



THE UNIVERSITY OF WINNIPEG

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@uwinnipeg.ca

Office Hours: Weds 10:15 am - 11:15 am
or by email appointment

Class Meeting Time: Mon, Wed @ 1:00 pm – 2:15 pm **Room No:** 3D04

Course Web Page: <https://courses.acs.uwinnipeg.ca/3913>

Assignments Home Page: <https://nexus.uwinnipeg.ca>

Important Dates

First Class: Jan 7, 2019

Reading Week (no classes) Feb 17 – 23, 2019

Midterm Tests: Feb 6, 2019 & Mar 6, 2019

Final Withdrawal Date w/o academic penalty: Mar 15, 2019

(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: April 3, 2019

Final Exam: April 18, 2019 @ 1:30 pm – 4:30 pm

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: 15%
 - All assignments are to be completed individually
 - There will be 3 assignments worth 5% each
 - May include theory, programming and/or analysis exercises
 - Due at 11:59:59 pm on due dates
 - Late assignments will be accepted, with 20% off for each late day – up to maximum of 2 days late.
 - Assignments reports are only submitted using Nexus as PDF (Portable Document Format) files and code (*tba* files). The details of submission procedure will be stated in each assignment.
 - Multiple submissions are permitted. Students may submit a partially completed assignment, and will receive credit for those attempted problems
 - Start early. Students are responsible for maintaining backups of their work

- Midterm Exam: test 1: 15%; test 2: 20%
 - tests are during class time

- 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.
- Tests and final exams are closed-book.
- Unless a medical certificate is provided, no accommodation is made for missed tests or 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)

- Requisite courses: ACS-2913 with a minimum grade of C
ACS-2947 with a minimum grade of C

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 2018-19 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 2018-2019 UW Undergraduate Academic Calendar available at <http://uwinnipeg.ca/academics/calendar/docs/regulationsandpolicies.pdf> and the UW academic misconduct policy available at <http://pace.uwinnipegcourses.ca/sites/default/files/pdfs/publications/Academic%20Misconduct%20Policy.pdf>

Avoiding Academic Misconduct. Uploading essays and other assignments to essay vendor or 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 class without prior permission of the instructor/presenter, are in violation of copyright law and University policy. Students must also seek prior permission of the instructor /presenter before photographing or recording slides, presentations, lectures, and notes on the board.

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

We will use the following book as guide, 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 (Tentative)

We will cover design patterns as time permits. In conjunction with 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 :

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

Note that all topics listed may not be covered and may be offered in a slightly different time order.

Additional Course Related Information

1. When it is necessary to cancel a class due to exceptional circumstances, instructors will make every effort to inform students via uwinnipeg email (and/or using the preferred form of communication, as designated in this outline), as well as the Departmental Assistant and Chair/Dean so that class cancellation forms can be posted outside classrooms
2. Students are reminded that they have a responsibility to regularly check their uwinnipeg e-mail addresses (and/or using the preferred form of communication, as designated in this outline) to ensure timely receipt of correspondence from the university and/or their course instructors
3. Please note that withdrawing before the VW date does not necessarily result in a fee refund (March 15 is VW date for classes that begin in January and end in April).
4. No make-up classes scheduled
5. No classes:
Dec 22/18-Jan 2/19 University closed