

All Students Planning to Take COP4531

Complete and submit this form by the end of the first lecture.
Registered students not submitting this form will be deregistered.

General Information

Last Name _____ First Name _____

ID Number _____ Email _____

Class (circle one): Freshman Sophomore Junior Senior Grad Special

Declared major _____ Intended major _____

Check all that apply below:

_____ I am currently registered for COP4531

_____ I wish to be admitted to COP4531

_____ I am repeating COP4531

_____ I am a *new* transfer student

Prerequisite Information

COP4531 emphasizes mathematical thinking and builds upon many data structures and algorithms taught in COP4530. Accordingly, you must have completed all pre-requisites before taking COP4530. You cannot take the pre-requisites for this course along with this course.

Check all that apply below:

_____ I attended COP4530. Grade: _____

_____ I attended one or both of the following courses.

STA4442 (Intro. to Probability) Grade: _____

STA3032 (Prob. and Stat. for Sciences and Engineering). Grade: _____

_____ I attended one or both of the following courses.

MAD3107 (Mathematics in Computing). Grade: _____

MAD3105 (Discrete Mathematics II). Grade: _____

_____ Please list other relevant courses (specify course, institution and grade)

Course _____ Institution _____ Grade _____

I certify that the above information is correct and accurate to the best of my knowledge.

Date _____ Signature _____

Background Quiz

True or false / Fill in the blanks? **Please justify your answer**

(a) The following code:

```
for(int i = 0; i < n; i++)
    for(int j = 0; j < n; ++j)
        sum += (i+j);
```

takes (a) $O(n)$ (b) $O(n^2)$ (c) $O(\sqrt{n})$ (d) $O(\log n)$ to execute _____.

(b) Give a closed form formula for the sum of the first n natural numbers. $(\sum_{i=1}^n i)$
 $T(i) =$ _____.

(c) **T** **F** Insertion in a heap with n elements takes $O(\log n)$ time.

(d) **T** **F** Sorting can be done in $O(n \log n)$ time.

(e) **T** **F** Insertion in `std::vector<int>` takes $O(n)$ time.

(f) _____ Say that a trial is when we roll a dice and read the number that come up (say z). What is the expectation of z or $E(z)$.