



COMPUTERSCIENCE

CS 3331 Course Syllabus

Adv. Object-Oriented Programing

General Information

- *Course title:* CS 3331—Advanced Object-Oriented Programming
- Semester and sequence number: Fall 2018, 15529.
- Time and Location: MW 1:30PM-2:50PM. CCSB G.0208.
- *Instructor:* Dr. Omar Badreddin. Email: obbadreddin@utep.edu
- *Office location:* 3.0610
- *Office hours:* MW 3:00 PM – 5:00 PM.
By appointment as needed. I am in my office all day with the door open, you are encouraged to drop in any time.
- *TA:*
 - Khandoker Rahad. Email: karahad@miners.utep.edu
 - Office Hours and location: MW 11:00 am to 1:00 PM, CCSB 3.1202.
- *IA:*
 - TBD.

Course Description

An in-depth exposure to the object-oriented programming paradigm, which builds upon programming experience gained in lower-level computer science classes. Emphasis on programming in an object-oriented language with which students are already familiar, and on requirements, testing, code reading, and comprehension.

Course Goals

Learn the knowledge and skills needed to develop reusable, quality programs; increase knowledge of object-oriented design concepts; learn the use of object-oriented design tools such as UML for modeling problem solutions and complex systems; increase proficiency in programming in object-oriented and procedural environments.

Course Prerequisites

The prerequisite for this class is CS 2302 with a C or better. Contact me immediately if you do not meet the course prerequisites.

Student Learning Expectations and Outcomes

Level 1: Knowledge and Comprehension:

Level 1 outcomes are those in which the student has been exposed to the terms and concepts at a basic level and can supply basic definitions. Upon successful completion of this course, students will be able to:

- a. Explain the differences between an object-oriented approach and a procedural approach.

Level 2: Application and Analysis:

Level 2 outcomes are those in which the student can apply the material in familiar situations, e.g., can work a problem of familiar structure with minor changes in the details. Upon successful completion of this course, students will be able to:

- a. Formulate use-case diagrams and scenarios to support understanding of user requirements.
- b. Use object-oriented design notations, including UML class diagrams and state machine diagrams (optionally sequence diagrams) to model problem solutions.
- c. Use basic object-oriented design patterns to structure solutions to software design problems.
- d. Translate design features, such as classes and relationships, to implementations.
- e. Use frameworks and library classes and methods in problem solutions.

Level 3: Synthesis and Evaluation

Level 3 outcomes are those in which the student can apply the material in new situations. This is the highest level of mastery. Upon successful completion of this course, students will be able to:

- a. Design and implement software employing the principles of modularity, encapsulation, information hiding, abstraction, and polymorphism.
- b. Design, implement, and use classes and methods that follow conventions and styles, and make appropriate use of advanced features such as inheritance, exception handling, and generics.
- c. Evaluate existing classes and software for the purposes of extension through inheritance.
- d. Create API documents for classes, fields and methods.
- e. Design and implement test suites for automated unit testing.
- f. Re-factor existing source code to improve its design or efficiency.

Course Structure

This offering consists of lectures and sets of related project assignments. Lectures will meet twice a week to discuss the fundamental topics of the course.

Textbook and Required Materials

Textbook:

Object Oriented Software Development Using Java, Principles, patterns, and Frameworks. Second Edition. Xiaoping Jia.

Reference Textbook:

Introduction to Programming with Java, a Problem Solving Approach, Second Edition. John Dean and Raymond Dean.

Additional material and handouts are published on Blackboard course shell.

Course Outline

Topic	Name	~ Duration (lectures)	Assigned Reading
A	Object Oriented Software Development	1.5	Chapter 1
B	UML Use Case Modeling	2	Section 2.4 Modeling Requirements with Use Cases
C	UML Class Diagrams	1.5	Chapter 2
D	UML State Machines	2	Chapter 2
E	Applets	1.5	
F	Advanced Java Features	3	Chapter 4 & 5
-	Midterm revision and midterm exam	2	-
G	Documenting with Javadoc	1	Handouts
H	Testing using Unit Test	1.5	Chapter 6
I	Design Patterns	3	Chapter 7
J	User Interface Design	1	Chapter 8
K	Multi-threading Programming	2	Chapter 11
-	Final revision and exam	2	-

Assessment of Student Learning Outcomes

Methods of assessment include: In-class midterm around week 8, in-class cumulative final exam during finals week, in-class quizzes at various times during the semester, in-class activities at various times during the semester, in class discussions and group exercises, homework and reading assignments at various times during the semester, and project deliverables.

Grading System

The weight of each course component toward your final grade is:

Assignment	Grade Weight %
Project/Programming assignments (5 to 6 assignments, possibly more)	30%
Quizzes (at least 4; all are announced; possibly more)	10%
Class participation and attendance	10%
Midterm exam	25%
Final exam (cumulative)	25%

To pass the course, you must pass the final exam!

Percentage Grade

90% or above
80% through 89%
70% through 79%

Letter Grade

A
B
C

60% through 69%
59% or below

D
F

There is no "curve;" your grade is completely up to you and is not in any way affected by the grades of your classmates. If you feel I've made a mistake in grading your assignment, please come visit me during office hours. I will gladly explain my reasoning for deductions and correct any mistakes! However, any corrections must be discussed and made within a week of the assignment's return date.

In group assignments, the work is performed collectively in a team, but the grades are assigned per individual. There will be a peer evaluation process that will be discussed in class.

Sometimes instructors make mistakes, and I am no exception: exams are harder than expected, or assignments are just too optimistic for the time allotted. In these rare cases, I reserve the right to modify the class's grades before their final submission. This modification is subject to the following rules: (1) the same modification will be applied to the grades of all students, and (2) the modification will always result in a higher grade.

Course syllabus is subject to change.

Course Policies

Exams and Quizzes

Without prior notice of illness or documented substantial extenuating circumstances, there are no make-ups for exams and quizzes. Please be prepared to provide supporting documentation to substantiate circumstances, as needed.

Attendance

It is critical that you attend every lecture and group meeting. In this course, the readings and lectures will go hand-in-hand and will not necessarily cover the same material. One will reinforce the other, and -- to do well -- you should be prepared to come to lecture having read through the reading assignments for the day. Exam content will be drawn from both lectures and readings.

Please be cautious about attending class and meetings if you are feeling ill. Please inform me by email if you are feeling unwell; if you are experiencing flu-like symptoms, you should not attend class and seek medical attention.

Excessive absence can result in an automatic F in the course.

Class Conduct

Appropriate in-class student conduct is a critical component of a smoothly running course. Please be courteous in your interactions with me and other students and ensure that your behavior supports a positive learning environment and is not disruptive to the normal flow of the course. Examples of disruptive behavior include, but are not limited to, the following:

- Showing up late to class;
- Preparing to leave before the instructor has dismissed the class;
- Maintaining conversations with neighboring classmates at inappropriate times;
- Speaking without being recognized, asking questions or making comments irrelevant to course material; Interrupting the instructor or other students;
- Being obviously disengaged or disinterested in the subject matter;
- Refusing to comply with an instructor's request;
- Making calls or holding text-message conversations using your cellphone;

These rules of conduct apply to any online discussions (such as BBLearn) used in the course.

All that said: Healthy discussion, at times permitted by the instructor, is highly encouraged!

Late Submissions

Assignments are to be submitted on BBlearn. Late assignments are not accepted.

Electronic Devices

Feel free to bring your laptops and take electronic notes or try things out as we talk about them during lecture. Note that watching YouTube videos or updating your Facebook page does not count as taking notes and trying things out. Please be courteous to your classmates and me by silencing your cell phones. I reserve the right to ask you to stop using any device if I feel its use is bothersome or distracting to the class.

Contact Methods

Please don't hesitate to drop by my office or send me an email with any personal concerns. I will happily do my best to answer your questions and address your concerns. I reserve the right to ask you to come in for a chat during office hours for long answers, and reserve email for shorter answers. I will answer your emails as soon as I possibly can, but don't bank on a response time measured in minutes (though, that may sometimes happen too). Please make sure that you put your name and course number somewhere in the message.

Academic Integrity

One of the foundations of academic life is honesty. Assignments and exams are ways to measure your understanding of the material being covered in the course, not medieval implements of torture. By cheating, you are cheating yourself out of the chance to have your understanding accurately evaluated. Grades are an indication of your final proficiency over the material, and not a form of punishment. Be honest and fair to your fellow classmates: do your own work. You'd also be surprised at how easy it is to spot cheating.

Cheating and any other form of academic dishonesty will be dealt with seriously. Consequences to incidents of academic dishonesty may include a zero grade in the assignment in question, an F in the course, or may be referred to the university's channels and result in expulsion from UTEP - any and all at my discretion.

Just don't do it!

University Policies

This course is conducted in accordance with all applicable university policies.

Disability and Special Accommodations

If you have or suspect a disability and need accommodation you should contact CASS at 747-5148 or dss@utep.edu or visit Room 106 Union East Building.