

Huntingdon College Adult Degree Completion Program

COURSE NUMBER: MATH 176
COURSE NAME: Mathematical Concepts for the Digital Age
Spring 2009, Session I, Montgomery

INSTRUCTOR'S NAME: Dr. Emilia Moore

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COURSE DESCRIPTION: An exploration of the nature and structure of mathematical thought from an historical and intuitive perspective using elementary mathematical models. Topics include: basic digital applications such as identification, information transmission and logic; decision making models such as voting systems and basic game theory; mathematical patterns such as symmetry and tiling.

PREREQUISITE: none

TEXT REQUIRED: Comap, For All Practical Purposes: Mathematical Literacy in Today's World, W.H. Freeman Publishing (**see Huntingdon College booklist for edition and ISBN**)

COURSE LEARNING OUTCOMES:

- understand five major voting systems: majority rule, Borda count, Hare system, sequential pairwise voting, and approval voting
- discuss the advantages and disadvantages of the above named voting systems
- understand the Banzhaf power index and the Shapley-Shubik power index
- work with basic combinatorial mathematics such as permutations and combinations
- understand basic techniques of fair division, such as: the adjusted winner procedure, the Knaster inheritance procedure, and techniques of divide-and-choose
- apply several 'apportionment methods' to sets of fractions
- discuss the basic idea of a Nash equilibrium
- understand the strategies of two person games, such as: the minimax strategy, mixed strategy, and the prisoners' dilemma
- understand the basic principle of how information is stored in ZIP codes, bar codes, and check digits
- apply basic techniques of coding theory and cryptography to encode and decode information

COURSE ASSIGNMENTS & GRADING CRITERIA: You will have three exams (on weeks 2,3 and 4) worth 100 points each and a final exam (on week 5) worth 200 points (500 points total). Your grade will be calculated as follows:

Your grade = (Exam #1 + Exam #2 + Exam #3 + Final) / 500

Grading Elements	Percentage:
Week 2 Exam	20%
Week 3 Exam	20%
Week 4 Exam	20%
Final Exam	40%
Total Points	100%

GRADE POINT EQUIVALENTS - Describe the point range for each letter grade.

A = 90-100
 B = 80-89
 C = 70-79
 D = 60-69
 F = 59-below

ATTENDANCE POLICY:

Absences and Tardiness – All students are required to attend the first session.

Those who do not attend the first session will be automatically dropped from the course. Students with more than one absence will receive an "F" for the course. Since this class meets only five times, missing a single class meeting is equivalent to missing three weeks of a regular term. If you cannot attend a class you must let the instructor know via email as soon as possible. In case of absences you are responsible for obtaining all handouts and assignments. Tardiness may result in a deduction in your class participation grade. Excessive tardiness may count as an absence.

Participation –Participation is not the same as attendance. Participation requires students to come to class prepared to actively participate, which makes the classroom experience more meaningful. However, participation is not just speaking out in class. The contributions made by the student should be related to the course content and meaningful to the class discussion.

Late Assignments – If you miss an exam, you must provide a university accepted excuse. You will have to make up the exam at the next class time. Please email me immediately to schedule the make up.

Accommodation of Special Needs- Huntingdon College makes every reasonable accommodation for disabilities that have been processed and approved through our Disability Services Committee in accord with the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. In order to request disability-related services at Huntingdon College, students must self-identify to the Disabilities Intake Coordinator, Camilla Irvin, and provide appropriate and up-to-date documentation to verify their disability or special needs. After the accommodations have been approved by the Disability Services Committee, the 504 Coordinator, Dr. Lisa Olenik Dorman, will notify your professor(s) of the committee’s decision. If you have any questions regarding reasonable accommodation or need to request disability-related services, please contact Disability Services at (334) 833-4432 or e-mail at disabilityservices@huntingdon.edu.

Academic Honesty –Plagiarism is literary theft. Failure to cite the author of any language or of any ideas *which are not your own creation* is plagiarism. This includes any text you might paraphrase, as well. Anyone is capable of searching the Internet or

any printed media; your research paper is intended to broaden your knowledge, stimulate your creativity, and make you think, analyze, and learn. It is not consistent with the College Honor Code, nor with scholarly expectations to submit work which is not the product of your own thinking and research. Severe penalties will result upon the submission of any work found to be plagiarized, including potential failure of the entire course. It is easy and simple to properly cite all sources used in your paper. Take no risks – cite your sources.

First Night Assignment - SKILLS REVIEWS for Chapters 9,10,11

CLASS SCHEDULE:

Week 1: Chapters 9, 10, 11

Homework: Chapter 9 Exercises #1-35 (odd)
Chapter 10 Exercises #1-29 (odd)
Chapter 11 Exercises #1-41 (odd)

Week 2: Chapters 13, 14

Homework: Chapter 13 Exercises #1-33 (odd)
Chapter 14 Exercises #1-45 (odd)

Week 3: Chapter 15, 16

Homework: Chapter 15 Exercises #1-35 (odd)
Chapter 16 Exercises #1-77 (odd)

Week 4: Chapters 17, 19

Homework: Chapter 17 Exercises #1-73 (odd)
Chapter 19 Exercises #1-69 (odd)

Week 5: Chapter 20

Homework: Chapter 20 Exercises #1-51 (odd)