**Instructor Information**

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| Instructor | Dr. Sridhar P. Nerur |
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| URL: | http://wweb.uta.edu/insyopma/nerur/  |

**Section Information**

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| Meeting Time: | TR 8:00-10:20 p.m. |
| Room: | COBA 256 |
| Office Hours: | Tuesday/Thursday  | 7:00-7:45 p.m. and by appointment |

**Course Prerequisites**: INSY 5335 and a programming language. Knowledge of an object-oriented programming language is preferred but is not required. However, you must possess a thorough understanding of basic programming concepts, including classes, objects, methods, inheritance, and interfaces.

**Course Description**: This course covers concepts, tools, and technologies associated with the analysis and design of information systems using the object-oriented (OO) paradigm. OO concepts are discussed and OO systems development life cycle is introduced. OO analysis and design techniques using the UML (Unified Modeling Language) are discussed. Students get hands on training in analysis and design through a group project.

**Learning Outcomes**

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| --- | --- | --- |
|  | Competency | Measurement |
|  1. | You will learn the difference between the traditional systems development life cycle and agile development methodologies.  | Test |
| 2. | You will learn the Agile Manifesto. | Test |
| 3. | You will learn how to write simple use cases. | Project and Test |
| 4. | You will learn about object-oriented concepts. | Test |
| 5 | You will learn how to draw class diagrams. | Project and test; homework. |
| 6 | You will learn how to draw interaction diagrams. | Project and test; homework. |
| 7 | You will learn the importance of refactoring and how to use it. | Test |
| 8 | You will learn the fundamentals of test driven development. | exercise |
| 9. | You will learn the concept of patterns. | Test |
| 10. | You will learn how to draw Activity Diagrams. | Homework |
| 11. | You will learn how to draw State Machine Diagrams. | Homework |
|  12. | You will learn about some OO principles (e.g., open-close principle, dependency-inversion principle, etc.). | Test/Homework |

**Textbooks**

There is no prescribed text for the course. Lecture notes and/or slides will be made available to students.

**Software**

[Eclipse] Eclipse is an open source community whose projects are focused on providing a vendor-neutral open development platform and application frameworks for building software. The Eclipse Foundation is a not-for-profit corporation formed to advance the creation, evolution, promotion, and support of the Eclipse Platform and to cultivate both an open source community and an ecosystem of complementary products, capabilities, and services.

Eclipse has formed an independent open eco-system around royalty-free technology and a universal platform for tools integration. Eclipse based tools give developers freedom of choice in a multi-language, multi-platform, multi-vendor environment. Eclipse provides a plug-in based framework that makes it easier to create, integrate and utilize software tools, saving time and money. By collaborating and exploiting core integration technology, tool producers can leverage platform reuse and concentrate on core competencies to create new development technology. The Eclipse Platform is written in the Java language and comes with extensive plug-in construction toolkits and examples. It has already been deployed on a range of development workstations including Linux, HP-UX, AIX, Solaris, QNX, Mac OS X and Windows based systems. A full description of the Eclipse community and white papers documenting the design and use of the Eclipse Platform are available at [http://www.eclipse.org](http://www.eclipse.org/).

OR

Netbeans from Sun ([www.sun.com](http://www.sun.com) )

OR

Any other UML compliant software (Argo UML, Star UML, Visio).

**Grading Policy**

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| --- | --- |
| Exam 1 | 20% |
| Exam 2 | 20% |
| Final Exam  | 25% |
| Class participationProject – analysis & design with implementation\*\* |  5%  30% |
|  |  |
| Total points |  100.%  |

**\*\* Use case – 5%, class diagram and sequence diagram – 15%, and implementation – 10%**

Grades: 90-100 = A, 80-89 = B, 70-79 = C, 60-69 = D, 0-59 = F

TENTATIVE SCHEDULE

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| --- | --- |
| Week/starting | Topics |
| 1 (June 2) | Course Introduction; Agile vs Traditional software development |
| 2 (June 9) | – UML concepts & notations, OO Concepts ; Requirements analysis using use cases;  |
| 3 (June 16) | Use cases/stories; class diagrams |
| 4 (June 23) | Exam 1 |
| 5 (June 30) | Interaction Diagrams |
| 6 (July 7) | Interaction Diagrams; Design Patterns |
| 7 (July 14) | Project implementation; Exam 2  |
| 8 (July 21) | Activity Diagrams, State Chart Diagrams, and Package Diagrams;  |
| July 29 | Final Exam |

**NOTE: THIS SCHEDULE IS SUBJECT TO CHANGE. STUDENTS ARE RESPONSIBLE FOR BEING AWARE OF ANY CHANGES ANNOUNCED IN CLASS AND/OR VIA E-MAIL.**

**Important Dates:**

Classes begin………………………………………………………………June 3

Late Registration ends…………………………………………………….June 4

Census date ………………………………………………………………June 20

Last date to drop classes………………………………………………… July 18

(published date for Summer 11 week)

Last day of classes……………………………………………………… July 24

Final exam dates…………………………………………………………July 29

**Specific Course Requirements**: The course will feature a combination of lectures, assignments/project, and exams. Students may be tested over everything that is covered by the instructor in class. Students will apply their understanding of OO analysis and design concepts to a project.

You are required to use a computer for all assignments, and all documentation and system components are expected to have a neat and professional appearance. All assignments are due at the beginning of class on the due date either specified in the course schedule or announced in class. Please staple your sheets before you turn them in.

**Group Project details**: Students will work in groups of three to complete a project that will be handed out in class. You may form your own groups. You may not abandon your group and join another one after the project is handed out. Groups will be responsible for the analysis, design, and implementation phases of the project. Details of the project will be given in class.

**UNIVERSITY and COLLEGE POLICIES**

**Tuition:** Students who have not paid by the census date and are dropped for non-payment cannot receive a grade for the course in any circumstances. Therefore, a student dropped for non-payment who continues to attend the course will not receive a grade for the course. Emergency loans are available to help students pay tuition and fees. Students can apply for emergency loans by going to the Emergency Tuition Loan Distribution Center at E.H. Hereford University Center (near the southwest entrance).

**Attendance and drop policy:** Students are required to read and be prepared to discuss the assigned textbook chapters and workbook exercises on the scheduled class days. Class attendance and lateness policies will be discussed during the first week of class. Those policies include by reference all provision for grade adjustment or drop policies included in the applicable Graduate or Undergraduate Catalog in effect at the start of the semester. ***No student will be dropped from the class rolls for never attending or excessive absences.***

A student dropping a course after the Census Date but on or before the appropriate final drop date will receive a grade of "W" ***only*** if at the time of dropping, the student is passing the course (has a grade of A, B, C, or D); otherwise the student will get an “F”.

**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](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

**Academic Integrity**: All students enrolled in this course 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.

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 student’s suspension or expulsion from the University.

**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](http://www.uta.edu/resources).

**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 a 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 student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s 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.

Note: Much of this section has been taken from UT Arlington’s syllabus template.

# Useful References

The Unified Modeling Language User Guide by Grady Booch, James rumbaugh, and Ivar Jacobson, Addison-Wesley, 1999

Design Patterns: Elements of Reusable Object-Oriented Software by Gamma, Helm, Johnson, and Vlissides, Addison-Wesley, 1995

UML Distilled: Applying the Standard Object Modeling Language by Fowler and Scott, Addison-Wesley, 1997

Applying Use Cases: A Practical Guide by Geri Schneider and Jason P. Winters, Addison-Wesley, 1997

Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and the Unified Process by Craig Larman, Prentice Hall PTR, 2002

Refactoring: Improving the Design of Existing Code by Martin Fowler, Addison-Wesley, 1999

Analysis Patterns: Reusable Object Models, Addison-Wesley, 1997

Java Design by Coad and Mayfield, Yourdon Press Computing series

**Useful Links**

[**http://www.mountaingoatsoftware.com/**](http://www.mountaingoatsoftware.com/)

[**http://www.agilemodeling.com/**](http://www.agilemodeling.com/)

[**http://code.tutsplus.com/articles/a-beginners-guide-to-design-patterns--net-12752**](http://code.tutsplus.com/articles/a-beginners-guide-to-design-patterns--net-12752)

[**http://www.newthinktank.com/videos/design-patterns-tutorial/**](http://www.newthinktank.com/videos/design-patterns-tutorial/)