

# Syllabus

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## Course Information

### Course Information

Course Number: CSCE 222

Course Title: Discrete Structures for Computing

Section: 501, 502

Time: 501: MWF 01:50 pm-02:40 pm, 502: MWF 03:00 pm-03:50 pm

Location: ZACH 350

Credit Hours: 3

### Instructor Details

Instructor: Martin Carlisle

Office: PETR 221

Phone: 979-862-7928

E-Mail: the\_doctor@tamu.edu

Office Hours: will be posted on Canvas

### Course Description

This course provides the mathematical foundations from discrete mathematics for analyzing computer algorithms, for both correctness and performance; introduction to models of computation, including finite state machines and Turing machines.

### Course Prerequisites

*MATH 151*

### Special Course Designation

None

## Course Learning Outcomes

At the end of the course, students will understand the basic principles of logic, proofs and sets. They will be able to apply results from discrete mathematics to the analysis of algorithms. They will be able to produce proofs by induction and apply counting techniques. They will have a basic understanding of models of computation.

## Textbook and/or Resource Materials

Discrete Mathematics and Its Applications, 8<sup>th</sup> Edition, Kenneth H. Rosen, McGraw Hill Education.

ISBN-13: 978-1259676512

ISBN-10: 125967651X

Canvas: <https://canvas.tamu.edu> [\\_ \(https://canvas.tamu.edu\)](https://canvas.tamu.edu)

Assignment Turnin: <https://gradescope.com> [\\_ \(https://gradescope.com\)](https://gradescope.com)

Course videos: [https://drive.google.com/drive/folders/1i8RYXUor69\\_VSXv-RY8Zxpil\\_I9nPBm-?usp=sharing](https://drive.google.com/drive/folders/1i8RYXUor69_VSXv-RY8Zxpil_I9nPBm-?usp=sharing) [\\_ \(https://drive.google.com/drive/folders/1i8RYXUor69\\_VSXv-RY8Zxpil\\_I9nPBm-?usp=sharing\)](https://drive.google.com/drive/folders/1i8RYXUor69_VSXv-RY8Zxpil_I9nPBm-?usp=sharing) (must use TAMU Google account to access)

### LaTeX References

- [\(The Not So Short\) Introduction to LaTeX](http://faculty.cse.tamu.edu/hlee/csce222/lshort.pdf) [\\_ \(http://faculty.cse.tamu.edu/hlee/csce222/lshort.pdf\)](http://faculty.cse.tamu.edu/hlee/csce222/lshort.pdf)  
(Skim Chapter 1 and Study Chapter 3)
- [Short Math Guide for LaTeX](http://faculty.cse.tamu.edu/hlee/csce222/downes-short-math-guide.pdf) [\\_ \(http://faculty.cse.tamu.edu/hlee/csce222/downes-short-math-guide.pdf\)](http://faculty.cse.tamu.edu/hlee/csce222/downes-short-math-guide.pdf)
- [Comprehensive LaTeX Symbol List](http://faculty.cse.tamu.edu/hlee/csce222/LaTeXSymbols-letter.pdf) [\\_ \(http://faculty.cse.tamu.edu/hlee/csce222/LaTeXSymbols-letter.pdf\)](http://faculty.cse.tamu.edu/hlee/csce222/LaTeXSymbols-letter.pdf)

## Grading Policy

**Quizzes:** 25 points each (x10, but only top 8 counted)

**Homeworks:** 20 points each (x13, but lowest three dropped). A subset of each homework will be graded for correctness. The other problems will be graded for completeness only. Your assignments must be submitted in LaTeX (see references above). Submit assignment to gradescope (<https://www.gradescope.com>)

**Midterm exams:** 200 points each (x 2)

**Final exam:** 200 points

A  $\geq$  900 points

B = 800-899 points

C = 700-799 points

D = 600-699 points

F =  $<$ 600 points

## Regrading Policy

We will make an effort to complete the grading of work within one week of the turnin date. If you believe your work was graded incorrectly or incompletely, you must **submit a regrade request in Gradescope within one week**. Only if you can prove to the grader that your solution is correct and complete will your work be regraded.

## Late Work/Attendance Policy

Late homeworks are not accepted and are worth 0 points.

*Work submitted by a student as makeup work for an excused absence is not considered late work and is exempted from the late work policy. (See **Student Rule 7** [\\_\(<https://student-rules.tamu.edu/rule07/>\)](https://student-rules.tamu.edu/rule07/)).*

## Course Schedule

Week	Topic	Required Reading
1 (Jan 19,21)	Introduction Propositional Logic	Syllabus 1.1-1.4
2 (Jan 24,26,28)	Propositional Logic (HW 1 due Mon) Rules of Inference, Quiz 1 (Weds) Proofs	1.5 1.6 1.7
3 (Jan 31, Feb 2,4)	Proofs (HW 2 due Mon) Quiz 2 (Weds)	1.8

	Sets	2.1-2.2
4 (Feb 7,9,11)	Functions (HW 3 due Mon) Sequences and Sums Quiz 3 (Weds) Cardinality of Sets	2.3 2.4  2.5
5 (Feb 14,16,18)	Cardinality of Sets (HW 4 due Mon) <b>First Midterm Exam (Wed Feb 16)</b> Algorithms	2.5 (through 2.4) 3.1
6 (Feb 21,23,25)	Growth of Functions (HW 5 due Mon) Quiz 4 (Weds) Complexity of Algorithms	3.2  3.3
7 (Feb 28, Mar 2,4)	Mathematical Induction (HW 6 due Mon) Quiz 5 (Weds)	5.1-5.2
8 (Mar 8,10,12)	Recursive Functions (HW 7 due Mon) Quiz 6 (Weds) Recursive Algorithms	5.3  5.4
March 14-18	SPRING BREAK	
9 (Mar 21,23,25)	Counting (HW 8 due Mon) Quiz 7 (Weds)	6.1-6.4
10 (Mar 28, 30, Apr1)	Advanced Counting (HW 9 due Mon) Quiz 8 (Wed)	8.1-8.4

11 (Apr 4,6,8)	Crypto Math (HW 10 due Mon) <b>2nd Midterm Exam (Wed Apr 6)</b>	4.1-4.6 (through 8.4)
12 (Apr 11,13) April 15 - NO CLASS	Crypto Math NO QUIZ WEDS	4.1-4.6
13 (Apr 18,20,22)	Relations (HW 11 due Mon) Quiz 9 (Wed)	9.1,9.5-9.6
14 (Apr 25,27,29)	Finite State Machines (HW 12 Mon) Quiz 10 (Wed) Languages and Grammars	13.3  13.1-13.2
15 (May 2)	Languages and Grammars (HW 13 due Mon)  Last day of class is Mon May 2	13.4, 13.5

Final exam date: (from **Registrar's website** [.\(https://registrar.tamu.edu/Courses,-Registration,-Scheduling/Final-Examination-Schedules#6-May9\(Monday\)\)](https://registrar.tamu.edu/Courses,-Registration,-Scheduling/Final-Examination-Schedules#6-May9(Monday)))). Section 501: May 9, 3:30 – 5:30 p.m.  
Section 502: May 9, 10:30 a.m. – 12:30 p.m.

## University Policies

This section outlines the university level policies. The TAMU Faculty Senate established the wording of these policies.

### Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to **Student Rule 7** [.\(https://student-rules.tamu.edu/rule07/\)](https://student-rules.tamu.edu/rule07/) in its entirety for information about excused absences, including definitions, and related documentation and timelines.

## Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to **Student Rule 7** (<https://student-rules.tamu.edu/rule07/>) in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" (**Student Rule 7, Section 7.4.1** (<https://student-rules.tamu.edu/rule07/>)).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" (**Student Rule 7, Section 7.4.2** (<https://student-rules.tamu.edu/rule07/>)).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (**See Student Rule 24** (<https://student-rules.tamu.edu/rule24/>)).

## Academic Integrity Statement and Policy

"An Aggie does not lie, cheat or steal, or tolerate those who do."

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" (**Section 20.1.2.3, Student Rule 20** (<https://aggiehonor.tamu.edu/Rules-and-Procedures/Rules/Honor-System-Rules>)).

### Texas A&M at College Station

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at [aggiehonor.tamu.edu](https://aggiehonor.tamu.edu) (<https://aggiehonor.tamu.edu/>).

## Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a

disability, please contact Disability Resources office on your campus (resources listed below). Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

### Texas A&M at College Station

*Disability Resources is located in the Student Services Building or at (979) 845-1637 or visit [disability.tamu.edu](https://disability.tamu.edu) (https://disability.tamu.edu/).*

## Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see [University Rule 08.01.01.M1](https://rules-saps.tamu.edu/PDFs/08.01.01.M1.pdf) (https://rules-saps.tamu.edu/PDFs/08.01.01.M1.pdf)):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

### Texas A&M at College Station

*Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with [Counseling and Psychological Services](https://caps.tamu.edu) (https://caps.tamu.edu/) (CAPS).*

*Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's [Title IX webpage](https://titleix.tamu.edu) (https://titleix.tamu.edu/).*

## Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing available resources and services on your campus.

### Texas A&M College Station

*Students who need someone to talk to can contact **Counseling & Psychological Services** (<https://caps.tamu.edu/>) (CAPS) or call the **TAMU Helpline** (<https://caps.tamu.edu/helpline/>) (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at [suicidepreventionlifeline.org](https://suicidepreventionlifeline.org/) (<https://suicidepreventionlifeline.org/>).*

## Campus Policies

### Statement on the Family Educational Rights and Privacy Act (FERPA)

FERPA is a federal law designed to protect the privacy of educational records by limiting access to these records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. Currently enrolled students wishing to withhold any or all directory information items may do so by going to [howdy.tamu.edu](https://howdy.tamu.edu/) (<https://howdy.tamu.edu/>) and clicking on the "Directory Hold Information" link in the Student Records channel on the MyRecord tab. The complete **FERPA Notice to Students** (<http://registrar.tamu.edu/Catalogs%2C-Policies-Procedures/FERPA/FERPA-Notice-to-Students#0-StatementofRights>) and the student records policy is available on the Office of the Registrar webpage.

Items that can never be identified as public information are a student's social security number, citizenship, gender, grades, GPR or class schedule. All efforts will be made in this class to protect your privacy and to ensure confidential treatment of information associated with or generated by your participation in the class.

Directory items include name, UIN, local address, permanent address, email address, local telephone number, permanent telephone number, dates of attendance, program of study (college, major, campus), classification, previous institutions attended, degrees honors and awards received, participation in officially recognized activities and sports, medical residence location and medical residence specialization.



