COURSE SYLLABUS

MAT290: Introduction to Discrete Mathematics

Course Description

This is an introductory course in discrete mathematics. Topic areas include algebraic and combination-type algorithms; graph-theory algorithms; and searching and sorting algorithms. Real-world programming design and scenarios are considered. Direct programming application is considered in depth for each math principle applied. There is quite a bit of historical contributions discussed from famous math and computer scientists from each age and decade. Matrix manipulation, logic, program repetition and iteration is discussed with respect to mathematical formulas and flow charts.

General Course Information

Number of Units/Weeks	4/10
#Hours Lecture/#Hours Laboratory/#Hours HW*	40/0/80
Prerequisite(s)	MAT162
Co-requisites (s)	None
Course Developer(s)	Samuel Priggemeier, B.S. & M.A.
Date Approved / Last Review	Mar 2015 / Mar 2015

* Homework

Math Program Learning Outcomes

MAT-PLO1: Solve symbolic, graphical, numerical, and written operations, using critical thinking, mathematical reasoning and decision-making math skills.

MAT-PLO2: Communicate and explain analytical models to mathematical and non-mathematical audiences using mathematical terms and vocabulary.

MAT-PLO3: Apply mathematical concepts to areas outside of mathematics through modeling real-world situations.

Instructional Methods Employed in this Course

Lecture and reading assignments
Hands-on exercises and labs
Research
Student presentations
Practical application of theory and skills in authentic projects

Build on prior knowledge and experience of students to enhance richness of class activities

Information Resources for this Course

Textbook

Dossey, J.A., Otto, A.S., Spence, L.E., Vanden Eynden, C., (2006). *Discrete Mathematics* (5th ed.), New York, NY: Pearson Education, Inc. ISBN-0-321-30515-9

Other Materials

Discrete Mathematics & Theoretical Computer Science Website:
http://www.dmtcs.org/dmtcs-ojs/index.php/dmtcs
ScienceDirect (Free Public Access) to Discrete Mathematics Journal at the following Website address:

http://www.sciencedirect.com/science/journal/0012365X

Drawing tools http://www.dcs.gla.ac.uk/~jtod/discrete-mathematics/StdmMan.pdf http://www.dcs.gla.ac.uk/~jtod/discrete-mathematics/

Web Site Readings

http://www.artofproblemsolving.com/Resources/articles.php?page=discretemath
https://www.cims.nyu.edu/~regev/teaching/discrete_math_fall_2005/dmbook.pdf

Table/Topics & Assignments

Types of Assignments:
Lecture: Considered Lecture Hours
Classroom Discussion: Considered Lecture Hours
In Class Critique: Considered Lecture Hours
Delivering Oral Presentations: Considered Lecture Hours
In Class (IC) Exercise: Considered Lecture Hours
Reading: Considered Homework (HW), work done outside of class.
WebClass lesson (non-online courses): Considered HW, work done outside of class
Lab Work: Considered Lab Hours
Quiz, Midterm or Final: Considered Lecture Hours

Week 1						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 1A	Combinatorial Functions & Techniques	2				
IC EX 1A	Group Activity: 10 Selected Problems from Sections 1.1 - Section 1.4	2			25	Week 1
HW 1A	Read (Prior to Class!) p. 1-36 AND p. 41-60.			13		Week 2

HW 1B	10 Selected Problems from Sections 1.1, 1.2, 1.3, 1.4,			2	25	Week 2
Total Week 1		4	0	15	50	
Week 2						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 2A	Tree Properties	2				
IC EX 2A	Group Activity: 10 Selected Problems from Sections 5.1 - Section 5.6	2			25	Week 2
HW 2A	Read (Prior to Class!) p. 60-95.			7		Week 3
HW 2B	10 Selected Problems from Sections 5.1, 5.2, 5.3, 5.4, 5.5, 5.6.			2	25	Week 3
Total Week 2		4	0	9	50	
Week 3						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 3A	Sets, Relations, Functions, and Matrices	2				
IC EX 3A	In-class Quiz #1	1			50	Week 3
IC EX 3B	Group Activity: 10 Selected Problems from Sections 2.1-2.6	1			25	Week 3
HW 3A	Read (Prior to Class!) p. 99-122.			5		Week 4
HW 3B	10 Selected Problems from Sections 2.1, 2.2, 2.3, 2.4, 2.5, 2.6.			2	25	Week 4
Total Week 3		4	0	7	100	
Week 4						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 4A	Sets, Relations, Functions, Matrices	2				
IC EX 4A	Group Activity:10 Selected Problems from Sections 3.1- 3.6	2			25	Week 4
HW 4A	Read (Prior to Class!) p. 123-149			6		Week 5

HW 4B	10 Selected Problems from Sections 3.1, 3.2, 3.3, 3.4, 3.5, 3.6.			2	25	Week 4
Total Week 4		4	0	8	50	
Week 5						
Type		**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 5A	Cumulative Recap	1.0				
IC EX 5A	Midterm Exam	3.0			200	Week 5
Total Week 5		4			200	
Week 6						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 6A	Counting Techniques & Probability	2				
IC EX 6A	Group Activity: 10 Selected Problems from Sections 6.1 - Section 6.5	2			25	Week 6
HW 6A	Read (Prior to Class!) p. 402-453.			10		Week 7
HW 6B	10 Selected Problems from Sections 6.1-6.5.			2	25	Week 7
Total Week 6		4	0	12	50	
Week 7						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 7A	Recurrence Relations & Generating Functions	2				
IC EX 7A	In-class Quiz #2	1			50	Week 7
IC 7B	Group Activity: 10 Selected Problems from Sections 9.1-9.3.	1			25	Week 7
HW 7A	Read (Prior to Class!) p. 458-492.			9		Week 8

HW 7B	10 Selected Problems from Sections 9.1-9.3.			2	25	Week 8
Total Week 7		4	0	11	100	
Week 8						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 8A	Recurrence Relations & Generating Functions	2				
IC EX 8A	Group Activity: 10 Selected Problems from Section 9.4-9.6.	2			25	
HW 8A	Read (Prior to Class!) p. 494-524.			6		Week 9
HW 8B	10 Selected Problems from Sections 9.4-9.6.			2	25	Week 9
Total Week 8		4	0	8	50	
Week 9						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 9A	Discrete Logic	2				
IC EX 9A	Group Activity:10 Selected Problems from Sections 10.1-10.4.	2			25	
HW 9A	Read (Prior to Class!) p. 529-570.			9		Week 10
HW 9B	10 Selected Problems from Sections 10.1-10.4.			2	25	Week 10
Total Week 9		4	0	11	50	
Week 10						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 10A	In-class Comprehensive Final Exam	4			200	Week 10

Total Week 10		4			200	

Course Hours Summary

Week	Topic	LEC Hours	LAB Hours	HW Hours
1	Combinatorial Functions and Techniques	4	0	15
2	Tree Properties	4	0	9
3	Sets, Relations, Functions, Matrices	4	0	7
4	Sets, Relations, Functions, Matrices	4	0	8
5	Cumulative Midterm	4	0	0
6	Counting Techniques & Probability	4	0	12
7	Recurrence Relations & Generating Functions	4	0	11
8	Recurrence Relations & Generating Functions	4	0	8
9	Discrete Logic	4	0	11
10	Cumulative Final Exam	4	0	0
Total		40	0	80

Table/Point Breakdown

Assignment Type	Possible Points	Percentage of Grade
Quizzes (2 @ 50 points each)	100	10%
Group Activities: Selected problems (8 @ 25 points each)	200	20%
Midterm	200	20%
Final Exam	200	20%
Homework Solutions (8 @ 25 points each)	200	20%
Cumulative Participation	100	10%
Total	1000	100%

Your Grades for this Course

Your final grade for this course will be based on an assessment by the Instructor of your performance on a number of course activities, which may include objective tests, classroom exercises, laboratory demonstrations, project papers, or other types of activities. The chart below indicates in what activities you will engage, how many possible points can be earned for each activity, and the percentage of your final grade that will be accounted for by each activity.

Students in this course should be graded following Coleman University assessment practices and policies. A point system is used in the University to indicate student performance on various required activities or projects. For this course, it is recommended that points be distributed as follows:

Your Grades for this Course

Your final grade for this course will be based on an assessment by the Instructor of your Students in this course should be graded following Coleman University assessment practices

Coleman University Grade Assignment Policy:

Percent	Letter Grade	Grade Points
94-100	A	4
90-93	A-	3.67
87-89	B+	3.33
84-86	B	3
80-83	B-	2.67
77-79	C+	2.33
74-76	C	2
70-73	C-	1.67
67-69	D+	1.33
64-66	D	1
60-63	D-	0.67
N/A	INC	0
N/A	W	0
60 or above	CR	0
59 or below	NC	0
N/A	I	0
N/A	W	0
N/A	AU	0
N/A	TR	0
N/A	WV	0

Legend	
CR = Credit	NC = No Credit
I = Incomplete	Withdrawal
AU = Audit	TR = Transfer Credit
WV = Waiver	

Academic Accommodation / Adjustment Policy:

In accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA), Coleman University offers accommodations to students with documented physical, psychological, and/or cognitive disabilities. Coleman University will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to offer equal educational opportunities to qualified disabled individuals.

To qualify for an academic accommodation under ADA, the student must provide adequate documentation of a disability. Students seeking academic accommodations should contact the campus ADA Coordinator at 858-966-3953 or via email at ada@coleman.edu. The ADA Coordinator will review the documentation provided and verify ADA coverage. Students covered under ADA must meet with the ADA Coordinator at the beginning of every term to determine the appropriate academic accommodations. Failing to meet with the ADA Coordinator at the beginning of every term may impact the availability of accommodations.

After the academic accommodations have been determined, the students' instructors will be notified by the ADA Coordinator. If any problems or concerns regarding the provision of accommodations occur, the student must inform the ADA Coordinator. If the student feels accommodation is not being made appropriately, the student may follow the published Student Grievance Procedures.