Overview & Responsibilities

Software Testing
SWE 637

https://go.gmu.edu/SWE637

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(Dr. B for short)

Adapted from slides by Jeff Offutt and Bob Kurtz
Welcome!

SWE 637 – Software Testing

Roughly 75% testing theory, 25% testing practice

(Re-)Familiarize yourself with:
- Java
- Data structures
- Control flow graphs
- Formal logic
- Discrete math
About Me
About My Lab

Understanding Software Practice
- Developer tool use
- Developer expertise
- Work environments

Improving Software Practice
- Testing & debugging
- Tool adoption & communication
- Onboarding in OS communities

Developing Equitable Software
- Software and model fairness
- Ethics in open source
- Technology for Black Lives
- Equitable healthcare access
Online Resources

All information, announcements, and discussions will be on Piazza.
- includes lecture slides, which are also available on the class website

Quizzes will be administered using Socrative.

Homework assignments and grades will be posted on Blackboard.
Course Materials

Introduction to Software Testing, 2\textsuperscript{nd} edition, by Ammann and Offutt

(strongly recommended)

https://cs.gmu.edu/~offutt/softwaretest/
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Readings &amp; Handouts</th>
<th>Quizzes &amp; Assignments</th>
<th>In-Class</th>
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<tbody>
<tr>
<td>Meet 1 Thu 8/25</td>
<td>Overview and Intro to Testing</td>
<td>AO Chapter 1</td>
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<tr>
<td>Meet 2 Thu 9/1</td>
<td>Model Driven Test Design</td>
<td>AO Chapter 2</td>
<td>Assign 1 due</td>
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<tr>
<td>Meet 3 Thu 9/8</td>
<td>Test Automation</td>
<td>AO Chapter 3</td>
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<tr>
<td>Meet 4 Thu 9/15</td>
<td>Agile &amp; Criteria-based Testing</td>
<td>AO Chapter 4, 5, 6, 12</td>
<td>Assign 2 due</td>
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<tr>
<td>Meet 5 Thu 9/22</td>
<td>Input Space Coverage</td>
<td>AO Chapter 6</td>
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<tr>
<td>Meet 6 Thu 9/29</td>
<td>Input Space Coverage Extended Exercise</td>
<td>AO Chapter 6</td>
<td>Assign 3 due</td>
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<tr>
<td>Meet 7 Thu 10/6</td>
<td>Graph Coverage</td>
<td>AO Chapter 7.1, 7.2</td>
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<td>Meet 8 Thu 10/13</td>
<td>Graph Coverage for Source Code</td>
<td>AO Chapter 7.3</td>
<td>Assign 4 due</td>
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<tr>
<td>Meet 9 Thu 10/20</td>
<td>Semantic Logic Coverage</td>
<td>AO Chapter 8.1</td>
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<tr>
<td>Meet 10 Thu 10/27</td>
<td>Syntactic Logic Coverage</td>
<td>AO Chapter 8.2</td>
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<tr>
<td>Meet 11 Thu 11/3</td>
<td>Applying Logic Criteria</td>
<td>AO Chapter 8.3</td>
<td>Assign 5 due</td>
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<tr>
<td>Meet 12 Thu 11/10</td>
<td>Syntax Coverage &amp; Mutation Testing</td>
<td>AO Chapter 8</td>
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<tr>
<td>Meet 13 Thu 11/17</td>
<td>Guest Speakers (TBD)</td>
<td>AO Chapter 9</td>
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<td>Thu 11/24</td>
<td>No class -- Thanksgiving Break! 😊</td>
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<tr>
<td>Meet 14 Thu 12/1</td>
<td>Class Wrap-Up and Review</td>
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<td>Assign 6 due</td>
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<tr>
<td>Thu December 8 4:30 - 7:15 pm</td>
<td>FINAL EXAM</td>
<td>Mason's final exam schedule</td>
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Office Hours

Currently virtual (info on Piazza)

Also available by appointment

TA office hours in-person or virtual
Class Structure

Typically:
- 10 minutes for quizzes or assignment review
- Lecture until about 5:30
- 10-15 minute break
- In-class exercise

I will try to finish by 7:00 pm.
Grading

All information in syllabus

Weekly quizzes = 40% (no mid-term)
Homework = 20%
Participation = 15% (important!)
Final exam = 25%
Quizzes (40% of final grade)

Total of 13 quizzes, 10 points each
- will drop 3 lowest

Based on previous lecture and in-class exercises

No make-ups (with rare exceptions)
Homework (20% of final grade)

6 homework assignments, 10 points each

Collaboration encouraged

Marked down 30% each week late

All homework must be submitted before finals
Class Participation (15% of final grade)

Earn points by:

- Completing in-class exercises
- Leading or participating in class discussions
- Engaging meaningfully on Piazza (e.g., asking or answering questions)

Groups assigned for exercises
Final Exam (25% of final grade)

Online (probably Blackboard), 100 points

Cumulative, covers topics from entire semester

Timed – maybe cheat sheet (no internet)

As per GMU policy, an unexcused absence from the final will result in an automatic F – talk to me first!
Extra Credit Opportunities

Collaboration extra credit (homework)

Other extra credit examples:
- Themed t-shirt day
- Extra practiced problems
- Various class interactions

You can use extra credit points (not collab credit) on:
- Homework
- Quizzes
- Final Exam
Attendance

Not required, but encouraged

Slides available online

Missed quizzes cannot be made up

Don't forget participation grade!
Responsibilities of the Professor

Prepare **useful and interesting information** for you
Post materials on class website **before class**
Come to class
Offer **challenging but reasonable** homework and tests
Grade fairly **without bias**
Return graded work **promptly with helpful comments**

Goals:
- Have interesting lectures
- Make the class fun
- Use technology appropriately
Responsibilities of the Student

Come to class on time
If you miss class, learn material on your own
- but don’t hesitate to ask for help if needed

Listen to all instructions
Turn in assignments on time
Ask for help when you’re confused
Read the material
If you disagree with me, disagree politely

Goals:
- Read before class
- Learn enough to earn a good grade
Books have knowledge.
Professors are simply guides.

**Information** comes from lectures.
**Knowledge** comes from books and homework.
**Wisdom** comes from experience.

So **read, read, read**!
Fostering an inclusive, safe space

A classroom consists of instructors and students. We all play a role in creating a safe learning space.

Everyone should feel comfortable and supported
- by instructors
- by their fellow classmates

There is ZERO TOLERANCE for:
- racism or sexism
- bullying or harassment
- inappropriate comments of any kind
Now...
Let's get learning!!