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This course syllabus is intended as a set of guidelines for MATH-1332. Both North Lake College and your instructor reserve the right to make modifications in content, schedule, and requirements as necessary to promote the best education possible within the prevailing conditions affecting this course.

Instructor Information
Instructor’s Name: Danny Dinh
Email Address: VietVDinh@dcccd.edu
Office Phone Number: 972-860-3938
Office Location: A266
Office Hours: 12:30pm – 2:00pm M W
9:30am – 1:00pm T R
5:00pm – 5:40pm T R
Other time (including Friday) by appointment.

Course Information
Course title: Contemporary Mathematics (Quantitative Reasoning)
Course number: MATH 1332
Section number: 78201
Credit hours: Three (3)
Class meeting time: 8am-9:20am MW

Course Description
Topics may include introductory treatments of sets, logic, number systems, number theory, relations, functions, probability and statistics. Appropriate applications are included.

Course prerequisites: Two years of high school algebra and an appropriate assessment test score or Developmental Mathematics 0099 or Developmental Mathematics 0093.
Required Textbook and Materials

Thinking Mathematically MyLabsPlus (MLP) Package for North Lake College

Option_1:

Option_2:
Math-1332 MyMathLab Plus Access Code Only (This is the code + ebook)

*Note: MyLabPlus access code is NOT the same as the MyMathLab access code.


Calculators
You will be allowed to use calculators on all tests. Graphing calculators (such as the TI-83 or TI-84 Plus) are recommended. **Calculators such as the TI 89 & TI 92, which perform algebraic operations, are not allowed.** Please verify the calculator policy for other campuses by calling the appropriate testing center.

Technical Support

MyLabsPlus support website: [http://www.mylabsplus.com/support](http://www.mylabsplus.com/support)

A link to this site is available on eCampus.

Technical support number for eCampus: 972-669-6402
Technical support number for MyLabsPlus: 1-888-883-1299

Core Objectives

**MATH-1332 is the TIER 1 - CORE FOUNDATIONS, which requires three component areas of assessment.**

Communications: Written and Visual

Written: Process and produce effective written communication adapted to audience, purpose, and time constraints.

Visual: Effectively interpret visual images or produce effective visual images.

Critical Thinking:

To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.

Empirical and Quantitative Skills:
To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

**Specific Course Learning Outcomes (ACGM Learning Outcomes)**

Upon successful completion of this course students will:

1. Apply the language and notation of sets.
2. Determine the validity of an argument or statement and provide mathematical evidence.
4. Demonstrate fundamental probability/counting techniques and apply those techniques to solve problems.
5. Interpret and analyze various representations of data.
6. Demonstrate the ability to choose and analyze mathematical models to solve problems from real-world settings, including, but not limited to, personal finance, health literacy, and civic engagement.

**Course Content:**
Chapter 1 Problem Solving and Critical Thinking
Chapter 2 Set Theory
Chapter 3 Logic
Chapter 8 Personal Finance
Chapter 11 Counting Methods and Probability Theory
Chapter 12 Statistics

Note: The instructor may omit certain topics in these chapters.

**Means of Assessment of Course Learning Outcomes**

Course Learning Outcomes will be assessed by a variety of means.

1. A written test or Mastery test in MyLabsPlus will be given to assess each Learning Outcome.
2. Homework will be assigned and assessed using the software component.
3. Observation of students as they interact in groups and discussions will be used to assess all outcomes.
4. Students will complete projects and learning activities that will address specific course learning outcomes.

**Course Outline**

Please see Appendix attached to this syllabus for a complete and detailed course outline.

**Evaluation Procedures of Course Learning Outcomes**
The learning outcomes will be assessed through Group Work (projects), Homework, Quizzes and Exams. The final grade will be based on the following:

**Computing Your Grade:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Percent of grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>5%</td>
</tr>
<tr>
<td>MLP Chapter Homework</td>
<td>15%</td>
</tr>
<tr>
<td>Written Chapter exams (5 tests)</td>
<td>58%</td>
</tr>
<tr>
<td>Mastery test and SLO Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam (chapter 12)</td>
<td>12%</td>
</tr>
</tbody>
</table>

**Grading Scale**

Your course grade will be determined by the final grade average based on the following:

A=90-100   B=80-89   C=70-79   D=60-69   F=0-59

**Homework**

Homework is the most important learning tool in a course. The instructor’s role of facilitating learning is greatly enhanced for the student who has attempted the homework. The classroom environment is more favorable for learning when the student has studied the material in the text, has tried to work the problems, and uses the classroom to get supplementary information and assistance that is not available in the text. You are required to spend at least 6 hours each week after class to complete homework and review course material for that week.

This course requires MyLabsPlus for homework assignments.

- Allow yourself enough time to complete the homework.
- In order to be prepared for the written tests, it is recommended that you earn a 100% on each homework assignment. Use the Similar Exercise button to re-work an incorrect problem.
- Homework must be completed before the chapter test is taken.

Students should maintain a HW notebook.

- This means that you should copy the problem, work the problem, and enter your answer in MyLabsPlus.
- Maintaining a HW notebook will give you more examples to review when preparing for an exam.
- The notebook will also help you practice the proper way to communicate and show your work.
- You may be asked to present your written HW at any time throughout the semester.
- You should label each section, copy the problem, neatly show your work vertically, and clearly indicate your final answer.
- Homework will be counted as 15% of your final course grade.

**Project/Learning Activities**

- Periodically you will be expected to complete a project and/or additional assignments.
• If you are absent on the day these assignments are given, it is your responsibility to get the information from eCampus and turn it in to your instructor on the next class day.
• A late penalty may apply.

**Attendance and Class Participation**

*Attendance is necessary to pass this class. See policy on page 8.*

Roll will be taken every class period.

*A late penalty may apply.*

**Financial Aid Certification of Attendance**

You must attend and participate in your on-campus or online course(s) in order to receive federal financial aid. Your instructor is required by law to validate your attendance in your on-campus or online course in order for you to receive financial aid. You must participate in an academic related activity pertaining to the course such as but not limited to the following examples:

• initiating contact with your instructor to ask a question about the academic subject studied in the course;
• submitting an academic assignment;
• taking an exam;
• completing an interactive tutorial;
• participating in computer-assisted instruction;
• attending a study group that is assigned by the instructor;
• or participating in an online discussion about academic matters relating to the course.

In an online class, simply logging in is not sufficient by itself to demonstrate academic attendance. You must demonstrate that you are participating in your online class and are engaged in an academically related activity such as in the examples described above.

**Testing**

**Mastery Tests:**

• You will be required to take a mastery test before each written exam.
• The mastery tests will serve as your test review for each written test.
• You will have limited attempts and a deadline to take each mastery test.
• Your deadline will be announced in class.
• The highest grade on each mastery test will be used to determine your mastery test average.

*The mastery test and quizzes will count as 10% of your final course grade.*

**Written Tests:**

• All written tests will be taken in the testing center.
• Students will login to the appropriate online location and the Test Center personnel will enter the required password for the exam.
• Once the exam comes up on the screen, the student will write out their work on paper supplied by the Test Center. You should request graph paper as needed.
• The paper portion of the exam will be attached to the Test Permit Form
• The written tests are the largest single portion of the final course grade.
• All written tests will be graded according to the Guidelines for Homework Assignments and All Tests (see Appendix).
• You are required to use proper algebraic techniques on each test. Improper algebraic steps may result in a loss of all or partial points.
• Answers only will receive little, if any credit.
• The instructor reserves the right to make test schedule changes.
• If you are unable to take a test at the scheduled time, please make prior arrangements with the instructor.
• You will take the test in the Testing Center, Room L240, on or before the regularly scheduled test dates.
• To take a test in the Testing Center you will need to supply a photo ID (preferably your North Lake College ID), your student ID number, your instructor’s name, and the course number and section. For detail Testing Center policies, see Discipline/Course/Dept/Policies in syllabus.
• Calculators may be used on all tests.
• Written tests will be 58% of your course grade.

Students who miss the test deadline will have to choose one of the options given in "Retests" in order to replace the zero.

**You will not be allowed under any circumstances to take more than 2 tests during the week before final exams.**
This means one chapter test and one make up test maximum! No make-up tests allowed in the testing center during finals week.

Final Exam
The final exam is 12% of your final course grade. Chapter 12 is the final exam chapter.

**Discipline/ Course/ Department/Policies**

**Attendance and Quizzes**
The purpose of these quizzes is to check attendance, help keep you on track, and for the instructor to determine your comprehension of the course material so that you can be successful in this course. *Attendance and in-class quizzes will be 5% of your final course grade.*

This portion of the final course grade will be determined by the number of unexcused absences, using the following table:

<table>
<thead>
<tr>
<th>Absences</th>
<th>No. of Absences</th>
<th>Grade</th>
<th>Grade Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absences</td>
<td>0 - 2</td>
<td>Grade</td>
<td>100</td>
</tr>
<tr>
<td>Absences</td>
<td>3</td>
<td>Grade</td>
<td>95</td>
</tr>
<tr>
<td>Absences</td>
<td>4</td>
<td>Grade</td>
<td>90</td>
</tr>
<tr>
<td>Absences</td>
<td>5</td>
<td>Grade</td>
<td>85</td>
</tr>
<tr>
<td>Absences</td>
<td>6</td>
<td>Grade</td>
<td>80</td>
</tr>
<tr>
<td>Absences</td>
<td>7</td>
<td>Grade</td>
<td>75</td>
</tr>
<tr>
<td>Absences</td>
<td>8</td>
<td>Grade</td>
<td>70</td>
</tr>
<tr>
<td>Absences</td>
<td>No. of Absences</td>
<td>Grade</td>
<td>Grade Score</td>
</tr>
<tr>
<td>----------</td>
<td>----------------</td>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>Absences</td>
<td>9</td>
<td>Grade</td>
<td>65</td>
</tr>
<tr>
<td>Absences</td>
<td>10</td>
<td>Grade</td>
<td>60</td>
</tr>
<tr>
<td>Absences</td>
<td>11</td>
<td>Grade</td>
<td>55</td>
</tr>
<tr>
<td>Absences</td>
<td>12</td>
<td>Grade</td>
<td>50</td>
</tr>
<tr>
<td>Absences</td>
<td>13</td>
<td>Grade</td>
<td>45</td>
</tr>
<tr>
<td>Absences</td>
<td>14</td>
<td>Grade</td>
<td>40</td>
</tr>
<tr>
<td>Absences</td>
<td>15</td>
<td>Grade</td>
<td>35</td>
</tr>
<tr>
<td>Absences</td>
<td>16</td>
<td>Grade</td>
<td>30</td>
</tr>
<tr>
<td>Absences</td>
<td>17</td>
<td>Grade</td>
<td>25</td>
</tr>
<tr>
<td>Absences</td>
<td>18</td>
<td>Grade</td>
<td>20</td>
</tr>
<tr>
<td>Absences</td>
<td>19</td>
<td>Grade</td>
<td>15</td>
</tr>
<tr>
<td>Absences</td>
<td>20</td>
<td>Grade</td>
<td>10</td>
</tr>
<tr>
<td>Absences</td>
<td>21</td>
<td>Grade</td>
<td>5</td>
</tr>
<tr>
<td>Absences</td>
<td>22 or more</td>
<td>Grade</td>
<td>0</td>
</tr>
</tbody>
</table>

**Tardiness**
- Tardiness are strongly discouraged as they are disruptive to the class and thus the students who are on time. Quizzes will be given periodically during the first 5 minutes of class. The quizzes are a part of your daily work grade. Arriving after the quiz has been distributed will result in a zero for that daily quiz. There is no make-up for all in-class quizzes.

**Classroom Behavior**
Distractive talking or any disorderly conduct is prohibited. Please be courteous of others. A warning will be given for behavior an instructor considers disruptive and if the warning is not heeded, the student will be asked to leave. See Student Code of Conduct for more details.

**CELL PHONE USE**
The use of cell phones or other similar devices is prohibited during class time. You are expected to turn OFF all such devices BEFORE entering the classroom. You may be asked to leave class if your cell phone causes you or others to be distracted in class i.e. contact calls or texting. *No any cell phone can be used as a calculator in class.*

**Math Center – FREE and No Appointment Needed L137**
The STEM Center, located in L137 and L139 provides assistance and resources free to students enrolled in mathematics and developmental mathematics classes at North Lake College. This is a great place to bring a study group, study quietly, get help with math classes, and use the center’s various resources.
Services offered:
- Tutorial services in all math courses taught at North Lake College
- Computers for use by students enrolled in courses that have an Internet component such as homework systems (i.e., MyLabsPlus, ConnectMath)
• Graphing calculators for use in the center
• Textbooks for use in the center
• A quiet area to study (Just ask one of the tutors)
• Opportunity for students to make up class absences
• Whiteboards space for study groups
• Content workshops covering how to use graphing calculators, course topics, review sessions, and study skills

The STEM Center Hours of Operation
Monday – Thursday: 9 a.m. – 6 p.m.
Friday & Saturday: 9 a.m. – 2 p.m.
Manager: Camrunn Beck, Room L135, camrunn.beck@dccc.edu

**Testing Center (L240)**

**Monday-Thursday:** 8:30 a.m. – 8:00 p.m.
No tests will be issued after 7:00 p.m. Other cutoff times may be in effect for specific exams by the instructor’s direction.
All exams collected at 8:00 p.m.

**Friday-Saturday:** 8:30 a.m.- 3:30 p.m.
No tests will be issued after 2:30 p.m. Other cutoff times may be in effect for specific exams by the instructor’s direction.
All exams collected at 3:30 p.m.

**Sunday** – CLOSED

Check here for the testing center most current update information.

*Important: hours and days may vary due to holidays or other events, please verify the Testing Center will be open before you arrive.*

If your instructor requires you to complete an exam in the Testing Center, be sure to have the following information when you request your test:
1. Instructor’s name
2. Subject, course number, and section number (ex: Math 1332 78201)
3. Exam number (1st, 2nd, 3rd, etc.)
4. Exam deadline (Get this information from your instructor. The testing staff cannot look up this information on computers).

You should also bring the following supplies:
1. Pencil
2. A Test Request Form must be completed before entering the Testing Center.
4. **Government or school issued photo identification is required & enforced.**
5. Only battery operated 4 function, non programmable scientific or TI83/TI84 calculators are allowed (if permitted by instructor). The memory on your calculator will be cleared.

You may not bring personal items into the Testing Center. This includes bags, cell phones, and pagers.

Please show courteous and cooperative behavior while using the services provided by the Testing Center.
DO NOT bring children to the Testing Center. You must make arrangements for the care of your children prior to your exam date. The police department will be notified of any unattended children.

DO NOT take any testing materials with you when you leave the Testing Center. This includes the test, answers, charts, scratch paper. These items will be attached to your test. (To do so constitutes Academic Dishonesty.)

Questions? Please visit the Testing Center (L 240) or call 972-273-3160.

Institutional Policies
Institutional Policies relating to this course can be accessed from the following link:
Link to Syllabi Policies for NLC

Academic Dishonesty

The Student Code of Conduct prohibits academic dishonesty and prescribes penalties for violations. According to this code, which is printed in the college catalog, “academic dishonesty”, includes (but is not limited to) cheating, fabrication, facilitating academic dishonesty, plagiarism, and collusion.

1) The Vice-President of Academic & Student Affairs may initiate disciplinary proceedings against a student accused of academic dishonesty.

2) Academic dishonesty includes, but is not limited to, cheating on a test, plagiarism and collusion.

3) Cheating on a test includes:
   a) Copying from another student’s test paper;
   b) Using, during a test, materials not authorized by the person giving the test;
   c) Collaborating with another student during a test without permission to do so;
   d) Knowingly using, buying, selling, stealing, transporting, or soliciting in whole or part the contents of an un-administered test.
   e) Substituting for another student, or permitting another student to substitute for you to take a test; and
   f) Bribery another person to obtain an un-administered test or information about an un-administered test.

4) “Plagiarism” means the appropriation of another’s work (ideas and/or words) and the unacknowledged incorporation of that work in one’s written work offered for credit. Quotes not identified as quotes constitute a form of plagiarism even if the borrowed ideas are documented.

5) “Collusion” means an unauthorized collaboration with another person in preparing written work offered for credit.

Academic dishonesty may result in the following sanctions, including, but not limited to:
1. A grade of zero or a lowered grade on the assignment or course.
2. A reprimand.
3. Suspension from the college.

Math Department Policy

1. A grade of zero will be given on the assignment for the first occurrence of dishonesty. Retests or make-ups are not allowed on the assignment.
2. A grade of F will be given for the course after a second occurrence of dishonesty.
3. Other disciplinary action can be taken as determined by the college.

**DROP POLICY**

If you are unable to complete this course, you must officially withdraw by **Wednesday November 27th, 2019**. Withdrawing is a formal procedure which you must initiate; your instructor cannot do it for you. All Dallas County Community Colleges charge a higher tuition rate to students registering the third time for a course. This rule applies to the majority of credit and Continuing Education / Workforce Training courses. Developmental Studies and some other courses are not charged a higher tuition rate. Third attempts include courses taken at any DCCCD college since the fall 2002 semester. For further information, go online at this address for the third attempt information, click here.

STOP BEFORE YOU DROP - Do NOT drop until you speak with your instructor.
For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop. You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions. Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges.
For more information, you may access the web by clicking here.

**Financial Aid Statement**

Students who are receiving any form of financial aid should check with the Financial Aid Office prior to withdrawing from classes. Withdrawals may affect your eligibility to receive further aid and could cause you to be in a position of repayment for the current semester. Students who fail to attend or participate are also subject to this policy.

To apply for financial aid in the DCCCD, students must complete FAFSA (Free Application for Federal Student Aid) on the web by click here.

**Counselling Services (A430)**

Counseling services for personal issues are provided to all students currently enrolled at North Lake College. These services are provided by licensed professionals who are bound by confidentiality (within ethical parameters) at no charge. With the assistance of a counselor, students are able to identify, understand, resolve issues and develop appropriate skills. To make an appointment call 972-273-3333 or visit A 430.

**Appendix A: Learning Activities, Outcomes, and Assessment**

**ASSESSMENT OF CORE OBJECTIVE: COMMUNICATION**

Written:
An application problem in which students identify unknowns and other information provided, stating appropriate formulas or relationships. Final solution must be stated in such a way as to answer the question posed and be a complete English sentence.
Visual:
Appropriate visual charts, graphs or diagrams must be used.

Written and Visual:
These artifacts will be evaluated with a MATH/DMAT District Curriculum Committee developed combined communication rubric.

**ASSESSMENT OF CORE OBJECTIVE: CRITICAL THINKING**

An application problem in which students identify unknowns and other information provided, stating appropriate formulas or relationships. Final solution must be stated in such a way as to answer the question posed and be a complete English sentence. Appropriate visual charts, graphs or diagrams must be used.

**ASSESSMENT OF CORE OBJECTIVE: EMPIRICAL and QUANTATIVE SKILLS**

An application problem in which students identify unknowns and other information provided, stating appropriate formulas or relationships. Final solution must be stated in such a way as to answer the question posed and be a complete English sentence. Appropriate visual charts, graphs or diagrams must be used.

**Appendix B: Student Guidelines for all homework and tests**

Writing mathematics is a lot like writing a composition paper. There is an introduction (the problem), body (work/steps), and a conclusion (the answer). Your work must flow in a clear, precise and logical order. You must use the proper notation and use the properties, theorems, and rules correctly.

Listed below are the expectations and guidelines for every assignment. Your grade will be based upon how well you follow these guidelines. The goal of these guidelines is to help you become a better thinker and presenter which will be beneficial for any career you choose.

**Expectations for all written assignments:**

1. If you use a spiral notebook and tear out the pages, you need to trim off the “shards” before turning in the assignment. Loose-leaf paper is preferred.

2. Your name, course number, and chapter and section from the text (if applicable) should be written in the upper right-hand corner of the first page. Each assignment should be stapled in the upper left-hand corner of the page.

3. The problem number or name of the assignment should be written down for each problem assigned. Next include a summary of the problem and directions. Be sure to include all the given information in your summary and a picture of the problem if necessary.
4. If the problem requires you to introduce variables in order to solve it, you must clearly define the variables. Variables must represent **numerical** quantities, not objects. Be sure to include the units of the variables (for example, feet, pounds, minutes, etc.).

5. For word problems you will need to set up the equation(s) that model(s) the problem using the defined variables.

6. Write the steps of the problem down the left-hand side of the paper with each step directly under the previous one. Show **every step**. Don’t skip a step even if you may think it is easy.

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**Appendix C: Course Weekly Calendar MATH 1332**

<table>
<thead>
<tr>
<th>Important Dates</th>
<th>Important Dates for the semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/23/19 (Wednesday)</td>
<td>First Day of class</td>
</tr>
<tr>
<td>10/28/2019</td>
<td>Census date (Certification Date)</td>
</tr>
<tr>
<td>11/27/2019</td>
<td>Last Day to Withdraw with grade of W</td>
</tr>
<tr>
<td>12/11</td>
<td>Final Exam Day</td>
</tr>
</tbody>
</table>

**Week 1**
- Syllabus
- eCampus and MyLabsPlus Orientation
- Complete the Review Section Homework generated by your pre – test.
  - **Chapter 1: Problem Solving and Critical Thinking**
  - 1.1 Inductive and Deductive reasoning
  - 1.2 Estimation, Graphs and Mathematical Models
  - 1.3 Problem Solving
  - **Review Test 1**

**Week 2**
- **TEST 1 (chapter 1)**
- **Chapter 2 Set Theory**
  - 2.1 Basic Set Concepts
  - 2.2 Subsets
  - 2.3 Venn Diagrams and Set Operations
  - 2.4 Set Operations and Venn Diagrams
  - 2.5 Survey Problems
- Review **Test_2 (chapter 2)**
  - **Chapter 3 Logic**
  - 3.1 Statements, Negations, and Quantified Statements
  - 3.2 Compound Statements and Connectives
  - 3.3 Truth Tables for Negation, Conjunction, and Disjunction
<table>
<thead>
<tr>
<th>Week 3</th>
<th>TEST 2 (chapter 2) this week.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chapter 3 Logic (cont.)</td>
</tr>
<tr>
<td></td>
<td>• 3.4 Truth Tables for the Conditional and Biconditional</td>
</tr>
<tr>
<td></td>
<td>• 3.5 Equivalent Statements and Variations of Conditional Statements</td>
</tr>
<tr>
<td></td>
<td>• 3.6 Negations of Conditional Statements and De Morgan's Laws</td>
</tr>
<tr>
<td></td>
<td>• 3.7 Arguments and Truth Tables (optional)</td>
</tr>
<tr>
<td></td>
<td>• 3.8 Arguments and Euler Diagrams (optional)</td>
</tr>
<tr>
<td></td>
<td>• Review Test 3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Week 4</th>
<th>TEST 3 (chapter 3) this week.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chapter 8 Personal Finance</td>
</tr>
<tr>
<td></td>
<td>• 8.1 Percent, Sales Tax, and Discount</td>
</tr>
<tr>
<td></td>
<td>• 8.2 Income Taxes</td>
</tr>
<tr>
<td></td>
<td>• 8.3 Simple Interest</td>
</tr>
<tr>
<td></td>
<td>• 8.4 Compound Interest</td>
</tr>
<tr>
<td></td>
<td>• 8.5 Annuities, Methods of Saving, and Investments</td>
</tr>
<tr>
<td></td>
<td>• 8.6 Cars (Brief introduction)</td>
</tr>
<tr>
<td></td>
<td>• 8.7 The Cost of Home Ownership (Brief introduction)</td>
</tr>
<tr>
<td></td>
<td>• 8.8 Credit Cards (Brief introduction)</td>
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<td>• Review and Written Test 4 (chapter 8)</td>
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<th>Week 5</th>
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<td>Chapter 11 Counting Methods and Probability Theory</td>
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<td>• 11.1 The Fundamental Counting Principle</td>
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<td>Dec. 11</td>
<td><strong>Review for the final exam</strong></td>
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**Final Exam Day at 8am**

Note: Pre-reqs should be reviewed by students as needed – concepts may not be covered in detail in this course.
### Appendix D: Course Objectives

#### Chapter 1 Problem Solving and Critical Thinking

1.1 Inductive and Deductive reasoning
- Understand and use inductive reasoning.
- Understand and use deductive reasoning.

1.2 Estimation, Graphs and Mathematical Models
- Use estimation techniques to arrive at an approximate answer to a problem.
- Apply estimation techniques to information given by graphs.
- Develop mathematical models that estimate relationships between variables.

1.3 Problem Solving
- Solve problems using the organization of the four-step problem solving process

#### Chapter 2 Set Theory

2.1 Basic Set Concepts
- Use three methods to represent sets.
- Define and recognize the empty set.
- Use the symbols ∈ and ∉.
- Apply set notation to sets of natural numbers.
- Determine a set’s cardinal number.
- Recognize equivalent sets.
- Distinguish between finite and infinite sets.
- Recognize equal sets.

2.2 Subsets
- Recognize subsets and use the notation ⊆.
- Recognize proper subsets and use the notation ⊂.
- Determine the number of subsets of a set.
- Apply concepts of subsets and equivalent sets to infinite sets.

2.3 Venn Diagrams and Set Operation
- Understand the meaning of a universal set.
- Understand the basic ideas of a Venn diagram.
- Use Venn diagrams to visualize relationships between two sets.
- Find the complement of a set
- Find the intersection of two sets.
- Determine sets involving set operations from a Venn diagram.
- Understand the meaning of and and or.
- Use the formula for \( n(A \cup B) \).

2.4 Set Operations and Venn Diagrams with Three Sets
- Perform set operations with three sets.
- Use Venn diagrams with three sets.
- Use Venn diagrams to prove equality of sets.
Course Objectives Continue:

2.5 Survey Problems
- Use Venn diagrams to visualize a survey’s results.
- Use survey results to complete Venn diagrams and answer questions about the survey.

Chapter 3 Logic

3.1 Statements, Negations, and Quantified Statements
- Identify English sentences that are statements.
- Express statements using symbols.
- Form the negation of a statement
- Express negations using symbols.
- Translate a negation represented by symbols into English.
- Express quantified statements in two ways.
- Write negations of quantified statements.

3.2 Compound Statements and Connectives
- Express compound statements in symbolic form.
- Express symbolic statements with parentheses in English.
- Use the dominance of connectives.

3.3 Truth Tables for Negation, Conjunction, and Disjunction
- Use the definitions of negation, conjunction, and disjunction.
- Construct truth tables.
- Determine the truth value of a compound statement for a specific case.

3.4 Truth Tables for the Conditional and Biconditional
- Understand the logic behind the definition of the conditional.
- Construct truth tables for conditional statements.
- Understand the definition of the biconditional.
- Construct truth tables for biconditional statements.
- Determine the true value of a compound statement for a specific case.

3.5 Equivalent Statements and Variations of Conditional Statements
- Use a truth table to show that statements are equivalent.
- Write the contrapositive for a conditional statement.
- Write the converse and inverse of a conditional statement.

3.6 Negations of Conditional Statements and De Morgan's Laws
- Write the negation of a conditional statement.
- Use De Morgan’s laws.

Chapter 8 Personal Finance

8.1 Percent, Sales Tax, and Discount
- Express a fraction as a percent.
- Express a decimal as a percent.
- Express a percent as a decimal.
- Solve applied problems involving sales tax and discounts.
- Determine percent increase or decrease.
- Investigate some of the ways percent can be abused.
8.2 Income Taxes
- Determine gross income, adjustable gross income, and taxable income
- Calculate federal income tax
- Calculate FICA taxes
- Solve applied problems involving sales tax and discounts.

8.3 Simple Interest
- Calculate simple interest.
- Use the future value formula.

8.4 Compound Interest
- Use compound interest formulas.
- Calculate present value.
- Understand and compute effective annual yield.

8.5 Annuities, Methods of Saving, and Investments
- Determine the value of an annuity.
- Determine regular annuity payments needed to achieve a financial goal.
- Understand stocks and bonds as investments.
- Read stock tables.
- Understand accounts designed for retirement savings.

8.6 Cars
- Compute the monthly payment and interest costs for a car loan.
- Understand the types of leasing contracts.
- Understand the pros and cons of leasing versus buying a car.
- Understand the different kinds of car insurance.
- Compare monthly payments on new and used cars.
- Solve problems related to owning and operating a car.

8.7 The Cost of Home Ownership
- Compute the monthly payment and interest costs for a mortgage.
- Prepare a partial loan amortization schedule.
- Solve problems involving what you can afford to spend for a mortgage.
- Understand the pros and cons of renting versus buying.

8.8 Credit Cards
- Find the interest, the balance due, and the minimum monthly payment for credit card loans.
- Understand the pros and cons of using credit cards.
- Understand the difference between credit cards and debit cards.
- Know what is contained in a credit report.
- Understand credit scores as measures of creditworthiness.

Chapter 11 Counting Methods and Probability Theory
11.1 The Fundamental Counting Principle
- Use the Fundamental Counting Principle to determine the number of possible outcomes in a given situation.
11.2 Permutations
- Use the Fundamental Counting Principle to count permutations.
- Evaluate factorial expressions.
- Use the permutations formula.
- Find the number of permutations of duplicate items.

11.3 Combinations
- Distinguish between permutation and combination problems.
- Solve problems involving combinations using the combinations formula.

11.4 Fundamentals of Probability
- Compute theoretical probability.
- Compute empirical probability.

11.5 Probability with the Fundamental Counting Principle, Permutations, and Combinations
- Compute probabilities with permutations.
- Compute probabilities with combinations.

11.8 Expected Value (optional)
- Compute expected value.
- Use expected value to solve applied problems.
- Use expected value to determine the average payoff or loss in a game of chance.

Chapter 12 Statistics
12.1 Sampling, Frequency Distributions, and Graphs
- Describe the population whose properties are to be analyzed.
- Select an appropriate sampling technique.
- Organize and present data.
- Identify deceptions in visual displays of data.

12.2 Measures of Central Tendency
- Determine the mean for a data set.
- Determine the median for a data set.
- Determine the mode for a data set.
- Determine the midrange for a data set.

12.3 Measures of Dispersion
- Determine the range for a data set.
- Determine the standard deviation for a data set.
12.4 The Normal Distribution
- Recognize characteristics of normal distributions.
- Understand the 68-95-99.7 Rule.
- Find scores at a specified number of standard deviations from the mean.
- Use the 68-95-99.7 Rule
- Convert a data item to a z-score.
- Understand percentiles and quartiles.
- Use and interpret margins of error.
- Recognize distributions that are not normal.

12.5 Problem Solving with the Normal Distribution
- Solve applied problems involving normal distribution.

12.6 Scatter Plots, Correlation, and Regression Lines
- Make a scatter plot for a table of data items.
- Interpret information given in a scatter plot.
- Compute the correlation coefficient.
- Write the equation of the regression line.
- Use a sample’s correlation coefficient to determine whether there is a correlation in the population.