

MAT 260 Discrete Mathematics
Course Syllabus
Siena Heights University
Winter 2015

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<i>Office:</i>	SC29B
<i>Hrs:</i>	MWF 10:00, 1:00
<i>Course Meets:</i>	TR 1:00-2:15
<i>Prerequisites:</i>	MAT102 or Equivalent
<i>Text:</i>	<i><u>Discrete Mathematics; And Its Applications; Rosen 7th Edition</u></i>
<i>Software:</i>	We will make use of Maple Computer Algebra System and MS Project
<i>Handheld:</i>	A TI-NSpire will be the handheld model of choice
<i>Course Management:</i>	My web site will be the host for this course

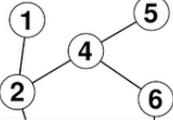
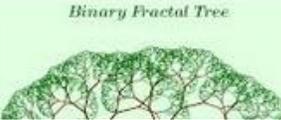
Amendments:

The instructor reserves the right to make changes to this syllabus as needed.

Course Objectives:

Discrete Mathematics introduces the university students in mathematics and computer science to the beginnings of higher mathematics, within the confines of pre-calculus preparation. We cover the basics of logic and reasoning, proofs, sets, relations and functions, number theory, modular arithmetic, counting and discrete probability, and graph theory. We explore the theory and applications of these topics, including computer algorithm efficiency and the odds in games of chance. Students will write rigorous proofs and use modern technology to further investigate the topics.

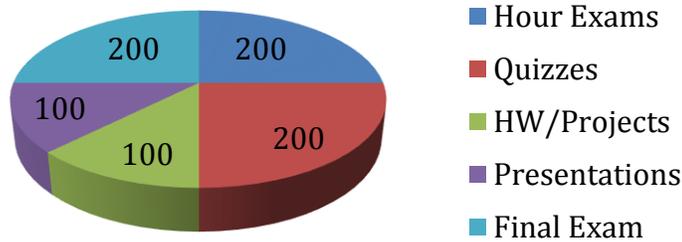
Topics Covered include:

Logic	<table border="1"> <thead> <tr> <th>p</th> <th>q</th> <th>$p \Rightarrow q$</th> </tr> </thead> <tbody> <tr> <td>true</td> <td>true</td> <td>true</td> </tr> <tr> <td>true</td> <td>false</td> <td>false</td> </tr> </tbody> </table>	p	q	$p \Rightarrow q$	true	true	true	true	false	false
p	q	$p \Rightarrow q$								
true	true	true								
true	false	false								
Sets, relations, functions, series										
Number Theory	$\sum_{n=1}^{\infty} \frac{1}{n^s} = \prod_p \left(1 - \frac{1}{p^s}\right)^{-1}$									
Induction & Recursion	$\begin{aligned} \sum_{i=1}^{m+1} i &= \sum_{i=1}^m i + (m+1) \\ &= \frac{m(m+1)}{2} + (m+1) \\ &= \frac{m(m+1) + 2(m+1)}{2} \end{aligned}$									
Matching and Counting Problems										
Graph Theory										
Trees										
Computing Applications of Math	<pre> COSINESCORE(q) 1 float Scores[N] = 0 2 Initialize Length[N] 3 for each query term t 4 do calculate w_{t,q} and fetch po </pre>									

Method of Evaluation for MAT260

Exams, written assignments, and technology projects will determine the course grade. In studying mathematics, students are encouraged to work in groups in order to achieve comprehensive understanding. However, **work submitted for credit should be the creation of the individual student.**

Grades



Grading Scale	
A	$[90, +\infty)$
B	$[80,90)$
C	$[70,80)$
D	$[60,70)$
E	$(-\infty, 60)$

Hour Exams

There will be approximately 3 hour exams, in-class, during the semester. These will be 50 minutes and 100 pts each. Specific format will be discussed as the exams near.

Homework Quizzes

Every Friday, unless we are having an hour exam, we will have a homework quiz consisting of 3-4 problems identical or very similar to the uncollected homework problems from that week. This is just another measure of your understanding of the material.

Collected Homework

Homework problems will be assigned for each section. Some problems will be collected and graded, counting as shown above and on the master schedule for the course. The others will be for practice, and form the basis for the exams and the Homework Quizzes.

Technology projects

We will have a few labs during the course, using the NSpire, Maple, Excel, or other applicable software.

Presentations

From time to time you will be asked to present your work for the entire class. These presentation together will make up a portion of your grade

Final Exam

There will be a comprehensive final exam.

Methods of Instruction

- A variety of methodologies will be employed.
 - **Reading the text book** – You will need to read the text to obtain facts not presented in class. It is a reasonably easy text to read for the purposes required. “We didn’t go over that in class” is not a valid excuse for not knowing something.
 - **Working examples** – You will be expected to keep up with the assigned homework and do additional problems if you feel you need more practice. You should keep a notebook of worked examples and written homework assignments, and read through them periodically to keep the material fresh.
 - **Technology Activities** – We will explore some of the topics using technology such as the TI Nspire, Maple, MS Project, and others.

On Getting Through the Course

- Come to class prepared: review notes, read book, do problems.
- **Read the book.** It’s readable and will provide supplementary information to what we cover in class. “We didn’t go over that in class” is not a valid excuse for not being able to do a problem.
- **USE YOUR GRAPHING CALCULATOR & COMPUTER** whenever possible (even if not assigned). Graphs & Numerical tables provide concrete visual representations of important concepts, patterns & abstract relationships. Technology gives you the freedom to explore realistic problems & examples, and to spend your time learning concepts, w/o getting bogged down by difficult and/or tedious hand calculations.
- **Ask** questions **DURING** class: if you're confused, seek clarification. There is a 90% chance that someone else in the class has the same question.
- **Answer** questions **DURING** class. Lead group discussions and help others: tell us what you've learned and let us learn from you.
- Study in groups as **SOON** after class as possible: help -- but don't copy from each other ...we call that plagiarism. Come to my office hours with questions.
- **The Mathematics Tutoring Lab** (Science 26...264-7882) will be staffed by "Work-study math tutors", some of whom might even help with Discrete Math. A schedule will be posted outside Science 26. Please **be prepared** when requesting help. The tutors will **not** do your homework for you, nor will they **read** the text for you (nor will they wake you up to come to class). They are very happy and willing to help students who have put some effort into their work prior to coming for support.
- Complete honesty is expected in written work with proper acknowledgements to sources. Any student engaged in any act of academic dishonesty may receive a failing grade and reported to the appropriate university authorities. For a complete explanation of the **Academic Dishonesty Policy**, refer to current SHU Undergraduate Catalog.

Learning Outcomes

The **Mathematics Department** has identified the following five learning outcomes to be achieved by majors and minors in its program.

1. Students will read and understand mathematics, differentiating between correct and incorrect mathematical reasoning.

Academic Honesty:

The search for truth and dissemination of knowledge are the central missions of a university. Siena Heights University pursues these missions in an environment guided by our Roman Catholic tradition and our Dominican heritage. Integrity and honesty are therefore expected of all members of the University community, including students, faculty members, administration, and staff. Actions such as cheating, plagiarism, collusion, fabrication, forgery, falsification, destruction, multiple submission, solicitation, and misrepresentation, are violations of these expectations and constitute unacceptable behavior in the University community. The penalties for such actions range from verbal warning, all the way to expulsion from the University.

Students are responsible for their own work and accomplishments. You are encouraged to discuss problems with others, but the actual written work submitted should be your own. The first occurrence of cheating on any assignment will result in a grade of zero on that assignment. The second time the same student is observed cheating will result in that student being given an E for the course. All cases of academic dishonesty will be documented and reported to the appropriate authorities on campus. For a complete explanation of the Academic Dishonesty Policy, refer to page 169 of the SHU Undergraduate Catalog 2004-2006.

Students With Disabilities

Section 504 of the Rehabilitation Act of 1973 and the Americans With Disabilities Act of 1990 require that the institutions such as SHU not discriminate against qualified students with disabilities and that effective and reasonable academic accommodations be provided for eligible students. In accordance with University policy and the equal access laws, I am available to discuss appropriate academic accommodations that you may be eligible for as a student with a disability. Please contact me for an appointment to discuss possible accommodations. Students must register with the Office for Students with Disabilities for disability verification and determination of reasonable accommodations. Requests for accommodations must be done in a timely manner.

Classroom Emergency Preparedness and Response Information

To Report an Emergency or Suspicious Activity

Call the Department of Public Safety at 517-264-7800 (Adrian Campus). If the line is unavailable or you are calling from another University location, dial 911.

Shelter in Place – General Guidance

Although it is unlikely that we will ever need to shelter in place, it is helpful to know what to do just in case. No matter where you are on campus, the basic steps of shelter in place will generally remain the same:

- If you are inside, stay where you are. If you are outdoors, proceed into the closest building or follow instructions from emergency personnel on scene.
- Shelter-in-place in an interior room, above ground level, and with the fewest windows. If sheltering in a room with windows, keep away from the windows. If there is a large group of people inside a particular building, several rooms maybe necessary.

- Shut and lock all windows (locking will form a tighter seal) and close exterior doors.
- Turn off air conditioners, heaters, and fans. Close vents to ventilation systems as you are able. (Facilities staff will turn off ventilation systems as quickly as possible).
- Make a list of the people with you and call the list in to Public Safety so they know where you are sheltering.
- Visit Campus Safety @ Siena for incident updates <http://www.sienaheights.edu/campussafety.aspx> or call the Information Line 517-264-7900. If possible, turn on a radio or television and listen for further instructions. If your e-mail address or mobile device is registered with SHU Alerts, check for alert notifications.
- Make yourself comfortable and look after one other. You will get word as soon as it is safe to come out.

Evacuation

An evacuation will be considered if the building we are in is affected or we must move to a location of greater safety. We will always evacuate if the fire alarm sounds. In the event of an evacuation, please gather your personal belongings quickly (purse, keys, cell phone, SHU ID card, etc.) and proceed to the nearest exit. ***Ground Floor – Exit doors next to SCI 45; 1st Floor – Exit doors next to SCI 131.*** Do not use the elevator. ****A second way out of the building for both floors - note the exit door by science 40 and the one upstairs on the east end.***

Once we have evacuated the building, proceed to our primary rendezvous location ***Enter Studio Angelico, if needed.*** In the event that this location is unavailable, we will meet at ***Performing Arts Theater.***

SHU Alerts

SHU Alerts provides free notification by e-mail or text message during an emergency. Visit Campus Safety @ Siena for a link and instructions on how to sign up for alerts pertaining to your campus. If you receive a SHU Alert notification during class, please share the information immediately.

Additional Information

[Additional information about emergency preparedness and response at SHU as well as the University's operating status can be found on Campus Safety @ Siena website](http://www.sienaheights.edu/campussafety.aspx)
<http://www.sienaheights.edu/campussafety.aspx> or by calling the Department of Public Safety at 517-263-0731.

[Mission Statement of Siena Heights University](#)

The mission of Siena Heights, a Catholic university founded and sponsored by the Adrian Dominican Sisters, is to assist people to become more competent, purposeful and ethical through a teaching and learning environment which respects the dignity of all.