MATH 1218 - NET07 - COURSE SYLLABUS **COLLEGE OF DUPAGE**

1. Instructor

- Instructor: Michael McCabe
- Email: mccabem85@cod.edu
- Phone: 630 942 2152 (I can hear voicemails away from my desk.)
- Office: BIC 3436 B (Not Applicable for the fall session)
- Office Hours: TR 9:00am to 2:00pm. Office hours will take place in Blackboard Collaborate linked in the Blackboard course title Office Hours.

2. Course Description

- Course Title: General Education Mathematics
- Course Number: 1218
- Credit Hours: 3, Clinical Hours: 0, Lecture Hours: 3, Lab Hours: 0
- Course description to appear in catalog: Students will learn mathematical reasoning and the solving of real-life problems, rather than routine skills. Four topics will be studied: set theory, logic theory, counting techniques and probability, and mathematics of finance. The course is designed to fulfill general education requirements, and not designed as a prerequisite for any other college mathematics course.
- Repeatable for credit: No
- Pre-Enrollment Criteria: N/A
- Prerequisite: MATH 0482 Foundations for College Mathematics II with a grade of "C" or better, or equivalent or
- Prerequisite: MATH 0465 Preparatory Mathematics for General Education with a grade of "C" or better, or equivalent or
- Prerequisite: a qualifying score on the math placement exam

3. Course Objectives

Upon successful completion of the course the student should be able to do the following:

(a) Perform operations with sets
(b) Use Venn diagrams to display set relationships
(c) Use Venn diagrams in problem solving
(d) Represent logical statements symbolically
(e) Construct truth tables with 2 and 3 simple statements
(f) Determine the validity of arguments
(g) Solve problems involving simple and compound interest
(h) Solve simple and compound interest formulas for present value, rate, and time
(i) Calculate the future and present value of an annuity
(j) Calculate loan payment and amortization schedules
(k) Solve problems involving permutations and combinations
(l) Compute empirical and theoretical probabilities
(m) Calculate odds
(n) Compute the probability of the complement of an event
(o) Compute the probability of the union of events

(p) Compute the probability of the intersection of events
(q) Compute conditional probabilities
(r) Solve problems involving expected value

4. Topical Outline

The following are to be studied in depth (all topics are required).

(a) Set theory
    (a) a. Roster and set-builder notation
    (b) b. Cardinality of a set
    (c) c. Equality of sets
    (d) d. Equivalency of sets
    (e) e. Number of subsets of a finite set
    (f) f. Set operations
    (g) i. Complement
        (i) ii. Union
        (ii) iii. Intersection
    (h) g. Venn diagrams with three sets
    (i) h. DeMorgan's Laws
        (i) i. Cardinality of the union of sets
    (j) j. Use of Venn diagrams to prove or disprove statements involving sets
    (k) k. Use of Venn diagrams to solve survey problems with three sets
(b) Logic Theory
    (a) Logical statements
    (b) Negation of simple, compound, and quantified statements
    (c) Simple and compound statements and their symbols, including
        (i) Negations
        (ii) Conjunctions
        (iii) Disjunctions
        (iv) Conditionals
        (v) Biconditionals
    (d) Construct truth tables with two or three simple statements, including
        (i) Negations
        (ii) Conjunctions
        (iii) Disjunctions
        (iv) Conditionals
        (v) Biconditionals
    (e) Logically equivalent statements
    (f) DeMorgan's Laws
    (g) Converse, inverse, and contrapositive of a conditional statement
    (h) Validity of an argument through use of truth tables
    (i) Common forms of valid arguments
    (j) Common fallacies
    (k) Validity of a syllogism
(c) 3. Counting techniques and probability
    (a) Fundamental Counting Principle

(b) Counting problems involving permutations
(c) Counting problems involving combinations
(d) Sample space of an experiment
(e) Theoretical probabilities
(f) Empirical probabilities
(g) Probability of the complement of an event
(h) Mutually exclusive events
(i) Probability of the union of events
(j) Conditional probabilities
(k) Independent and dependent events
(l) Probability of the intersection of events
(m) Odds
(n) Expected value

(d) 4. Mathematics of Finance
(a) Percent calculations
(b) Percent change
(c) Simple interest
(d) Maturity value for simple interest formula solved for
(i) Present value
(ii) Interest rate
(iii) Time
(e) Maturity value for compound interest formula solved for
(i) Present value
(ii) Interest rate (using exponents)
(iii) Time (using logarithms)
(f) Future value of an ordinary annuity
(g) Present value of annuity
(h) Future value of an annuity due
(i) Loan amortization payments
(j) Total interest paid over the term of a loan
(k) Amortization schedules

5. Method of Evaluation

(a) Exam [200 Total Points]

- General Information:
  (a) 4 Exams each worth 50 points
  (b) Each exam will be a take-home exam and will need to be completed in 24 hours after released.
  (c) All work must be shown.
  (d) It is suggest all work be cited from the text, there is no formal method of citing.
- Submission Procedure:
  - Each exam will be opened at a certain time of day and will begin the 24 hour clock to complete.
  - The minimum expectation is to print the exam, show all work on the printed exam, scan the worked-out exam, and finally upload the exam to Blackboard through the designated Blackboard assignment link.
  - The file format required for submission is "exam.#.pdf". No other file format will be accepted. Any file submission not readable during grading will be subject to penalty.

  - Photo file format will not be accepted, and email submission will not be accepted.
  - Students are responsible for knowing how to scan and upload files correctly prior to the day of the exam.

(b) Project [210 Total Points]

- General Information:
  - 3 Projects each worth equal amount of points.
  - Each project will have several days to complete.
  - It is encouraged to use what ever resources necessary to complete the project.
- Submission Procedure:
  - Each project will be opened weeks before due date.
  - All work will be submitted through Blackboard Test.
  - Equation editor(s) will be required for some problems.
  - Spreadsheets may also be used for submissions.

(c) My Math Lab (MML) [200 Total Points]

(a) Each section will be associated with a MML homework set.
(b) There will be unlimited attempts.
(c) Each homework set will be worth equal amount of points.
(d) There will be at least 3 dropped assignments. Thus, there will be no make-ups nor extensions.
(e) At the end of the semester I will not be reopening all the assignments.

(d) Turn-In's [200 Total Points]

(a) General Information:
- Each Turn-In will be equal amount of points.
- There will be at least 5 dropped assignments. Thus, there will be no make-ups nor extensions.
- Turn-In assignments will be due several times throughout the week.
- The idea of the Turn-In's it so confirm understanding of the information on each section.

(b) Submission Procedure:
- The minimum expectation is to print the Turn-In, show all work on the printed Turn-In, scan the worked-out Turn-In, and finally upload the Turn-In to Blackboard through the designated Blackboard assignment link.
- The file format required for submission is TurnIn.#.pdf. No other file format will be accepted. Any file submission not readable during grading will be subject to penalty.
- Photo file format will not be accepted, and email submission will not be accepted.
- Students are responsible for knowing how to scan and upload files correctly prior to the due date.

(e) Final Exam [200 Total Points]

- General Information:
  (a) Comprehensive
  (b) Will be a take-home exam and will need to be completed in 24 hours after released.
  (c) All work must be shown.
  (d) It is suggest all work be cited from the text, there is no formal method of citing.
- Submission Procedure:
  - Will be opened at a certain time of day and will begin the 24 hour clock to complete.
  - The minimum expectation is to print the exam, show all work on the printed exam, scan the worked-out exam, and finally upload the exam to Blackboard through the designated Blackboard assignment link.
  - The file format required for submission is "final.exam.pdf". No other file format will be accepted. Any file submission not readable during grading will be subject to penalty.
  - Photo file format will not be accepted, and email submission will not be accepted.
  - Students are responsible for knowing how to scan and upload files correctly prior to the day of the exam.

Grading Scale:

- A: 85% to 100%
- B: 75% to 84%
- C: 65% to 74%
- D: 55% to 64%
- F: 54% or less.

6. Academic Calendar

- August 24 Class begins
- September 7 Labor Day (No Class)
- October 16 In-Service Day (No Class)
- November 3 Election Day (No Class)
- November 14 Last Day to Withdraw
- November 25 - 29 Thanksgiving Recess
- December 12 - 18 Final Evaluations/Culminating Activities
- December 18 End of 16-Week

7. Required Text

- Pirnot, Thomas; Mathematics All Around, 6th Edition; Pearson, 2018
- MyMathLab Access Code

8. Tentative Schedule

For the most up to date schedule look to **Blackboard Calendar**. It is suggested to focus on at least 2 sections in the book per week. The chapters we will cover are (in order):

(a) Chapter 2
(b) Chapter 8
(c) Chapter 3
(d) Chapter 12
(e) Chapter 13

Important tentative dates are:

- Exam 1: End of week 3
- Project 1: End of week 4
- Exam 2: End of week 6
- Project 2: End of week 7
- Exam 3: End of week 9
- Exam 4: Middle of week 12 (also last week for withdraw)
- Project 3: End of week 13
- ~~Project 4: End of week 16~~
- Final Exam

9. Suggested Weekly Schedule

- 3 hours a week reading the eText and watching videos provided in MML (or me upon request).
- 3 hours a week towards Homework and Turn-In. The priority between Homework and Turn-In will vary from student to student.
- It is suggested to spend at least 30 minutes a week spent in office hours.

- It is suggested to spend at least 30 minutes a week spend utilizing Math Assistant Area resources.
- When possible continuously work on projects and study for exams.
- at most 30 minutes of social media... JK.

10. Academic Honesty

As members of the College of DuPage community, we share a commitment to the highest standards of learning and ethical behavior. The College and its faculty strive to build meaningful and productive relationships with our students. The expectation of honesty and effort is the foundation of that relationship. Academic dishonesty damages the learning partnership built between student and faculty and is considered a serious breach of the principles of learning and growth. Violations of the Code of Academic Conduct will be dealt with appropriately and may become part of a student's educational record. Please don't risk it! For further information about the expectations, please review the Code of Academic Conduct found at the following website:Code of Academic Conduct.

11. Withdrawal Policy

- Withdrawal from a Class. The final day for a student to withdraw from any course will be equal to 75% of the time for the respective academic session (see the Registration Calendar) through MyAccess or in person at the Registration office, Student Services Center (SSC), Room 2221.
- Administrative Withdrawal. After the deadline, students will be required to appeal for late withdrawal and provide appropriate documentation to the Student Registration Services Office for all requests. Students who are granted approval to withdraw by petition will not be eligible for refunds of tuition or fees and will receive a 'W' grade on their transcript. Appeals must be submitted prior to the designated final exam period for 16-week classes and before the last class meeting for all other session classes.
- Coronavirus Information. Stay up to date with information provided by the college about alternative withdrawal policies.

12. Access and Accommodations

The College of DuPage is committed to the equitable access of educational opportunities for students with disabilities in accordance with The Americans with Disabilities Act, As Amended and Section 504 of the Rehabilitation Act of 1973. Any student who feels they may need an accommodation on the basis of an illness, injury, medical condition, or disability should contact the Center for Access and Accommodations to determine eligibility for accommodations and to obtain an official Letter of Accommodation. The Center for Access and Accommodations can be reached via email at access@cod.edu. Students may also initiate a request for services by going to www.cod.edu/access and clicking on the green box labeled "complete form to request accommodations." If you are already registered with the Center for Access and Accommodations, please email me your Letter of Accommodation as soon as possible. Please DO NOT send any private health documentation or Doctor's notes to me.