Software Engineering III

SOFT 260

University of Nebraska–Lincoln

August 21, 2018
Learning Goals for Today

Be able to:

- Locate course objectives, roadmap, and resources,
- Describe the role that mathematics plays in engineering software,
- Explain the value of pseudocode as a software artifact,
- Explain the value of writing pseudocode as a software design process,
- Express algorithms at an appropriate level of abstraction in high-quality pseudocode, and
- Read and write discrete mathematics notation in the context of pseudocode.
Personnel

- **Instructors**
  - Brady Garvin (Avery 356)
  - ThanhVu (Vũ) Nguyen (Avery 261)

- **TAs**
  - John-Paul Ore (Lab Instructor)
  - Taher Ahmed (Teaching Assistant)
  - Jasmine Boyer (Teaching Assistant)
  - Hallie Hohbein (Teaching Assistant)
  - Denis Komissarov (Teaching Assistant)
  - Jake Petersen (Teaching Assistant)

- TA office hours are posted on the syllabus and on Piazza
Format

- Tuesday/Thursday class meetings in AVH 347
  - Active and collaborative learning
  - Technical and non-technical skills
  - Software engineering in practice
  - Software engineering in research
- Friday labs in AVH 347
  - Hands-on activities
Expectations

- Attend all class meetings and lab sessions
- Come to class on-time and prepared
  - Bring your laptop (battery charged)
  - Be ready to answer questions about assigned readings, etc.
- Maintain a supportive and constructive environment at all times
- Complete lab assignments within two weeks (if not completed during the lab session)
Grading

- Class participation: 5%
  - Initial credit: 5%
  - Each unexcused absence: -1%
- In-class activities and assignments: 30%
  - Lab assignments: 25%
  - Instructor-led in-class activities: 5%
- Homework assignments: 40%
  - Journal assignments: 5%
  - Non-project homework: 10%
  - Project (both individual and team tasks): 25%
- Quizzes: 10%
  - Ten short quizzes in lab: 1% each
- Exams: 15%
  - Midterm exam: 5%
  - Comprehensive final exam: 10%
Extra credit: Each instructor-endorsed question or response on Piazza is worth 0.25% of your final grade up to a maximum of 2%.

Extra credit: Each homework solution you submit as a well-written \LaTeX file is worth 0.25% of your final grade up to a maximum of 2%.
All homework submissions will be cloned from GitLab at 9:00 AM on the listed due date.

Collaboration is permitted as specified in assignments. If not explicitly permitted, then you may not develop joint solutions, share work or copy anything (from anyone or anywhere).

- Note that we will use the Stanford Measure of Software Similarity (MOSS) to check for plagiarism in homework, etc.

Communication: Piazza

Technology: no phones, no web browsing, posting to social media, etc. during class or lab sessions
Course Overview

- SOFT 260 is about ensuring that software meets its requirements.
- We will continue to emphasize design, but now with a focus on making justified guarantees about a design.
- As in other areas of engineering, this is the math-heavy part of the discipline.
Module 1: Algorithm Analysis
Module 2: Low-Level Requirements and Search Algorithms
Module 3: High-Level Requirements and Decomposition Algorithms
Module 4: Data Structures and Class Invariants