
Computational Geometry

Course Outline : August 28, 2019

People

Instructor	Prosenjit Bose (contact info)	Office Hours: TBD
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Course Information

Classroom	Building: LA Room: B243
Class Times	Tuesday Time: 8:35 - 11:25
Course Website	https://www.carleton.ca/culearn/
Course Discussion Group	https://www.carleton.ca/culearn/

Purpose: The focus of this course is the design and analysis of algorithms and data structures to solve geometric problems. These algorithms have applications in such areas as graphics, pattern recognition, and robotics. Topics will include: Convex Hulls, Point Location, Path Planning, Triangulations, Map Overlay, Geometric Data Structures.

References:

1. **Reference text:** M. de Berg, M. van Kreveld, M. Overmars, O. Schwarzkopf, *Computational Geometry: Algorithms and Applications*, Springer Verlag, 2009.
2. **Other references:** J. O'Rourke, *Computational Geometry in C*, Second Edition, Cambridge University Press, 1998. F. Preparata and M. Shamos, *Computational Geometry*, Springer Verlag, 1985.
3. None of these texts are mandatory. There are plenty of free references that are available and that I will give pointers to as we progress through the class material.

Evaluation: There will be 3 components, with the following weights

1. assignments : 40%.
2. paper review, report, presentation: 30%.
3. term test: 30%
4. project (optional bonus): 10%

If you choose to do a project, you must come with a project outline (which I will review with you) by October 31 at the latest.

Grades: Marks will be posted on cuLearn.

Collaboration Policy There is absolutely no collaborating allowed for the test.

Collaboration on assignments is acceptable but only at the level of discussion. When writing down the solutions, please write them down on your own. If you need help, please see a TA or your instructor. Posting assignment solutions on discussion boards before the due date and time is also prohibited.

University Policies

Full academic regulations are found in the University's calendar ([link](#)). Some excerpts are below.

Academic Integrity

Every student should be familiar with the Carleton University student academic integrity policy. If you have been accused of breaching the Academic Integrity Policy, your Faculty Dean will inform you by email and in writing of the nature of the charge, the evidence against you, the procedures to be followed. For details on the procedure and policy, see [here](#).

Medical Certificate

The following is a link to the official medical certificate accepted by Carleton University for the deferral of final examinations or assignments in undergraduate courses. To access the form, please go to <http://www.carleton.ca/registrar/forms/>

Requests for Academic Accommodation

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Academic Accommodations for Students with Disabilities

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. Visit the PMC website: ([link](#))

Religious Obligations

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: [\(link\)](#)

Pregnancy Obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: [\(link\)](#)

Survivors of Sexual Violence

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and its survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: [\(link\)](#)

Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. [\(link\)](#)

For more information on academic accommodation, please contact the departmental administrator or visit: [\(link\)](#)
