Math 75X  
Introduction to Mathematical Reasoning  
4 credits  

Section 62273  
TTh 11:30 am – 1:20 pm  
Mana 101  

INSTRUCTOR:  
Clayton K. Akatsuka, Professor, Mathematics  

OFFICE:  
Mana 112  

OFFICE HOURS:  
M,W,Th 8:50 am - 9:50 am;  
T 1:30 pm - 2:30 pm;  
or by appointments.  

TELEPHONE:  
236-9279  
e-mail:  
akatsuka@hawaii.edu  

EFFECTIVE DATE:  
Spring 2018 

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT  

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai‘i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide O‘ahu’s Ko‘olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.  

Disabilities Accommodation Statement  
If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, lemke@hawaii.edu, or you may stop by Hale ‘Akoakoa 213 for more information, or visit http://windward.hawaii.edu/Disabilities/  

CATALOG DESCRIPTION  

This course prepares students for MATH 100, MATH 101, MATH 111, and MATH 115. Course topics include ratio and percent, unit conversion, graphs, data interpretation, basic algebra, solving linear equations, and working with formulas with special emphasis on pattern recognition and problem solving. Additional topics may include set theory, inequalities, and quadratics.  
(4 hours lecture).
STUDENT LEARNING OUTCOMES

Students will be able to:

1. Solve applied mathematical problems, judge reasonableness of results, and communicate conclusions using appropriate terminology and symbols

2. Recognize and express mathematical patterns in various forms and contexts

3. Perform operations on real numbers

4. Utilize precise mathematical language and symbols to effectively communicate mathematics in written and/or oral form.

Note: All SLOs assessments are embedded in class activities, homework, quizzes, or Exams.

COURSE CONTENT

Concepts or Topics

- **Number Sense**
  a) Introduction to Problem Solving
  b) Problem Solving with Fractions and Decimals
  c) Comparisons and Proportional Reasoning

- **Variable Sense**
  a) Symbolic Rules and Expressions
  b) Solving Equations
  c) More Problem Solving Using Algebra

- **Function Sense and Linear Equations**
  a) Function Sense
  b) Introduction to Linear Functions
  c) Linear Regressions, Systems, and Inequalities

- **Introduction to Nonlinear Problem Solving**
  a) Mathematical Modeling Involving Polynomials
  b) Problems Solving with Quadratic Equations and Functions

Success in this course will be enhanced by:

1. A positive, inquiring attitude towards learning mathematics;
2. Setting aside adequate time for studying and working of problems;
3. Reading the text carefully and making use of other learning materials whenever necessary;
4. Seeking assistance from the instructor, the Math Lab personnel, Supplemental Instruction(SI) Leader, or online resources whenever necessary;
5. Completing assignments by the designated date;
6. Regular class attendance, participation and maintaining accurate class notes.
COURSE TASKS

The mode of instruction is primarily lecture-discussion-class activities where the initial portion of each class period may be utilized to discuss and clarify any questions from the preceding class meeting and/or assignment, and the remaining portion is used to discuss new material. It is strongly recommended that students read sections prior to each class meeting. After the completion of each unit of instruction, a review and an exam will be conducted. Lectures, directed student explorations, group work, appropriate technologies, and projects will also be used as appropriate.

ASSESSMENT TASKS AND GRADING

The student will demonstrate competency in the objectives by participating in, completing and turning in all assignments, class activities, and special projects requested, by taking chapter exams and quizzes, and by taking a comprehensive final exam.

It is the student’s responsibility to obtain and complete all assignments which are given in any class meeting for which the student is unable to attend.

Points will be assigned to each assignment, activity, quiz, and exam that counts toward the student’s grade as follows:

1. **Homework.** Homework sets will be graded on a 0 – 3 point scale. Assignments are due at the next class meeting. Work must be shown neatly and completely. Late homework will be accepted with penalty – less one point per day late.

2. **Class Activity.** Class activities are done in class and will be graded on a 0 – 2 point scale. There is no make-up for a missed class activity. Students must be present in class to participate. Completed class activities must be turned in no later than the next class meeting. Failure to do so will result in a score of 0.

3. **Chapter Exam.** There are four departmental chapter exams given in class. A chapter exam will be approximately 75 minutes in length and will be scored on a 100 point scale. The student must achieve a minimum of 70% of the possible points for each chapter exam. Without this minimum requirement, a passing grade for the course is not possible.

**Retests.** After each chapter exam, a chapter retest deadline will be given. One retest is allowed without penalty for each chapter exam if it is done by the specified chapter retest
To take a retest, all of the following must be met:
   a) All problems from the Chapter Review assignment must be completed and turned in to the instructor.
   b) The student must meet with the instructor to review mistakes made on the first form of the test taken.
   c) Additional math activities as designated by the instructor must be completed and turned in to the instructor.
   d) The retest must be taken by the designated chapter retest deadline.

4. **Make-up Policy.** If you are unable to attend class on an exam day, discuss your situation with the instructor as soon as possible before the exam day. It may be possible for you to take the exam earlier than the specified day/time. If you unexpectedly must be absent on an exam day, notify me by 4:00 pm via e-mail. If the notification is received and the reason is justified then a make-up exam will be scheduled. The instructor reserves the right to request documentation to determine whether the absence is justifiable.

   **For each student, NO MORE THAN ONE make-up exam may be taken.**

5. **Final Exam.** The final exam will cover the concepts and skills in the entire course. The final exam is 2 hours in length and will be scored on a 200 point scale. The student must achieve a minimum of 60% of the possible points for the final exam. Without this minimum requirement, a passing grade for the course is not possible.

   No retesting for the final exam is available unless the 60% minimum is not met and the 70% minimum per chapter exam was met. In that event, a retest of the final exam is possible, however, the maximum score is 60% of the possible points for the final exam.

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**Course Grade.**

Each letter grade for the course will be assigned according to the level of achievement as provided in the table below:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Definition</th>
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<tbody>
<tr>
<td>A</td>
<td>earns 90% - 100% of the cumulative points possible.</td>
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<tr>
<td>B</td>
<td>earns 80% - 89% of the cumulative points possible.</td>
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<tr>
<td>C</td>
<td>earns 70% - 79% of the cumulative points possible.</td>
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<tr>
<td>Cr*</td>
<td>earns 70% - 100% of the cumulative points possible.</td>
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<tr>
<td>D</td>
<td>earns 60% - 69% of the cumulative points possible.</td>
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<tr>
<td>NC*</td>
<td>earns less than 70% of the cumulative points possible.</td>
</tr>
<tr>
<td>F</td>
<td>earns less than 60% of the cumulative points possible.</td>
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*Note: Students must apply for the Cr/NC grading option at the Admissions Office. Check your Schedule of Classes for deadline.*
LEARNING RESOURCES

Required materials:
  o A scientific calculator. Graphing calculators are NOT allowed.

Learning Resources:
  o Testing Center: La`akea (Library Learning Commons) Room 228
    Phone number: 235-7498
    http://windward.hawaii.edu/Testing_Center/index.php
  o WCC Math Lab: La`akea (Library Learning Commons) Room 222
    http://windward.hawaii.edu/Math_Lab/
  o Brainfuse Online Tutoring: http://windward.hawaii.edu/brainfuse/
  o OLA (UH Online Tutoring): http://manoa.hawaii.edu/ola/
  o Kahn Academy Videos: http://www.khanacademy.org

Additional Information
  1. Grading on homework, class activity, quiz or exam. To receive full marks for problems done on any graded activity, you must show your work neatly and completely. Partial credit may be awarded.
  2. Absences. It is your responsibility to attend class. Even if you are absent, you are responsible for those topics and examples covered in the class that you missed. Furthermore, you are responsible for obtaining any important announcements and assignments given during the class that you missed. If you are absent frequently or for an extended period of time, contact the instructor as soon as possible to discuss your situation. Absence and tardiness to class can have a negative impact on your success in this course. Frequent or long periods of absence require a professional note justifying the absence.
<table>
<thead>
<tr>
<th>Date</th>
<th>Tuesday</th>
<th>Thursday</th>
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<tr>
<td>Jan 9</td>
<td><strong>In Class:</strong></td>
<td><strong>In Class:</strong></td>
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<tr>
<td></td>
<td>• Introduction/Course Overview</td>
<td>• Review/Collect Assignment</td>
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<tr>
<td></td>
<td>• Chapter 1/Cluster 1: <em>Properties of Arithmetic</em></td>
<td>• Ch 1/Cluster 2: <em>Problem Solving With Fractions and Decimals</em></td>
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<td><strong>Assignment:</strong></td>
<td><strong>Assignment:</strong></td>
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<tr>
<td></td>
<td>Do: Ch 1/Cluster 1 <em>How Can I Practice</em></td>
<td>Do: Ch 1/Cluster 2 <em>How Can I Practice</em></td>
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<td>pp.25-26 #2-7.</td>
<td>pp.46-47 #1-5(write final answer in a complete sentence), 6ijnoruv.</td>
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<td>Jan 16</td>
<td><strong>In Class:</strong></td>
<td><strong>In Class:</strong></td>
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<td>• Review/Collect Assignment</td>
<td>• Review/Collect Assignment</td>
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<td>• Ch 1/Cluster 3A: <em>Percentages</em></td>
<td>• Ch 1/Cluster 3B: <em>Dimensional Analysis</em></td>
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<td><strong>Assignment:</strong></td>
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<td>Do: Ch 1/Cluster 3A <em>How Can I Practice</em></td>
<td>Do: Ch 1/Cluster 3A</td>
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<td>pp.98-99 #1, 3b, 4, 6, 8a.</td>
<td>pp.76 #6b; P.77 #12; p.79 #18; P.91 #10; and p. 101 #15 (in meters only)</td>
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<td>Jan 23</td>
<td><strong>In Class:</strong></td>
<td><strong>In Class:</strong></td>
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<td>• Review/Collect Assignment</td>
<td>• Review/Collect Assignment</td>
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<td></td>
<td>• Ch 1/Cluster 4: <em>Problem With Signed Numbers</em></td>
<td>• Chapter 1 Gateway Review and Estimation</td>
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<td><strong>Assignment:</strong></td>
<td><strong>Assignment:</strong></td>
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<td>Do: Exercise Act 1.12 pp.112-115 #4, 5, 7, 9, 15, 17;</td>
<td>Do: Ch 1 Gateway Review</td>
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<td>Do: Exercise Act 1.3 pp.123-126 #1, 2, 8, 10, 12, 14; and Do: Exercises Act 1.14 pp.132-134 #3, 4, 6, 7, 8, 10.</td>
<td>pp.147-150 #8-12, 14, 15, 17, 21, 22, 28, 29, 31, 32, 34, 35, 37, 39, 40-53, 58.</td>
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<td>Jan 30</td>
<td><strong>In Class:</strong></td>
<td><strong>In Class:</strong></td>
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<td></td>
<td>• Collect Assignment</td>
<td>• Review Ch 1 Exam Results</td>
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<td><strong>Chapter 1 Exam</strong></td>
<td>• Chapter 2/Cluster 1: <em>Symbolic Rules and Expression</em></td>
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<td><strong>Assignment:</strong></td>
<td><strong>Assignment:</strong></td>
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<td>Do: Ch 1/Cluster 1 <em>How Can I Practice</em></td>
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<tr>
<td>Date</td>
<td>In Class</td>
<td>Assignment</td>
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| Feb 6      | • Review/Collect Assignment
            • 2.5, 2.6                                                              | Assignment: Do: 2.5 pp. 198-201 #1, 4, 5, 7, 9, 11; and Do: 2.6 pp.206-211 #2, 3, 12, 14. |
| Feb 8      | • Review/Collect Assignment
            • 2.7, 2.8                                                              | Assignment: Do: 2.7 pp.216-218 #2, 5, 7, 9, 11, 13; and Do: 2.8 pp. 223-225 #1, 3, 7, 8, 15. |
| Feb 13     | • Review/Collect Assignment
            • 2.9, 2.10                                                             | Assignment: Do: 2.9 pp.238-241 #2-12 evens, 17, 19, 20aeg, 23aeh, 23bgl; and Do: 2.10 pp.244-247 #1, 2, 4acd, 7. |
| Feb 15     | • Review/Collect Assignment
            • 2.11                                                                  | Assignment: Do: 2.11 pp.253-258 #1, 3c, 6-16 evens, 20acg. |
| Feb 20     | • Review/Collect Assignment
            • Ch 2 Review                                                          | Assignment: Chapter 2 Exam

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<tr>
<th>Date</th>
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<th>Assignment</th>
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<tr>
<td>Feb 22</td>
<td>• Collect Assignment</td>
<td>Assignment: None</td>
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| Mar 1      | • Review/Collect Assignment
            • 3.5, 3.6                                                               | Assignment: Do: 3.5 pp.337-341 #5, 8, 10, 11; and Do: 3.6 pp.351-353 #7, 10, 11, 15, 17. |
| Mar 6      | • Review/Collect Assignment
            • 3.7, 3.7                                                               | Assignment: Do: 3.9 pp.390-393 #1b, 2b, 3b, 4b; |
| Mar 8      | • Review/Collect Assignment
            • 3.9, 3.11(a)                                                          | Assignment: |

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<tr>
<th>Date</th>
<th>In Class</th>
<th>Assignment</th>
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</thead>
</table>
| Mar 6      | • Review/Collect Assignment
            • 3.7, 3.7                                                               | Assignment: Do: 3.9 pp.390-393 #1b, 2b, 3b, 4b; |
| Mar 8      | • Review/Collect Assignment
            • 3.9, 3.11(a)                                                          | Assignment: |

Assignment: None
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<tr>
<th>Date</th>
<th>In Class:</th>
<th>Assignment:</th>
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</table>
| Mar 13 | • Review/Collect Assignment  
• 3.11(b), 3.12                         | Do: 3.11(b) pp.405-407 #5, 6, 9, 11abc; and  
Do: 3.12 pp.412-413 #1ac, 2bc. |
| Mar 15 | • Review/Collect Assignment  
• 3.14                                  | Do: 3.14 p.425 #4, 6, 8, 10, 12; and  
Chapter 3 Review Sheet Handout      |
| Mar 20 | • Review/Collect Assignment  
• Ch 3 Review                          | Ch 3 Review Sheet Handout                                                      |
| Mar 22 | • Collect Assignment                     | Chapter 3 Exam                                                               |
| Mar 25 | SPRING                                     | Assignment: None                                                              |
| Apr  3 | • Review Ch 3 Exam Results  
• Ch 4/Cluster 1: Polynomials        | Do: 4.1 pp.455-459  
#4, 6, 8, 10, 12, 14, 16, 18, 21ac, 22a. |
| Apr  5 | • Review/Collect HMK                  
• Ch 4/Cluster 1: Working With Exponents | Do: 4.2 pp.467-470 #1-30, 43.                                             |
| Apr 10 | • Review/Collect Assignment  
• 4.4 Solving Quadratic Equations  | Do: 4.4 pp.493-496  
#11, 2acf, 3bc, 5, 6; and  
Do: 4.7 pp.515-518 #1, 3, 5, 6b. |
| Apr 12 | • Review/Collect Assignment  
• 4.7 Graphing the Parabola Using the 5-Step Method | Do: 4.7 pp.515-518  
#7, 8, 9. |
<table>
<thead>
<tr>
<th>Date</th>
<th>In Class:</th>
<th>Assignment:</th>
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<tbody>
<tr>
<td>Apr 17</td>
<td>• Review/Collect HMK&lt;br&gt;• Ch 4 Review</td>
<td>Ch 4 Review Sheet Handout</td>
</tr>
<tr>
<td>Apr 19</td>
<td>• Review/Collect Assignment&lt;br&gt;• Quiz (Ch 12) Prep</td>
<td>Ch 4 Review Sheet Handout</td>
</tr>
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<td>Apr 24</td>
<td><strong>In Class:</strong>&lt;br&gt;• Collect Assignment&lt;br&gt;Quiz (Ch 12)&lt;br&gt;<strong>Assignment:</strong>&lt;br&gt;Final Exam Review Sheet</td>
<td><strong>Assignment:</strong> Final Exam Review Sheet</td>
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<td>Apr 26</td>
<td><strong>In Class:</strong>&lt;br&gt;• Review for Final Exam&lt;br&gt;<strong>Assignment:</strong>&lt;br&gt;Final Exam Review Sheet</td>
<td><strong>Assignment:</strong> Final Exam Review Sheet</td>
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<td>May 1</td>
<td><strong>In Class:</strong>&lt;br&gt;• Review for Final Exam&lt;br&gt;<strong>Assignment:</strong>&lt;br&gt;Final Exam Review Sheet</td>
<td><strong>Assignment:</strong> Final Exam Review Sheet</td>
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<td>May 3</td>
<td><strong>In Class:</strong>&lt;br&gt;• Review for Final Exam&lt;br&gt;<strong>Assignment:</strong>&lt;br&gt;Final Exam Review Sheet</td>
<td><strong>Assignment:</strong> Final Exam Review Sheet</td>
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<tr>
<td>May 8</td>
<td><strong>In Class:</strong>&lt;br&gt;• Review for Final Exam&lt;br&gt;<strong>Assignment:</strong>&lt;br&gt;Final Exam Review Sheet</td>
<td><strong>Assignment:</strong> Final Exam Review Sheet</td>
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<tr>
<td>May 10</td>
<td>Final Exam&lt;br&gt;11:30 am – 1:30 pm</td>
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