COURSE OUTLINE FOR REMOTE LEARNING

1. Course: CPSC 413, Design and Analysis of Algorithms I - Spring 2020
   Lecture 01: TR 09:00 - 11:45 - Online

   Instructor  Email      Phone  Office  Hours
   Dr. Jonathan Hudson  jwhudson@ucalgary.ca  ICT 513  TR 11:45-12:45

Remote Learning Supplemental Information:

Some aspects of this course are being offered in real-time via scheduled meeting times. For those aspects you are required to be online at the same time. Please refer to the details below for more complete information.

Remote Learning Details:

Lectures and tutorials will be run at scheduled lecture times using Zoom. Both lectures will be run interactively so students who wish to engage should be prepared with the proper input devices such as an ability to chat, annotate, or video/audio if they wish to participate. Lectures will be recorded and uploaded to D2L for remote access. Zoom meeting information will be posted in D2L.

Course Site:

D2L: CPSC 413 L01-(Spring 2020)-Design and Analysis of Algorithms I

Note: Students must use their U of C account for all course correspondence.

2. Requisites:

   See section 3.5.C in the Faculty of Science section of the online Calendar.

   Prerequisite(s):
   Computer Science 313, 331; Mathematics 211 or 213; and one of Mathematics 249, 265 or 275.

   Note(s):
   a. One of Mathematics 265 or 275 is highly recommended as preparation for this course, but not mandatory. Students who have credit for Computer Science 319 instead of Computer Science 331 should contact the department for instructions on how to enrol in this course.

3. Grading:

   The University policy on grading and related matters is described in F.1 and F.2 of the online University Calendar. In determining the overall grade in the course the following weights will be used:

<table>
<thead>
<tr>
<th>Component(s)</th>
<th>Weighting %</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Final Exam</td>
<td>50</td>
<td>Scheduled by Registrar*</td>
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</tbody>
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   *For example, if the registrar schedules an exam from 2-4pm on June 20, 2020, the exam must be submitted no later than 4pm on June 20, 2020 to be graded. Students would have a 24 hour window prior to this submission time in which they may open and begin the exam.

   Each of the above components will be given a letter grade using the official university grading system (see section F.1.1). The final grade will be calculated using the grade point equivalents weighted by the percentages given above and then converted to a final letter grade using the official university grade point equivalents.

4. Missed Components Of Term Work:

   The university has suspended the requirement for students to provide evidence for absences. Please do not attend medical clinics for medical notes or Commissioners for Oaths for statutory declarations.

   In the event that a student legitimately fails to submit any online assessment on time (e.g. due to illness etc...), please contact the course coordinator to arrange for a re-adjustment of a submission date. Absences not reported within 48 hours will not be accommodated. If an excused absence is approved, then the percentage weight of the
legitimately missed assignment could also be pro-rated among the components of the course.

5. **Scheduled Out-of-Class Activities:**

There are no scheduled out of class activities for this course.

6. **Course Materials:**

Required Textbook(s):


7. **Examination Policy:**

Exams will 24 hour take-home exams and will be provided in pdf format that the students can complete either through physically printing, writing, and scanning in their response, or by digitally writing on top of the pdf document. Submissions must be signed either physically or digitally. Exams will be submitted as a pdf document to a D2L drop box.

Students should also read the Calendar, *Section G*, on Examinations.

8. **Approved Mandatory And Optional Course Supplemental Fees:**

There are no mandatory or optional course supplemental fees for this course.

9. **Writing Across The Curriculum Statement:**

For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also Section *E.2* of the University Calendar.

10. **Human Studies Statement:**

Students will not participate as subjects or researchers in human studies.

See also *Section E.5* of the University Calendar.

11. **Reappraisal Of Grades:**

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See *Section I.3* of the University Calendar.

   a. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within ten business days of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall submit the Reappraisal of Graded Term work form to the department in which the course is offered within 2 business days of receiving the decision from the instructor. The Department will arrange for a reappraisal of the work within the next ten business days. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See sections *I.1* and *I.2* of the University Calendar.

   b. **Final Exam:** The student shall submit the request to Enrolment Services. See *Section I.3* of the University Calendar.

12. **Other Important Information For Students:**

   a. **Mental Health** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, [Mental Health Services Website](#)) and the Campus Mental Health Strategy website ([Mental Health](#)).

   b. **SU Wellness Center:** For more information, see [www.ucalgary.ca/wellnesscentre](http://www.ucalgary.ca/wellnesscentre) or call 403-210-9355.

   c. **Sexual Violence:** The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email ([svsa@ucalgary.ca](mailto:svsa@ucalgary.ca)) or phone at 403-220-2208. The complete University of Calgary policy on sexual
Course Outcomes:

- By the end of the course, students will be able to illustrate using examples, define and generalize problems definitions. Students will be able to understand preconditions and postconditions, and use these to define computational problems in a reasonably precise way.
- By the end of the course, students will be able to give a proof that a (reasonably simple) algorithm solves a computational problem correctly.
- By the end of the course, students will be able to analyze the running time of a (reasonably simple) algorithm using summations and recurrences, and express this running time using asymptotic notation.
- By the end of the course, students will be able to design algorithms using Greedy, Dynamic Programming and Divide and Conquer design approaches.
- By the end of the course, students will be able to suggest a promising design approach given a problem, initial algorithm and target run-time.
- By the end of the course, students will be able to prove a problem to be NP-Complete using polynomial-time reductions and efficient certification.
- By the end of the course, students will be able to Classify problems as being in P, NP, NP-hard or NP-complete - or, at least, make an informed guess about this, based on the complexity of other problems that they know
about.

Department Approval

Associate Dean’s Approval for arrangements for remote learning and alternate final examination