

**GERMANNA COMMUNITY COLLEGE
FREDERICKSBURG AREA CAMPUS**

Mrs. Delois R. McCormick

**COURSE OUTLINE
MTH 151-I1
Mathematics for the Liberal Arts I**

Fall 2009

I. COURSE DESCRIPTION: MTH 151 presents topics in sets, logic, numeration systems, geometric systems, and elementary computer concepts. Prerequisites: a placement recommendation for MTH 151 and Algebra I, Algebra II and Geometry or equivalent.

II. TEXTBOOK: Blitzer, Robert. Thinking Mathematically, 4th Edition, Prentice Hall: 2008, with Student Access Kit for MyMathLab. (NOTE: You may purchase just the access code and use the e-book found on the MyMathLab site. The access code is required. The printed textbook is optional.)

III. TOPICAL OUTLINE:

- A. Set Theory (Chapter 2)
- B. Logic (Chapter 3)
- C. Number Representation and Calculation (Chapter 4)
- D. Number Theory and the Real Number System (Chapter 5)
- E. Algebra: Equations and Inequalities (Chapter 6)
- F. Geometry (Chapter 10)

IV. OBJECTIVES: Upon completion of MTH 151 the student will be able to:

- A. Set Theory (Chapter 2):
 1. Designate a set by word description, listing or set builder notation.
 2. Define and recognize the empty set.
 3. Find the cardinal number of a set.
 3. Determine whether a set is finite or infinite.
 4. Determine if two sets are equal.
 5. Determine if two sets are equivalent.
 6. Use the symbols \in and \notin appropriately.
 7. Apply set notation to sets of natural numbers.
 8. Determine the number of subsets and proper subsets of a given set.
 9. Use the symbols \subset , \subseteq , and $\not\subset$ appropriately.
 10. Use Venn diagrams to illustrate relationships among sets.
 11. Find the complement of a set and the intersection, union, or difference of two sets.
 12. Use the formula for $n(A \cup B)$.
 13. Understand the meaning of "and" and "or."
 14. Perform set operations with 2 or 3 sets.
 15. Use Venn diagrams with 2 or 3 sets.

16. Use Venn diagrams to prove the equality of sets.
 17. Solve survey problems with a Venn diagram.
- B. Logic (Chapter 3):
1. Identify English sentences that are mathematical statements.
 2. Express simple and compound statements with symbols.
 3. Form the negation of a simple, compound or quantified statement.
 4. Use the dominance of connectives.
 5. Construct truth tables for negation, conjunction, disjunction, conditional, and bi-conditional.
 6. Determine the truth value of a specific case for the above cases.
 7. Apply DeMorgan's Laws.
 8. Recognize a tautology.
 9. Given a conditional statement be able to construct its converse, inverse and contrapositive.
 10. Use truth tables to show that two statements are equivalent.
 11. Use Euler diagrams to analyze arguments.
 12. Test the validity of an argument with a truth table.
 13. Recognize and use argument forms to determine the validity of an argument (modus ponens, modus tollens, disjunctive syllogism, reasoning by transitivity, fallacy of the converse, and fallacy of the inverse).
- C. Number Representation and Calculation (Chapter 4):
1. Evaluate an exponential expression.
 2. Write a Hindu-Arabic numeral in expanded form and expanded form as a Hindu-Arabic numeral.
 3. Understand and use the Babylonian and Mayan numeration systems.
 4. Convert from base ten to another base and from another base into base ten.
 5. Perform operations in bases other than base ten.
 6. Understand and use the Egyptian, traditional Chinese, Roman, and Ionic Greek numeration systems.
- D. Number Theory Chapter 5):
1. Determine if one number is divisible by another.
 2. Identify prime and composite numbers.
 3. Write the prime factorization of a composite number.
 4. Find the greatest common divisor and the least common multiple of two or more numbers.
 5. Solve problems using the greatest common divisor and least common multiple.
 6. Define and graph the integers.
 7. Use the symbols $<$ and $>$.
 8. Find the absolute value of an integer.

9. Perform operations on integers.
 10. Apply the Order of Operations in simplifying an expression.
 11. Define rational numbers.
 12. Reduce rational numbers.
 13. Convert between improper fractions and mixed numbers.
 14. Convert between fractional and decimal form.
 15. Perform operations on rational numbers.
 16. Solve application problems with rational numbers.
 17. Define irrational numbers.
 18. Simplify square roots in radical form.
 19. Perform operations with square roots.
 20. Rationalize the denominator.
 21. Recognize properties of real numbers: closure, commutative, associative, identity, inverse, and distributive.
 22. Use the properties of exponents to simplify exponential expressions.
 23. Convert between decimal and scientific notation.
 24. Solve application problems using scientific notation.
 25. Write the terms of an arithmetic or geometric sequence.
 26. Use the formulas for the general term of an arithmetic or geometric sequence.
- E. Algebraic Expressions and Formulas (Chapter 6):
1. Evaluate algebraic expressions.
 2. Use mathematical models.
 3. Simplify algebraic expressions.
 4. Solve linear equations.
 5. Solve formulas for specific variables.
 6. Identify equations with no solutions or infinitely many solutions.
 7. Solve problems with linear equations.
 8. Solve proportions.
 9. Solve proportion application problems.
 10. Solve direct and inverse variation problems.
 11. Multiply to binomials using FOIL.
 12. Factor trinomials.
 13. Solve quadratic equations by factoring or the quadratic formula.
 14. Solve quadratic application problems.
- F. Geometry (Chapter 10):
1. Understand points, lines, and planes as the basis of geometry.
 2. Solve problems involving angle measures.
 3. Solve problems involving angle relationships in triangles.
 4. Solve problems using the Pythagorean Theorem.
 5. Classify a polygon according to the number of sides.
 6. Recognize the characteristics of certain quadrilaterals.
 7. Solve problems involving perimeter and circumference.

8. Understand tessellations and their angle requirements.
9. Solve problems involving area.
10. Calculate the volume of a box, cylinder, sphere, cone, and pyramid.
11. Calculate the surface area of a cube, box, and cylinder.
12. Discuss the differences between Euclidean and non-Euclidean geometries.
13. Classify objects topologically by genus.
14. Apply Euler's method for determining if a path is traversable.

V. REQUIREMENTS:

- A. **Course ID:** **mccormick26512** (needed for MyMathLab)
- B. **Schedule:** Students must maintain the schedule that is outlined on the assignment sheet. There are specific due dates for all assignments. Work is assigned on a weekly basis as listed in the schedule. ***Work will not be accepted late except as outlined in this course outline or as authorized by the instructor. Work turned in without documentation and/or authorization will be counted as a zero.***
- C. **Materials:** Students must purchase and have available at home:
 1. Computer with DSL, **high-speed** cable, or FIOS Internet connection on which required plug-ins and players are installed (through MyMathLab). **You must have administrative rights to the computer you plan to use** in order to install the required plug-ins and players. ***Note that if you have a dial-up internet connection the recorded lectures and sample problems may not play correctly. This will put you at a distinct disadvantage in the course.***
Note for VISTA users: If you have the new Microsoft Vista Operating System on your computer, make sure you do the following before you attempt to take a test or participate in a Discussion forum. Otherwise you will not be able to answer essay questions, and you may have difficulties with adding threads to discussion forums. Click "Tools" on the left side of your Blackboard screen. Then click "Personal Information." Choose "Set Text Box Editor Options," and click "unavailable" and "Submit." Remember to do this for all your future Blackboard courses.
 2. MyMathLab Access Code -If you were unable to purchase one at the bookstore one may be purchased on the MyMathLab site when you go there to register. If you have a code that **you** previously used for this same text you may use that code again. Note that you may not use someone else's code. The purchase of the printed textbook is optional as you will have access to an e-book in MyMathLab. Note that if you purchase a new textbook it **may or may not** come with the

code packaged inside the text front cover.

3. Paper/Notebook

4. Scientific calculator

- D. **Attendance:** *Students who do not complete the provided information sheet by the end of the first of classes will be administratively withdrawn from the course.* Otherwise, it is the student's responsibility to withdraw from class. Those who withdraw by the last date to withdraw without academic penalty will receive a "W" in lieu of an "F." (See important dates in this outline.)
- E. **Readings:** Student must read each section of the text relative to the assigned problems.
- F. **Lectures:** *Mrs. McCormick's Lecture Notes, Mrs. McCormick's Lectures, and Mrs. McCormick's Sample Problems are located under the LECTURES button on the course menu. After you have the players and plug-ins installed on your computer, you should print the lecture notes and watch the weekly assigned lectures and sample problems.* If your computer breaks down in the middle of the semester you may temporarily use the computers in the Academic Computing Centers at either campus. If you have extenuating circumstances, you should contact the instructor and request an extension. Extensions will not be made repeatedly made for the same student.
- G. **Ask the Instructor Forum:** The "Ask the Instructor" Forum will be located under the **DISCUSSION BOARD** button. Please ask general questions regarding the functioning of the course there so that the entire class can benefit from the question and answer. The students should check the "Ask the Instructor" Forum whenever they have questions to see if those questions have already been addressed in the forum. Questions will be answered within 48 hours excluding weekends and holidays. Questions of a personal nature should be submitted via email.
- H. **Email:** *Students should check their GCC email at least five times a week for updates and announcements. Students must contact the instructor through the GCC email system unless the system is down. In that case another email system may be used, but the student must put his or her name and course name in the subject line.* Generally the instructor will respond to email and phone messages within 48 hours, excluding some weekends and holidays. Email is the preferred method of communication.
- I. **Announcements:** *Students should sign onto the MyMathLab site at least five times a week to work on assignments and to check for updates and announcements.* Weekly schedule reminders will be posted in the Announcements section of

MyMathLab. Students should spend about 20 hours a week online viewing Mrs. McCormick's recordings of lectures and sample problems, completing online work including homework and quizzes, and completing written homework.

- J. **Online Homework:** The student must complete the online homework assignments for each section as listed on the assignment sheet. The online homework is located under the **HOMEWORK** button and will be scored by MyMathLab.
- K. **Written Homework:** The student must complete the written homework as listed on the assignment sheet; exam questions most closely resemble the written homework questions. The student may use the written homework on the exam. You should check your own written homework in the back of the textbook. Questions on it should be placed in the "Ask the Instructor" forum under the **DISCUSSION BOARD** button.
- L. **Labs:** The student must complete the labs as listed on the assignment sheet. The labs are located under the **LABS** button and must be submitted by email. The written portion of the labs may be submitted up to **one week** late with a ten point reduction in the grade. Any written labs submitted more than one week late will receive a zero. The first lab will include a discussion board component. It will be located under the **DISCUSSION BOARD** button in the "Meet Your Classmates" forum. A rubric is included for that discussion board on the bottom of the Online Student Information Sheet. Labs submitted on time will be graded within a week of the due date.
- M. **Online Quizzes:** The student must take several online quizzes no more than 3 times each until the due date. No make-up quizzes will be given. All quizzes are located under the **QUIZZES** button and must be completed by the due date listed on the assignment sheet. If a student experiences technical difficulties when taking an online quiz, the instructor must be notified by e-mail or phone within 24 hours of the due date. Make sure you submit the quiz when you have completed it. The quizzes are set so you will be able to review and print them after submitting them; they are scored by MyMathLab.
- N. **Exams:** The student must take **three** exams in one of the two Testing Centers of the college during the one-week time-periods listed on the assignment sheet. The exams are paper and pencil exams and will be **open notes and homework** but **not open book**. A **calculator is permitted** and must be brought to the Testing Center by the student. Students must provide information on whether they will be using the Fredericksburg or Locust Grove Testing Center on the required information sheet. (If the exam needs to be

administered by a proctor in another location, the student must complete and submit the necessary forms to the instructor by the end of the third week of classes.) A photo ID is required to take a test and students should plan to arrive at least one hour and a half before closing to allow sufficient time to complete the exam. **Students who miss an exam must contact the instructor by phone or email within 24 hours of the due date for the exam to schedule a make-up exam. Documentation will be required.** Any missed exam must be made up within a week of the original due date or it will be recorded as a zero. Exams taken by the due date will be graded within a week of the due date.

- O. **Academic Honesty:** The student is expected to act in accordance with academic honesty in this class. Those caught cheating on homework, a quiz, test or exam or plagiarizing (copying from another's work) will receive a zero on that quiz, test, exam, or assignment. The cheating incident will be reported to the Dean of Student Development Services who will place the information in the student's file. See the Student Handbook at the end of the current catalog for the complete college policy on academic honesty.
- P. **Disabilities:** If a student has a disability, it is the responsibility of the student to contact the special needs counselor to obtain the appropriate paperwork to receive accommodations. The student should then arrange to ***meet with the instructor during office hours to discuss the appropriate accommodations for the class.***
- Q. **Tuesday Evening Chats:** The instructor will be available in the course Chat Room every Tuesday evening from 8 to 9 pm to answer student questions. To access the Chat Room, go to the **OFFICE CHAT** button on your course menu and select it. Then click "JOIN" next to the "Office Hours Chat."
- R. **Meet Your Classmates:** The "Meet Your Classmates" Forum is located under the Discussion Board button so that students may get acquainted. Please follow the rules of "netiquette" as listed below. Everyone is required to post a self-introduction to the forum during the first week of class. Complete instructions will be on the Online Student Information Sheet.
1. Treat others in the lounge as you would wish to be treated.
 2. Please do not use foul language.
 3. There is to be no name-calling.
 4. Don't use all caps as it is considered to be "shouting."
 5. Differences of opinion can be expressed with respect and courtesy.
- S. **Grades:** Your online quiz and homework grades will be located under the **MyMathLab Grades** button on the MyMathLab site. Your lab and exam grades will be located under the **My Grades** button on

the Blackboard site for the course. At the end of the semester your online quiz and homework averages will be transferred to the Blackboard site so that you will be able to see your final grade in the course there.

VI. EVALUATION:

A. Each student's semester grade will be based on:

1. Labs—15%
2. Online Homework-15%
3. Quizzes—20%
4. Exams—50%

B. The grades will be awarded on the basis of:

1. 90%-100% A
2. 80%-89% B
3. 70%-79% C
4. 60%-69% D
5. Below 60% F

VII. OFFICE INFORMATION:

A. Room: 206 in Phase II of FAC

B. Phone: (540) 891-3037

C. Office Hours:

Online Office Chat:

Monday, Tuesday, & Thursday
8:30am-12:30pm

Tuesday
8-9pm

D. E-mail address: dmccormick@germanna.edu Note: All communication between the student and the instructor must be made via GCC email accounts. Refer to email section above for more details.

VIII. IMPORTANT DATES:

A. Classes begin: August 20

B. Last day to add a class or change from audit to credit: August 26

C. Last day to drop with refund: September 3

D. Holiday (College closed): September 7

E. College Learning Day/Fall Break (No classes): October 1-3

F. Last day to withdraw without grade penalty: October 22

G. Classes end: December 12

H. Final examination: Must be completed by Monday, December 14

MTH 151-I1 Assignment Sheet

Spring 2009

Course ID: mccormick26512

Date	Assignment	Due Date
Week 1 8-20 to	1. Complete the "Are You Ready?" module found on the Blackboard site. 2. Print the course outline and assignment sheet	8-26 at Midnight

8-26	<p>found under the "Course Information" button on the Blackboard site and read them.</p> <p>3. Watch the "Getting Started" videos found under the "Get Started" button on the Blackboard site.</p> <p>4. Sign into MyMathLab as explained in the "Getting Started" video and locate the course materials.</p> <p>5. Complete the Online Student Information Sheet and email it to dmccormick@germanna.edu. This counts as a lab grade.</p> <p>6. Post your self-introduction in the "Meet Your Classmates" Forum found under the Discussion Board button on the MyMathLab site. (Note that you can just make a copy of the answer to the last question on the Online Student Information Sheet and paste it in the forum.) Post a response to at least two of your classmates' postings. See the grading rubric attached to the Online Information Sheet for complete information.</p>	<p>Note that all assignments are due at midnight on the given due date except for exams which are due when the Testing Centers close.</p> <p>Items in bold are graded items.</p>
<p>Week 2</p> <p>8-25 to 8-31</p> <p>(Note that weeks 1 and 2 overlap slightly.)</p>	<p>1. Read sections 2.1, 2.2, 2.3, & 2.4 in the text.</p> <p>2. Print the lecture notes and watch Mrs. McCormick's recorded lectures and sample problems for sections 2.1, 2.2, 2.3, & 2.4.</p> <p>3. Do the online homework for 2.1, 2.2, 2.3, & 2.4.</p> <p>4. Do the written homework as needed for practice: pp. 55-56 #1-99(odd) pp. 65-66 #1-49(odd) pp. 76-77 #1-95(eoo)* pp. 86-87 #1-61(odd)</p> <p>Keep the written homework for Chapters 2 & 3. You will be able to use the homework and notes you print on the exam, so you may want to organize them into a notebook.</p>	<p>8-31</p> <p>*eoo means every other odd</p>
<p>Week 3</p> <p>9-1 to 9-7</p>	<p>1. Take Online Quiz on 2.1, 2.2, 2.3, & 2.4.</p> <p>2. Read sections 2.5, 3.1, 3.2, & 3.3 in the text.</p> <p>3. Print lecture notes and watch recorded lectures and sample problems for sections 2.5, 3.1, 3.2, & 3.3.</p> <p>4. Do the online homework for 2.5, 3.1, 3.2, & 3.3.</p> <p>5. Do the written homework as needed: pp. 97-98 #1-31(eoo), 33-47(odd) pp. 113 #1-39(odd) pp. 125-126 #1-89(eoo)</p>	<p>9-7</p>

	pp. 139-140 #1-61(eoo) 7. Do Statements Lab and submit by email to dmccormick@germanna.edu.	
Week 4 9-8 to 9-14	1. Take the Online Quiz on 2.5, 3.1, 3.2, & 3.3. 2. Read sections 3,4, 3.5, 3.6, & 3.7 in the text. 3. Print the lecture notes and watch the recorded lectures and sample problems for 3.4, 3.5, 3.6, & 3.7. 4. Do the online homework for 3.4, 3.5, 3.6, & 3.7. 5. Do the written homework as needed: pp. 149-150#1-73(eoo) pp. 163-165 #1-75(eoo) pp. 175-176 #1-39(eoo) pp. 186-188 #1-39(odd) 6. Do Negating Lab and submit by email to dmccormick@germanna.edu.	9-14
Week 5 9-15 to 9-21	1. Take Quiz on 3.4, 3.5, 3.6, & 3.7 2. Do Reviews: pp. 104-105 #1-22(all) pp. 192-193 #1-29(all) 3. Check your answers by going to the REVIEWS button and then selecting the appropriate chapter review. 4. Take Exam on Chapters 2 & 3 in one of the Testing Centers. The exam is open notes and homework. Bring your photo ID, calculator, notes and homework to the Testing Center. Allow at least an hour and a half to complete the exam. You must allow enough time to complete the exam in one sitting as you will not be allowed to return to the Testing Center at a later time to complete the exam. Please note that the Testing Centers do not remain open past closing time. The exam must be completed by the closing of the Testing Centers on 9/21/2009. Check the Germanna website at www.germanna.edu for a complete list of rules and hours.	9-21 *NOTE: The exam must be completed by close of Testing Centers.
Week 6 9-22 to	1. Read sections 4.1, 4.2, & 4.3 in the text. 2. Print the lecture notes and watch the lectures and sample problems for 4.1, 4.2, & 4.3.	9-28

9-28	<ol style="list-style-type: none"> 3. Do the online homework for 4.1, 4.2, & 4.3. 4. Do the written homework as needed: pp. 201-202 #1-49(odd) pp. 208 #1-39(odd) pp. 214 #1-37(eoo) 5. Do Logic Puzzle Lab and submit to dmccormick@germanna.edu. 	
Week 7 9-29 to 10-5	<ol style="list-style-type: none"> 1. Take Online Quiz on 4.1, 4.2, & 4.3. 2. Read sections 4.4, 5.1, & 5.2 in the text. 3. Print the lecture notes and watch the lectures and sample problems for 4.4, 5.1, & 5.2. 4. Do the online homework for 4.4, 5.1, & 5.2. 5. Do written homework as needed: pp. 221 #1-55(odd) pp. 235 #1-67(eoo) pp. 247-248 #1-117(eoo) 	10-5
Week 8 10-6 to 10-12	<ol style="list-style-type: none"> 1. Take Online Quiz on 4.4, 5.1, & 5.2. 2. Read sections 5.3, 5.4 & 5.5. 3. Print the lecture notes and watch the online lectures and sample problems for sections 5.3, 5.4, & 5.5. 3. Do online homework for 5.3, 5.4, & 5.5. 4. Do written homework as needed: pp. 260-261 #1-99(eoo), 125-133(odd) pp. 269 #1-65(odd) pp. 276 #1-43(odd) 	10-12
Week 9 10-13 to 10-19	<ol style="list-style-type: none"> 1. Take Online Quiz on 5.3, 5.4, & 5.5. 2. Read sections 5.6 & 5.7 in the text. 3. Print the lecture notes and watch the lectures and sample problems for sections 5.6 & 5.7. 4. Do online homework for sections 5.6 & 5.7. 5. Do written homework as needed: pp. 285-286 #1-89(eoo), 99-109(odd) pp. 294-295 #1-97(eoo) 6. Do Fibonacci Lab and submit by email to dmccormick@germanna.edu. 	10-19
Week 10 10-20 to	<ol style="list-style-type: none"> 1. Take Online Quiz on 5.6 & 5.7. 2. Do Reviews: pp. 225 #1-24(all) 	10-26

10-26	<p>pp. 302 #1-28(all)</p> <p>3. Check your answers by selecting the appropriate chapter review under the REVIEWS button.</p> <p>4. Take the Exam on Chapters 4 & 5 in one of the Testing Centers. The exam is open notes and homework. Be sure to bring your photo ID and calculator along with your notes and homework to the Testing Center. You should allow at least an hour and a half to complete the Test. You must arrive at least an hour before closing or you will not be permitted to take your exam. You must complete the exam in one sitting. Review the entire list of rules and hours for the Testing Centers on the Germanna website at www.germannna.edu. The exam must be completed by the close of the Testing Centers on 10/26/2009.</p>	
<p>Week 11</p> <p>10-27 to 11-2</p>	<p>1. Read sections 6.1, 6.2, & 6.3 in the text.</p> <p>2. Print the lecture notes and watch the lectures and sample problems for sections 6.1, 6.2, & 6.3.</p> <p>3. Do the online homework for sections 6.1, 6.2, & 6.3.</p> <p>4. Do the written homework: pp. 309-310 #1-71(eoo) pp. 321-322 #1-75(eoo) pp. 329-330 #1-23(odd)</p>	11-2
<p>Week 12</p> <p>11-3 to 11-9</p>	<p>1. Take Online Quiz on 6.1, 6.2, & 6.3.</p> <p>2. Read sections 6.4, 6.5, & 6.6.</p> <p>3. Print the lecture notes and watch the lectures and sample problems for sections 6.4, 6.5 & 6.6.</p> <p>4. Do online homework for 6.4, 6.5, & 6.6.</p> <p>5. Do written homework: pp. 338-339 #1-15(odd),23-33(odd) pp. 347 #1-65(eoo), 85, 87, & 89 pp. 360-366 #1-69(eoo)</p>	11-9
<p>Week 13</p> <p>11-10 to 11-16</p>	<p>1. Take Online Quiz on 6.4, 6.5, & 6.6.</p> <p>2. Read sections 10.1, 10.2, & 10.3 in the text.</p> <p>3. Print the lecture notes and watch the lectures and sample problems for 10.1, 10.2, & 10.3.</p> <p>4. Do the online homework for 10.1, 10.2, & 10.3.</p> <p>5. Do the written homework:</p>	11-16

	pp. 544-545 #1-35(odd) pp. 552-554 #1-43(eoo) pp. 561-562 #1-35(odd) 6. Do the Tessellation Lab and submit via email to dmccormick@germanna.edu.	
Week 14 11-17 to 11-23	1. Take Online Quiz on 10.1, 10.2, & 10.3. 2. Read sections 10.4, 10.5, & 10.7 in the text. 3. Print the lecture notes and watch the lectures and sample problems for 10.4, 10.5, & 10.7. 4. Do the online homework for 10.4, 10.5, & 10.7. 5. Do the written homework: pp. 571-572 #1-37(odd) pp. 579-580 #1-27(odd) pp. 597-598 #1-17(odd) 6. Do the Graph Theory Lab and email to dmccormick@germanna.edu.	11-23
Week 15 11-30 to 12-7	1. Take Online Quiz on 10.4, 10.5, & 10.7. 2. Do the Review: pp. 365-366 #1-27(all) pp. 605-606 #1-18(all), & 21 3. Check your answers by going to the Reviews Button and selecting the appropriate chapter review.	12-7
Week 16 12-8 to 12-14	Take the Exam on Chapters 6 & 10 in one of the Testing Centers. It is open notes and homework. Be sure to bring your photo ID, calculator, notes, and homework with you. You should allow between two and two and a half hours to complete the exam. The exam must be completed by the close of the Testing Centers on 12/14/2009.	12-14