



**DEPARTMENT OF SCIENCE**  
**COURSE OUTLINE – CS 2040**  
**ALGORITHMS I**

**INSTRUCTOR:** David Gregg  
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**OFFICE HOURS:** TBA and by prior arranged appointment

**PREREQUISITE(S)/CO-REQUISITE:** CS 1150, CS 2720, MA 1130 prerequisite.

**REQUIRED TEXT/RESOURCE MATERIALS:** Introduction to the Design and Analysis of Algorithms, 2nd ed; Anany V. Levitin; Addison-Wesley; 2007. Please make good use of the on-line and library resources related to algorithms also.

**DESCRIPTION:**

This is the first course of a two course sequence on algorithm design and analysis, with the emphasis on fundamentals such as searching, sorting and graph algorithms. Topics include algorithm analysis-running time, Big-O, Big-Ω, Big-Θ, recursion, recurrence, induction, brute force algorithms, divide and conquer, space vs. time, dynamic programming, greedy algorithms, and the limitations of algorithm power.

**COURSE LAYOUT:** This course is three lecture hours and 1 lab hour per week. Student grades and course information (notes, assignments etc) will be posted on the GPRC moodle system ([moodle.gprc.ab.ca](http://moodle.gprc.ab.ca)). It is the student's responsibility to check their "gprcstudents.net" email account for announcements related to the course.

**CREDIT/CONTACT HOURS:** 3(3-0-1)

**TRANSFERABILITY:** UA, UL, AU, AF, CU, KUC, UC. See the GPRC College Calendar and the Alberta Transfer Guide

**GRADING CRITERIA:**

The total percentage obtained in the course will be converted to a letter grade according to the GPRC grading conversion chart as published in the GPRC College Calendar.

**EVALUATION:**

Assignments	20%
Quizzes	20%
Midterm Exam	25%
Final Exam	35%

**STUDENT RESPONSIBILITIES:** Assignments are to be handed in and/or demonstrated in the scheduled lab on the due-date. Late assignments will be penalized by 50%. Late assignments may not be accepted after the end of classes. Some assignments may be weighted differently than others. Students will be eligible for a passing grade, **only if** they obtain 40 out of a possible 80 marks (on exams and quizzes). Students who are absent for more than 20% of lectures may be barred from writing the final examination and will receive a grade of F.

It is the student's responsibility to check their "gprcstudents.net" email account for announcements related to the course.

**STATEMENT ON PLAGIARISM AND CHEATING:**

Please refer to the College calendar regarding plagiarism, cheating and the resultant penalties. These are serious issues and will be dealt with severely.