Math 310 - Discrete Mathematics
Syllabus Spring 2015

Meeting time and room:  Office Hours:
M/T/H/F 2:00am-2:50am BH264        Monday: 10:00am-11:50am; 3:00pm-3:50pm
Instructor: Dr. Damiano Fulghesu      Tuesday: 1:00pm-1:50pm; 3:00pm-3:50pm
Office: MacLean 375W                     Wednesday: 11:00am-11:50am
Phone: (218) 477-4017                  Thursday: 3:00pm-3:50pm
E-mail: fulghesu@mnstate.edu         Friday: 10:00am-11:50am; 3:00pm-3:50pm
Website: http://web.mnstate.edu/fulghesu/

Text: Discrete Mathematics and Its Applications, Kenneth Rosen; Seventh Edition [Required]
Prerequisites: Math 262.
Course Description: Methods of proof, sets, logic, functions and relations, Boolean algebra, graph theory and number systems.
Outline of Major Content Areas

1. Symbolic Logic, including quantifiers.
2. Proofs, including proofs by induction.
3. Sets, set operations, and functions.
4. Relations, including equivalence relations and partial orders.
5. Graphs, including rooted trees, shortest path problems, Euler and Hamilton circuits, spanning trees.

Course Objectives:

1. Learn patterns of proofs.
2. Understand basic notions of sets, relations.
3. Apply mathematical thinking to graphs and trees.

Student Expectations: MSUMs standard is that one semester credit hour for undergraduates is meant to represent three hours of academic work per week for the average student who has the expected preparation for the courses that he or she is enrolled in. This is a 4-credit course, so that means that you will be expected to work at least 8 hours outside class per week. Spending time reviewing the notes, reading the book, doing homework, and studying definitions and proofs of theorems is meant to be a significant part of this course. Homework assignments consist of problems that the student is expected to solve. A solution consists not only of a numerical answer but also written work which shows the method of solution used and the validity of the logic employed to obtain the solution. Some problems require the students to write a proof and are not in any way numerical.
In case of missing a class, it is student’s responsibility to recover the notes from his/her classmates or to read and understand the corresponding Section on the textbook. Students are always welcome to come to office hours to ask for explanations and clarifications.

Reflective Writing: During the semester, you will be given writing assignments in which you will be asked to give your personal thoughts and reflections on different aspects of the course. These informal papers will be graded for completion, but you should write in complete sentences and express your thoughts clearly.

Labs: There will be 20 labs during the semester (see the Schedule for the dates). They will be at the beginning of the corresponding class day, and they will last for 15-minutes. You are expected to review the notes from the previous lectures, complete the corresponding homework, and study the corresponding section(s) on the textbook. The labs cannot be made up for any reason. At the end of the semester I will drop your 5 lowest labs. In case you will miss more that 5 labs for legitimate reasons, I will discuss with you possible adjustments for your final grade.

Homework: Homework will be assigned in class during the semester. They are meant to be “daily” assignments even though I will collect them approximately every week (see the Schedule for homework deadlines). I will drop your lowest 2 scores out of 12 assignments. You can turn them back in class, you can leave them at my office, or in my mailbox (Math Office). I will not accept late homework. You can get a copy of the homework from me (or from my personal webpage). You are expected to turn in any homework early if you know that you will miss a class. You may be able to get the homework early if you know you will be gone, depending on the particular assignment. However, the homework will be due at the same time as for the rest of the class. Any Homework that will not be turned in (apart from those that will be dropped) will get 0.

Gateway Quizzes: A Gateway Quiz is an educational assessment tool used when there are one or more topics in a course that the instructor has deemed are core topics. That is, topics that must be learned in order to receive credit for the course, where the instructor feels that if the topic is not mastered at some minimum level, the student should not receive credit for the course regardless of what the individual assignment or test grades are. The concept behind Gateway Quizzes includes the idea of mastery learning. What this means for you is that you will have multiple attempts to take each quiz, since the goal is that you master the material by the end of the semester, not that you master it on the first attempt.
For Math 310, the “core topic” is the ability to write a proof. As such, there will be four Gateway Quizzes in this course (on negating quantified statements, general proofs, set containment proofs, and mathematical induction).
The more specific details are below.

(a) The first attempt for each Gateway will be in class (see the Schedule for the dates). It will be individual and you will have 20 minutes to complete it. All later attempts must be in my office, either during office hours or by appointment.

(b) A passing grade on a Gateway Quiz will be a raw score of at least 80%.

(c) The recorded scaled score for a passed Gateway will be determined by attempt number. First attempt 10 points. Second attempt 9 points. Third attempt 8 points. Fourth attempt 7 points. Fifth attempt 6 points. Sixth or later attempt 5 points.
(d) All attempts on Gateways must be completed by 5:00 pm on Study Day (Wed., May 6, 2015).

(e) No more than one attempt on Gateway Quizzes will be given on the same day.

(f) For each Gateway Quiz that is not passed, the final course grade will be reduced by 5% in addition to receiving a zero on each Gateway Quiz that is not passed.

Exams: There will be 4 mid-term exams. They will be on Friday February 6th, Tuesday March 3rd, Tuesday April 7th, and Friday May 1st. Each mid-term exam will be about the material covered since the previous exam. If you miss a mid-term test for a legitimate reason, you may take a make-up test.

Final Exam: The final exam will be on Wednesday May 13th at 2:00pm in class, and it will be comprehensive. Check the date of your final exam and make plans around that date. Examples of NOT valid excuses: flight tickets, two finals the same day. In case you cannot take the final exam for very serious reasons, contact me as soon as possible and provide written documentation.

Make-up tests: There will be no makeup for the quizzes and the final exam. If you miss a mid-term exam for a legitimate reason, you may take a make-up test.

Calculator: A basic scientific calculator is sufficient for this course. Since graphing calculators will not be required of every student, their use will not be allowed on exams and quizzes.

Questions: Don’t be shy about asking questions in class. If you don’t understand something, its very likely that many of your classmates are also having difficulties. If you have further questions, try and see me during office hours or by making an appointment.

Grading Scale: The total points you earn through gateway quizzes, homework, labs, tests, and the final exam, will determine your course grade. Note that A+ and A both have 4 grade points per credit. The cutoff are %.

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\begin{align*}
97 & \leq \text{A+} \\
93 & \leq \text{A} < 97 \\
90 & \leq \text{A-} < 93 \\
87 & \leq \text{B+} < 90 \\
83 & \leq \text{B} < 87 \\
80 & \leq \text{B-} < 83 \\
77 & \leq \text{C+} < 80 \\
73 & \leq \text{C} < 77 \\
70 & \leq \text{C-} < 73 \\
67 & \leq \text{D+} < 70 \\
63 & \leq \text{D} < 67 \\
60 & \leq \text{D-} < 63 \\
& \text{F} < 60
\end{align*}
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Grading Weights:

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<td>Reflective Writing</td>
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<td>Labs</td>
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<td>Homework</td>
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<td>Gateway Quizzes</td>
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<td>Exams</td>
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**Academic Honesty:** See “Academic Honesty”
http://www.mnstate.edu/InternalTemplate.aspx?pageid=2147491455

**Special Accommodations Statement:** Students with disabilities who believe they may need an accommodation in this class are encouraged to contact Greg Toutges, Director of Disability Resource Center at 477-4318 (Voice) or 1-800-627-3529 (MRS/TTY), Flora Frick 154 as soon as possible to ensure that accommodations are implemented in a timely fashion. Information regarding Disability Resource Center is available at:
www.mnstate.edu/disability