

Overview & Responsibilities

Software Testing
SWE 637

<https://go.gmu.edu/SWE637>

Dr. Brittany Johnson-Matthews
(Dr. B for short)

Adapted from slides by Jeff Offutt and Bob Kurtz

Welcome!

SWE 637 – Software Testing

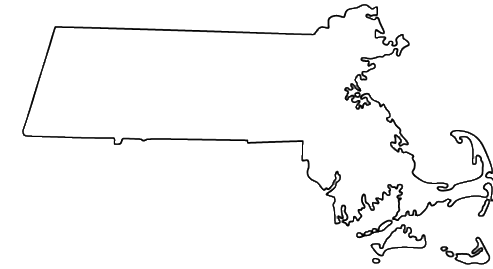
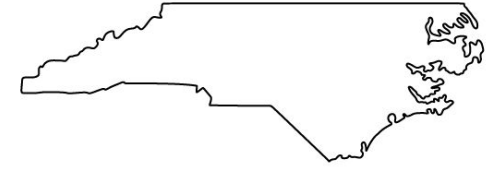
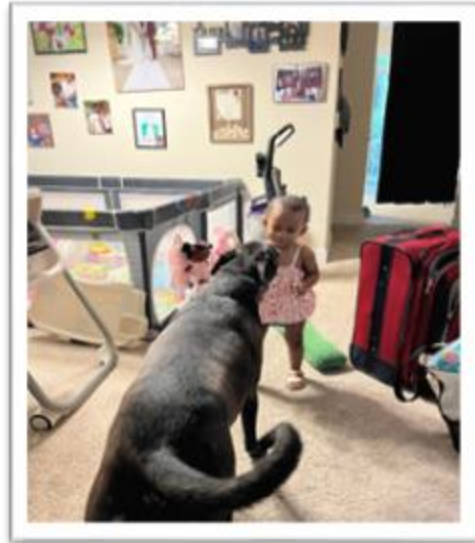
Roughly 75 % testing theory, 25% testing practice

(Re-)Familiarize yourself with:

- Java
- Data structures
- Control flow graphs
- Formal logic
- Discrete math



About Me



COLLEGE of
CHARLESTON

NC STATE UNIVERSITY

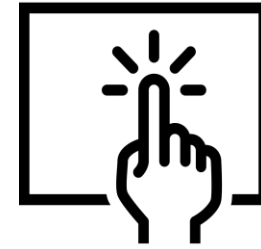
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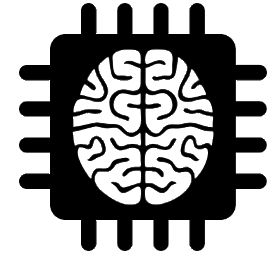
About My Lab



Software Engineering



Human-Computer Interaction



Machine Learning

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



INSPIRED Lab

(I)nterdisciplinary Software Practice Improvement REsearch and Development



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**.

PAUL AMMANN AND JEFF OFFUTT



INTRODUCTION TO SOFTWARE TESTING

Second Edition

Course Materials

Introduction to Software Testing, 2nd edition, by Ammann and Offutt
(strongly recommended)

<https://cs.gmu.edu/~offutt/softwaretest/>

Schedule

AO-Chapter x means chapter x in the Ammann and Offutt textbook.

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

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*



Reading is FUNdamental

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 a 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!!

