Intermediate Algebra - Math 108

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Course Description: This course is designed to prepare the student for college algebra. It covers first degree equations and inequalities, linear functions, systems of linear equations, polynomials, factorization, rational expressions, negative and rational exponents, radicals, quadratic equations, graphing functions, logarithms, and application problems.

Pre-requisites: Math 010/025 with C grade or higher, or COMPASS Algebra score (not Pre-Algebra) of 41 or higher. The pre-requisites will be strictly enforced! If you do not meet one of the pre-requisites, you will need to drop this course and enroll in the appropriate one.

Required Textbook and Supplies:
* Intermediate Algebra with Applications by Aufman, Barker, Lockwood, 6th edition
* A calculator with LOG and EXPONENTIAL functions, but not a graphing calculator
* Graph paper

Course Objective:
To give students a strong understanding of the topics mentioned in the Course Description above and in the detailed list of course content on page 4 of this syllabus in order to prepare them for Math 143, Math 147 and other courses which have an Intermediate Algebra pre-requisite.

Outcomes Assessment:
Students: Daily assignments, chapter tests, and a comprehensive final exam will be used to assess how well students achieve the course objectives. All exams as well as student evaluations will be analyzed to help improve curriculum and instruction for the course. Also, regular informal feedback will be solicited in an effort to improve the class as we go along. Please feel free to contact me with any suggestions or concerns.

Department: As part of departmental analysis of outcomes in this course and its place in the Mathematics program, student completion of the pre-requisite, success in the current course, success in subsequent courses and student satisfaction will be reviewed by the instructor. A report containing this information will be submitted by department faculty to determine what, if any, changes can be made to improve the course in terms of content, focus, and instruction.

Policies and procedures:
1. Attendance is mandatory for a student to be successful in this course! It is important to be in class on time every day! CSI policy allows me to drop you if you miss eight (8) classes, and this semester I plan to enforce this policy. I have found that students who skip class are not successful in Math 108.
2. It is very important for you to do the homework assignments because **practice is the only way to develop and improve math skills!** Homework will be assigned each day and collected the next scheduled class day. If you cannot make it to class, call to let me know, then deliver your assignment to my office! Assignments turned in late (anytime after 4:00 p.m. on the day collected and not excused by me) will earn half credit if received by me before that set is returned to other class members, but no credit if that set has been returned to the class. **You must show necessary work on all problems or credit cannot be given.** Please be sure to include your name, class time and the assignment number on your paper. Homework will be totaled and counted as one test score of 100 points. Because I penalize you for late papers, I will drop your six (6) lowest homework scores at the end of the semester before computing your final homework average.

3. I often assign "every other odd" problem. An assignment of #1-85 **every other odd** will mean #1, 5, 9, 13, 17, 21, 25, 29, 33, 37, 41, 45, 49, 53, 57, 61, 65, 69, 73, 77, 81, 85, etc. However, an assignment saying #3-59 e.o.o. will mean #3, 7, 11, 15, 19, 23, 27, 31, 35, 39, 43, 47, 51, 55, 59, etc.

4. Read the book!! You paid a lot of money for it, and it should be more than just a source of homework problems. For best results, **read the new sections before coming to class** so the lecture and examples will make more sense to you.

5. A student will be subject to a failing grade (0 credit) if caught cheating on any test or copying another student's assignment.

6. A missed test will be recorded as a zero unless you make arrangements with me prior to the end of the scheduled test time. If you must miss an exam, contact me **before the end of the testing period** to discuss your options.

7. **Testing:** Chapter tests will be given in the CSI Testing Center on the days specified on the assignment sheets. **The Testing Center** (GRM 230) is open the following hours:
   - **8:00am - 9:30pm** Monday through Thursday
   - **8:00am – 5:00pm** Friday
   You must have a picture ID in order to take a test in the Testing Center. You cannot start a test in the Testing Center if closing time is less than one hour away.

8. I will replace your lowest chapter test score or your homework average with your final exam score when computing final grades if it will help your grade. If you miss a test, that would be the score replaced. Please be aware that very few students succeed in Math 108 without doing homework regularly.

9. Only non-graphing, non-programmable calculators may be used on assignments and tests.

10. You as a student are expected to maintain good conduct during class, treating fellow students with respect and demonstrating a cooperative attitude toward the instructor. Inappropriate behavior will not be tolerated. After one warning, further breaches in acceptable conduct will result in your being dropped from the course, and the matter will be referred to student services for college discipline. If there is a situation creating a problem for you in this class, please let me know so that I can confer with any students who are involved.

11. Cell phones are disruptive and irritating! Please turn them off during class.

**Grading Procedure:**

- 8 chapter tests (100 points each) ....................... 800 points
- Homework average (100 points total) This average will be computed after dropping the lowest six scores, so there will be 50 – 52 scores averaged to make one 100 point grade for homework......100 points
- Final exam (comprehensive).............................200 points

1100 points
### Points vs. Grade

<table>
<thead>
<tr>
<th>Points</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>990-1100</td>
<td>A</td>
</tr>
<tr>
<td>880-989</td>
<td>B</td>
</tr>
<tr>
<td>770-879</td>
<td>C</td>
</tr>
<tr>
<td>660-769</td>
<td>D</td>
</tr>
<tr>
<td>0-659</td>
<td>F</td>
</tr>
</tbody>
</table>

Note: Your final exam score may also be used in place of your lowest test score OR your homework average if it will help your final grade.

### Aids available to you for this course:

1. **Me!** I am available to help you outside of class. Please stop by my office if you need extra explanation.
2. **Study groups** are a great way to learn and study. I encourage you to organize one!
3. **Your textbook!** For best results, read the applicable sections before coming to class.
4. **Videotapes and CD’s** of the subject matter are available in several locations.
   - a. CSI Library - Front Desk (overnight checkout or view at the Library)
   - b. CDs enclosed with new textbooks.
   - c. All CSI Outreach Centers (overnight checkout)
5. **Free one-on-one tutoring** is available at
   - a. Math Lab (Shields 207)
   - b. Academic Development Center Instruction Lab (GRM 202)
6. **Computer tutoring programs** which parallel our textbook are available in the Math Lab (Shields 207) and should be loaded on the CSI Library computers. You can also check out two disks and load the program on your home computer. See me if you are interested.
7. **Smarthinking**, a tutorial website, can be used with an access code. This is included with new books. If you bought a used book, see the Learning Assistance Coordinator in GRM Library room 202, for an access code.
8. **Student Solutions Manuals** for our textbook are packaged with new textbooks and are for sale separately in the CSI Bookstore. They are also available on reserve at the CSI Library and in the Math Lab. These are not required, but some students find them useful because they show the steps for solving all the odd-numbered problems in the textbook.

### Online Course Evaluations:

Students are strongly encouraged to complete evaluations at the end of the course. Evaluations are very important to assist the teaching staff to continually improve the course. Evaluations are available online at [http://evaluation.csi.edu](http://evaluation.csi.edu). Evaluations open up two weeks prior to the end of the course. The last day to complete an evaluation is the last day of the course. During the time the evaluations are open, students can complete the course evaluations at their convenience from any computer with Internet access, including in the open lab in the Library and in the SUB. When students log in they should see the evaluations for the courses in which they are enrolled. Evaluations are anonymous. Filling out the evaluation should only take a few minutes. Your honest feedback is greatly appreciated!

### Disabilities Services:

Any student with a documented disability may be eligible for related accommodations. To determine eligibility and secure services, students should contact the coordinator of Disability Services at their first opportunity. CSI Student Disability Services is located on the second floor of the Taylor Building, 208-732-6260 (voice) or 734-9929 (TDD) or aflannery@csi.edu

### During the semester, if you have a difficult time with the subject matter, do not put off getting help! If you wait until you are "totally lost", you might find it impossible to get back on track. Keep up daily and seek help as needed! Follow these easy steps to success in this class: Show up on time and pay attention.

- Ask questions.
- Practice by doing assignments and joining a study group.
- Don’t quit!!
Detailed Course Content for Math 108, Intermediate Algebra

Students will demonstrate a working knowledge of the following processes and concepts:

a. **Rational numbers** (addition, subtraction, multiplication, and division)
b. **Variable expressions** (simplify, translate, evaluate)
c. **Operations on sets of numbers** (union, intersection)
d. **Set-builder notation and interval notation**
e. **First degree equations in one variable** (solve, translate from application problems such as coin and stamp problems, integer problems, uniform motion problems, investment problems)
f. **First degree inequalities** (solve and graph simple, compound)
g. **Linear functions** (evaluate, graph, find slope)
h. **Find length and midpoint** of a segment
i. **Write the equations for lines** (including parallel lines and perpendicular lines)
j. **Solve systems of linear equations** (use graphs, substitution method, addition method)
k. **Polynomials** (add, subtract, multiply, divide using long division and synthetic division, evaluate, factor)
l. **Simplify exponential expressions** having integer and variable exponents
m. **Scientific notation**

n. **Expressions with rational exponents** (simplify, change to radical form)
o. **Radical expressions** (simplify, add, subtract, multiply, divide)
p. **Complex numbers** (simplify, add, subtract, multiply, divide)
q. **Solve equations containing radicals**
r. **Functions** (domain, range, graph, use vertical line test, add, subtract, multiply, divide, find inverse, do composition of functions)
s. **Rational expressions** (simplify, multiply, divide, add, subtract, simplify complex fractions)
t. **Solve fractional equations** (including application problems like work problems, uniform motion problems, proportions, variations, and literal equations)
u. **Solve quadratic equations** (use factoring, completing the square, and quadratic formula)
w. **Solve equations that are quadratic in form**
x. **Parabolas** (find axis of symmetry, vertex, x-intercepts, graph)
y. **Exponential functions** (evaluate, graph)
z. **Logarithms** (log notation, properties of logarithms, evaluate logs with and without a calculator, solve log equations, graph log functions using ordered pairs)

These additional, **optional topics** may be covered by some instructors:

a. value mixture problems
b. percent mixture problems
c. absolute value equations
d. absolute value inequalities
e. application problems with systems of equations
f. application problems with quadratic equations and functions
g. Evaluate determinants (2 x 2 and 3 x 3)
h. Solve systems of linear equations using Cramer’s Rule
i. Solve systems of linear equations gaussian elimination with augmented matrices
Math 108 Intermediate Algebra … Kathy Stover
Tentative Schedule for Spring 2007 (58 classes plus final exam)

Tues. Jan. 16  Orientation and 1.1 (Inequalities, Absolute value, set operations, intervals)
Thurs. Jan. 18 finish 1.1 and 1.2 (Operations on rational numbers)
Fri. Jan. 19  1.3, 1.4 (Variable expressions, application problems)
Mon. Jan. 22  2.1 (Equations in one variable), answer questions on Chapter 1
Tues. Jan. 23  2.5, part of 2.6 (Inequalities in one variable, equations with absolute value)
Thurs. Jan. 25 assign Chapter Reviews; in class review of Chapter 1, 2.1, 2.5, 2.6
Fri. – Tues. (Jan. 26 - 30) … Take Test #1 in the ADC Testing Center
Fri. Jan. 26  3.1 (Rect. coord. system, midpoint, distance), answer questions on Chapter 1-2
Mon. Jan. 29  3.2 (Intro to Functions) and start 3.3 (Linear functions)
Tues. Jan. 30 finish 3.3 and 3.4 (Slope)
Thurs. Feb. 1  3.5 (Equations of lines)
Fri. Feb. 2  3.6 (Parallel and perpendicular lines), assign Chapter Review
Mon. Feb. 5  4.1 (Linear systems – graphing, substitution), answer questions on Chapter 3

Mon. Feb. 19 Presidents’ Day … No School!!
Tues. Feb. 20  5.1 (Exponential expressions), answer questions on Chapters 4 and 2

Fri. Feb. 22  5.2, 5.3 ((Polynomials – add, subtract, evaluate, multiply)
Fri. Feb. 23  5.4 (Divide polynomials)
Mon. Feb. 26  5.5 (Factor polynomials)
Tues. Feb. 27  5.6 (Special factoring)
Thurs. Mar. 1  5.7 (Solve equations by factoring)
Fri. Mar. 2 assign Chapter 5 Review, Cumulative Review
Mon. Mar. 5  6.1, start 6.2; (Rational expressions – domain, simplify, multiply, divide), answer questions on Chapter 5

Mon. – Wed. (March 5 - 7) …Take Test #4 in the ADC Testing Center
Tues. Mar. 6  finish 6.2 (Rational expressions – add, subtract)
Thurs. Mar. 8  6.3 (Complex fractions)
Fri. Mar. 9  6.4 (Solve rational equations, work and motion problems)
Mon. Mar. 12  6.5 (Proportions and variations)
Tues. Mar. 13  6.6 (Literal equations)
Thurs. Mar. 15 assign Chapter 6 Review, Cumulative Review
Fri. Mar. 16  7.1 (Rational exponents, radical expressions); answer questions on Chapter 6

Fri. – Tues. (Mar. 16 – 27) … Take Test #5 in the ADC Testing Center
Mon. – Fri., March 19 – 23, Spring Break!!
Mon. Mar. 26 more on 7.1 (Rational exponents, radical expressions)
Tues. Mar. 27  7.2 (Operations on radical expressions)
Thurs. Mar. 29 finish 7.2
Fri. Mar. 30 part of 7.3 (Domain of radical functions) and 7.4 (Solve radical equations)
Mon. Apr. 2  7.5 (Complex numbers)
Tues. Apr. 3  assign Chapter Review, Cumulative Review
Thurs. Apr. 5  8.1 (Solve quadratic equations by factoring or taking square root); answer questions on Chapter 7

Thurs. – Mon. (Apr. 5 - 9) … Take Test # 6 in the ADC Testing Center
Fri. Apr. 6  8.2 (Complete the square)
Mon. Apr. 9  8.2 (Quadratic formula)
Tues. Apr. 10  8.3 (Equations reducible to quadratic form)
Thurs. Apr. 12  8.5 (Nonlinear inequalities)
Fri. Apr. 13  8.6 (Parabolas)
Mon. Apr. 16  finish 8.6, 9.1 (Graphing functions)
Tues. Apr. 17  assign Chapter Review, Cumulative Review
Thurs. Apr. 19  9.3 (Algebra of functions), answer questions on Chap. 8

Thurs. – Mon. (Apr. 19 - 23) … Take Test # 7 in the Testing Center
Fri. Apr. 20  9.4, 10.1 (inverse functions, exponential functions)
Mon. Apr. 23  10.2 (logarithms)
Tues. Apr. 24  10.2 (Properties of logs and the change of base formula)
Thurs. Apr. 26  10.3 (Graphs of log functions)
Fri. Apr. 27  10.4 (Solve exponential and log equations)
Mon. Apr. 30  10.4, assign Chapter Review
Tues. May 1  Review worksheet #1 - 43; in class review of Chapters 9 and 10.
Pick up take-home exam on Chapters 9 – 10 (Test # 8).
This is due before 4:00 on Wed., May 2.
Thurs. May 3  Review worksheet #44 - 85; in class review for final
Fri. May 4  Answer questions and review for the final exam.

May 7 - 10  Semester Exams!!
The semester exam for this class will cover Chapters 1 – 9.4 and 10.1 – 10.4
It will be in our regular classroom, not in the Testing Center.
My 10:00 class takes the final on Monday, May 7, 10:00 am – 12:00 noon.
My 11:00 class takes the final on Tuesday, May 8, 12:00 noon – 2:00 pm.

Plan to be at your assigned final exam time!

Please make time to complete the online student evaluation for this class when it becomes available the last two weeks of the semester. The site is: http://evaluation.csi.edu