University of Wisconsin – La Crosse

C-S 743 Software Verification & Validation
Fall 2019

Class Time: MWF 2:15pm – 3:10pm  Centennial 3201

Instructor: Dr. Mao Zheng
Wing 217, Tel: 785-6808, Email: mzheng@uwlav.edu

Office Hour: 1:30pm- 2:00pm on Mondays, Wednesdays
10:00am – 12:00noon on Tuesdays
Or set an appointment by email

Course Website: http://www.cs.uwlax.edu/~mzheng/CS743Fall19/

References:
• P.C. Jorgensen, Software Testing: A Craftsman’s Approach (Fourth Edition),
• P. Ammann and J. Offutt, Introduction to Software Testing, Cambridge University
• Jose Bacelar Almeida et al., Rigorous Software Development: An Introduction to
• B. Berard et al., Systems and Software Verification: Model Checking Techniques
• Russ Miles and Kim Hamilton, Learning UML 2.0, O’Reilly Publications, 2006,

Grading Policies:
  Mid-Term Exam  20%  -- Friday October 18, 2019
  Final Exam  30%  -- Wednesday Dec. 18, 2019  12:15pm – 2:15pm
  Assignments  50%

Course Description:
  This course explains the need for verification and validation, discusses the
  methods (formal, informal and diagrammatic) and techniques (prototyping and
  theoretical proof techniques) that implement verification and validation, and
  provides hands-on experience to apply these methods and techniques to some
  simple case studies. Automation of verification and validation methods will also be
  briefly discussed. Prerequisite: CS 741 or concurrent enrollment.
Learning Outcomes:
By the end of this course, you will be able to:

- Understand informal, diagrammatic and formal verification techniques;
- Understand various types and levels of software testing;
- Apply appropriate verification techniques during software development;
- Apply appropriate testing techniques for a software system under test.

Course Contents (may not following exact order)

- Functional Testing
- UML Model Testing/Verification
- Structural Testing
- Program Verification
- GUI Testing

Late Projects, Missed Quizzes / Exams
Assignments will not accepted after the due date, no make-up test or exam will be given except for University-excused absences.

For extenuating circumstances that impact your ability to meet deadlines or participate in class activities, you are responsible for alerting me as soon as possible.

Grading Scale

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Our Legal Obligations to You

Sexual Misconduct
As an employee of the University of Wisconsin-La Crosse, I am a mandated reporter of sexual harassment and sexual violence that takes place on campus or otherwise affects the campus community. This means that if I receive detailed or specific information about an incident such as the date, time, location, or identity of the people involved, I am obligated to share this with UWL’s Title IX Coordinator.
http://www.uwlax.edu/affirmative-action/ in order to enable the university to take appropriate action to ensure the safety and rights of all involved. For students not wishing to make an official report, there are confidential resources available to provide support and discuss the available options. The contact in Student Life is Ingrid Peterson, Violence Prevention Specialist, (608) 785-8062, ipeterson@uwlax.edu. Please see http://www.uwlax.edu/sexual-misconduct for more resources or to file a report.

**Religious Accommodations**

Per the UWL Undergraduate and Graduate Catalogs
http://catalog.uwlax.edu/undergraduate/aboutuwlax/#accommodation-religious-beliefs “any student with a conflict between an academic requirement and any religious observance must be given an alternative means of meeting the academic requirement. The student must notify the instructor within the first three weeks of class (within the first week of summer session and short courses) of specific days/dates for which the student will request an accommodation. Instructors may schedule a make-up examination or other academic requirement before or after the regularly scheduled examination or other academic requirement.”

**Students with Disabilities** Any student with a documented disability (e.g. ADHD, Autism Spectrum Disorder, Acquired Brain Injury, PTSD, Physical, Sensory, Psychological, or Learning Disability) who needs to arrange academic accommodations must contact The ACCESS Center (165 Murphy Library, 608-785-6900, ACCESSCenter@uwlax.edu) and meet with an advisor to register and develop an accommodation plan. In addition to registering with The ACCESS Center, it is the student’s responsibility to discuss their academic needs with their instructors. You can find out more about services available to students with disabilities at The ACCESS Center website: http://www.uwlax.edu/access-center

**Veterans and Active Military Personnel**

Veterans and active military personnel with special circumstances (e.g., upcoming deployments, drill requirements, disabilities) are welcome and encouraged to communicate these, in advance if possible, to me. For additional information and assistance, contact the Veterans Services Office. http://www.uwlax.edu/veteran-services/. Students who need to withdraw from class or from the university due to military orders should be aware of the military duty withdrawal policy http://catalog.uwlax.edu/undergraduate/academicpolicies/withdrawal/#military-duty-withdrawal-university.