THE UNIVERSITY OF WINNIPEG

Applied Computer Science

Course Number: GACS-7401-002
Course Name: Current Topics in Computing: Principles of Programming Languages
Course Webpage: http://courses.acs.uwinnipeg.ca/7401-002/

Instructor Information

Instructor: Dr. Christopher Henry
Email: ch.henry@uwinnipeg.ca
Class Room No: 3D03
Class Meeting Time: M/W 2:30 - 3:45 pm
Office Hours: Wednesday 1:30-2:30 pm

Important Dates

First class:	January 7th, 2019
Winter reading week:	February 17th – 23rd, 2019 **(No classes)**
Midterm test:	March 6th, 2019
Withdrawal date w/o academic penalty[1]:	March 15th, 2019
Video lectures (due to conference):	March 18th & 20th, 2019
Final project presentations	April 1st & 3rd, 2019
Last Scheduled Class:	April 3rd, 2018
Final Examination (comprehensive):	April 23rd, 2019 9:00 am – 12:00 pm
The University is closed on the following dates (No Classes):	
	February 18th, 2019
	April 19th, 2019

[1]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.

Additional Course Related Information

When it is necessary to cancel a class due to exceptional circumstances, instructors will make every effort to inform students via uwinnipeg email, as well as the Departmental Assistant and Chair/Dean so that class cancellation forms can be posted outside classrooms.

Students are reminded that they have a responsibility to regularly check their uwinnipeg e-mail addresses to ensure timely receipt of correspondence from the university and/or their course instructors.

Please note that withdrawing before the VW date does not necessarily result in a fee refund.

There are no make-up classes scheduled. However, I will be away at a conference from March 17th – 22st, 2019. The missed lectures during this time will be recorded and posted on the course website.

Course Objectives/Learning Outcomes

The focus of this course is on the underlying concepts and design of programming languages. The emphasis is on elements of programming languages, program execution description, programming paradigms, and tenets of good programming design. The course is a blend of theoretical concepts and hands-on programming experience. As this is the first offering, this course is based on materials from *Principles of Programming Languages* offered at the Ben-Gurion University of the Negv.

Evaluation Criteria

Midterm Examination (30%)

There will be **one** midterm test.

Assignments (12%)

Three assignments – worth 4% each – will be assigned throughout the term. Details will be provided in class. Late submissions will not be accepted.

Project (18%)

Details will be provided in class.

Final Examination (40%)

The final examination is comprehensive.

All material submitted for evaluation must be typed. Paper copies are not required unless otherwise stated. In other words, all submissions will occur electronically via email.

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

Exam Requirements

- Photo ID is required
- Unless a medical certificate is provided, no accommodation is made for missed deadlines or examinations
- No equipment (*e.g.* calculators, dictionaries, handheld devices) are authorized for use in tests/exams

Student Services and Information

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.

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

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.

Required Textbooks

Main text:

- M. Balaban, *Principles of Programming Languages*. Israel: Ben-Gurion University of the Negev, 2017. [Online]. Available: https://www.cs.bgu.ac.il/~mira/ppl-book-full.pdf. [Accessed: 13- Dec- 2018].

Besides the information contained in the main texts, I may also distribute papers, and discuss appropriate material and examples from other sources. Students are responsible for all material covered in the class.

Prerequisite Information (This information can be found in the UW General Calendar)

- Consent of Department Graduate Studies Committee Chair

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 discipline bylaw. Be sure that you have read and understood **Regulations & Policies #8**, starting on page 9, in the 2018-2019 UW Course Calendar available at: http://www.uwinnipeg.ca/index/calendar-calendar.

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

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.

Students are strongly recommended to view the University of Winnipeg library video tutorial *Avoiding Plagiarism*, which is available at: https://www.youtube.com/watch?v=UvFdxRU9a8g

Course Topics

1. Applied Functional Programming
2. Syntax, Semantics, Types
3. Higher-Order Functions
4. Abstraction on Data and on Control
5. Evaluators for Functional Programming
6. Type Correctness
7. Logic Programming
8. Techniques, Principles, and Languages Comparison

Note: All topics listed above may not be covered.

Course Readings

Relevant textbook chapters and papers will be given during lectures.

Recommended Study Habits

Students who do well in this class attend lectures, take notes, submit all deliverables, regularly ask questions, and tend to spend an extra 3-7 hours per week doing the following:

- Read course notes and handouts
- Read the textbook before coming to class
- Attempt the problems and exercises on the subject
- Form study groups to study for the midterm and exam

Advice: Students who fall behind find it very hard to catch up.