

MATH 2513–002 Discrete Mathematical Structures

This is the information sheet for Discrete Mathematics, MATH 2513–Section 002, for the Spring Semester 2016. It is your responsibility to acquaint yourself with all the information in this handout, and with any modifications to it that may be announced in class.

Instructor: Dr. Noel Brady.

E-mail: nbrady@math.ou.edu

Office: 1015 Physical Sciences Center [PHSC].

Phone: 325-0833

Web Page: <http://math.ou.edu/~nbrady>

Main Math Office: 423 PHSC.

Main Math Office Phone: 325-6711

Class Times: The class meets 3 days per week: on Mondays, Wednesdays and Fridays in 416 PHSC from 11:30AM to 12:20PM.

Course Web Page. <http://math.ou.edu/~nbrady/teaching/s16-2513>

Office Hours. Mon 10:20–11:20am; Tue 10:30am–11:30am; Thu 11:30am–12:30pm. Also by appointment.

Text and Course Outline. We shall cover most of the textbook; *Mathematical Reasoning: Writing and Proof* by Ted Sundstrom. This text is open source and available under the **Introduction to Proofs** section of <http://aimath.org/textbooks/approved-textbooks/>, the American Institute of Mathematics page of approved open source mathematics textbooks. As time permits, we will explore some topics in more detail.

For example, we will discuss some topics from abstract algebra; in particular group theory. Good online sources of group theory notes can be found in the **Abstract Algebra** section of <http://aimath.org/textbooks/approved-textbooks/>. For example, the online book *Abstract Algebra: Theory and Applications* by Tom Judson has a nice introduction to group theory and Lagrange's theorem.

I would also like for us to think deeper about infinite cardinalities, a little more than is done in the textbook. A good resource for the cardinality material can be found in *Book of Proof* by Richard Hammack, which is available in the same section of the AIM page <http://aimath.org/textbooks/approved-textbooks/>. I will also provide information about cardinality.

Here is a direct link to *Mathematical Reasoning: Writing and Proof* by Ted Sundstrom:

<https://sites.google.com/site/mathematicalreasoning3ed/>

It includes a link to a collection of youtube videos of screenshots which accompany the textbook: <https://www.youtube.com/playlist?list=PL2419488168AE7001>. This collection of screenshot videos is a great resource.

The textbook (and alternate texts) are open source and freely available. There are low cost hard-copy versions of these texts available if you wish to avail of this format.

In this course we will learn some basic logic, set theory, and explore the concepts of relations (emphasizing equivalence relations) and functions. There will be applications to elementary number theory, an introduction to group theory, and the theory of infinite cardinalities. The emphasis will be on writing clear and concise mathematical proofs and arguments. This course is an excellent background for more advanced mathematics courses, including courses on: measure theory and analysis, point set topology, abstract linear algebra, abstract algebra, number theory, cryptography, combinatorics, and graph theory.

Lectures. You are expected to attend all lectures, and are responsible for all information given out during them. In particular, this includes any changes to the midterm dates or content.

Furthermore, since class participation counts for one tenth of the overall course grade, it is important that you not miss class on a regular basis.

Grading Scheme. Grades will be assigned by weighting your totals from Homework, Webwork, Midterms, and a Final Examination as follows:

<i>Homework</i>	20%
<i>Class Participation</i>	10%
<i>Midterm Total</i>	40%
<i>Final Examination</i>	30%

The total number of points in the course is 100. Grades are assigned on the following scale:

A : 85 – 100, B : 70 – 84, C : 55 – 69, D : 40 – 54, F : 0 – 39.

Here are more details about each of these components.

Homework. Homework should be turned in at the **start** of class on due dates. You are responsible for ensuring that your homework gets turned in on time. Late homework will not be accepted; it disrupts the grading process and is unfair to other students.

Class Participation. Class participation counts for one tenth of the overall grade. You will work in small groups on assigned projects in the first half of a class session. The results of these group activities will be turned in to me and will be graded. Some of the group activities will involve oral presentations of ideas/arguments to others in the group or to other groups.

Midterms. There are three midterms which are held during regular lecture times in the usual classroom on the following dates:

Midterm 1: 10% of overall course grade. Friday, Feb. 12.

Midterm 2: 15% of overall course grade. Friday, Mar. 11.

Midterm 3: 15% of overall course grade. Friday, Apr. 22.

Final Examination. The final examination is cumulative. It is scheduled for Tuesday, May 10 from 1:30PM until 3:30PM, and is held in the usual classroom — PHSC 416.

Taking Examinations. All examinations must be taken at scheduled times, except in *extreme circumstances*. So be careful not to make travel arrangements that conflict with examination times. If you cannot take an examination at a scheduled time, you should contact me *well in advance of the test time*. Otherwise, an absence at an exam will result in a score of zero.

Policy on W/I Grades. You can find the Spring 2016 academic calendar at

http://www.ou.edu/content/admissions/academic_calendar.html

Until Feb 1, there is no record of grade for dropped courses. From Feb 2 through Apr 1, undergraduates may withdraw from this course and receive an automatic W grade, *no matter what scores they have so far achieved*. From Apr 4 on, University regulations specify that you may withdraw only with the permission of the College Dean.

Students who are failing the course should not expect to receive an “I” grade in place of a “W” grade. I will only consider assigning an “I” grade if the situation satisfies the following criteria.

1. the student is already maintaining a passing grade,

2. the student has completed most of the course work, and
3. the student can demonstrate that he/she is unable to complete the work at this time due to circumstances beyond his/her control.

Academic misconduct. All cases of suspected academic misconduct will be reported to the Office of Academic Integrity Programs as possible violations of University's Academic Integrity Code. If the violation is confirmed by the Office of Academic Integrity Programs, the penalties can be quite severe, so the best advice is **Don't do it!** For more details on the University's policies concerning academic misconduct consult the link <http://integrity.ou.edu/students.html>

This link also has information about admonitions (essentially warnings about potential misconduct for fairly minor infractions) and your rights to appeal charges of academic misconduct.

The [Student Conduct Office](#) also contains information about student rights and responsibilities.

Accommodation of Disabilities. The University of Oklahoma is committed to providing reasonable accommodation for all students with disabilities. If you require special accommodation in this course you are requested to speak with me as early in the semester as possible (preferably by the end of the first week). Students with disabilities must be registered with the Office of Disability Services prior to receiving accommodations in this course. The Office of Disability Services is located in Goddard Health Center, Suite 166, phone (405) 325-3852 or TDD only (405) 325-4173. Their website is at <http://www.ou.edu/drc/>.

Religious Holidays. It is the policy of the University to excuse absences of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required class work that may fall on religious holidays.

Students who plan to observe a religious holiday which may conflict with a class time, should notify me as soon as possible (preferably within the first week of the semester), so that we can make appropriate arrangements.

Mathematics Department student resource page. The [Undergraduate Information](#) page on the Mathematics Department server is a good resource. It has links to the Math Center, the OU MathClub blog, and has information about obtaining a Mathematics minor or major.

This page contains an "Advice from Students" section, which includes advice from past students of Discrete Math (MATH 2513).

The OU MathClub Blog. The [OU MathClub blog](#) is an excellent way of finding out what's going on math-wise at OU.