2020 Fall MATH 1580.004 Survey of Math with Applications

Instructor Contact

Name: Brad Thompson
Office Location: GAB 401A
Zoom Office Hours: M W 9:30 am – 11:00 am; T 11 am – 1:30 pm, see Canvas for Meeting ID
Communication: Use the Canvas Inbox. If you email me, I only guarantee a response to UNT student email addresses. My email is Bradley.thompson@unt.edu

Your communication with me and your classmates is expected to be in line with UNT's General Online Communication Guidelines.
Communication Expectations: I typically respond within two (2) business days, during business hours.

Course Description

3 hours. Topics include probability, statistics, algebra, logic, and the mathematics of finance. Additional topics are selected from geometry, sets, cryptography, fair division, voting theory, and graph theory. Emphasis on applications. Recreational and historical aspects of selected topics are also included. Technology used extensively. Math 1580 is not preparation for calculus, science, engineering, or business courses.

Required Text/Access to MyLabs-Math

The textbook is Blitzer, Robert, *Thinking Mathematically, 7th Edition*, Pearson Publishers (2019). It is available online through MyLabs.

Pearson MyLabs Math: MyLabs is online course delivery platform accessed directly through Canvas. MyLabs access includes all online homework assignments, the e-text of *Thinking Mathematically, 7th Edition*, by Robert Blitzer, and additional learning resources. Click on the MyLabs Orientation homework in Canvas to register immediately. See Student Instructions for Registering in MyLabs through Canvas Instructions.

MyLabs grants a no-cost trial 14-day access. You must purchase your access before the temporary access expires. If you do not make the purchase before trial period ends, you may lose credit for all work previously completed. See information in the Introduction Module for purchase information.

Grading

Homework (MyLabs and any other) – 15%
Midterm Exams (average of 6) – 60%
Final Exam – 20%
Engagement Tasks (Quizzes, discussions, other assignments) – 5%

- A: 90-100% (Outstanding, excellent work. The student performs well above the minimum criteria.)
- B: 80-89% (Good, impressive work. The student performs above the minimum criteria.)
- C: 70-79% (Solid, college-level work. The student meets the criteria of the assignment.)
- D: 60-69% (Below average work. The student fails to meet the minimum criteria.)
- F: 59 and below (Sub-par work. The student fails to complete the assignment.)

Your grades will be posted in the Canvas gradebook.

Late work will not be accepted in this course regardless of the reason.

Course Prerequisites or Other Restrictions

- The prerequisite is two years of high school algebra and one year of high school geometry and consent of the department.
- A willingness to put in several hours of work each week to absorb each the material in each module. In math courses, working diligently almost every day is essential for success. The content within each module will build upon itself making it very difficult to catch up if you fall behind.

Course Objectives

Upon successful completion of this course, learners will be able to:

- Solve problems involving voting and apportionment methods
- Determine with mathematical evidence the validity of an argument or statement
- Demonstrate fundamental probability skills and counting techniques
- Solve problems involving fundamentals of probability and counting techniques
- Interpret and analyze various representations of data
- Apply mathematical models to solve personal finance problems
- Apply graph theory principles to solve real-world application problems

Course Structure

There are 6 content modules for the 15-week course. I will open subsequent modules as we discuss them in class.

Homework

The primary purpose of homework is to provide you with sufficient opportunities to learn and practice the new content. To that end, you will have two (2) – four (4) MyLabs online homework *per* week, starting the first week of classes. All assignments in this class are due *by* 11:59 pm of the due date. If the due times conflict with your schedule, WORK AHEAD. Your lowest three (3) homework scores will be dropped.

On the homework you will generally have 5 attempts on each question with one important exception, and that is for questions with only two or three possible answer choices. On those, you get one (1) attempt.

Quizzes

You have two timed quizzes in MyLabs for each module. Use them as a *part* of your overall preparation for each exam. They both open 4 days prior to exam and close at 11:59 pm the day before the exam. You will have 5 complete attempts at each Quiz.

Exams

You have seven (7) exams: Six (6) midterm exams and a final exam.

Exam 1 – Tuesday Sept 8, 12:01 am – 11:59 pm. Module 1 Voting and Apportionment, Chapter 13

Exam 2 – Thursday Sept 24, 12:01 am – 11:59 pm. Module 2 Personal Finance, Chapter 8

Exam 3 – Tuesday Oct 13, 12:01 am – 11:59 pm. Module 3 Logic, Chapter 3

Exam 4 – Tuesday Oct 27, 12:01 am – 11:59 pm. Module 4 Statistics, Chapter 12

Exam 5 – Tuesday Nov 17, 12:01 am – 11:59 pm. Module 5 Counting Methods & Probability Theory, Chapter 11

Exam 6 – Tuesday Dec 1, 12:01 am – 11:59 pm. Module 6 Graph Theory, Chapter 14

Final Exam – Tuesday Dec 8, 12:01 am – 11:59 pm. Comprehensive

These tests will be accessed through Canvas and administered online outside of class. Once opened you have 60 minutes to complete the exam. You will have more time for the final exam.

Do not open the exam unless you are prepared to work, and your technology is ready, and in working order. Extra time nor re-do's will not be granted to account for technical difficulties and work will not be accepted through email.

You will be able to see submitted the exam and your grade within Canvas about 1 week after the exam. You may ask me to go over exam problems with you. However, all decisions are final and not open for discussion.

If you miss an exam, you receive a zero for that exam. There are no make-up exams. However, if you have a university excused absence, according to 06.039 Policy, and provide me documentation within 48 hours of the missed exam, then the zero will be replaced by the final exam grade.

Attendance

Attendance is important and required. Of course, if you feel sick please do not come to class. Rest up and get healthy! The instructor will not repeat whole lessons or offer personal lessons in office hours or email. These venues are for specific questions / problems.

Changes to Syllabus

I reserve the right to amend, append, or otherwise make changes to this syllabus, should the need arise. Any changes will be posted as an Announcement in Canvas.

Weekly Schedule

Week 1

8/24/2020	First day of class.
8/25/2020	13.1 Voting Methods
8/26/2020	
8/27/2020	13.2 Flaws of Voting
8/28/2020	

Week 2

8/31/2020	
9/1/2020	13.3 Apportionment Methods
9/2/2020	
9/3/2020	13.4 Flaws of Apportionment
9/4/2020	

Week 3

9/7/2020	Labor Day, University Closed
9/8/2020	EXAM 1
9/9/2020	
9/10/2020	8.1 Percents, Sales Tax, and Discounts; 8.2 Income Tax
9/11/2020	

Week 4

9/14/2020	
9/15/2020	8.3 Simple Interest; 8.4 Compound Interest
9/16/2020	
9/17/2020	8.5 Annuities, Methods of Saving, and Investments
9/18/2020	

Week 5

9/21/2020	
9/22/2020	8.6 Cars; 8.7 The Cost of Home Ownership
9/23/2020	
9/24/2020	EXAM 2
9/25/2020	

Week 6

9/28/2020	3.2 Compound Statements and Connectives
9/29/2020	
9/30/2020	3.3Truth Tables for Negation, Conjunction, and Disjunction
10/1/2020	
10/2/2020	3.4 Truth Tables for the Conditional and Biconditional

Week 7

10/5/2020	3.5 Equivalent Statements and Variations of Conditional Statements
10/6/2020	
10/7/2020	3.6 Negations of Conditional Statements and De Morgan's Laws
10/8/2020	Discussion: Module 3
10/9/2020	3.7 Arguments and Truth Tables

Week 8

10/12/2020	
10/13/2020	EXAM 3
10/14/2020	12.1 Sampling, Frequency Distributions, and Graphs
10/15/2020	
10/16/2020	12.2 Measures of Central Tendency

Week 9

10/19/2020	12.3 Measures of Dispersion
10/20/2020	
10/21/2020	12.4 The Normal Distributions; 12.5 Problem Solving with the Normal Distribution
10/22/2020	Discussion: Module 4
10/23/2020	12.6 Scatter Plots, Correlation, and Regression Lines

Week 10

10/26/2020	
10/27/2020	EXAM 4
10/28/2020	11.1 The Fundamental Counting Principle
10/29/2020	
10/30/2020	11.2 Permutations

Week 11

11/2/2020	
11/3/2020	3.1 Statements, Negations, and Quantified Statements
11/4/2020	
11/5/2020	11.3 Combinations; 11.4 Fundamentals of Probability
11/6/2020	

Week 12

11/9/2020	
11/10/2020	11.5 Probability with the FCP, Permutations, and Combinations
11/11/2020	
11/12/2020	11.6 Events Involving *Not* or *Or*; Odds; 11.7 Events Involving *And* 11.8 Expected Value
11/13/2020	

Week 13

11/16/2020	
11/17/2020	EXAM 5
11/18/2020	
11/19/2020	14.1 Graphs Paths and Circuits; 14.2 Euler Paths and Euler Circuits
11/20/2020	

Week 14

11/23/2020	
11/24/2020	14.3 Hamilton Paths and Hamilton Circuits; 14.4 Trees
11/25/2020	
11/26/2020	Thanksgiving Holiday – University Closed
11/27/2020	Thanksgiving Holiday – University Closed

Week 15

11/30/2020	
12/1/2020	EXAM 6
12/2/2020	Pre-Finals Day
12/3/2020	Pre-Finals Day
12/4/2020	Reading Day – No Classes

Week 16 – Final Exams Week

12/7/2020	

12/8/2020 FINAL EXAM

Technical Requirements & Skills

Minimum Technology Requirements

- Computer, tablet, or laptop that is compatible with all required apps for the course
- A smartphone ***is not*** sufficient
- Reliable internet
- TI 36 works well, or a TI-84 or equivalent, if you already have one
- Scanner (many free apps available for smartphones)
- Webcam/microphone for virtual office hour visits
- Printer, not necessary but helpful

Technical Skills & Digital Literacy

- Navigate Canvas and MyLabs
- Scan documents and create pdf files (there are several free scanning apps for phones / tablets like Adobe Scan or Office Lens)
- Download and install software (prepare computer for Respondus Lockdown Browser)
- Upload documents to Canvas
- Complete assignments on MyLabs

Getting Help

Technical Assistance

Part of working in the online environment involves dealing with the inconveniences and frustration that can arise when technology breaks down or does not perform as expected. Here at UNT we have a Student Help Desk that you can contact for help with Canvas or other technology issues.

UIT Help Desk: UIT Student Help Desk (http://www.unt.edu/helpdesk/index.htm)

Email: helpdesk@unt.edu

Phone: 940-565-2324

In Person: Sage Hall, Room 130

Walk-In Availability: 8am-9pm

Telephone Availability:

- Sunday: noon-midnight
- Monday-Thursday: 8am-midnight
- Friday: 8am-8pm
- Saturday: 9am-5pm

Laptop Checkout: 8am-7pm

Canvas Technical Requirements: Canvas Technical Requirements
(https://clear.unt.edu/supported-technologies/canvas/requirements)

Additional Canvas Support: Canvas Technical Help
(https://community.canvaslms.com/docs/DOC-10554-4212710328)

Pearson MyLabs Student Technical Support

MyLabs offers student technical support

Website: Pearson Student Technical Support

Academic Support Services

- UNT Math Lab (https://learningcenter.unt.edu/math-lab)
- UNT Learning Center (https://learningcenter.unt.edu)
- Academic Resource Center (https://clear.unt.edu/canvas/student-resources)
- Academic Success Center (https://success.unt.edu/asc)
- UNT Libraries (https://library.unt.edu/)
- Writing Lab (http://writingcenter.unt.edu/)

Student Support Services

UNT provides mental health resources to students to help ensure there are numerous outlets to turn to that wholeheartedly care for and are there for students in need, regardless of the nature of an issue or its severity. Listed below are several resources on campus that can support your academic success and mental well-being:

- Student Health and Wellness Center (https://studentaffairs.unt.edu/student-health-and-wellness-center)
- Counseling and Testing Services (https://studentaffairs.unt.edu/counseling-and-testing-services)
- UNT Care Team (https://studentaffairs.unt.edu/care)
- UNT Psychiatric Services (https://studentaffairs.unt.edu/student-health-and-wellness-center/services/psychiatry)
- Individual Counseling (https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling)

Other student support services offered by UNT include:

- Registrar (https://registrar.unt.edu/registration)
- Financial Aid (https://financialaid.unt.edu/)
- Student Legal Services (https://studentaffairs.unt.edu/student-legal-services)
- Career Center (https://studentaffairs.unt.edu/career-center)
- Multicultural Center (https://edo.unt.edu/multicultural-center)
- Counseling and Testing Services (https://studentaffairs.unt.edu/counseling-and-testing-services)
- Pride Alliance (https://edo.unt.edu/pridealliance)
- UNT Food Pantry (https://deanofstudents.unt.edu/resources/food-pantry)

UNT Policies

Academic Integrity Policy

Cheating on tests, quizzes or final exams is a serious breach of academic standards and will be punished severely and generally result in a student failing the course. All work done on exams and quizzes must represent only the student's own work, unless otherwise stated in the directions. According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. See Academic Integrity for details on academic integrity at UNT.

Acceptable Student Behavior

Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. Visit UNT's Code of Student Conduct (https://deanofstudents.unt.edu/conduct) to learn more.

ADA Policy

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time; however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the Office of Disability Access website. (https://disability.unt.edu/).

Emergency Notification and Procedures

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency. In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

Important Notice for F-1 Students taking Distance Education Courses

Federal Regulation

To read detailed Immigration and Customs Enforcement regulations for F-1 students taking online courses, please go to the Electronic Code of Federal Regulations website (http://www.ecfr.gov/). The specific portion concerning distance education courses is located at Title 8 CFR 214.2 Paragraph (f)(6)(i)(G).

The paragraph reads:

(G) For F-1 students enrolled in classes for credit or classroom hours, no more than the equivalent of one class or three credits per session, term, semester, trimester, or quarter may be counted toward the full course of study requirement if the class is taken on-line or through distance education and does not require the student's physical attendance for classes, examination or other purposes integral to completion of the class. An on-line or distance education course is a course that is offered principally through the use of television, audio, or computer transmission including open broadcast, closed circuit, cable, microwave, or satellite, audio conferencing, or computer conferencing. If the F-1 student's course of study is in a language study program, no on-line or distance education classes may be considered to count toward a student's full course of study requirement.

University of North Texas Compliance

To comply with immigration regulations, an F-1 visa holder within the United States may need to engage in an on-campus experiential component for this course. This component (which must be approved in advance by the instructor) can include activities such as taking an on-campus exam, participating in an on-campus lecture or lab activity, or other on-campus experience integral to the completion of this course.

If such an on-campus activity is required, it is the student's responsibility to do the following:

(1) Submit a written request to the instructor for an on-campus experiential component within one week of the start of the course.

(2) Ensure that the activity on campus takes place and the instructor documents it in writing with a notice sent to the International Student and Scholar Services Office. ISSS has a form available that you may use for this purpose.

Because the decision may have serious immigration consequences, if an F-1 student is unsure about his or her need to participate in an on-campus experiential component for this course, s/he should contact the UNT International Student and Scholar Services Office (telephone 940-565-2195 or email internationaladvising@unt.edu) to get clarification before the one-week deadline.

Student Verification

UNT takes measures to protect the integrity of educational credentials awarded to students enrolled in distance education courses by verifying student identity, protecting student privacy, and notifying students of any special meeting times/locations or additional charges associated with student identity verification in distance education courses.

See UNT Policy 07-002 Student Identity Verification, Privacy, and Notification and Distance Education Courses (https://policy.unt.edu/policy/07-002).

Summary of Key Dates – Fall 2020

August 24, Monday
Classes begin.

August 28, Friday
Last day to add/swap a class. Cannot swap to a higher-level class, only down.

September 6, Sunday
Beginning this date a student may drop a course with a grade of W by completing the Request to Drop Class form and submitting it to the Registrar's Office.

September 7, Monday
Labor Day – No Classes, University Closed.

November 2, Monday
Last day to drop a course.

November 9, Monday
Beginning this date a student may request a grade of "I", incomplete, a non-punitive grade given only if a student (1) is passing, (2) has justifiable reason why the work cannot be completed on schedule; and (3) arranges with the instructor to complete the work in no more than one academic year.

November 20, Friday
Last day to withdraw (drop all classes) from the semester.

November 26, Thursday – November 29, Sunday
Thanksgiving Break – University Closed.

December 4, Friday
Reading Day – No Classes.

December 5, Saturday – December 11, Friday
Final examinations. Terms ends.