

**Western University**  
**Department of Computer Science**

**CS4445/9544 Analysis of Algorithms II**  
**2017**

**Instructor**

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Lectures: Wednesday from 10:30 am to 11:30 pm and Friday from 1:30pm to 3:30pm at FNB 2240.

Office hours: Monday and Wednesday from 3:30 pm to 5:00 pm and Friday from 3:45 pm to 5:00 pm.

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

**Tentative List of Topics**

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

**References**

- *Algorithm Design*, Kleinberg and Tardos, Addison Wesley, 2005.
- *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.
- *Introduction to algorithms*, Cormen, Leiserson, and Rivest. The MIT Press, Third edition, 2009.
- *Algorithm Design*, Goodrich and Tamassia, Addison Wesley, 2001.

**Student Evaluation**

Grades will be based on

- 4 assignments, worth 50% of the final mark
- a project, worth 40% of the final mark.
- class participation, worth 10% of the final mark. Attending class will be worth 3% of final mark, your level of participation will decide how much of the remaining 7% you will be given.

**Schedule Tentative. Some of these dates might change**

- Assignment 1, due October 4 during class.
- Assignment 2, due October 25 during class.
- Assignment 3, due November 15 during class.
- Assignment 4, due December 6 during class.
- The project is due on December 8 during class.

**Assignments**

All assignments will be made available on the course's web site. The availability of assignments 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  $i$ th 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 50% 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 50%.

**Academic Accommodation for Medical Illness**

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to your Dean's office as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed.

If you are a Science student, the Academic Counselling Office of the Faculty of Science is located in WSC 140, and can be contacted at 519-661-3040 or scibmsac@uwo.ca. Their website is [http://www.uwo.ca/sci/undergrad/academic\\_counselling/index.html](http://www.uwo.ca/sci/undergrad/academic_counselling/index.html).

A student requiring academic accommodation due to illness should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record's Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found here: [https://studentservices.uwo.ca/secure/medical\\_document.pdf](https://studentservices.uwo.ca/secure/medical_document.pdf) For further information, please consult the university's medical illness policy at [http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/accommodation\\_medical.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf).

## 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.

## Email Contact

We will occasionally 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 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.

If you send email to instructors from a commercial account, send a carbon copy (cc) to your UWO email address. The instructors will respond to your UWO address.

## 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](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf). Plagiarism: 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](#) and [Rules of Ethical Conduct](#).

The University of Western Ontario uses software for plagiarism checking. Students may be required to submit their written work and programs in electronic form for plagiarism checking.

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, GAUL. In accepting the GAUL account, a student agrees to abide by the department's [Rules of Ethical Conduct](#).

Note: After-hours access to certain Computer Science lab rooms is by student card. If a student card is lost, a replacement card will no longer open these lab rooms and the student must bring the new card to a member of the Systems Group in Middlesex College Room 346.

### **Accessibility Statement**

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

### **Support Services**

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.

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.