THE UNIVERSITY OF WINNIPEG

APPLIED COMPUTER SCIENCE

Course Number – ACS2913-001
Course Name – Software Requirements Analysis and Design

Instructor Information

Instructor: David Tenjo **Office:** 3D29
E-mail: d.tenjo@uwinnipeg.ca **Office Hours**: Th: 5:15pm – 18:15pm
or by email appointment

Class Meeting Time: M, W: 4:00 pm – 5:15 pm **Room No:** 3D01
Course Web Page: https://courses.acs.uwinnipeg.ca/2913-001

Important Dates

First Class:	Wednesday, September 6th, 2017
Reading Week (no classes):	October 8th – October 14th, 2017
Midterm Exam:	Monday, October 23rd, 2016
Final Withdrawal Date w/o academic penalty: *(A minimum of 20% of the work on which the final grade is based will be evaluated and available to the student before the voluntary withdrawal date)*	Tuesday, November 10th, 2017
Last Class:	December 4th, 2017
Final Exam:	December 20th, 2017

Course Objectives/Learning Outcomes

Objectives

This course is intended to introduce students to the requirements definition and design specification phases of software development. It aims to provide coverage of object-oriented approaches to requirements analysis and design of software in various applications. Models, notations and processes for requirements elicitation, representation, and design are treated in depth.

The specific objectives of this course are:

- To convey a thorough understanding of the requirements definition phase of software development
- To instill in students appreciation of the object-oriented approach to requirements analysis and design, and its current documentation tools.

- To provide a solid foundation for the application of techniques used in software requirements *gathering, modelling and design*

Outcomes

- To understand the different phases of a typical project using SDLC under an Agile approach
- To be able to apply specific techniques to gather software requirements
- To be able to create use case diagrams / descriptions and activity diagrams used in modelling software requirements
- To be able to create class diagrams
- To be able to create sequence diagrams
- To understand communication (Collaboration) diagrams
- To understand basic Object oriented concepts and terminology
- To be able to model class packages

Evaluation Criteria

1. **Assignments (20%)**

   Assignment 1: Due Date – October 4th, 2017
   Assignment 2: Due Date – October 30th, 2017
   Assignment 3: Due Date – November 15th, 2017
   Assignment 4: Due Date – November 29th, 2017

2. **Midterm Exam (25%) October 23rd, 2017 In class**
   - Missed exam will receive a mark of zero, unless a medical certificate is provided, no accommodation is made for missed exams.

3. **Final Exam (55%) - December 20th, 2017**

Please contact the instructor as soon as possible if extenuating circumstances require you to miss a class, assignment, test or examination.

Keep a copy of all class work (e.g., assignments, tests) handed back in case there is an error in recording of marks by the instructor. With regard to appeals, see the 2016/17 Undergraduate Academic Calendar

Exam Requirements

- Photo ID at exam is required. (preferably U of W Student ID)
- You are expected to write the test/exam on its given day.
- No electronic devices (e.g. cell/smart phone, laptop, scientific calculators, translators, etc.) are permitted.
- Midterm and final exams are closed-book.
- Unless a medical certificate is provided, no accommodation is made for missed exams.

Final Letter Grade Assignment

Historically, numerical percentages have been converted to letter grades using the following scale. However, instructors can deviate from these values based on pedagogical nuances of a particular class, and final grades are subject to approval by the Department Review Committee.

A+	90+ - 100%	B+	75 - 79%	C	60 - 64%
A	85 - 90%	B	70 - 74%	D	50 - 59%
A-	80 - 84%	C+	65 - 69%	F	below 50%

Prerequisite and Restriction Information*

(This information can be found in the UW Undergraduate Academic Calendar)

- A grade of at least C in ACS-1903 or ACS-1905

Email Communication

All email communication must be done using the **U of W email account.** Those are usually not filtered by the UofW email filter. There is no guarantee that emails sent from a different account will be addressed by the instructor.

Accomodations available for Students

Students with documented disabilities, temporary or chronic medical conditions, requiring academic accommodations for tests/exams (e.g., private space) or during lectures/laboratories (e.g., note-takers) are encouraged to contact Accessibility Services at 786-9771 or accessibilityservices@uwinnipeg.ca to discuss appropriate options. All information about a student's disability or condition remains confidentialhttp://www.uwinnipeg.ca/accessibility

Students may choose not to attend classes or write examinations on religious holidays. However, they must notify their instructor at least two weeks in advance. Instructors will then provide an opportunity for students to make up work or examinations without penalty. A list of religious holidays can be found in the 2017-18 Undergraduate Academic Calendar.

All students, faculty and staff have the right to participate, learn, and work in an environment that is free of harassment and discrimination. The UW Respectful Working and Learning Environment Policy may be found online at www.uwinnipeg.ca/respect .

Misuse of Computer Facilities, Plagiarism, and Cheating

Academic dishonesty is a very serious offense and will be dealt with in accordance with the University's policies. Be sure that you have read and understood Regulations & Policies #8, in the 2017-2018 UW Undergraduate Academic Calendar available at http://uwinnipeg.ca/academics/calendar/docs/regulationsandpolicies.pdf.

Additional information is available at University of Winnipeg library video tutorial "Avoiding Plagiarism" https://www.youtube.com/watch?v=UvFdxRU9a8g

Text Book(s) / Reading List / Tools

- **Textbook:**
  Systems Analysis and Design in a Changing World, (7th Edition). John Satzinger, Robert Jackson, Stephen Burd - Cengage Learning ISBN 978-1-305-11720-4
- Complementary Readings might be posted to the course website.

Topics to be covered (Tentative)

1. **Overview of Systems Analysis and Design**
   a. Systems Development Lifecycle
   b. Iterative Development
   c. Core process of systems development

2. **System Requirements**
   a. Definition
   b. Models and Modelling
   c. Information gathering techniques
   d. Workflows and activity diagrams

3. **Use Case Analysis**
   a. Use Cases and user Goals
   b. Event Decomposition
   c. CRUD Technique

4. **Domain Modelling**
   a. Entity-Relationship Diagrams
   b. Domain-Model Class diagram

5. **Extended Requirements Modelling**
   a. System Sequence Diagram
   b. State Machine Diagram
   c. Integrating Requirements Models

6. **Object-Oriented design and Principles**
   a. Object-Oriented Architectural Design
   b. Principles of Object-oriented design
   c. Design classes
   d. Class diagrams
   e. CRC Cards

7. **Advanced OO Concepts**
   a. Three Layer Design
   b. Design Patterns
   c. Sequence Diagrams
   d. Communication Diagrams
   e. Packages

Additional Course Related Information

1. When it is necessary to cancel a class due to exceptional circumstances, instructors will make every effort to inform you via uwinnipeg email, as well as the departmental assistant and Chair/Dean so that class cancellation forms can be posted outside classrooms.
2. Your uwinnipeg email address will normally be used for course related correspondence.
3. Please note that withdrawing before the VW date does not necessarily result in a fee refund.
4. April 5, 2018 is the class make-up date for courses that conflict with Good Friday, March 30.
5. No classes: Oct. 8 – 14 Mid-term reading week; Feb. 18-24 Winter Mid-term reading week; Friday, March 30 (Good Friday).