TCSS 490/ TCSS 590: Advanced Software Engineering

Full-time Lecturer: Dr. Donyina

Syllabus

LECTURER INFORMATION:

<table>
<thead>
<tr>
<th>Name</th>
<th>Dr. Adwoa (Addy) Donyina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td><a href="mailto:adwoad@uw.edu">adwoad@uw.edu</a></td>
</tr>
<tr>
<td></td>
<td>• Use a valid University of Washington email account with ‘[TCSS 490]’ or ‘[TCSS590]’ in the subject line</td>
</tr>
<tr>
<td>Office Location</td>
<td>Cherry Parkes (CP) 219</td>
</tr>
<tr>
<td>Office Phone Number</td>
<td>253-692-4944</td>
</tr>
<tr>
<td>Website</td>
<td><a href="http://faculty.washington.edu/adwoad">http://faculty.washington.edu/adwoad</a></td>
</tr>
<tr>
<td>Office Hours</td>
<td>TBD</td>
</tr>
</tbody>
</table>

Course Description:

This course is an introduction to advanced concepts in Software Engineering. Topics include: System Re-engineering, Domain-Specific Languages, Generative Development, System Design and Service-Oriented Architecture. System Re-engineering will teach students how to integrate and maintain new systems with legacy systems. Domain-Specific Languages will use Object Management Group (OMG) standards and the Eclipse Modeling Framework (EMF) to familiarize students with model-driven software development. Generative Development will teach students the role of Unified Modeling Language (UML) modeling in automating code generation. System Design teaches students to understand how models can reflect an abstract architecture of software systems. Service-Oriented Architecture (SOA) will teach students to create and understand descriptions of SOA using both high level UML models and XML-based languages.

Prerequisite: TCSS 360

Course Student Learning Goals

- Integrate and maintain new systems with legacy systems.
- Use Object Management Group (OMG) standards and the Eclipse Modeling Framework (EMF) to design and model systems.
- Use Unified Modeling Language (UML) modeling to automate code generation.
- Design models to reflect abstract architectures of software systems.
- Create and understand descriptions of SOA using both high level UML models and XML-based languages.
CSS Degree Student Learning Outcomes that this course contributes to

a. an ability to apply knowledge of computing and mathematics appropriate to the discipline;
b. an ability to analyze a problem, identify and define the computing requirements appropriate to its solution;
c. an ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs;
d. an ability to function effectively on teams to accomplish a common goal;
e. an ability to communicate effectively with a range of audiences;
f. an ability to analyze the impact of computing on individuals, organizations and society, including ethical, legal, security and global policy issues;
i. an ability to use current techniques, skills, and tools necessary for computing practice.

UWT Student Learning Goals that this course contributes to

Inquiry and Critical Thinking
Students will acquire skills and familiarity with modes of inquiry and examination from diverse disciplinary perspectives, enabling them to access, interpret, analyze, quantitatively reason, and synthesize information critically.

Communication/Self-Expression
Students will gain experience with oral, written, symbolic and artistic forms of communication and the ability to communicate with diverse audiences. They will also have the opportunity to increase their understanding of communication through collaboration with others to solve problems or advance knowledge.

Evaluation Scheme & Grading

They will be weighted as follows in the calculation of the final grade:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments (45%)</td>
<td>Assign #1 15%</td>
</tr>
<tr>
<td></td>
<td>Assign #2 15%</td>
</tr>
<tr>
<td></td>
<td>Assign #3 15%</td>
</tr>
<tr>
<td>Test (in-class) (20%)</td>
<td>Test 1 10%</td>
</tr>
<tr>
<td></td>
<td>Test 2 10%</td>
</tr>
<tr>
<td>Final Exam (35%)</td>
<td>35%</td>
</tr>
</tbody>
</table>

Note: A detailed tentative course schedule is at the end of this syllabus
If you are a TCSS 490 student then Assign 1-3 is to be done in partners.
If you are a TCSS 590 student then Assign 1-3 must be done individually.

Your overall course grade (decimal) will be calculated from the weighted average of homework assignment and exam percentage scores using the UW grading system. The following table shows the minimum decimal grades for the specified percentage scores. Decimal grades may be adjusted upward. See http://www.tacoma.uw.edu/enrollment-services/grading-policies for additional details.
## Assignments:

Details of Assignments will be posted on the course Canvas site. No late work will be accepted, except in the case of a documented medical or other emergency.

## Tests/Exams:

The tests and final exam include short answer and application questions that test your knowledge of concepts, your ability to apply course concepts, and your ability to integrate ideas across topics. Material for the exams will be drawn from the lectures and tutorials.

No make-up exams are given except in the case of a documented medical or other emergency. Arrangements for make-up exams must be made in advance of the regularly scheduled exam. Leave a voice mail or e-mail message prior to exam time if you cannot reach me in person.

## Textbook/Articles

There is no single reference for advanced software engineering because the area is so broad, and constantly evolving. This course makes use of various books, and refers to specific academic publications, which will be available on the class website.
|---|---|

**Required Textbook**
Available in library reserve and University book store

**Required Readings**
(Available in library course reserve and course canvas site)

**Recommended (Optional) Textbook**
Available in University Book store & Some books are available in the Library Course Reserve
CLASSROOM POLICIES

Please avoid any behavior that distracts other students and/or interferes with the professor’s ability to teach. At the University of Washington, an instructor has the authority to remove a student from any class session in which the student is disorderly or disruptive. Please:

- Arrive on time for class.
- Do not text or tweet during class.
- Avoid side conversations during lectures or discussion. Instead share your comments with the whole class.
- Silence or turn off electronic devices and cell phones during class.

ACADEMIC STANDARDS

Students at the University of Washington are expected to maintain the highest standards of conduct as required by state legislation. The integrity that will be required in your professional career should be practiced in your academic career. Academic misconduct is a serious offense that can have severe penalties including failing an assignment, failing the course, or dismissal from the university.

- Cheating includes turning in work that is not your own, using resources for exams or assignments when not permitted, or if you consult or collaborate with anyone on assignments that are meant to be completed individually.
- You are guilty of plagiarism if you fail to cite the source of any idea that is not your own. Plagiarism can be avoided by using reference citations correctly. You are responsible for learning how and when to document and attribute resources used in preparing a written or oral presentation. If you have any questions, please ask me or consult the Writing Center.

E-MAIL POLICY

UW policy requires you to use an UW e-mail account for communications with professors and to ensure that messages from the course website are received. For more information on setting up an UW NetID and email account, see: http://www.washington.edu/computing/uwnetid

CAMPUS SERVICES

DISABILITIES

Disability Support Services (DSS) offers resources and coordinates reasonable accommodations for students with disabilities. Reasonable accommodations are established through any interactive process between you, your instructor(s) and DSS. If you have not yet established services through DSS, but have, or think you have a temporary or permanent disability that requires accommodations (this can include mental health, attention-related, learning, vision, hearing, physical or health impacts), you are welcome to contact DSS at 253-692-4522 V/ 253-692-4413 / DSSUWT@UW.EDU
**TEACHING AND LEARNING CENTER (TLC)**

The Teaching and Learning Center (TLC) in SNO 260 offers free academic support for students at all levels. Writing support is available at our online writing center at: uwtwrite@u.washington.edu. For math, stats and quantitative needs, assistance is available on a drop-in basis.

**LIBRARY**

The UWT Library has resources, services and facilities to support students at all levels of expertise. We guide students through the research process, helping them learn how to develop effective research strategies and find and evaluate appropriate resources. For assistance or to schedule an appointment, visit us at the Reference Desk in the Library, email tacref@uw.edu or phone 253-692-4442.

**ADVISING**

For assistance in planning your course schedule and assessing progress toward degree completion, please contact the Advising Center in GWP 102. Faculty can assist you with general advice regarding majors and course selections.

**STUDENT HEALTH AND WELLNESS - SHAW**

Confidential health services and counselors are available to help students cope with illness, health maintenance, stresses and personal issues.

**CAREERS**

Assistance is available in career planning and job hunting at Career Development & Education.

**FINANCIAL AID**

Information on tuition, financial aid and scholarships can be found online. You must make satisfactory academic progress to receive most forms of financial aid.

**CAMPUS SAFETY INFORMATION**

- Free safety escorts are available on campus Monday - Thursday from 6am to 11pm and Friday from 6am to 10pm. Dial 253-692-4416 to request a Safety Escort.
- The university-wide UW Alert system sends text messages of campus closures and emergencies.

**INCLEMENT WEATHER**

In the event of bad weather, class may be canceled. Check the campus website or call 383-4636 to determine if campus is closed. If campus is open but conditions are bad, please check your e-mail, the course Canvas site to determine if class will be held.