UNITED STATES
AIR FORCE ACADEMY

Syllabus
Comp Sci 350: Software Engineering
Fall 2018

> The beginning of wisdom for a programmer is to recognize the difference between getting his program to work and getting it right. A program which does not work is undoubtedly wrong; but a program which does work is not necessarily right. It may still be wrong because it is hard to understand; or because it is hard to maintain as program requirements change; or because its structure is different from the structure of the problem; or because we cannot be sure that it does indeed work. (Jackson, *Principles of Program Design*, 1975)

1 Instructor

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2 Course Description

Develops a theoretical and applied understanding of the concepts and techniques of software engineering emphasizing agile methodologies, software architectures, project planning and management, risk management, requirements engineering, prototyping, goal modeling, design techniques and quality measures, security considerations and protections, quality assurance techniques, testing methodologies, configuration management and control, sustainment, and tool support.

3 Prerequisites

Comp Sci 220: Data Structures and Systems Programming

4 Textbook

Ian Sommerville. *Software Engineering.* Pearson, tenth edition, 2016. ISBN: 0-13-394303-8 / 978-0-13-394303-0

5 Course Outcomes

Upon completion of this course, you will be able to

1. employ contemporary software engineering practices and principles to analyze project characteristics and needs to design, implement, test, maintain, and evolve appropriate software solutions;
2. utilize advanced software engineering techniques to produce secure, reliable, and resilient software systems efficiently;
3. employ software project management principles to orchestrate team efforts, mitigate risks, and produce high quality software systems; and
4. apply ethical reasoning together with professional standards to the development of software systems.

6 Policies

Assignments are due at the start of class (unless otherwise indicated in the assignment description). Meeting deadlines is important; please do not submit late work without prior coordination. Except for extraordinary circumstances, late work will be penalized 25% for each 24-hour period past the deadline. The late penalty is a cap on the maximum grade that may be awarded for the late work.

Final grades will be determined using the following weighting and standard grading scale:

	Prog		Final	
Item	#	Points	#	Points
Project / Assignments	3	200	8	500
Graded reviews (GRs)	1	125	2	250
Final Exam			1	250

$\pm$ will be assigned using ± 2 thresholds—e.g., 92% will be an A- and 88% will be a B+. No exemptions will be granted for the final exam.

7 Expectations

The following is a list of expectations for this course:

- Come prepared for each and every class. Be ready to engage actively in class activities and discussions.
- Work ahead of due dates. Like the real world, this course gives you the latitude to shoot yourself in the foot. We will study the tools and techniques to succeed in software engineering. Paraphrasing von Bismark, learn from the mistakes of others rather than repeating them yourself.
- Your honor is extremely important. Do not compromise your integrity by violating academic security or by taking unfair advantage of your classmates.
- Seek assistance whenever needed. I am committed to helping you succeed.