Western University
Department of Computer Science
CS4445/9544 Analysis of Algorithms II
2019

Instructor

Roberto Solis-Oba
Office: MC417
Email: solis@csd.uwo.ca
Lectures: Wednesday from 3:30 pm to 5:30 pm and Friday from 3:30pm to 4:30pm at NCB 114.
Office hours: Monday from 2:30 pm to 4:00 pm and Friday from 4:30 pm to 5:30 pm.

Tentative List of Topics

- Maximum flows
- Approximation algorithms
- Randomized algorithms
- Online algorithms
- Parallel algorithms

Course's website: http://www.csd.uwo.ca/courses/CS4445a

References

- *Introduction to algorithms*, Cormen, Leiserson, and Rivest. The MIT Press, Third edition, 2009.
- *Randomized algorithms*, Motwani and Raghavan. Cambridge University Press, 1997.
- *Online computation and competitive analysis*, Borodin and El-Yaniv. Cambridge University Press, 1998.
- *An introduction to parallel algorithms*, JaJa. Addison Wesley, 1992.
- *Algorithm Design*, Kleinberg and Tardos, Addison Wesley, 2005.
- *Algorithm Design*, Goodrich and Tamassia, Addison Wesley, 2001.

Prerequisites

- CS3340 Analysis of Algorithms I.

Unless you have either the requisites for this course or written special permission to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Student Evaluation

Grades will be based on

- 4 assignments, worth 76% of the final mark
- 3 quizzes, worth 24% of the final mark.

Schedule

Tentative. Some of these dates might change

- Assignment 1, due October 4.
- Assignment 2, due October 25.
- Assignment 3, due November 15.
- Assignment 4, due December 4.
- Quizzes will take place during the Wednesday lecture, about every 3 weeks.

There will not be makeup quizzes. Electronic devices will not be allowed during quizzes.

Assignments and Late Policy

All assignments will be made available on the course's web site. The availability of assignments and dates for quizzes will be announced on class and/or via email. Students are responsible for checking their e-mail on a regular basis.

The late penalty for assignments is 2.5^i (2.5 to the ith power), where $i > 0$ is the number of days you are late. So if you hand in your assignment 1 day late, you will be penalized 2%, a delay of 2 days will decrease your grade by 6%, 3 days is penalized 16% and 4 days takes 39% off your grade. You cannot be more than 4 days late.

The assignments are worth 76% of the overall mark for the course. If an assignment has to be cancelled for any reason, the remaining assignment weights will be prorated to add up to 76%. The quizzes are worth 24% of the overall mark for the course; if a quizz has to be cancelled, the weight of the remaining ones will be prorated to add up to 24%.

Appeals of Assignment/Quizzes Marks

Appeals of assignment/quizzes marks should be addressed first to the T.A. who marked your assignment. If you and the T.A. cannot agree, then please discuss the situation with the lecturer.

Appeals **must occur within 1 week** from the first day that the marked work was made available to students. After that 1 week period has gone by, no more appeals will be considered.

Email Contact and OWL

Students should check OWL (http://owl.uwo.ca) and the course's website on a regular basis for news and updates. These sites and email are the primary methods by which information will be disseminated to all students in the class. **Students are responsible** for checking OWL, the course's website and their email messages on a regular basis.

Email messages will be sent to the UWO email address assigned to students by Information Technology Services (ITS), i.e. your email address @uwo.ca. It is each student's responsibility to read this email on a frequent and regular basis, or to have it forwarded to an alternative email address if preferred. See the ITS website for directions on forwarding email.

However, you should note that email at ITS (your UWO account) and other email providers such as hotmail.com or yahoo.com may have quotas or limits on the amount of space they can use. If you let your email accumulate there, your mailbox may fill up and you may lose important email from your instructors. Losing email that you have forwarded to an alternative email address is not an excuse for not knowing about the information that was sent.

Students must use their Western (@uwo.ca) email addresses when contacting the instructor. If you send email to the instructor from a commercial account, send a carbon copy (cc) to your UWO email address. The instructors will respond to your UWO address.

In accordance with policy, http://www.uwo.ca/its/identity/activatenonstudent.html, the centrally administered e-mail account provided to students will be considered the individual's official

university email address. It is the responsibility of the account holder to ensure that email received from the University at his/her official university address is attended to in a timely manner.

Accommodation and Accessibility

Note that if documentation (medical or otherwise) is required, it can only be collected by the student's Dean's Office/Academic Counselling unit.

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or supporting documentation to the Academic Counselling Office of your home faculty as soon as possible. If you are a Science student, the Academic Counselling Office of the Faculty of Science is located in NCB 280, and can be contacted at scibmsac@uwo.ca. For further information, please consult the university's medical illness policy at

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

and the policy on accommodation consideration for student absences at

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf

If a student receives academic accommodation, depending on the circumstances the instructor will determine whether the missed components will be excused (so that the completed components will be re-weighted) or if deadlines will be extended for submitting the missing academic work. Accommodation for any work missed must be requested to the student's Dean's Office/Academic Counselling unit.

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 the following Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

Students must write their assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence.

All assignments are individual assignments. You may discuss approaches to problems among yourselves; however, the actual details of the work (assignment coding, answers to concept questions, etc.) must be an individual effort. Assignments that are judged to be the result of academic dishonesty will, for the student's first offence, be given a mark of zero with an additional penalty equal to the weight of the assignment also being applied. You are responsible for reading and respecting the Computer Science Department's policy on Scholastic Offences

http://www.csd.uwo.ca/current_students/undergraduate_students/scholastic_offences.html

and Rules of Ethical Conduct

http://www.csd.uwo.ca/current_students/undergraduate_students/rules_of_ethical_conduct.html

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for 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 (http://www.turnitin.com).

Computing Facilities

Each student will be given an account on the Computer Science Department senior undergraduate computing facility. In accepting the account, a student agrees to abide by the department's Rules

of Ethical Conduct: http://www.csd.uwo.ca/UnderGrad/ethical.shtml

Note: After-hours access to Computer Science lab rooms is by student card. If a student card is lost, you will need to visit the Student Services Building to obtain a replacement. More information is available at http://www.registrar.uwo.ca/general-information/western_onecard.html.

Students enrolled in Computer Science courses will be granted access to the labs within 7 days of enrolment. If you do not have access to the labs after 7 days, please open a ticket with Science Technology Services at https://helpdesk.sci.uwo.ca.

Support Services

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Student Accessibility Services (SAS) at 661-2147 if you have any questions regarding accommodations. The policy on Accommodation for Students with Disabilities can be found here:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_disabilities.pdf

The policy on Accommodation for Religious Holidays can be found here:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

Learning-skills counsellors at the Student Development Centre (http://www.sdc.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western

http://www.uwo.ca/uwocom/mentalhealth

for a complete list of options about how to obtain help. Additional student-run support services are offered by the USC,

http://westernusc.ca/services.

Please consult the Web site for Registrarial Services

http://www.registrar.uwo.ca

and for USC

http://westernusc.ca/services

for a list of student support services and programs.