

CSE 4361 SOFTWARE DESIGN PATTERNS

FALL 2019

1 General

Lectures: TuTh 2:00PM-3:20PM, ARCH401
Instructor: David C. Kung, ERB 532
Email: k u n g AT u t a DOT e d u, Fax: 817-272-3784
Office Hours: 5:00PM-6:00PM TTh, or by appointment
GTA: Radhika Junitipaly, Office: TBA
Email: radhika.junitipaly@mavs.uta.edu
Office Hours: TBA

2 Course Objective

CSE 4361. SOFTWARE DESIGN PATTERNS (3-0). In-depth study of software design patterns including description of patterns, design principles and techniques used by patterns as well as application of patterns to solving practical design problems. Team project. Prerequisites: Admitted into an Engineering Professional Program. C or better in CSE 3311.

3 Reference Books

David Kung, “Object-Oriented Software Engineering: An Agile Unified Methodology,” McGraw-Hill 2013. IMPORTANT: Make sure you get the right editions, that is, ISBN must be 978-0073376257 and the cover of the book must look like in Figure 1.

Erich Gamma, Richard Helm, Ralph Johnson and John Vlissides, “Design Patterns: Elements of Reusable Object-Oriented Software,” Addison-Wesley, 1995.

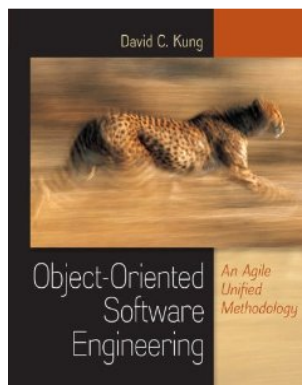


Figure 1: Make sure ISBN is 978-0073376257

4 Tentative Schedule

See Table 1.

Table 1: Tentative schedule

Date	Reading	Class Activity	Assignment (due date)
8/22		Syllabus	
8/27 8/29	Ch 2, 4-11	Review of agile unified methodology (AUM)	
9/3 9/5	Ch 10,16	Introduction to software design patterns, <i>singleton pattern</i> . Techniques used by patterns. A process for applying patterns.	
9/10 9/12	Ch 16	<i>Composite</i> .	HW1: Composite (9/26).
9/17 9/19	Ch 16	<i>Iterator, visitor</i> .	
9/24 9/26	Ch 16, 17	<i>Strategy, bridge</i> . No class 9/26, HW1 due.	
10/1 10/3	Ch 17	<i>Command</i> . <i>Proxy</i> .	HW2: Command (10/17)
10/8 10/10	Ch 17	<i>Template method, factory method</i> . Review for midterm exam	
10/15 10/17		No class 10/15, break for HW2 and midterm exam. Midterm exam (Ch2, 4-11, 16-17).	
10/22 10/24	Ch 16, 17	<i>Prototype</i> , <i>Abstract factor, builder, memento</i> .	HW3: Discussion of patterns (11/7)
10/29 10/31	Ch 16, 21	<i>Observer, adapter</i> . <i>Façade, mediator</i> .	
11/5 11/7	Ch 13, 16	<i>State, flyweight</i> . No class on 11/7, HW3 due.	HW4: State (11/21)
11/12 11/14	Ch 16, 15	<i>Chain of responsibility, decorator</i> . <i>Interpreter</i> .	
11/19 11/21		Review for final examination. No class 11/21, HW4 due.	
11/26		Reserved.	
11/28		Thanksgiving Holiday.	
12/4		(Last day of classes).	
12/5		Final exam: Tuesday 2 PM - 4:30 PM	

5 Workload and Distribution

Work	Quantity	Weight
Individual assignment	4	60%
Midterm exam	1	15%
Final exam	1	25%
Total		100%

- Four individual homework assignments (60%).
- One open-book midterm exam (15%). It is not open-note and no electronic devices are permitted.
- One open-book final exam (25%). It is not open-note and no electronic devices are permitted.

6 Distance Learning Section

The TA is responsible for returning your team work and individual assignments to you through the Distance Learning Office after they are graded. Please contact the TA and copy to me if you do not receive these in due time.

If you are new to the online section, then the following information will be helpful:

- Online students are not required to attend classes or come to campus to take the examination(s). They can attend classes or come to campus to take the exam if they want.
- Online students will form online teams and work on project through communication over the Internet. They are not required to come to class to present the work. Instead, online project teams will capture the presentation using PowerPoint recording and place the present on a webpage and email the TA and instructor the link so we can view and evaluate the work.
- The Distance Learning Office will fax the examination question to you and work with you to arrange a proctor and examination time, which is one day after the campus examination at the latest. The office will send the solution to the instructor and the TA will fax to you the graded work (assignment, test, project) through the office.
- Course evaluation also will be done through the Distance Learning Office.
- You can view the lectures CD through an online link provided to you by UTA, I think.

Distance Learning Office Contact Information:

Donya Randolph-Henry
Distance Education Coordinator
242 Nedderman Hall
817-272-2352 ofc
817-272-5630 fax

7 Grade Distribution

Total Score	≥ 85	≥ 70	≥ 60	≥ 50	< 50
Grade	A	B	C	D	F

The grades are computed by a program according to your scores. If you get 84.95 then you will get a “B”, not an “A” even if the score is so close to 85.

8 General Grading Criteria

8.1 Individual Assignments

1. Correctness (30%) – the solution adequately solves the given problem.

2. Soundness (30%) – the solution is well justified.
3. Efficiency (10%) – the solution is among the simplest ones possible.
4. Organization (10%) – the presentation of the solution is easy to understand and logically organized.
5. Clarity (10%) – the solution is clearly stated and tables and figures are professionally produced.
6. Grammar, spelling and writing (10%) – correct grammar, spelling and legible writing.

9 Assignment Rules

1. Late submissions are subjected to 10% deduction.
2. You are encouraged to discuss homework with your classmates but not allowed to copy the solutions from or share the solutions with anybody. If you violate this rule, then you will receive no credit for that assignment unless you can prove that you are not involved.
3. The GTA will do most of the grading. If you do not agree with the result, contact the GTA first. Please contact the instructor if you cannot reach a consensus. This would help the GTA improve her/his grading skill and avoid inconsistency due to improper interference of the instructor.
4. No additional make-up assignment will be provided for any student to improve grade.

10 Class Email Alias

Messages to students will be sent to a mailing list. If you do not receive such email, please contact the instructor as soon as possible. You should also contact me when your university email account has changed.

11 Your Standing and Class Statistics

After each assignment or test has been graded, the TA will distribute to each of you your scores and grade up to that assignment or test. You will also receive class performance statistics. The TA is required to timely distribute these to you. Please feel free to inquire the TA or me if you do not receive these in due time.

12 SE Code of Ethics and Professional Practice

ACM/IEEE Software Engineering Code of Ethics and Professional Practice

For the full version, see <http://www.acm.org/serving/se/code.htm#full>.

Software engineers shall commit themselves to making the analysis, specification, design, development, testing and maintenance of software a beneficial and respected profession. In accordance with their commitment to the health, safety and welfare of the public, software engineers shall adhere to the following Eight Principles:

1. PUBLIC - Software engineers shall act consistently with the public interest.
2. CLIENT AND EMPLOYER - Software engineers shall act in a manner that is in the best interests of their client and employer consistent with the public interest.
3. PRODUCT - Software engineers shall ensure that their products and related modifications meet the highest professional standards possible.
4. JUDGMENT - Software engineers shall maintain integrity and independence in their professional judgment.
5. MANAGEMENT - Software engineering managers and leaders shall subscribe to and promote an ethical approach to the management of software development and maintenance.
6. PROFESSION - Software engineers shall advance the integrity and reputation of the profession consistent with the public interest.
7. COLLEAGUES - Software engineers shall be fair to and supportive of their colleagues.
8. SELF - Software engineers shall participate in lifelong learning regarding the practice of their profession and shall promote an ethical approach to the practice of the profession.

13 Request for Early Leave

Requests for permission to go home before the final exam date will never be granted except for medical reasons and with a proof from a doctor. Students who do not participate in the final exam will not receive the scores for the final exam except that the final exam is waived

14 Other Information

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. Students will not be automatically dropped for non-attendance. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships

(<http://www.uta.edu/aao/fao/>).

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the Americans with Disabilities Act (ADA). All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX: The University of Texas at Arlington is committed to upholding U.S. Federal Law Title IX such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit www.uta.edu/titleIX.

Academic Integrity: Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence. I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System Regents Rule 50101, 2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the students suspension or expulsion from the University.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each students feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlingtons effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabus. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit; there are exits located east and west of this room. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.