Mathematics for Elementary Teachers
Mathematics 157-C03W (Web Based)
Course Syllabus
3 Credit Hours

Fall 2007
Office: Shields 207-D
Office Hours: 12:00-12:50 MTF
1:00-1:50 W

Instructor: Constance Meade
Office Hours: 1:00-1:50 Wednesday
E-mail Address: cmeade@csi.edu
Office Phone: 732.6809
1.800.680.0274 x 6809

Course Description:
This course covers problem solving, set theory, functions, numeration systems, integers, number theory, rational numbers, exponents and real numbers.

Pre-requisites:
Mathematics 143 with a grade of "C" or better (Pre-requisites will be enforced.)

Required Textbooks and Supplies:
The required materials listed below can be purchased as a package through the CSI Bookstore. To order these materials from the CSI Bookstore, call (208) 732-6550 or (208) 732-6551 or 1-800-680-0274, ext 6550 Toll free in ID and NV. Fax: (208) 736-3015. The ISBN number for this package is 0-536-16223-9
The contents of the package are:
• Mathematical Reasoning for Elementary Teachers, Fourth Edition by Long & DeTemple
• Mathematics Activities for Elementary School Teachers, Sixth Edition by Dolan, Williamson, and Muri
• Digital Video Tutor, Fourth Edition
• Students’ Solutions Manual

Hardware/Software Requirements:
Pentium II 300 MHz processor or better, 64 MB RAM, Video Card capable of 800 x 600 resolution, Soundcard, Windows 95 or later operating system. Internet Explorer 6.0 or better, Adobe Acrobat 6.0 (4.0 or higher should work), RealOne Player (see What to Do First below)

Expected Outcomes and Outcomes Assessment:
Outcome 1: The student will master course content as presented in lecture and assigned homework.
Assessment 1: The student will demonstrate their understanding of this material by completion of weekly assignments. Student performance will be further measured by unit exams and a comprehensive final exam.

Outcome 2: The student will apply mathematics to real world situations.
Assessment 2: The student will demonstrate this skill by completion of individual or group projects that require mathematical reasoning.

Outcome 3: The student will be able to communicate mathematically.
Assessment 3: The student will explain mathematical concepts and procedures by answering essay questions. Complete sentences will be required as well as proper sentence structure. The student will provide a simple example of its use as well as a more complex illustration, if possible.
As part of departmental analysis of outcomes in this course and its place in the Mathematics program, student completion of the pre-requisites, 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 the 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:

- **THIS IS NOT AN INDEPENDENT STUDY CLASS.** The course is paced through a normal semester with quiz assignments and exams which must be done on time in accordance with the syllabus and the instructions for each in Blackboard. Weekly assignments are not available on Blackboard after the due date shown on the syllabus.

- **Consistent Effort** is important for your success in this class. You will be required to complete assignments on time in order to get credit. Plan now to spend at least nine hours per week on this class. You will need to use this time wisely. If you are stuck on a particular subject, e-mail me and move on.

**Assignments:** For each section that we cover, you should do the following:
- Read the section in the book.
- Watch the Digital Video Tutor mini-lecture.
- Take the online quiz. After you score the quiz, you can see detailed explanations of how to work each problem. If you didn't score well the first time through, or just for extra practice, take the 2nd Chance Quiz. (You might want to try some of the exercises first to master the topics.)
- Submit the written assignment as directed. Some are required to be submitted online, and others must be sent via regular mail. Directions are included with each written assignment.

**Exams:** After every 1 to 2 chapters (see the tentative schedule below), you will take a paper/pencil exam. If you live near CSI or one of CSI's outreach centers, you can take the exam there. Otherwise, we'll need to arrange to have the exams proctored at some other location. It is CSI policy that students who cannot take exams at CSI or one of its outreach centers must pay any proctoring fees. Please contact me early on if you can't take the exam at CSI or an outreach center. I reserve the right to change testing accommodations if I feel it is necessary.

**Calculators:** Calculators will not be allowed for most of the exams.

**Student Email Account:** If you don't currently have an e-mail address, every registered student has a web-based student e-mail account. To access it, go to [http://students.csi.edu](http://students.csi.edu). Your username is the first three characters of your first name (if less than 3 characters, then as many as exist), entire last name, two digits for your birth month and two digits for your birth day (no spaces anywhere). Example: John Doe who was born May 7th has a username: johd0e0507. If you are logging into the computer for the first time, you will be forced to change your initial password. You initial password is the initial of your first name (all caps) last name initial (all caps) CSI student ID (with leading zeros to make it at least 6 characters; e.g., ID#1257 would be 001257). John Doe's initial password would be JD001257. John Doe's CSI e-mail address: [johd0e0507@csi.edu](mailto:johd0e0507@csi.edu). You can access this account anywhere that you can find access to the web: at home, in a public library, in a computer lab, etc. The same username and password (until you change it) give you access to the course through [http://blackboard.csi.edu](http://blackboard.csi.edu).

E-mail is the primary source of written communication with all CSI students. Students automatically get a CSI e-mail account when they register for courses. Messages from instructors and various offices such as Admission and Records, Advising, Financial Aid, Scholarships, etc. will be sent to the students' CSI accounts (NOT their personal e-mail accounts). It is the student's responsibility to check their CSI e-mail accounts regularly.
Failure to do so will result in missing important messages and deadlines. Students can check their CSI e-mail online at [http://students.csi.edu](http://students.csi.edu). Students e-mail addresses have the following format: `username@students.csi.edu`. At the beginning of each semester, free training sessions will be offered to students who need help using their CSI e-mail accounts.

**Grading:** Each section has a "First Quiz" and an optional "2nd Chance Quiz." At the end of the semester, I will select your highest quiz score from each section and average them. For some sections, there will also be a written assignment or a Mail-In assignment. At the end of the semester, the written and Mail-In assignments will be averaged.

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams (4)</td>
<td>400</td>
</tr>
<tr>
<td>Quiz Average</td>
<td>100</td>
</tr>
<tr>
<td>Written/Mail-In Assignment</td>
<td>100</td>
</tr>
<tr>
<td>Final Exam</td>
<td>100</td>
</tr>
<tr>
<td>Total Points</td>
<td>700</td>
</tr>
</tbody>
</table>

Your percentage will be calculated as follows: 

\[
\text{Your Total Points} = \frac{\text{Your Total Points}}{7}
\]

Although I reserve the right to revise this scale downward, 90% of the possible points, or above, will always be an "A", 80%-89% a "B", etc.

If your lowest exam score is lower than the final (for example, if you miss an exam) I will replace your lowest exam score with the final. Blackboard will automatically score most of the quizzes, but it cannot automatically choose the highest score.

**Coverage:** Sections 1.1-1.4, Chapter 2, Sections 3.1-3.5, 4.1-4.3, Chapters 5-7

**Aids for the Course:**

- **Math Lab** - The Math Lab is in Shields Building, room 207. Math Lab hours have not yet been determined. I will notify you of these as soon as I know what they are.

- **Study Groups** - Form a study group with others in the class. To reserve a room in the library, call 732.6500.

- **Student Solutions Manual** - The students' solution manual comes pre-packaged with the textbook. This contains detailed, worked-out solutions to all of the exercises that are answered in the back of your text.

- **Mathematical Reasoning for Elementary Teachers Videotapes**
  These videotapes are available for check-out through the Library and are an excellent supplement to the course. Ask for them at the circulation desk.

- **Instructor** - E-mail, call, or visit the instructor with your questions. You are supposed to do this.

**Topical Outline:**

- Sequences
- Problem solving process
- Algebraic thinking
- Describing sets
- Set operations and their properties
- Operations of addition, subtraction, multiplication and division of whole numbers
- Functions
- Numeration systems
- Algorithms for whole-number addition, subtraction, multiplication and division of whole numbers
- Mental mathematics and estimations using whole-number operations
- Integers
- Operations of addition, subtraction, multiplication and division for integers
- Divisibility
- Prime and composite numbers
- Greatest common divisor and least common multiple
- Clock and modular arithmetic
- Rational numbers
- Operations of addition, subtraction, multiplication and division for rational numbers
- Proportional reasoning
- Decimals
- Operations on decimals
- Non-terminating decimals
- Percents
- Computing interest
- Real numbers

Course Evaluation:

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. Evaluations open up to 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 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:

Any student with a documented disability may be eligible for related accommodations. To determine eligibility and secure services, students should contact Disability Services at their first opportunity after registration of a class. Student Disability Services is located on the second floor of the Taylor Building on the Twin Falls Campus: 208.732.6260 (voice) or 208.734.9929 (TTY).

Note 1: Mathematics is not a spectator sport. You must be actively engaged in the course work on a daily basis to be successful. Sporadic and/or occasional engagement most generally results in a failing grade for the course.

Note 2: I reserve the right to correct errors or omissions in this syllabus.
The following schedule is **TENTATIVE** and subject to change.

<table>
<thead>
<tr>
<th>Week of</th>
<th>Due Date for Quizzes and Other Assignments</th>
<th>Sections to Cover and/or Test to Take before Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>27-Aug</td>
<td>Sun, Sept 2 Midnight</td>
<td>1.1, 1.2 (Introduction to Problem Solving; Polya's Problem-Solving Principles)</td>
</tr>
<tr>
<td>3-Sept</td>
<td>Sun, Sept 9 Midnight</td>
<td>1.3, 1.4 (More Problem-Solving Strategies; Additional Problem-Solving Strategies)</td>
</tr>
<tr>
<td>10-Sept</td>
<td>Sun, Sept 16 Midnight</td>
<td>2.1 (Sets and Operations on Sets) Take Test 1 (covers 1.1-1.4)</td>
</tr>
<tr>
<td>17-Sept</td>
<td>Sun Sept 23 Midnight</td>
<td>2.2, 2.3 (Sets, Counting, and the Whole Numbers; Addition &amp; Subtraction of Whole Numbers)</td>
</tr>
<tr>
<td>24-Sept</td>
<td>Sun Sept 30 Midnight</td>
<td>2.4, 3.1 (Multiplication &amp; Division of Whole Numbers; Numeration Systems Past and Present)</td>
</tr>
<tr>
<td>1-Oct</td>
<td>Sun Oct 7 Midnight</td>
<td>3.2, 3.3 (Nondecimal Positional System; Algorithms for Adding and Subtracting Whole Numbers)</td>
</tr>
<tr>
<td>8-Oct</td>
<td>Sun Oct 14 Midnight</td>
<td>3.4, 3.5 (Algorithms for Adding &amp; Subtracting Whole Numbers; algorithms for Multiplication &amp; Division of Whole Numbers)</td>
</tr>
<tr>
<td>15-Oct</td>
<td>Sun Oct 21 Midnight</td>
<td>4.1, 4.2 (Divisibility of Natural Numbers; Tests for Divisibility) Take Test 2 (covers 2.1-3.5)</td>
</tr>
<tr>
<td>22-Oct</td>
<td>Sun Oct 28 Midnight</td>
<td>4.3, 5.1 (Greatest Common Divisors and Least Common Multiples; Representations of Integers)</td>
</tr>
<tr>
<td>29-Oct</td>
<td>Sun Nov 4 Midnight</td>
<td>5.2, 5.3 (Addition &amp; Subtraction of Integers; Multiplication &amp; Division of Integers)</td>
</tr>
<tr>
<td>5-Nov</td>
<td>Sun Nov 11 Midnight</td>
<td>5.4, 6.1 (Clock Arithmetic; The Basic Concepts of Fractions and Rational Numbers) Take Test 3 (This covers 4.1-5.4)</td>
</tr>
<tr>
<td>12-Nov</td>
<td>Sun Nov 18 Midnight</td>
<td>6.2, 6.3 (The Arithmetic of Fractions; The Rational-Number System)</td>
</tr>
<tr>
<td>19-Nov</td>
<td>Sun Nov 25 Midnight</td>
<td>7.1, (Decimals)</td>
</tr>
<tr>
<td>26-Nov</td>
<td>Sun Dec 2 Midnight</td>
<td>7.2 (Computation with Decimals) Take Test #4 (This covers 6.1-6.3)</td>
</tr>
<tr>
<td>3-Dec</td>
<td>Sun Dec 9 Midnight</td>
<td>7.3, 7.4 (Ratio &amp; Proportion; Percent)</td>
</tr>
<tr>
<td>10-Dec</td>
<td>Sun Dec 16 Midnight</td>
<td>Take the final in your regular testing place. The final will be comprehensive, i.e. it will cover all of the sections discussed during the entire semester. Due to the slow nature of the mail, I may not receive final exams before grades are due in the Records Office. If I don't receive your final in time, I'll calculate your grade with a zero for the final. After the break, I'll grade your final and then change the grade up as necessary.</td>
</tr>
<tr>
<td>17-Dec</td>
<td>Wednesday Dec 19, 2007</td>
<td></td>
</tr>
</tbody>
</table>
What to do first:

1. Obtain the required materials (see above). To order books from the bookstore, call 1-800-680-0274 ext. 6550 (208-732-6550).

2. Install Adobe Acrobat Reader 6.0 (or higher) which can be downloaded for free from http://www.adobe.com/products/acrobat/readstep2.html. If you have an older version (4.0 or higher), you technically shouldn’t have to upgrade, but if you have any trouble viewing PDF files, you should try upgrading first. The file is about 8.5 MB, and will take about 50 minutes with a 28.8 kbps modem.

   System Requirements:
   • Windows 98 SE, Windows ME, Windows NT 4.0 with service pack 5, Windows 2000, or Windows XP
   • 64 MB of RAM
   • 24 MB of available hard-disk space

3. Install RealOne Player

   If RealOne Player is not installed, download it for free from RealPlayer’s Website at http://www.real.com/realplayer.html?pp=home&src=022703realhome_3 The link to the free RealOne Player is located at the bottom right corner.

Getting Started in the Class:

1. Make sure that you have installed the necessary free software (above).

2. Open your web browser.


4. Click the “Userlogin” button.

5. In the “Username” box, type the first two letters of your first name, your middle initial, the first two letters of your last name, two digits for your birth month and two digits for your birth day (no spaces anywhere; if you do not have a middle initial or did not use it when registering at the Records Office, you need to use x instead)

6. In the “Password” box, type your full Social Security Number without spaces or dashes (unless you have used this account previously and changed your password, in which case use the password you have selected.) If you can’t login, send me an e-mail. Be sure to tell me in the e-mail the exact username that you are trying to use. For Example:  John Dow who was born May 7th with social security number 123-45-6789 username: joxdo0507 password: 123456789

7. Once you are logged in, click on “Math 157...”.

8. Click on the “Assignments” button.

9. Do the weekly assignments as they appear.

How to See the Results of Your Quizzes

As soon as you submit a quiz, the computer will grade the items that it can and then show you the corrected test. Occasionally, some of the items need to be graded by me, so your correct score won’t show until after I’ve had a chance to grade quizzes. You can see the results of quizzes you’ve taken before by clicking on “Tools” and then “My Grades.” When the list of quizzes and scores is displayed, click on the score to see the graded quiz. If a symbol of a padlock is displayed, that indicates that you have opened the quiz but not submitted it. Go back to the “assignments” folder, click on the folder where the quiz was assigned, click on the title of the quiz, complete your responses, and hit “submit.”

Common Problems and Frequently Asked Question

1. My computer locked up in the middle of a quiz and now I cannot complete it.

   E-mail me and let me know which section, which quiz (first or second), and which problem number.

2. The computer scored a quiz incorrectly. (From time to time quizzes are not programmed correctly or the feedback has errors. I like to know about these so that I can fix them for future students.)

   First, check to make sure that the item just wasn’t scored because it’s a “Short Answer/Essay”
question that I need to grade. Next, check to make sure that you are looking at your answer and not the feedback, then e-mail me and let me know which section, which quiz (first or second) and which problem number.

3. I just submitted a quiz that had a question of type “short answer/essay” or a writing assignment. My answer is pretty similar to the answer in the feedback, but I didn’t get any credit. Why not?
   “Short Answer/Essay” questions have to be graded by hand. I sit down and grade these all together a couple of days after the deadline. Until then your score will not be correct. After I grade the essay questions, you can see the result of the quiz by clicking on “Tools” and then “My Grades.” When the list of quizzes and scores is displayed, click on the score to see the graded quiz.

4. I took the second quiz instead of the first. I am happy with my score on the second quiz, do I have to go back and take the first quiz?
   No. For each section, I take the higher of the two scores. For example, if your first quiz score is 0 or not taken and your second quiz is 93, your score for the section is 93. Still, a little extra practice never hurts, so I would prefer that you take both.

5. I took the first quiz and I am happy with my score. Do I have to take the second quiz?
   No, but again extra practice never hurts.

6. There are a bunch of gray boxes in my quiz (mathematical equations that are not displaying properly).
   The mathematical equations require Java to load. The equations are usually the last part of the page to load, so be patient. It takes an extra long time for the very first equation to load, but if it still hasn’t loaded after 15 minutes, first try right-clicking somewhere on the white space of the page and choosing “refresh.” If that doesn’t work, try uninstalling and reinstalling Java. Here’s how: Go to “Start > Settings > Control Panel > Add/Remove Programs” and uninstall any Java parsers (from Sun or Microsoft) and reboot. Then go to http://www.java.com and click on the “Get It Now” button. That will automatically install the latest version of Java on your machine. If that doesn’t work, send a detailed e-mail to csiwebmaster@csi.edu (and CC me.) In your message, be sure to say what operating system your computer is using, what internet browser, and a complete description of the problem together with what you’ve tried and what happened.

7. I sent the instructor email, but I haven’t heard back.
   If you sent your message from within Blackboard, the “reply to” address is your CSI Student E-mail account by default. If you don’t use your CSI Student E-mail account, be sure you change your e-mail address by logging into Blackboard and clicking on “Personal Information” and then “Edit Personal Information.” I don’t usually get e-mail checked on the weekends, but otherwise, I try to respond right away.

8. Is there a way that I can print out a quiz, disconnect from the internet, work the problems, and then reconnect and submit my answers?
   Yes; click on the title of the quiz to open it. From the file menu, select print. At the bottom of the quiz, click “save”. NOT “Submit” (yet). You can close your browser and disconnect from the internet. When you are ready to submit your answers, reconnect to the internet, login to the course, click on the title of the quiz, enter your answers, and then click “SUBMIT”. To check and make sure the quiz went through okay, look at the score (see “How to see the results of your quizzes” above.) If there is a little picture of a lock, you need to go in and click submit again.

9. I want to ask a math question, but I don’t know how to type it.
   Here are some tips:

Exponents:
Use the “^” key (usually “shift” and the number “6”) for exponents for example: x^2 means “x-squared”  4^(x – 3) means “four to the x minus third power”
Fractions:
Use the regular “tipped forward” slash “/” for the fraction bar. If the numerator or denominator involves more than one number, put it in parentheses. E.g. 1/3 means “one third” \((x + 2)/(7 – x)\) means “the quotient of the sum of \(x\) and 2 and the difference between 7 and \(x\)” or “the fraction whose numerator is \(x + 2\) and whose denominator is \(7 – x\).” The parentheses around the numerator and denominator are critical.

Square roots:
Type what you want to take the square root of in parentheses after the letters “sqrt.” E.g. \(\text{sqrt}(4)\) means “the square root of four” and \(\text{sqrt}(5 – x)\) means “the square root of the difference between 5 and \(x\).” Or you could use a fractional exponent. \(4^{(1/2)}\) means “four to the one-half power,” which is the same thing as the square root of 4.

Cube roots:
change “sqrt” to “cubert”

Exponential functions:
The function \(f(x) = e^x\) is usually typed as \(e^x\) or \(\exp(x)\), but the java-based calculator that we use within Blackboard uses \(\text{euler}^x\)

Absolute Value Bars:
Usually hold down “shift” and hit the key between the “=“ key and the backspace key. The picture on your keyboard looks like a colon with flat dots, but it makes absolute value bars. E.g. \(|-3|\)

Braces:
Braces for sets are usually right of the “P” key. You’ll need to hold down the “shift” key to get them For example: \(\{1, 2, 3\}\)

10. I have a technical problem and the deadline is getting close, what should I do?
Email me and move on. If you email me, you can assume the deadline is extended at least until I read your message and reply.

Please don’t hesitate to ask questions. **I expect you to have questions.** The more specific your question is, the quicker we can start resolving the issue. E.g. “I don’t understand section 1.6” is too broad. We would have to email back and forth to find out where the actual problem lies. “I don’t understand how to solve equations like \(x^2 + 3x = 10\)” is a better question because it narrows the focus immediately and gives me an idea of where you’re having trouble. **If you reply to an email from me, please include the text of the original message.** That way, I can easily recall what we were discussing.