

MATH 2200 Discrete Mathematics    Spring 2015    MWF 11 - 11:50 am    SNOW  
124

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**Office Hours:** Tuesdays and Thursdays 10:00 am - Noon and 1 - 2 pm; other times by appointment

**REQUIRED TEXT:** *MATHEMATICS, A Discrete Introduction*, Edward Scheinerman, 3<sup>rd</sup> Edition

**COURSE PREREQUISITES:** Successful completion of Math 1210 with a C or higher within the past two years.

**COURSE OBJECTIVES:** All classes in mathematics at Dixie State College of Utah support the general education goals of the college. Each mathematics class will foster reasoning and decision making skills by:

- ♠ Employing mathematical techniques in solving computational problems
- ♠ Interpreting mathematical models, tables, and graphs
- ♠ Construct quantitative and logical arguments
- ♠ Communicate in the mathematical language through the proper use of notation and terminology
- ♠ Explore and analyze mathematical concepts including the use of technology as appropriate

For successful completion of this course, students will demonstrate through assignments and testing the ability to

- ♡ Develop and write basic logical arguments including proofs by induction, construction, contradiction, and give counterexamples to refute false claims.
- ♡ Critique logical arguments.
- ♡ Recognize the principles of logic and set theory as those forming the foundations of such fields as computer science, mathematics, and philosophy.
- ♡ Apply the principles of logic and set theory to solve foundational problems in these fields.
- ♡ Enumerate discrete structures of a given kind and size via the use of combinations, permutations, and other combinatorial constructs.
- ♡ Utilize the TeX/LaTeX typesetting environment to produce technical and mathematical papers that meet the current formatting standard for circulation and dissemination within the scientific community.

**IMPORTANT DATES:** Go to <http://www.dixie.edu/reg/?page=calendar>

**CLASS ATTENDANCE and PARTICIPATION:** Class attendance is your responsibility and privilege. Although attendance is not required, it serves a critical role in the course. Be willing to be involved in the class as an active participant by asking questions, contributing to discussions, offering solutions, and such.

**GETTING HELP:** You are encouraged to work together. HOWEVER, this is a proof-writing course and you are expected to not plagiarize the work of others. Your writing must be original. Also, use my office hours! Use me as much as you can. That's why I am here. Take advantage of the small class size and get the help you need to master proof writing as well as mastering the sophisticated concepts and counting structures covered in this course.

**HOMEWORK:** Keep in mind that math is a skill that can only be learned and mastered by doing it yourself with lots of practice. Do not attempt to do an entire assignment at one sitting. A minimum of two hours spent studying outside of class for each hour in class is usually required for college courses. Due to the emphasis upon writing mathematics, expect to spend more time on this course. MASTERY takes time and effort so plan accordingly.

Many students say that this course has the greatest impact on their understanding of mathematics.

**GRADING:** There will be five tests (including the final exam) counting for 60% of your grade. The weekly homework assignments will count for 40% of your grade. All tests count toward your grade. As a general rule, make-up exams will not be given without PRIOR arrangement. The comprehensive final exam will cover the last few sections and the major topics of the course.

**L<sup>A</sup>T<sub>E</sub>X:** You need to install and use L<sup>A</sup>T<sub>E</sub>X on your computers. Go to <http://www.tug.org/begin.html> to get started. If you have questions about it, come to my office. I will distribute a template for the first HW set to assist with learning to use L<sup>A</sup>T<sub>E</sub>X.

**GRADING SCALE:** A (100-93%), A- (92.99-90%), B+ (89.99-87%), B (86.99-83%), B- (82.99-80%), C+ (79.99-75%), C (74.99-70%), C- (69.99-65%), D+ (64.99-60%), D (59.99-55%), D- (54.99-50%), F (49.99-0%).

**DMAIL:** Important class and college information will be sent to your Dmail email account. This information includes your DSC bill, financial aid/scholarship notices, notification of dropped classes, reminders of important dates and events, and other information critical to your success in this class and at DSC. All DSC students are automatically assigned a Dmail email account. If you don't know your user name and password, go to [www.dixie.edu](http://www.dixie.edu) and select Dmail, for complete instructions. You will be held responsible for information sent to your Dmail email, so please check it often.

**DISABILITIES:** Students with medical, psychological, learning or other disabilities desiring reasonable academic adjustment, accommodations, or auxiliary aids to be successful in this class will need to contact the DISABILITY RESOURCE CENTER Coordinator (Baako Wahabu) for eligibility determination. Proper documentation of impairment is required in order to receive services or accommodations. DRC is located at the ground floor of the Financial Aid Office. Visit or call 652-7516 to schedule appointment to discuss the process. DRC Coordinator determines eligibility for and authorizes the provision of services.

#### MATH 2200 Schedule - Spring 2015

Date and Section	Assigned problems or Agenda
<b>Monday Jan 12: Intro, §1, §2, §3</b>	Work problem 3.12 before next class.
Jan 14: §3	3.1, 3.3, 3.5, 3.6, 3.7, 3.9, 3.12b,c,e,g,k
Jan 16: §4 <b>Have LaTeX working</b>	4.1a,b,e,g, 4.2 a,b,c,i,k, 4.5, 4.7, 4.12 a,d,e
<b>** Monday Jan 19 **</b>	<b>** Martin Luther King, Jr. Day - No Classes **</b>
Wednesday Jan 21: §5	5.5, 5.6, 5.9, 5.13, 5.17, 5.18
Jan 23: §6	6.2, 6.3, 6.5, 6.6, 6.10, 6.11, 6.12, 6.13
<b>Monday Jan 26: §7</b>	7.1, 7.3, 7.5, 7.9, 7.10, 7.11(a,e,f,h), 7.12 (for 7.11h only), 7.14
Jan 28: <b>Focus on Proofs</b>	<b>Review HW problems; Work Chapter 1 Self Test for next time</b>
Jan 30: <b>Problem Solving</b>	<b>Review for Test 1 (Test 1 will be given in the Testing Center)</b>
<b>Monday Feb 2: §8</b>	8.2, 8.7, 8.8, 8.12, 8.14, 8.18, 8.19
Feb 4: §9	9.2, 9.6, 9.8, 9.9, 9.10, 9.15, 9.18
Feb 6: §10	10.5 c,d, 10.6, 10.7 a,b, 10.9, 10.12, 10.13, 10.14
<b>Monday Feb 9: §11</b>	11.1 b,c,e,g,h,i, 11.5 a,b,e,f,g, 11.7
Feb 11: §12	12.1, 12.6, 12.7, 12.16, 12.28
Feb 13: §13	<b>In Class Activity: Introduction to Combinatorial Proofs</b>
<b>** Monday Feb 16 **</b>	<b>** President's Day - No Classes **</b>
Wednesday Feb 18: §13 cont	13.2, 13.3, 13.5, 13.6
Feb 20: <b>Problem Solving</b>	<b>Review HW Problems; Work Chapter 2 Self Test for next time</b>
<b>Monday Feb 23: Problem Solving</b>	<b>Review for Test 2 (Test 2 will be given in the Testing Center)</b>
Feb 25: §14	14.1(a,b,d), 14.2 (c,d), 14.3 (No proofs required), 14.6 (a,d,e,f), 14.12.
Feb 27: §15	15.1 (a,c), 15.2, 15.6, 15.7 (a,c,f), 15.8 (a,b,d)

Date and Section	Assigned problems or Agenda
<b>Monday Mar 2: §16</b>	16.1, 16.2 (b,c,e), 16.3, 16.4, 16.7, 16.8, 16.17
Mar 4: <b>Proof Writing</b>	Additional Examples and Discussion
Mar 6: §17	17.3(b,c,d,f), 17.4, 17.5, 17.6, 17.10, 17.11, 17.14, 17.33
<b>** March 9 - 13 **</b>	<b>** Spring Break ** - No Classes</b>
<b>Monday Mar 16: §18</b>	18.1, 18.2, 18.7, 18.8, 18.9, 18.11
Mar 18: §19	19.1, 19.2, 19.3, 19.8
Mar 20: <b>Problem Solving</b>	More Examples; Work Chapter 3 Self Test for next time
<b>Monday Mar 23: Problem Solving</b>	<b>Review for Test 3</b> (Test 3 will be given in the Testing Center)
Mar 25: §20	20.1(a,b,c,f), 20.3, 20.4(b,c,f), 20.5, 20.9
Mar 27: §21	21.2, 21.3, 21.5, 21.7
<b>Monday Mar 30: Problem Solving</b>	Additional Examples
Apr 1: §22	22.4(b,f), 22.12, 22.18
Apr 3: §23	23.2(e,k,n), 23.6
<b>Monday Apr 6: §24</b>	24.3, 24.4, 24.5, 24.6, 24.8, 24.14, 24.16, 24.17, 24.20
Apr 8: <b>Problem Solving</b>	Additional Examples and Discussion
Apr 10: §25	25.1, 25.2, 25.3, 25.4, 25.6, 25.9, 25.17
<b>Monday Apr 13: Problem Solving</b>	<b>Review HW Problems; Work Chapter 4 Self Test for next time</b>
Apr 15: <b>Problem Solving</b>	<b>Review for Test 4</b> (Test 4 will be given in the Testing Center)
Apr 17: §35	35.1, 35.2, 35.3, 35.4, 35.8
<b>Monday Apr 20: §36</b>	36.2, 36.5, 36.13, 36.18, 36.21a
Apr 22: §37	37.1, 37.2, 37.3, 37.4, 37.10, 37.14
Apr 24: §39	39.1, 39.2, 39.3, 39.8, 39.9, 39.11
Monday Apr 27: <b>Problem Solving</b>	<b>Review for final exam</b>
Apr 29: <b>Problem Solving</b>	<b>Review for final exam</b>
Monday May 4	<b>Final Exam 10 am - 12 pm</b>