SYLLABUS
CMPS 5383 Software Quality Assurance

Catalog Description:
A study of the process of creating large software systems. Encompasses system design, development, maintainability, testing, and documentation. Emphasis is on concepts and practices that reduce software cost and increase reliability and modifiability. The course will also focus on concepts and practices that assure and measure software quality.

Prerequisites: Twelve hours of graduate computer science or CMPS 5153: Advanced Software Engineering or permission of instructor.

Required Text: *Software Quality Engineering* by Jeff Tian. Papers from the literature as well as sections from other texts will also be distributed, as well as a list of other useful books available in the library.

Instructor:	Dr. Catherine V. Stringfellow
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Office Hours:	MWF 9-11am, T R 9-10am, 3-4pm and by appt

General Course Objectives: This course is a study of the following topics: Quality Assurance,

- Defect Prevention and Removal,
- Testing techniques,
- Inspections,
- Formal specification and verification methods,
- Quality Improvement

Specific Course Objectives: Upon completion of this course, students should be able to:
- Understand how to detect, classify, prevent and remove defects
- Understand how to conduct formal inspections, record and evaluate results of inspections
- Know how to choose which metrics to collect and use them to make predictions
- Choose appropriate testing strategies and develop test cases
- Be able to use Z to formally specify a system and write proofs for algorithms.

Instructional Method: This course will involve a mixture of formal lectures; class meetings for group work; and student presentations of the work in progress, as well as from readings from the literature.

Course Assignments and Evaluation:

Students will be asked to perform software quality assurance activities on different pieces of software. There will also be a few short assignments involving formal specifications, proof of correctness, developing test cases, applying prediction models, and other course topics. There will also be a midterm and final.

Final grades will be based on the following criteria.

Activity	**Percentage of Grade**
Midterm	20%
Final	30%
Assignments (Homework, Quizzes, Group Work)	50%

Grading Scale is as follows: 90-100% is an A, 80-89% is a B, 70-79% is a C, 60-69% is a D, and 0-59% is an F. Late assignments will result in a lower grade.

***Tentative* Sequence of Topics**

week	**topics**	**chapter**	**Some project activities**
1	Software Quality	1-3	
2	Quality Assurance	3-5	In class questions/paper
3	Testing Concepts and Issues	6	
4	Testing Activities	7	
5	Testing Techniques	8	Musa's OP
6	Testing Techniques	9	
7	Other Techniques		Black Box Testing
8	**Midterm; In-class group assg**	11a	CFG and CFT Testing
9	Inspection	14	
	Spring Break		
10	CRC	SuppMaterial	Inspection
11	Defect Prevention/Process Improvement	13	MtMLs, MtMLsfor4, CAPJKE
12	Refactoring	SuppMaterial	
13	Quality Models and Measurements	19	Presentations;
14	Software Reliability Engineering	22	SRGMFiles SRGMVideo
15	Defect Classification and Analysis	20	
16	**FINAL Tuesday, May 7, 5:45-7:45pm**		***No early exams***

Course and Department Policies

Late Work: Late work may be submitted within 48 hours of due date/time, but there will be a 10% penalty assessed.

Make Up Work/Tests/Quizzes: Students need a valid university excuse (e.g., excuse from the doctor, death in the immediate family, etc.) to make up work or tests. If you know ahead of time that you will miss a quiz or exam, please arrange to take it early. Refer to **College Policies and Procedures Manual.**

Computer Requirements: Taking this class requires access to a computer (with Internet) to complete and upload assignments. It is your responsibility to have (or have access to) a working computer for this class. ***Personal computer technical difficulties will not be considered a reason for extra time to submit assignments, tests, or online discussion postings.*** Online class material can be accessed from any computer which is connected to the internet. Computers are available on campus in various areas of the buildings, as well as the Academic Success Center. Contact your instructor immediately upon having computer trouble. If you have technical difficulties in the course, there is also a student helpdesk available to you. The university cannot work directly on student computers due to both liability and resource limitations, however they are able to help you get connected to online services. For help, log into **D2L.**

Policy on Testing Process

The Department of Computer Science has adopted the following policy related to testing.

- All bags, purses, electronics (turned off), books, etc. will be placed in the front of the room during exams, or in an area designated by the instructor.
- Unless otherwise announced by the instructor, nothing is allowed on the desk but pen/pencil/eraser and test papers.
- A student who leaves the room during an exam must turn in the test and will not be allowed to return.

University Policies and Procedures

Student with Disabilities: Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from disability support office during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Disability Support Office has been provided. For additional information you may contact the Disability Support Office in Clark Student Center 168 - Phone: (940) 397-4140

Academic Misconduct Policy & Procedures

Academic Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given). The Department of Computer Science had adopted the following policy related to cheating (academic misconduct). The policy will be applied to all instances of cheating on assignments and exams as determined by the instructor of the course. (See below for link to MSU definitions.)

- 1st instance of cheating in a course: The student will be assigned a non-replaceable grade of zero for the assignment, project or exam. *In addition, the student will receive a one letter grade reduction in course.*
- 2nd instance of cheating in a course: The student will receive a grade of F in course & immediately be removed from course.
- All instances of cheating will be reported to the Department Chair and, in the case of graduate students, to the Department Graduate Coordinator.

See Also: MSU Student Handbook: Appendix E: Academic Misconduct Policy & Procedures
https://mwsu.edu/Assets/documents/student-life/2013-14-Student-Handbook.pdf

Policy on Concealed Handguns on Campus

Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information regarding campus carry, please refer to the University's Campus Carry Rules webpage at **https://mwsu.edu/campus-carry/rules-policies.** If you have questions or concerns, please contact MSU Chief of Police Patrick Coggins at **patrick.coggins@mwsu.edu**.

Refer to **College Policies and Procedures Manual** for all other policies.

Important Dates

See **https://www.mwsu.edu/Assets/documents/registrar/pdfs/Spring19Front.pdf** for Important Dates.