

### Welcome to **Software Engineering**



#### Everyone Meets Everyone: Instructor



#### Valentin Razmov

- Ph.D. candidate, Computer Science & Engineering M.Sc. (from UW) in 2001
- Course-related Experience
- Course-related experience

  5 quarters as a TA in CSE403

  One of the courses I enjoyed TAing the most!

  Authored 4 conference papers on education-related experiences from CSE403

  3 years of industrial experience across 5 different companies (including 3 internships)

  Career Interests

  Teaching; Project Management

- Research Interests
- <sup>n</sup> Methods for Effective Teaching and Learning
- Computer Systems Security
  CSE403, Summer 05, Lecture 01

### Everyone Meets Everyone: **Teaching Assistant**



- n Ph.D. student, Computer Science & Engineering <sub>n</sub> M.Sc. (from UW) in 2005
- Course-related Experience
  - n several quarters as a TA in other capstone courses
- n Research Interests
  - <sub>n</sub> Human-Computer Interaction

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### **Everyone Meets Everyone:**



#### You...

We'd like to get to know you, so tell us a bit about yourself.

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#### **Outline for Today**

- Course logistics
  - Course web, mailing list, room, technology
- What is Software Engineering about as a discipline?
- Mhat to expect from this course
  - Readings, assignments, projects
  - Unique aspects
- n What you will have learned by the end of this course

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#### Course Logistics



#### Course web

- http://www.cs.washington.edu/403/
- Will contain lecture/section materials, assignments, resources, latest class schedule
- Class mailing list
  - Subscribe to it today!
    - ... Instructions are on the course web
- Room: CSE403
  - For both lectures and sections, unless otherwise announced
  - Will have meetings in other rooms, so stay tuned!
- Technology
  - Support has equipped the computer labs with the latest and greatest software, so you can do your job well
  - will occasionally use tablet PCs in the classroom



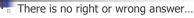
### In Your Current Understanding, What Is Software Engineering?

- This is not a graded activity.
- Write your answer on a 3"x5" card, and put your names.
- There is no right or wrong answer we will return your card to you on the last day of the class, so you can see how much you've learned!

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#### What Is Software Engineering?



- n According to one colleague:
  - "Software engineering is about people working in **teams** under stress to create value for their customers.
- n Throughout this class, as in this activity:
  - Everyone can add something of value to the discussion.
  - Everyone has a view of the overall picture, but maybe not a full view.
  - Together, we all can reach a more accurate understanding and, ultimately, higher quality results.



### What Software Engineering Encompasses

- In contrast to many CS disciplines you have been exposed to, this one involves aspects of:
  - Computer science (incl. algorithms, data structures, programming languages, tools) **Business and management** (incl. project management, scheduling, prioritization)

  - **Economics/marketing** (incl. what makes a product sell, niche markets,

  - monopolies)

    Communication (incl. managing relations with stakeholders customers, management, developers, testers, sales)

    Law (incl. patents, licenses, copyrights, reverse engineering)

    Sociology (incl. modern trends in societies, localization, ethics)

    Political science (incl. topics at the intersection of law, economics, and global societal trends; (public) safety)

    Psychology (incl. personalities, styles, usability, what makes things fun)

    Art (incl. GUI design, what makes things appealing)
- Hence, the flavor you get of the discipline will necessarily be "softer" and there will be fewer clearly right/wrong answers.



#### What to Expect from This Course: Learning



- Learning = experience + reflection
- "Learning requires practice and feedback."
  - -- Richard Felder
- Experiences come from your work on a quarter-long
- Reflection comes through readings, discussions in class, and homework assignments

#### Critical skills for learners

- Problem solving
- Team work
- Stress management
- Communication

Self-assessment
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#### What to Expect from This Course: Readings

- "Rapid Development" by Steve McConnell
  - Main text: inexpensive, a good reference
- "The Pragmatic Programmer"
  - Strongly recommended, but not required
  - Some overlap with "Rapid Development, but more recipe-oriented (if that's what you want or need)
- n Handouts, distributed in class
  - Short, targeted at specific topics of interest
- n Articles online
  - n Some already linked from the course web CSE403, Summer'05, Lecture 01

# What to Expect from This Course: Projects

- Your make project proposals (and then vote on which projects to keep)
  - Start thinking about ideas today!
  - Sample project ideas are linked from the course web
- Project development in stages
  - Reflects modern methodologies for effective software project development
  - You get feedback from us after each stage, but also regularly during development at each stage
- n Project teams need to be of size at least 6
  - Otherwise it'd be toy development, and you'd miss on some of the most important experiences

# What to Expect from This Course: Peer Reviews

- n A standard form of *constructive* peer feedback used widely in industry
- $_{\scriptscriptstyle \rm I\!I}$  Allows you to see yourself through the eyes of your teammates
  - ... and assess what they think you are doing well and what you are not doing so well
- n Allows you to learn to provide useful feedback
- Peer reviews will not be used for grading purposes (but you need to participate)
- Peer reviews will be anonymous to students, but not to instructors

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# What to Expect from This Course: Homework Assignments



- n Individual assignments
- one-page reflective essays
  - ... asking you to relate project experiences to ideas from readings and/or class discussions
  - Emphasis will be on depth of reasoning, not whether you have the "right" answer
- <sub>n</sub> Hands-on exercises
  - n related to material discussed in class

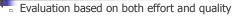
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# What to Expect from This Course: Unique Aspects

- n Cross-disciplinary nature of the discipline
- <sub>n</sub> Large teams
- You have the opportunity to propose and work on your own ideas
- <sub>n</sub> Instructors in the coach role
- Mistakes along the way are encouraged, not penalized
- Few clearly right/wrong answers
- Plans (always) change
- Content topics: software design, testing, project management, etc.

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# What to Expect from This Course: Grading Criteria (tentative)



n Group project: 40%

LCO (6%), LCA (6%), zero-feature release (6%), beta release (10%), final release (12%)

n Homework: 20%
n 3-4 individual assignments
n Midterm: 12%
r Final exam: 20%
n Participation: 8%
n In class and on the project
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## What to Expect from This Course: To Succeed It Takes...

- Students in the past had been spending on average ~15 hrs/week on this course.
- <sup>n</sup> Before the end, we would like to have seen evidence that you personally have learned.
- Be proactive and open to learning.
- <sub>n</sub> Be responsible toward your teammates.
- n Honesty is prized highly.
- Do not skip assignments / miss deadlines they are all important (and not hard to complete / meet).

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### What You Will Have Learned by the End of This Course

- Get exposure to some of the best software development practices in use today
- Learn how to more effectively collaborate with others toward a common goal
- Understand how software is produced from conception to shipping and subsequent maintenance
- n Have experience working in a larger team toward a
- Be able to lead an intelligent conversation with expert practitioners in the field of software engineering
   Understand the issues and tradeoffs involved in making
- decisions as software engineers and project managers

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