COMP1026, Summer 2019
Computer Science Fundamentals I
Syllabus

Course Information

Overview

This course is designed to give students a first introduction to computer science; no previous experience is required nor expected. Computer science at its heart is about problem solving. Algorithms are the techniques used to solve those problems. In this course we will look at algorithms, their design, their analysis, and their implementation as computer programs.

Calendar Description

The nature of Computer Science as a discipline; the design and analysis of algorithms and their implementation as modular, reliable, well-documented programs written in a modern programming language. Intended for students with little or no background in programming.

Prerequisite Requirements

None. There are no prerequisites.

Antirequisites

Computer Science 1025A/B, Computer Science 2120A/B, Engineering Science 1036A/B, Digital Humanities 2220A/B

Teaching Staff + Office Hours

Alex Brandt
abrandt5@uwo.ca
MC 365
Wednesdays, 15:00 – 16:45, or by appointment.

Teaching Assistants

Davood Mohajerani
dmohajer@uwo.ca
MC 4A
Fridays, 16:00 – 18:00

Mohsen Shirpour
mshirpou@uwo.ca
MC 239
Mondays, 20:00 – 22:00

Course Materials

There is no required textbook for this course. Course notes and supplementary materials will be posted on OWL. However, a suggested reading material is *Python for Everyone* (any edition), by Cay S. Horstmann and Rance D. Necaise, Wiley, 2016.

Lecture slides will be posted on the OWL website associated with this course.

Programming tools required for this course include the Python programming language: https://www.python.org. Python version 3.0 or greater should be used; *not Python2*. One might also want to make use of an *integrated development environment* (IDE) such as PyCharm: https://www.jetbrains.com/pycharm-edu/.

Class and Lab Schedule

There are 6 lectures hours per week in NCB 114.
Tuesdays, 19:00 - 22:00
Thursdays, 19:00 - 22:00

For lab times, see the online timetable at:
https://studentservices.uwo.ca/secure/timetables/SummerTT/ttindex.cfm.
Each lab is 2 hours. There are possibly two labs back to back for some slots.

Computing Facilities

Each student enrolled in CS1026 will be given an account on the Computer Science Department First Year Network. By using your CS1026 account, you agree to abide by the Rules of Ethical Conduct established by the Department of Computer Science.

Labs

Labs provide students with guided, hands-on experience with programming and algorithmic problem solving. Students should be prepared before coming to the exam by reading instructions and familiarizing themselves with the requirements of each lab. Lab instructions will be posted on OWL prior to each lab.
- Labs begin May 8th (first 2 hours only) or May 9th, depending on the slot registered for.
- Labs are to be completed for marks; attendance, participation, and completion of them is required. The lab instructor should record your attendance and be shown your completed work to obtain marks.
- Each lab is worth 1.5 marks, up to a total of 12 marks. With 11 total labs in the course we take the best 8 as your mark for the lab component.
- There are no make-up labs. Attend only the lab slot which you have registered for.
- Students should bring their student ID to each lab.

Email Contact

- In accordance with university policy, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.
- We may need to send email messages to the whole class or to students individually. Email will be sent to the UWO email address assigned to students by Western Technology Services (WTS). Note that email providers establish quotas or limits on the amount of space available to you. If you let your email accumulate there, your mailbox may fill and you may lose important email from your instructors. Losing email is not an acceptable excuse for not knowing about the information that was sent.
- Students are encouraged to contact their course instructor via email with brief, email appropriate questions regarding lecture materials or clarification of assignments. However, before sending email to an instructor, the student should check the course website to see if the requested information is already there. Students must send email from their UWO ITS account and include CS1026 in the subject line of the email.

Evaluation + Tentative Schedule

Labs	Various	**12%**
Assignment 1	May 17	**6%**
Assignment 2	May 24	**8%**
Assignment 3	May 31	**9%**
Assignment 4	June 07	**9%**
Midterm	In-Class, May 28	**20%**
Final Exam	TBD by Registrar	**36%**

To obtain a passing grade in this course students most obtain at least 40% on the final exam, otherwise the maximum mark they may receive is 45%. To obtain a 60% or higher overall mark in this course, students must obtain a minimum mark of 50% on the final exam, otherwise the maximum mark they may receive is 58%.

Assignment Regulations

- If, for any reason, the schedule cannot be adhered to, the marks for assignments will be prorated to future assignments or the final exam.
- Assignments are due at 23:55 on the due date. Late assignments will be handled as follows.
    0-24 hours late: -15%,
    24-48 hours late: -30%,
    >48 hours late: submissions no longer accepted.

- All efforts will be made to have assignments posted at least one week prior to the due date. Due to the condensed nature of this course, there may be limited time between when course material is presented in class and the due date of an assignment which make use of that material. However, at least 3 days will be given (i.e. Tuesday teaching for a Friday submission).
- All assignments are to be submitted electronically on OWL. Instructions for the submission of assignments will be posted on the course website. It is each student's responsibility to read and follow the instructions. Failure to follow the submission instructions may result in the assignment receiving a mark of zero.
- Any written aspect of an assignment should be submitted on OWL as a **PDF** file.
- Plagiarism is unacceptable. It is reasonable to assume that students discuss assignments and possible solutions, however all assignments shall be independent.
- Any concerns with assignment marking must be addressed within one week of assignment marks being released.

Exam Regulations

- Exams are closed book. Any required information, numerical constants, formulas, etc. will be given as part of the exam/question.
- No electronic devices other than a simple scientific calculator may be in the possession of the students during exams.
- Any concerns with mid-term exam marking must be addressed within one week of the mid-terms being returned in class.
- The final exam is scheduled by the Registrar's office and will be released later in the semester.

Overview of Course Topics

- Introduction
  - Components of a computer
  - Hardware
  - Software
  - Algorithm development
- Numbers and Strings
  - Variables
  - Integers
  - Floating point numbers
  - Input and Output
- Control flow
  - `if`, conditionals
  - Boolean and logic
  - Loops: `while`, `for`
- Functions/Procedures
  - Recursion
- Basic data structures

- Lists
- Sets
- Dictionaries
- File I/O
- Data processing
- Exceptions
- Classes
  - Objects
  - Basic Object-Oriented Design
  - Inheritance
  - Polymorphism

Policies, Accommodation, Accessibility

Missed Assignments and Exams

Illness and other extenuating circumstances (e.g. religious holidays) are an inevitable fact of life. In accordance with the University's illness policy there are two different circumstances: (i) missed course work totalling less than 10% of the course mark, or (ii) missed course work totalling 10% or more of the course mark. In either case there will be no make-up midterms or assignments.

 (i) Missing a single assignment results in a student falling into this case. A student must communicate with the instructor their inability to complete the assignment at least 24 hours prior to the due date of the assignment. Extensions on the due date or reallocation of the assignment weight to the other 3 assignments or final may be given. With less than 24 hours notice students should proceed as in case (ii).

(ii) In accordance with the University's illness policy a student must submit documentation as soon as possible to the Dean's Office of the student's Faculty of registration in order to obtain accommodation. For Science students the Academic Counselling Office for the Faculty of Science is located in NCB 280 and can be contacted at (519)-661-3040 or scibm-sac@uwo.ca. If your circumstances have been approved then the weight of the missed component will be moved to the other assignments or final exam, as appropriate. If more than one assignment is missed these cases will be handled on a case by case basis.

Missing the final exam is a special case. One should contact their Academic Counselling Office as soon as possible. If their accommodation request is approved, the student may write the Special Exam. Students with exam conflicts or multiple exam situations may also be eligible to write the Special Exam.

Mental Health

Mental and emotional well-being is highly important and should not be treated lightly. Students who are in emotional/mental distress should refer to Health and Wellness at Western for a complete list of options about how to obtain help. Students in immediate distress should contact

Student Health Services, Campus Police, or Psychological Services whose contact information can be found here.

Accessibility

Any student requiring arrangements to make this course more accessible to them (e.g. providing course materials in an alternate format) should contact the instructor. Students may also wish to contact Student Accessibility Services via their website or at (519)-661-2147 for further assistance.

Ethical Conduct

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at this web site.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Student Support

The Student Development Centre provides leaning skills services for students. Other services are also provided by the University Students' Council

Registration Services

Students should refer to the Registrar's website or information and services involving registration.