Course Description

Discrete mathematics is the branch of mathematics dealing with objects that can assume only distinct, separated values. Discrete means individual, separate, distinguishable implying discontinuous or not continuous, so integers are discrete in this sense even though they are countable in the sense that you can use them to count. A course is designed to prepare mathematics, computer science, economics and pre-engineering majors for a background in abstraction, notation and critical thinking for the mathematics.

Why do we study discrete mathematics?

1 Math courses based on the material studied in discrete mathematics include logic, set theory, number theory, linear algebra, abstract algebra, combinatorics, graph theory, and probability theory.
2 Discrete mathematics provides the mathematical foundations for many computer science courses including data structures, algorithms, and operating systems.
3 Discrete mathematics contains the necessary mathematical background for solving problems in operations research (including many discrete optimization techniques), chemistry, engineering, biology, economics, and so on.

Goals of a Discrete Mathematics Course

Mathematical Reasoning: Students understand mathematical reasoning in order to read, comprehend, and construct mathematical arguments.
Combinatorial Analysis: An important problem-solving skill is the ability to count or enumerate objects.

Discrete Structures: Students learn about how to work with discrete structures including sets, permutations, relations, graphs, trees, and finite-state machines.

Algorithmic Thinking: After an algorithm has been described, a computer program can be constructed implementing it. Students are requested to understand the mathematical verification that it works properly, and the analysis of the computer memory and time required to perform it.

Applications and Modeling: There are many applications to computer science and data networking as well as applications to such diverse areas as chemistry, biology, and economics. Modeling with discrete mathematics is an extremely important problem-solving skill, which students have the opportunity to develop by constructing their own models in some of the exercises.

Text Book


Grade Distribution

Attendance: 5%
Assignments: 10%
Quizzes: 15%
Midterm Exam (4 Tests): 40%
Final Exam: 30%
Letter Grade Distribution

93.00-100% A  80-82.99% B-  67-69.99% D+
90-92.99% A-  77-79.99% C+  60-66.99% D
87-89.99% B+  73-76.99% C  Below 60% F
83-86.99% B  70-72.99% C-

Important Dates

1 The 4 exams will take place on Sep. 20nd, Oct. 20th, Nov. 14th, Dec 5th 9:10am-10:00am.
2 Last date to withdraw with a W is Friday Oct. 27th.
3 The final exam will be held on Dec. 15th 8:30am-10:30am.

Course Policies

a) General
1 Attend the class in time.
2 Cell phones are not to be used unless instructed to do so.
3 Quizzes and exams are closed book, closed notes.
4 Index Card will be allowed on the exam.
5 No makeup quizzes or exams will be given.
6 Lowest Score of 4 tests will be dropped.

b) Attendance and Absences
1 Attending the class is very important for you to keep track of the contents and prepare the quizzes and tests. During the class time, you are able to obtain a lot of tips how to approach the concepts or how to keep the steps to reach the final answer of problem.
2 Attendance is expected and will be taken each class. You are allowed to miss 3 classes during the semester without penalty. Any further absences will result in point and/or grade deductions.
3 Students are responsible for all missed work, regardless of the reason for absence. It is also the absentee's responsibility to get all missing notes or materials.
4 You can find lecture notes in the Moodle which help you to catch up the missed class.

c) Assignments
1 Students are expected to work independently. Offering and accepting solutions from others is an act of plagiarism, which is a serious offense and all involved parties will be penalized according to the Academic Honesty Policy.
2 Discussion amongst students is encouraged, but when in doubt, direct your questions to the professor, Stem Guide.
3 No late assignments will be accepted under any circumstances.
c) Quizzes
1 There will be a 10 min or 15 min quiz on almost all Friday (See the schedule in detail in the uploaded calendar on the Moodle).
2 The problems will be based on the assignments and exercises in the class. It helps students to go over the sections we have learned on the week.
3 You are allowed to open the book and lecture note. (Please remember this is not test but for going over the contents we have studied on the week)
4 2 Lowest Scores of quizzes will be dropped.

e) Tests (4 Exams and Final)
1 There will be a 4 Exams and Final (Comprehensive Exam) of this course on this Fall semester (See the schedule in detail in the uploaded calendar on the Moodle).
2 4 Exams are 60 min and Final are 2 and half hours.
3 Exams and Final are closed book, closed notes.
4 Index Card will be allowed on the exam (Allowed size is about one side of letter). This make you relieve the stress from memorizing a lot of formulas and properties.
5 1 Lowest Score of 4 exams will be dropped but Final never dropped.
6 I will summarize all sections at end of the class day for preparing the Final.

Religious Accommodations:

In accordance with DePauw policy, I am happy to accommodate students who are adherents of a religious tradition and wish to fulfill obligations of that religious tradition on holy days. Please notify me of your intent to fulfill the obligations of your religious tradition well in advance of these days. For the sake of this policy, “holy days” are defined as periods of time in which either: activities required by normal class participation are prohibited by a religious tradition, or a special worship obligation is required by a religious tradition. For this class, I ask that you notify me by e-mail at least 14 days in advance of the date in question, and include in the email the time you will be missing class and the reason for this missed class, and I will excuse you from class on those days and provide extended deadlines for assignments due on those days and re-scheduled exams given on those days.

ADA Syllabus Statement:

It is the policy and practice of DePauw University to provide reasonable accommodations for students with properly documented disabilities. Written notification from Student Disability Services is required. If you are eligible to receive an accommodation and would like to request it for this course, please contact Student Disability Services. Allow one week advance notice to ensure enough time for reasonable accommodations to be made. Otherwise, it is not guaranteed that the accommodation can be provided on a timely basis. Accommodations are not retroactive. Students who have questions about Student Disability Services or who have, or think they may have, a disability (psychiatric, attentional, learning, vision, hearing, physical, medical, etc.) are invited to contact Student Disability Services for a confidential discussion in Union Building Suite 200 or by phone at 658-6267.
Studying Tips and Extra Help

**Have a Growth Mindset: Intelligence is not fixed!!!.** Continuous challenges can give us opportunities for growth. Thus please do not give up easily keeping up with the course.

**Study with classmate:** Your class mates are a good teacher for you. If possible, please make a group to study together, discuss about which parts hard to understand and get help from your classmate. This will give synergy effect to each other.

**Use Moodle:** I will upload all of materials related to the class such as solutions of Homework, Quizzes, and Tests. You can download them which play a crucial in studying this course.

**Use Office Hour:** Even though you could not understand every contents of my lecture in class, do not worry about that. Stop by my office and tell me where you do not figure out. Always, welcome to my office.

**Get help from Stem Guide:** The Stem Guides help with activities during class and see the materials being covered. Each Guide then holds evening office hours in Julian Auditorium (See in detail on the Moodle).

**Check the Calendar:** You may find the file named by “Calendar” on the Moodle. It tells you about the schedules of this course such as due date of homework, dates of quizzes, exams, and final exam. I recommend you see this calendar if you have a question about the future schedule of this course.