

SG420 Game Software Testing and Debugging

Instructor	Course Dates
Tom Sinclair	08/07/2008 - 10/09/2008
Classroom Hours	Office Hours
H 2:30 PM – 5:30 PM	H 6 PM – 8 PM

Course Description

This course introduces students to the processes and practices of software testing and debugging. Topics include white-box, black-box, unit, integration, and regression testing. Students will design test cases or use library tools as part of a test plan for assessing different performance variables. Students will apply test plans to either an existing body of code or a body of code they have developed. Upon completion of this course, students should be able to design and implement a test plan. Students should also be able to debug and document software performance, maintainability, and reliability.

Course Outcomes

The course outcomes are the goals of instruction. These outcomes identify the knowledge, skills, and attitudes a student should have upon completing this course.

Upon completion of this course, students should be able to:

Knowledge

1. Examine the different types of testing and the various tools associated with them.
2. Explain the advantages and disadvantages of various testing methodologies and techniques.
3. Review the differences between traditional software and game software testing methodologies.
4. Describe the various types of test plans and the benefits associated with them.
5. Discuss the debugging process.

Skills

1. Evaluate the quality of audio, visual, and user control aspects of games.
2. Implement appropriate test parameters and values to generate an effective Combinatorial test.
3. Create a test plan from a template.

Attitudes

1. Endorse thoroughness and accuracy in documentation of plans, tests, and bug reports.

Course Prerequisites

CA/CO - CS215, SG110, SG140, and SG150
IL/GA - CS215, SG110, SG140
NOTE: IL/GA catalogs listing SG150 as a prerequisite is a typographical error.

Class Breakdown

Lecture Hours:	36
Lab Hours:	18
Total Hours:	54

Credit Hours

CO/IL/GA = 4.5 Credit Hours
CA = 4.0 Credit Hours

Course Texts

Game Testing All In One by Charles Schultz, Robert Bryant, and Tim Langdell.
Thomson, 2005. ISBN 1592003737

Teaching Strategies

The teaching strategies for this course include facilitated discussion (with visuals as needed), demonstration, class discussion, hands-on guided practice, and feedback.

Grading

Key Graded Assignment: Methodologies Research Paper**	20%
Key Graded Assignment: Applying Testing Techniques	20%
Key Graded Assignment: Game Test Plan**	20%
Quizzes	20%
In-Class and Out-of-Class Activities	10%
Attendance	10%

** Indicates that this Key Graded Assignment has a research component.

At the end of each course, each student is assigned a final grade as follows:

Grade	Quality Points	Point Range	Interpretation
A	4.0	93-100	Excellent
A-	3.7	90-92	
B+	3.3	87-89	
B	3.0	83-86	Above average
B-	2.7	80-82	
C+	2.3	77-79	
C	2.0	73-76	Average
C-	1.7	70-72	
D+	1.3	66-69	

D	1.0	60-65	Below average
F	0.0	59 & below	Failure
I	0.0		Incomplete

Course Completion Requirements

Students must achieve a passing grade of D or above by completing all required examinations, submitting all required lab exercises and projects, and meeting the standards of the school attendance policy.

Attendance and Classroom Policies

Students are expected to adhere to the attendance and tardiness policies stated in the current catalog.

Plagiarism Policy: Students must ensure that all work submitted is original work with appropriate citations. Plagiarism (copying other's work or failing to credit other's ideas within a body of work through appropriate citation) is not tolerated at Westwood College.

First Recorded Offense:

Mandatory

The student receives zero credit for the entire paper, exam, quiz, homework, lab, etc., in which the incident of academic dishonesty occurred. No partial credit may be given. Were the incident involves a graded assignment normally subject to a "drop" option, the student may not exercise that option.

Second Recorded Offense:

Mandatory

The student receives a failing grade for the class, lab, etc., in which the second offense occurs. The second offense need not be in the same class, program, or term as the first offense to invoke this action.

Discretionary

- The student receives suspension for up to one academic year; or
- Permanent expulsion.

Third Recorded Offense:

Mandatory

The student is permanently expelled from Westwood. The third offense need not be in the same class, program, or term as the first offense to invoke this action.

Appeals:

All offenses and/or sanctions may be appealed. The student must contact the Director of Education to initiate the appeal and to identify the specific steps in the appeals process.

Attendance Policy: Students are expected to adhere to the attendance and tardiness policies stated in the current catalog.

After a student misses **10% or 5.4 hours of class** due to **absences, tardiness, or leaving class early**, the instructor will create a Student Action Report (SAR) placing the student on attendance probation.

Once the student has missed **20% or 10.8 hours of class**, a SAR will be written to either **withdraw** the student from the course or allow the student to make up the time and/or work. Students will only be allowed to make up time with a documented excuse.

Make up work will consist of a project that involves research and will have a specific due date (usually the next class session).

If the work is not made up to the satisfaction of the instructor and /or the due date is missed the student will be withdrawn from the course. If a student is withdrawn from the class with a last date of attendance after 80% of the class dates have passed (approximately within the last 2 class sessions), the student will receive a failing, or "F" grade, for the class.

Other than students who are approved for make-up time or work by their instructor, the only students who may be allowed to stay in class with more than 20% absences are students who are granted an Excused Absence. Excused absences must be documented and approved by the **Director of Education, Daniel Snyder**, prior to the absence if possible. Reasons for granting an excused absence may include: serious student medical problems, pregnancy, military or law enforcement duty, jury duty, or the death of an immediate family member. If a student does not return to class on or before the approved return date, the student may be withdrawn from the class.

Due Dates: Assignments are due on the date specified by the instructor. Any assignments turned in after that date will receive a grade of 0 (zero). If you are not finished by the date due, hand in what you have to receive partial credit.

Remember, if you have a problem with either the instructor or the course, please be sure to contact your instructor **first** to ensure that the problem is resolved quickly.

Course Topics

Week 1: Game Tester Responsibilities

Week 2: Types of Defects

Week 3: Ad Hoc Testing

Week 4: Combinatorial Testing

Week 5: Test Flow Diagrams (Library Research)

Week 6: Working with the Game Team

Week 7: Test Phases - Black-box testing, White-box testing, Integration, Regression testing (Library Research)

Week 8: Software Quality and Metrics

Week 9: Test Automation