Université d'Ottawa
Faculté de génie
École de science informatique
et de génie électrique

uOttawa
L'Université canadienne
Canada's university

University of Ottawa
Faculty of Engineering
School of Electrical Engineering
and Computer Science

CSI 2120 A: Programming Paradigms

Professor

General Notes

1. Academic Fraud: please carefully note and understand regulations regarding academic fraud. There will be zero tolerance for fraud and plagiarism.

2. Attendance: Attendance of lectures, discussion groups, and labs is mandatory. As per academic regulations, students who do not attend 80% of the classes will not be allowed to write the final examinations.

3. Deliverables: All components of the course (i.e laboratory reports, assignments, etc.) must be fulfilled otherwise students may receive an INC as a final mark (equivalent to an F). This is also valid for a student who is taking the course for the second time.

Note: If a student misses a number of course deliverables, for any reason, such that it is not reasonably possible for the professor to assess the student understanding of the course material, an INC grade would be assigned as a final course grade.

Note: Course schedule, methodology, assessments, and exam policies etc. have been planned based on current public health guidelines. Should these guidelines change, adjustments will be made and communicated to students.

Except in programs and courses for which language is a requirement, all students have the right to produce their written work and to answer examination questions in the official language of their choice, regardless of the course's language of instruction.

Professor: Wassim El Ahmar - welah096@uottawa.ca

Office Hours: Online using Zoom software. Information shared on Brightspace

Description

Presentation of the major programming paradigms: object-oriented, imperative, logic, functional. Related programming languages, their essential properties and typical applications. Programming in imperative, logic and functional languages. Influence of programming paradigms on problem solving and program design strategies. An overview of other paradigms, such as constraint-based, rule-based and event-driven programming.

Prerequisites: CSI2110.

References

- Allen B. Tucker and Robert E. Noonan, Programming Languages: Principles and Paradigms, McGraw Hill, 2nd ed., 2007.
- Maurizio Gabbrielli and Simone Martini, Programming Languages: Principles and Paradigms, Springer, 2010. available on-line from the library.

Online references

- Prolog Programming
- R. Kent Dybvig, The Scheme Programming Language , (4th ed.), MIT Press.
- The Go Programming Language

Tools

- SWI Prolog
- The Racket language
- MIT Scheme
- Free Pascal
- Go

Timetable:

Lectures	Tu 4:00PM - 5:20PM Th 2:30PM - 3:50PM	100 Louis Pasteur (CRX) C240 Possibility of some aspects of the course being delivered in hybrid/remote format

Labs:

A01	Mo 8:30AM - 9:50AM	800 King Edward (STE) 0130
A02	Mo 8:30AM - 9:50AM	800 King Edward (STE) 0131
A03	Mo 8:30AM - 9:50AM	800 King Edward (STE) 2060
A04	Th 10:00AM - 11:20AM	161 Louis Pasteur (CBY) B02
A05	Th 10:00AM - 11:20AM	800 King Edward (STE) 2060
A07	Th 11:30AM - 12:50PM	161 Louis Pasteur (CBY) B02

Tutorials:

A06	Th 4:00PM - 5:20PM	125 University (MNT) 202
A08	Th 4:00PM - 5:20PM	100 Louis Pasteur (CRX) C010

Evaluation

Online quizzes	9%
Assignment	24%
Comprehensive/Project assignment	32%
Final Exam (F)	35%

Attention, you must obtain at least 50% in the final exam in order to pass this course.

- Comprehensive/Project assignment
- Assignment (3 assignments (Go, Prolog and scheme))
- A missing assignment will only be excused if it is due to severe illness, in which case a certificate must be presented.
- The weight of the excused missing component will be shifted to the final exam.

Online quizzes

- each of them which may score 0.0 (no submission), 0.5 (for effort) or 1.0 (if an [almost] correct answer is submitted).

Weekly Schedule(s) **Tentative and subject to change**

Week#	Topics	Labs
Week 1 -Jan 9	Introduction Overview of the object-oriented paradigm	---
Week 2 – Jan 16	Imperative programming with Go Concurrent programming with Go	Lab 1: Go
Week 3 – Jan 23	The Prolog language	Lab 2: Go
Week 4 – Jan 30	Resolution tree Arithmetic	Lab 3: Go
Week 5 – Feb 6	The lists Repetitive operations	Lab 4: Prolog
Week 6 -Feb 13	setof Trees	Lab 5: Prolog
Week 7 – Feb 20 Reading week	No classes -No labs – No tutorials	----------
Week 8 – Feb 27	Search in depth and breadth Graphs	Lab 6: Prolog
Week 9 – March 6	Compound terms Semantic analysis	Lab 7: Prolog
Week 10 - March 13	Functional programming (Racket-Scheme) Representation of lists	Lab 8: Prolog
Week 11 - March 20	Recursive browsing of a list (Racket-Scheme) The map and the let (Racket-Scheme)	Lab 9: Scheme
Week 12 – March 27	The and! and files (Racket-Scheme) Lists (Racket-Scheme)	Lab 10: Scheme
Week 13 – April 3	Discussion of Paradigms Final exam review	Lab 11: Scheme

Course Policies

- Missed assignments: mark of zero.
- Late assignments: -20% for every day your submission is late (if you submit between 1 minute and 24 hours late, it is considered one day), mark of zero after 72 hours late (3 days).
- Absence from midterm / final examination: see faculty of engineering regulations