web Integration	Web application security	
4	7	Security By Design	Authentication and Authorization	**Scrum #2**
	8	Web Development Frameworks	**Discuss/Review Scrum #1 Results, Scrum #2**	
5	9	Test-driven Development	Requirements-based Testing	
	10	Automated Testing Environments	Software Review and Audits	
6	11	Release Testing	Ethics Case Study 1	**Scrum #3**
	12	Software Evolution	**Discuss/Review Scrum #2 Results, Scrum #3**	
7	13	Mobile Device Development	Mobile Device System Integration	
	14	GUI Design & Integration	GUI Building Tools	
8	15	**Mid-term exam review**	**Discuss/Review Scrum #3 Results**	
	16	**Mid-term exam**	**Mid-term exam**	**Scrum #4**
9	17	Discuss Mid-term Exam	**Discuss/Review Scrum #4**	
	18	Developer Documentation	End-User Documentation	
10	19	Testing Human-Computer Interface	Software Failure Case Study 1	
	20	Project Risk Management	Group Dynamics & Psychology	**Scrum #5**
11	21	Legal Issues	**Discuss/Review Scrum #4 Results, Scrum #5**	
	22	Buy vs. Develop Evaluation & Decisions	Ethics Case Study 2	
12	23	Software Quality Fundamentals	Software Quality Management Process	
	24	Software Refactoring	Software Failure Case Study 2	**Scrum #6**
13	25	Refactoring Costs & Risks	**Discuss/Review Scrum #5 Results, Scrum #6**	
	26	White-Box Testing	Black-Box Testing	
14	27	Software Architecture	Prescriptive vs. Descriptive Architecture	
	28	Software Architecture Evolution	Software Maintenance	
15	29	Legacy System Management	**Discuss/Review Scrum #6 Results**	
	30	**Final group project presentations**	**Final group project presentations**	**Project Due**
		Final Exam during schedule final exam time		