

Discrete Mathematics I (MATH 20123-055) in Spring 2013

Room	Time
TUC 138	TuTh 2–3:20 PM
Instructor	E-mail
Loren Spice	l.spice@tcu.edu
Office	Office hours
TUC 315	Tu 11–11:50 AM (shared) TuTh 1–1:50 PM F 11–11:50 AM and by appointment

Textbook Course notes by Hatcher, available from TCU Printing & Copying at 2865 W Bowie St (by the Grand Marc)

Course goals This class takes a **new** approach to mathematics, replacing memorised rules by formal, logical reasoning that **you** discover, based on precisely stated laws and axioms.

Calculus studies *continuous* structures, like the real-number line and derivatives, which are governed by many rules. We'll work instead with *discrete* structures, like the counting numbers and the principle of induction, which have fewer 'ground rules', but can still exhibit very complicated behaviour. We'll study both general (applicable whenever logical reasoning is appropriate) and specific approaches to managing this complexity.

We will cover most of the text. Particularly important topics for later use in mathematics and computer science are techniques of proof; the algebraic laws governing logical connectives and set operations; modular arithmetic and its application to cryptography; and induction. If time permits, we will continue with a discussion of combinatorics.

Attendance Given the importance of regular participation, attendance is required. You must sign the attendance sheet each class, or you may be marked absent. Attendance can earn up to 1 bonus point on each exam. See the expanded syllabus on the course web-page.

Grading Course components will be weighted as follows:

Homeworks	Class participation	Midterms	Final
15%	10%	15% each (45% total)	30%

You can see your current weighted percentage on the course web-page at any time. If you think that a grade has been mis-computed, you **must** talk to me within 1 week of its being recorded.

Your course grade will be determined as follows:

Min. %	Min. Grade	Min. %	Min. Grade	Min. %	Min. Grade
90%	A-	94%	A		
80%	B-	84%	B	87%	B+
70%	C-	74%	C	77%	C+
60%	D-	64%	D	67%	D+

If you have earned less than 60% of the course credit, then you may receive an F. Exam and course grades may be curved.

See reverse for course details.

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Academic Conduct You must comply with the University's academic-conduct policies at http://www.catalog.tcu.edu/current_year/undergraduate/1411.htm. See the expanded syllabus on the course web-page.

Calculators and technology A calculator is permitted, but not required, for the class (although it may be **forbidden** for selected problems).

Homeworks Homeworks will be posted on the course web-page after most classes, and are due by the **beginning** of class, one week after they are assigned.

Homeworks must be handed in to me **in person**. If you are not able to do so, then you may have a friend hand it in, or, in exceptional circumstances, e-mail me a scanned copy by the due time. Late homeworks will be accepted **only** in case of an Official Absence, and only with **advance approval**.

You are encouraged to work with classmates on the homeworks, but you must write up your own work **independently** unless otherwise directed. The lowest homework grade will be dropped.

You should budget about **10 hours** per week for reviewing notes and doing homework. You **cannot** earn better than a C, regardless of exam scores, without satisfactory homework and class-participation grades.

Class participation Class-participation grades are awarded based on the number of questions you answer at the board (9%), and on your active attention while other people answer questions at the board (1%). A detailed description is available in the expanded version of the syllabus on the course web-page.

Midterms Midterms will be held in class on Thursdays: **February 14; March 21; and April 18**.

Re-scheduling of exams will be provided **only** in case of an Official Absence; or at my discretion, for extreme, documented reasons. In either case, you must tell me **one week** in advance, or as soon as is reasonably possible.

The final exam will be **Tuesday, May 7, 3–5:30 PM**, in a location to be announced. The time is set by the registrar, and **not** subject to change. In particular, **travel plans** are not a sufficient reason to miss a final.

Disability policy This course complies with the University disability statement at <http://www.ugradcouncil.tcu.edu/forms/DisabilitiesStatement.doc>. See the expanded syllabus on the course web-page.