Meeting time and room:            Office Hours:
M/T/W/H/F 1:30pm-2:20pm BH268     Monday:       10:00am-10:50am; 4:00pm-4:50pm
Instructor: Dr. Damiano Fulghesu  Tuesday:      10:00am-10:50am; 4:00pm-4:50pm
Office: MacLean 375W              Wednesday:    10:00am-10:50am; 4:00pm-4:50pm
Phone: (218) 477-4017             Thursday:     10:00am-10:50am; 4:00pm-4:50pm
E-mail: fulghesu@mnstate.edu      Friday:       10:00am-10:50am; 4:00pm-4:50pm
Website: http://web.mnstate.edu/fulghesu/

Text: *Discrete Mathematics and Its Applications*, Kenneth Rosen; Seventh Edition [Required]

Prerequisites: Math 127.

Course Description: Methods of proof, sets, logic, functions and relations, Boolean algebra, graph theory and number systems.

Outline of Major Content Areas

1. Euler and Hamilton circuits and shortest path problems.
2. Graph isomorphisms and connectivity.
4. Predicates and quantifiers, including nested quantifiers.
5. Propositional equivalencies.
6. Sets, set operations, and functions.
7. Trees, tree traversal, and spanning tree.

Learning outcomes:

1. Solve problems using basic graph theory.
2. Model applied problems with graphs or trees.
3. Know the basics of set theory.
4. Determine the truth of a compound proposition using a truth table.
5. Analyze logical statements.
6. Be able to do proofs using mathematical induction.

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 3-credit course, but it has 5 hours per week for approximately three fifth of the semester, so that means that you will be expected to work at least 10 hours outside class per week. Spending time reviewing the notes, reading the book, doing homework, and studying definitions 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 12 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 3 lowest labs. In case you will miss more that 3 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 once a week (see the Schedule for homework deadlines). I will drop your lowest 2 scores out of 8 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.
There will be two Gateway Quizzes in this course (on negating quantified statements, 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 90%.

(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 Wed. Oct 21, 2015).

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

(f) For each Gateway Quiz that is not passed, the final course grade will be reduced by 10% 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 September 4th, Friday September
18th, Monday October 5th, and Friday October 16th. 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 Thursday October 22nd and Friday October 23rd during
the regular class hours, and it will be comprehensive. Check the date of your final exam and
make plans around that date. 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 labs 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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**Academic Honesty:** See “Academic Honesty”
http://www.mnstate.edu/InternalTemplate.aspx?pageid=2147491455

**Special Accommodations Statement:** Minnesota State University Moorhead is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center (DRC) is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations. If you have, or think you may have, a disability (e.g. mental health, attentional, learning, chronic health, sensory or physical) please contact the DRC at (218) 477-4318 (V) or (800)627.3529 or 711 (MRS/TTY) to schedule an appointment for an intake. Information regarding Disability Resource Center is available at: www.mnstate.edu/disability