Algorithm Theory and Practice
CS 320, Fall 2017

Dr. Geri Georg, Instructor
gleorg@colostate.edu

Thanks to Cole Frederick for many of the materials we’ll use in this class.

Goals of this Class
Continue learning and practicing principles for organizing your thinking when solving programming problems.

Learn to establish that an algorithm is correct and to analyze its time bounds.

Become familiar with fundamental algorithms and algorithmic approaches and know when they are applicable, and when they are not.

General Information
Class Website: www.cs.colostate.edu/~cs320

Course Expectations
We don’t expect heroics – we do expect you to meet the challenges of this class.

Come prepared; unannounced quizzes and worksheets will be common.

Focus on the class during class – no cell phones or playing games.

You are juniors and seniors – we expect you to take the leadership in your learning.
### Course Realities

When issues come up:

**Take advantage of Piazza** – chances are good someone else has run into your problem.

**Talk with the teaching team:** we can help you figure out how to solve the problem – we cannot do it for you.

*See any of us* during office hours, or email cs320@cs.colostate.edu to set a time to meet.

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### Help us help you

**End of class micro-surveys:**

problem areas for the majority of the class will be discussed in the next class.

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### Topics in Algorithms

- evaluating correctness and time bounds
- divide & conquer
- dynamic programming
- greedy techniques
- graphs

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### Our Approach

1. **Formulate problem.**
2. **Design algorithm.**
3. **Prove correctness.**
4. **Analyze complexity.**
5. **Implement.**
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algorithm: https://blog.medicalalgorithms.com/medical-algorithm-definition/
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https://www.google.com/search?q=images+for+chronic+kidney+disease&source=lnms&tbm=isch&sa=X&ved=0ahUKEwjg_r2Q6aLVAhWs54MKHd9iC6AQ_AUICigB&biw=1135&bih=773#tbm=isch&q=images+for+chronic+kidney+disease&imgrc=l2Rst34KD5iLQM
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