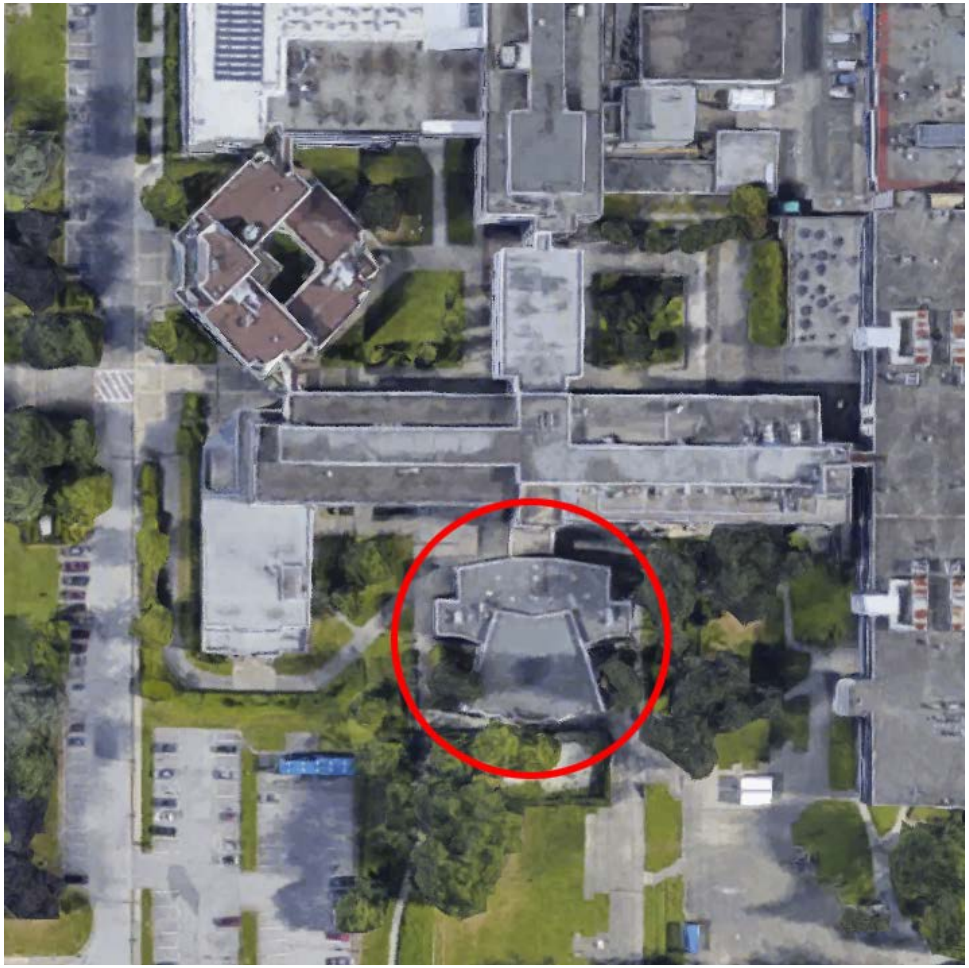
MIDTERM REVIEW

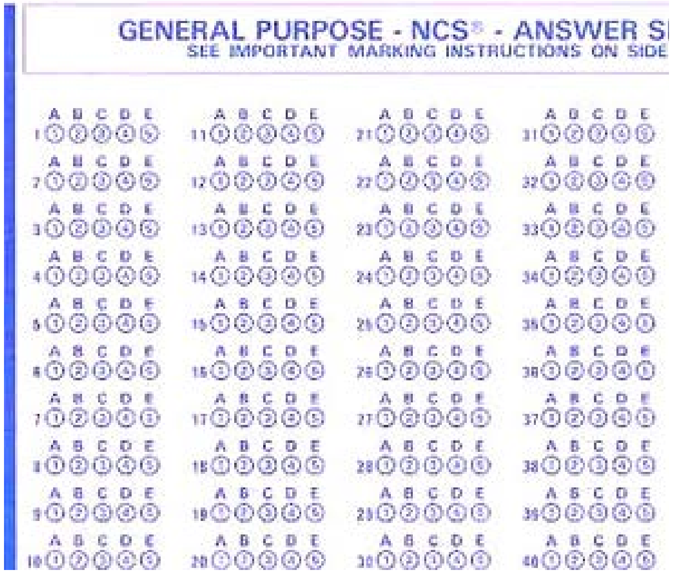
When and where

- Monday, 21 October
- 10:30 am
- Room# SW5-1840
- Burnaby Campus!
  bcit.ca/map



Exam details

- Closed-book
- No notes, no devices, no MP3 players, no friends, … no *nothin'*
- Part multiple choice
  (bring a pencil!)
  Part long-answer (writing algorithms)
- You will have 90 minutes



GENERAL PURPOSE - NCS® - ANSWER S
SEE IMPORTANT MARKING INSTRUCTIONS ON SIDE

Study list, part 1

- Given a description (in English) of a problem:
  - *Be able to write pseudocode for an algorithm*
- Given an algorithm in code/pseudocode, be able to:
  - *Identify the basic operation*
  - *Write a summation formula that expresses the running time*
  - *Give the efficiency class of the algorithm (big-O notation)*
  - *Trace the code/pseudocode for a given input*
  - *Describe in English the purpose of the algorithm*

Study list, part 2

- For the categories of algorithms we've studied (bf, dec&c, div&c, xf&c):
  - *Describe the general characteristics of the category*
  - *Give an example of an algorithm*
- For all of the specific problems/algorithms we've examined:
  - *Be able to trace the code/pseudocode*
  - *Know the efficiency class*
  - *Identify as bf/div&c/dec&c/xf&c*
- For sorting algorithms:
  - *How to perform each one*

Categories of algorithms

- Brute force
  - *E.g. Linear Search, Traveling Salesman, Assignment*
- Decrease and conquer
  - *By a constant amount (e.g. Insertion Sort)*
  - *By a constant factor (e.g. Binary Search)*
  - *By a variable amount (e.g. Euclid)*
- Divide and conquer
  - *E.g. MergeSort, many binary tree algorithms*
- Transform and conquer
  - *Instance simplification (e.g. anything involving Pre-sorting)*
  - *Representation change (e.g. HeapSort)*