COURSE OUTLINE

1. **Course**: CPSC 319, Data Structures, Algorithms, and Their Applications - Winter 2021

   Lecture 01: MWF 13:00 - 13:50 - Online

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Email</th>
<th>Phone</th>
<th>Office</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Jorg Denzinger</td>
<td>denzingecpsc.ucalgary.ca</td>
<td>403 220-5574</td>
<td>ICT 752</td>
<td>TuTH 14:00-15:00</td>
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</tbody>
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   **Online Delivery Details:**

   This course is being offered online in real-time via scheduled meeting times, you are required to be online at the same time.

   To help ensure Zoom sessions are private, do not share the Zoom link or password with others, or on any social media platforms. Zoom links and passwords are only intended for students registered in the course. Zoom recordings and materials presented in Zoom, including any teaching materials, must not be shared, distributed or published without the instructor’s permission.

   Via Zoom. Zoom link and pass code will be emailed to students on the day before the first lecture.

   **Course Site:**

   https://pages.cpsc.ucalgary.ca/~denzingecourses/cs319-winter2021.html

   **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):**

   3 units from Computer Science 219, 233, 235, Computer Engineering 335, 339 or Software Engineering for Engineers 337.

   **Antirequisite(s):**

   Credit for Computer Science 319 and 331 will not be allowed. Computer Science majors are not permitted to register 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>
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<tbody>
<tr>
<td>1st assignment</td>
<td>20</td>
<td>Feb 26</td>
</tr>
<tr>
<td>2nd assignment</td>
<td>40</td>
<td>Mar 19</td>
</tr>
<tr>
<td>3rd assignment</td>
<td>40</td>
<td>Apr 7</td>
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</tbody>
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   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.

   An A+ will be awarded to every student who has an A in all 3 components.

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, or the course instructor if this course does not have a 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:**

The slides used in lectures are available on the course web site.

In order to successfully engage in their learning experiences at the University of Calgary, students taking online, remote and blended courses are required to have reliable access to the following technology:

- A computer with a supported operating system, as well as the latest security, and malware updates;
- A current and updated web browser;
- Webcam/Camera (built-in or external);
- Microphone and speaker (built-in or external), or headset with microphone;
- Current antivirus and/or firewall software enabled;
- Stable internet connection.

For more information please refer to the UofC [ELearning](https://www.ulearn.ucalgary.ca) online website.

7. **Examination Policy:**

No aids are allowed on tests or examinations.

Students should also read the Calendar, [Section G](https://www.ucalgary.ca/en/calendar), 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](https://www.ucalgary.ca/en/calendar) 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](https://www.ucalgary.ca/en/calendar) 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](https://www.ucalgary.ca/en/calendar) 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 Services:** 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) or phone at 403-220-2208. The complete University of Calgary policy on sexual

d. **Misconduct:** Academic integrity is the foundation of the development and acquisition of knowledge and is
based on values of honesty, trust, responsibility, and respect. We expect members of our community to act
with integrity. Research integrity, ethics, and principles of conduct are key to academic integrity. Members of
our campus community are required to abide by our institutional [Code of Conduct](https://www.ucalgary.ca/policies/files/policies/code-of-conduct.pdf) and promote academic integrity in upholding the University of Calgary’s reputation of excellence. Some examples of academic
misconduct include but are not limited to: posting course material to online platforms or file sharing without
the course instructor’s consent; submitting or presenting work as if it were the student’s own work;
submitting or presenting work in one course which has also been submitted in another course without the
instructor’s permission; borrowing experimental values from others without the instructor’s approval;
falsification/fabrication of experimental values in a report. Please read the following to inform yourself more
on academic integrity:

- Student Handbook on Academic Integrity
- Student Academic Misconduct Policy and Procedure
- Research Integrity Policy

Additional information is available on the [Student Success Centre Academic Integrity page](https://www.su.ucalgary.ca/student-success-centre/academic-integrity).

e. **Academic Accommodation Policy:** Students needing an accommodation because of a disability or medical
condition should contact Student Accessibility Services in accordance with the procedure for

Students needing an accommodation in relation to their coursework or to fulfill requirements for a graduate
degree, based on a protected ground other than disability, should communicate this need, preferably in
writing, to the Associate Head of the Department of Computer Science, Nelson Wong by email
nelson@cpsc.ucalgary.ca or phone 403-210-8483. Religious accommodation requests relating to class, test
or exam scheduling or absences must be submitted no later than 14 days prior to the date in question. See
Section E.4 of the University Calendar.

f. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of
Information and Protection of Privacy Act (FOIPP). Students should identify themselves on all written work by
placing their name on the front page and their ID number on each subsequent page. For more information,
see [Legal Services](https://www.ucalgary.ca/support/legal-services) website.

g. **Student Union Information:** [VP Academic](https://www.ucalgary.ca/support/student-union), Phone: 403-220-3911 Email: suvpaca@ucalgary.ca. [SU Faculty Rep.](https://www.ucalgary.ca/support/student-union), Phone: 403-220-3913 Email: sciencerep@su.ucalgary.ca. [Student Ombudsman](https://www.ucalgary.ca/support/student-union), Email: ombuds@ucalgary.ca.

h. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction (USRI)
survey and the Faculty of Science Teaching Feedback form provides valuable information to help with
evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a
difference - please participate in these surveys.

i. **Copyright of Course Materials:** All course materials (including those posted on the course D2L site, a
course website, or used in any teaching activity such as (but not limited to) examinations, quizzes,
assignments, laboratory manuals, lecture slides or lecture materials and other course notes) are protected
by law. These materials are for the sole use of students registered in this course and must not be
redistributed. Sharing these materials with anyone else would be a breach of the terms and conditions
governing student access to D2L, as well as a violation of the copyright in these materials, and may be
pursued as a case of student academic or [non-academic misconduct](https://www.ucalgary.ca/policies/files/policies/non-academic-misconduct.pdf), in addition to any other remedies
available at law.
Course Outcomes:

- By the end of this course, students should be able to do complexity analysis of algorithms written in a programming language.
- By the end of this course, students should be able to write a program that implements several different sorting algorithms, and create a report that compares their relative performance.
- By the end of this course, students should be able to create a program that implements a linked list data structure using well-structured object-oriented techniques in the Java programming language.
- By the end of this course, students should be able to implement stack and queue data structures in the Java programming language.
- By the end of this course, students should be able to implement a binary search tree data structure in the Java programming language.
- By the end of this course, students should be able to implement a balanced tree data structure (such as an AVL tree) in the Java programming language.
- By the end of this course, students should be able to write a program in the Java language that implements a graph data structure with various kinds of graph traversals.
- By the end of this course, students should be able to implement a hash table with collision resolution in the Java programming language.