Recent Announcements

Welcome

(https://gatech.instructure.com/courses/368762/modules) (https://gatech.instructure.com/courses/368762/assignments) (https://gatech.instructure.com/courses display=borde

Modules (https://gatech.instructure.com/courses/368762/modules) Assignments (https://gatech.instructure.com/courses/368762/assignments) Ed Discuss (https://gatech.instructure.com/courses display=borde

Instructional Team

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CoC222

Lecture Notes Link: here (https://1drv.ms/o/s!AlBZAKuJ2oWNlgBQqc8UPRxi0Ncu?e=gnuOU7)

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(email about office hours, recitation, and regrade logistics)

(If emailing, please include CS2050 along with a descriptive subject in the subject line; this link auto-populates our emails with CS2050 as the subject)

Recitation/TA Information

*See the TA office hours schedule at the 'Office Hours' link above

Recitation Schedule (https://gatech.instructure.com/courses/368762/pages/recitation)

Meet our TAs (https://gatech.instructure.com/courses/368762/pages/introducing-some-of-our-cs-2050-tas)

Instructor Office Hours

Faulkner's OH: TBA

Ladha's OH: TBA

Brito's OH: TBA

Hello!

Hi! Welcome to CS2050. This Canvas page can be considered your syllabus. Homeworks and Zybook assignments will be the same for all sections. Exams will cover the same topics but will differ based on instructor preference. Make sure to pay special attention to sections concerning your course.

- Section A will meet Monday/Wednesday/Friday from 9:30AM-10:20AM in Clough 144
- Section B will meet every Tuesday/Thursday from 3:30PM-4:45PM in Scheller 100
- Section C will meet every Tuesday/Thursday from 8AM-9:15AM in room CoC 16

Textbooks

Zybooks : We will use Zybooks for graded participation quizzes. To access it you must:

1. Click any zyBooks assignment link in Canvas
   - This ensures your canvas account is directly linked to zybooks. Do not make a separate Zybooks account as you will have syncing issues.
2. Subscribe
   - The book costs $64 (Section B only: don't buy the zyBooks just yet - changes may be made during the first week of the semester)

Discrete Mathematics and Its Applications by Kenneth Rosen. Lectures will follow along with the 8th edition of this book and it is expected that you will read the corresponding sections. The format of the book is irrelevant (i.e.: hardcopy, kindle edition, etc) but if you use an older edition that won't be an excuse to miss homework due to a different enumeration of the problems and layout of the sections. There is a solution guide for the odd numbered problems that is not required but could be helpful. While this book isn't required for any homework assignments, we highly suggest utilizing it.

ISBN10: 125967651X
ISBN13: 9781259676512

Format

We will implement quizzes on ZyBooks to account for participation and you are responsible for those. Recitations are not mandatory, but extremely helpful to be successful in CS2050. Do not expect the staff to repeat information presented in recitations because you could not attend.

- All information for the class will be shared on **Canvas Announcements** and **during lecture.**
- **Canvas modules** will be used to host lecture content . These modules will be updated twice weekly (within 24 hours after each class). The most recent modules will be at the top of the list.
- **Exams** will be held during class and cannot be taken asynchronously.
  - There will be 4 total
    - 3 are midterms and
    - 1 (optional) cumulative Final Exam will be held during the final exam block.
      - The final exam will be at a single shared time for all sections. **The final exam will NOT be at the suggested exam time in the final exam matrix.** We are still finalizing the time and location for the final exam, and we will announce it clearly when all the details have been

finalized.
    - All four exams (including the final) are each weighted the same. We will drop your lowest exam grade.
    - The final exam block will be 2 hours, while the others will be 50 minutes.
- **Homework** will be assigned on Canvas and submitted on **Gradescope**. You may type or hand-write your homework. Make sure it is legible and easy to read. You may be penalized otherwise.
- **Ed Discussion** is a class forum that you can use to chat about any questions you're having on the lectures. This should not be used to ask for direct solutions to homework problems.
    - Please keep all general posts open to the public as other students may benefit and may help you faster than we can.
    - Private questions that directly apply to your solution of a homework problem should be marked private.

Important Dates

See the Living Schedule linked above.

Course Objectives

Help students gain an understanding of basic primitives and paradigms of the mathematical theory of computation. Students will learn to write formal proofs and understand logic. Students will take an in-depth look at various forms of induction and recursion. Various areas of mathematics are explored to help provide a foundation for computation. The course provides a basis for understanding and developing clear logic, understanding simple encryption techniques, writing regular expressions, designing computational models and more.

List of Topics

Propositions, Propositional Logic
Propositional Equivalences
Quantified Expressions, Nested Quantifiers, Rules of Inference,
Introduction to Proofs including Direct Proof, Proof by Contradiction, Proof by Contraposition, Proof by Counterexample
Induction & Recursion, including Proofs by Mathematical Induction, Strong Induction
Recurrence Equations, Recursively Defined Sets, Recursively Defined Functions, Recursively Defined Strings, Recursively Defined Sequences, Recursively Defined Algorithms
Sets, Functions, Sequences, Summations, Strings as Sequences
Introduction to Algorithms including Searching, Sorting
Growth Rates of Functions - Big O, Time Complexity, Space Complexity
Algorithm Pseudocode, Algorithmic Paradigms including Divide & Conquer Algorithms, Greedy Algorithms, Brute-Force Algorithms, Recursive Algorithms
Number Theory: Divisibility, Modular Arithmetic, Division Algorithm, Euclid's Algorithm, Primality
Cryptography: RSA and Secure Computing
Basic Counting (Sum Rule, Product Rule, Inclusion/Exclusion), Pigeonhole Principle, Permutations, Combinations, & Finite Probability
Models of Computation: Deterministic Finite Automata, Regular Expressions
Application of techniques to domains of relevance to computer science

Grading Breakdown

- Participation quizzes on ZyBooks: 10%
- Homework: 18%
- Best Three-out-of-Four exams: 72%

After all your grades are entered letter grades are computed according to the following brackets:

A 90-100

B 80-89.99

C 70-79.99

D 60-69.99

F 0-59.99

These brackets will not change. **There will be no rounding of grades.**

Final Exam

There will be a final exam hosted at a single time and place shared across all sections. It is weighted the same as the other 3 exams. **The Final Exam is optional and you can only improve your grade**.

Final Exam Date: TBA

Final Exam Location: TBA

- **The exam will last for exactly two hours**.
  - Per **GT Final Exam Policy #10 (https://catalog.gatech.edu/rules/12/)**, by stating the time length on the syllabus, we do not have to give the full 2 hours and 50 minutes.

ZyBooks Participation Quizzes

Every Tuesday we will release a set of quizzes on **ZyBooks** related to the class content that you must answer for participation credit. These quizzes will be cumulative for the entire week's material. You will have exactly 7 days to complete that week's quizzes.

- Attending and watching every lecture should be more than enough to prepare you for these quizzes.
- **No extensions** of any kind will be offered.
- Please note that no sections will be dropped.
  - Zybooks ensures that you're doing the required readings.

Homework Policy

Homework will be posted on Canvas, and submitted on Gradescope. You are encouraged to type your homework using **latex (http://overleaf.com/)**. If you choose not to, please be considerate of your TAs and write clear and legible. We will penalize your score if your homework is not legible.

Regrade Requests: Once grades are released you will have **one** week to dispute your grade. Regrade requests must be based on solid arguments and frivolous requests won't be addressed. Examples of frivolous requests are "I feel I deserve more points"; "I think the grading was too harsh"; "Please check my solution again"; "I do not know where I made a mistake. Can you read my solution, and tell me what I did wrong, and if I deserve more points?" Regrade requests will be handled through GradeScope.

Life Happens Policy: We know that sometimes other classes or life get in the way. Due to this, we offer the following. You do not need to reach out as these are automatically calculated. Please note that none of the below applies to your Zybooks Participation grade.

1. **The lowest homework will be dropped**. This cannot be used for Zybooks
2. **Late submissions** will be allowed up to 2 days late. **Your first late submission will incur no late penalty.** Remember that you must turn in your assignments on time. If you are even a second late, then the assignment is considered late. Please don't wait until the last minute to submit as you may have technical difficulties. We cannot grant exemptions for this. All other late submissions will result in the following deductions
   - Early (strictly greater than 24 hours before due date): +2.5 points to that assignment
   - On Time: No penalty
   - 1 day late: 10 point automatic penalty
   - 2 days late: 25 point automatic penalty
   - There are no late submissions allowed on Zybooks.
- Please understand that these are your only options for sicknesses and other hardships. Use them wisely.

Collaboration policy: Collaboration is allowed. You must write your own solutions though. On every homework, you should list the names of those students you collaborated with. Remember that copying a solution from your peer or from the internet is plagiarism and is penalized by the GT Code of Conduct. If cheating is detected, a report will be filed with the Office of Student Integrity which can lead to a 0 on the assignment or potentially an F in the course overall.

Exam Policy

Exams will be conducted in class. By registering to take this class, you are responsible for taking the exam during this time. There will be no make up exam unless you have a valid excuse. If that is the case, make sure to contact the staff at least 48 hours in advance. There are obvious exceptions to this rule (like an accident the day of the exam...which hopefully won't happen). Final decision is at the sole discretion of the instructors. If a makeup exam is granted, then it will be held within 7 days of the original exam time and will be scheduled during class time. There will not be a second makeup.

The **regrade policy** for exams is one week and must be done by making a regrade request on GradeScope.

Personal calculators are **not** allowed on exams.

No collaboration allowed on Exams.

No notes allowed.

Students with Special Accommodations

Classroom accommodations for students with documented disabilities will be made, if necessary. These accommodations must be arranged in advance and in accordance with the Office of Disability Services **http://disabilityservices.gatech.edu (http://disabilityservices.gatech.edu/)**

Dean of Students Office, CARE Center, Counseling Center, Stamps Health Services, and the Student Center:

The **CARE Center** (https://care.gatech.edu/) and the **Counseling Center** (https://counseling.gatech.edu/), Stamps Health Services, and the Dean of Students Office will offer both in-person and virtual appointments. Student Center services and operations are available on the **Student Center** (https://studentcenter.gatech.edu/) website. For more information on these and other student services, contact the Dean of Students or the **Division of Student Life** (https://studentlife.gatech.edu/).

Recordings of Class Sessions and Required Permissions:

Classes may not be recorded by students without the express consent of the instructor unless it is pursuant to an accommodation granted by the Office of Disability services. Class recordings, lectures, presentations, and other materials posted on Canvas are for the sole purpose of educating the students currently enrolled in the course.

Students may not record or share the materials or recordings, including screen capturing or automated bots, unless the instructor gives permission. Digitally proctored exams may require students to engage the video camera, but those recordings will not be shared with or disclosed to others without consent unless legally permitted.

- For classes where participation is voluntary, students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded.
- For classes requiring class participation, if students are identifiable by their names, facial images, voices, and/ or comments, written consent must be obtained before sharing the recording with persons outside of currently enrolled students in the class.