

## Departmental Course Syllabus



### **MAT 132**

#### **Discrete Mathematics**

3 credit hours/ 3 contact hours

**Catalog Description** This course includes the following topics: mathematical logic and proofs; set operations; relations and digraphs; recurrence relations; combinatorics; and number systems. (This course is designed primarily for computer science students, mathematics students, and engineering students.)

**Prerequisite** MAT109, MAT 110, or MAT 112 (C or higher)

**What will I learn?** At the end of this course, you should be able to:

1. Use abstract mathematical reasoning to solve problems and verify solutions.
2. Understand and demonstrate mathematical reasoning using definitions, theorems, proofs, and counterexamples.
3. Analyze discrete mathematical structures such as sets, Boolean algebras, relations, graphs, and trees.
4. Understand and use the mathematics of counting and arranging objects.
5. Work with binary and hexadecimal systems.

#### **Textbook and Required Materials**

*Discrete Mathematics, Seventh Edition*, by Richard Johnsonbaugh, 2009 (Pearson Prentice Hall)

TI-83 (or TI-82 or TI-85 or TI-86) Graphics Calculator (Texas Instruments)

The TI-89 and TI-92 calculators are not allowed in this course.

**Grading System and Policy** The College-wide grading scale is

91-100 = A, 81-90 = B, 71-80 = C, 65-70 = D, below 65 = F

There will be a comprehensive departmental final exam, which everyone must take (no exemptions), and which counts 25% of the final grade. The remaining 75% will be specified by your instructor's syllabus addendum.

**Attendance** Common sense should tell you that you will get more out of a course if you attend class regularly, do assigned homework, and take an active part in class discussions. In the Math Department, we check attendance (we have to), but we don't penalize your grade for non-attendance or increase it if you do attend; we do try to make every class meeting include something worth knowing. Please note that if you miss a class (for any reason), you have not obligated the instructor to give you more time than other students get. In most courses, a student must attend at least 80% of the classes in order to have an opportunity to earn a passing grade.

**Withdrawal** We hope you won't need to or want to withdraw, but if you do, you must initiate the procedure. Instructors are not empowered to award course withdrawals (W's).

**Instructor availability** Your instructor is available to you outside of class for academic assistance. Full-time faculty members maintain and post regularly scheduled office hours. Part-time faculty

members are accessible in a variety of ways, which may include conferences before and after class or by appointment, telephone conferences, and E-mail. The phone number for reaching your instructor is provided on your syllabus addendum.

**See your syllabus addendum** This is a departmental syllabus for all sections of the course. As such, it tries to address issues common to all sections. There will be issues (grading details, office hours, and the like) that are specific to your section, and these details will be covered in an addendum issued by your instructor.

### **For Students Enrolled in Online or Other Distance-Learning Sections**

To confirm that you are actively involved in this course you need to contact the instructor at least once per week. Forms of contact can include (but are not limited to) posting/receiving emails, participating in online class discussions or chat rooms, and completing and submitting course assignments. Please see the instructor's addendum for any additional instructions.

**ADA Statement** The College will make reasonable accommodations for persons with documented disabilities. Students with disabilities should notify Services for Students with Disabilities (located in the Student Success Center) and their instructors of any special needs. Instructors should be notified on the first day of classes.

### **Textbook Portions Covered**

Unit 1	Set Theory and Venn Diagrams, Propositional Logic and Truth Tables, Logical Arguments, Logical Equivalence, and Quantified Statements, 1.1-1.6
Unit 2	Direct and Indirect proofs, Proof by Induction, Sequences and Strings, Relations, Partially Ordered Sets, and Equivalence Relations, 2.1, 2.2, 2.4, 3.1-3.4
Unit 3	Number Theory including Integer Algorithms, the Binary and Hexadecimal Number Systems, the Euclidean Algorithm, Basic Counting Principles, Permutations and Combinations, Probability, Binomial Coefficients, and the Pigeonhole Principle, 5.1-5.3, 6.1-6.3, 6.5-6.8
Unit 4	Solution of Recurrence Relations, Introduction to Graph Theory including Trees, Boolean Algebra, Combinatorial Circuits, and Boolean Functions, 7.1, 7.2, 8.1, 8.2, 9.1, 9.2, 11.1-11.4

**College Information** TTC uses e-mail as the standard communication system to send information to students and uses TTC Express to post final course grades. To access your accounts go to [www.tridenttech.edu](http://www.tridenttech.edu).

**Access to computers for academic courses** The College has computer labs available for student use on all three campuses. Students who experience problems with home computers should plan to accomplish their assignments at the college.

**Department Head** Elizabeth White at 574-6538

**Division Admin. Asst.** 574-6015 (emergencies only)

Rev. 4-10