APPLIED COMPUTER SCIENCE

Course Number - ACS-3913-001
Course Name – Software Design and Architecture

Instructor Information

Instructor:	**Ron McFadyen**	**Office:**	3D21
E-mail:	**r.mcfadyen@acs.uwinnipeg.ca**	**Office Hours**:	W: 1:30 - 2:30 p.m.
			or by email appointment

Class Meeting Time: MW: 4:00 – 5:15   **Room No:** 3D04
Course Web Page: https://courses.acs.uwinnipeg.ca/3913-001
Instructor's Home Page: https://www.acs.uwinnipeg.ca/rmcfadyen

Important Dates

First Class:	Jan 8, 2018
Reading Week (no classes)	Feb 18 – Feb 24, 2018
Midterm Tests:	Feb 14 & Mar 7, 2018
Final Withdrawal Date w/o academic penalty:	Mar 14, 2018

(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)

Last Class:	Apr 4, 2018
Final Exam:	Apr 18, 2018 @ 1:30

Course Objectives/Learning Outcomes

The primary objective is to provide the student with additional OO software design techniques suitable for professional practice and for the Applied Computer Science Project Course. In particular the course covers several software design patterns using UML and Java. For each of the patterns the student learns when and how to apply the pattern, and understands its structural and behavioural aspects. The student's knowledge of Java and programming capabilities are advanced. The student's knowledge of UML class, object, statechart, and sequence diagrams is advanced. The student is prepared to further their study of design patterns in software design, human computer interaction, database, etc.

Evaluation Criteria

- Assignments: 25%
  - All assignments are to be completed <u>individually</u>
  - There will be 5 assignments worth 5% each
  - Due at 11:59:59 pm on due dates
  - No late assignment will be accepted, or under special circumstances accepted with 20% off for each late day
  - Assignment reports are only submitted by email as PDF files and code as appropriate. The details of submission procedure will be stated in each assignment.
  - Multiple submissions are not permitted. Students may submit a partially completed assignment, and will receive credit for those attempted problems
  - Students are responsible to review their assignments before submission to make sure the correct files are attached to the email

- Midterm Tests: 25%
  - Feb 14 test 10%; Mar 7 test 15%

- Final Exam: 50%
  - The final exam covers all material discussed in the course

Exam Requirements
- Photo ID at exam is required.
- 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-2913/3 (or the previous ACS-2911/3 and ACS-2912/3) and ACS-2947/3.

Email Communication
Emails from accounts at uwinnipeg.ca are usually not filtered by the UofW email filter. Thereby it is recommended electronic communication used for the course utilize a UofW email account to minimize the risk of filtering.

Services 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 (AS) at 786-9771 or accessibilityservices@uwinnipeg.ca to discuss appropriate options. All information about a student's disability or medical condition remains confidential http://www.uwinnipeg.ca/accessibility .

Students may choose not to attend classes or write examinations on holy days of their religion, but they must notify their instructors at least two weeks in advance. Instructors will then provide opportunity for students to make up work 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

Avoiding Academic Misconduct. Uploading essays and other assignments to essay vendor or essay trader sites (filesharing sites that are known providers of essays for use by others who submit them to instructors as their own work) involves "aiding and abetting" plagiarism. Students who do this can be charged with Academic Misconduct.

Avoiding Copyright Violation. Course materials are owned by the instructor who developed them. Examples of such materials are course outlines, assignment descriptions, lecture notes, test questions, and presentation slides. Students who upload these materials to filesharing sites, or in any other way share these materials with others outside the same class without prior permission of the instructor/presenter, are in violation of copyright law and University policy. Students must also obtain instructor/presenter permission before photographing or recording slides, presentations, lectures, and notes on the board.

Text Book(s) / Reading List / Tools

We will use the following books, supplemented with readings throughout the course:

> *Head First Design Patterns*
> Freeman, Robson, Bates, Sierra;
> O'Reilly; 0-596-00712-4

Class notes and notices will be available on the course web page. Students are responsible for material covered in class and announcements made in class.

Topics to be covered

We will cover design patterns as time permits.
In addition to these patterns, we cover aspects of Java and UML that are pertinent.
For code from Head First Design Patterns, see http://www.headfirstlabs.com/books/hfdp/

Patterns (order may vary):

Strategy	Singleton
Observer	Iterator
Decorator	State
Facade	Composite
Adapter	Template
Command	Compound patterns
Factory	Others as time permits

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: Feb. 18-24 Winter Mid-term reading week; Friday, March 30 (Good Friday).