Math 75X: Introduction to Mathematical Reasoning
4 credits (CRN 64224)
MWF 8:30 am – 9:45 am

INSTRUCTOR: Professor Clayton K. Akatsuka
OFFICE: Mana 101
OFFICE HOURS (times students may drop in for help):
TELEPHONE: (808) 236-9279 EMAIL: akatsuka@hawaii.edu
EFFECTIVE DATE: Fall 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 the Koʻolau region of Oʻahu and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

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).

Activities Required at Scheduled Times Other Than Class Times
(1) Homework. (2) Preparing for Exams. (3) Retests, if applicable.

STUDENT LEARNING OUTCOMES
As a result of taking this course, students can expect to attain the following outcome

- Solve applied mathematical problems, judge reasonableness of results, and communicate conclusions using appropriate terminology and symbols
- Recognize and express mathematical patterns in various forms and contexts
- Perform operations on real numbers
- Utilize precise mathematical language and symbols to effectively communicate mathematics in written and/or oral form
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:

Windward Community College is an equal opportunity, affirmative action institution.
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 deadline. The better of two exam scores will count towards your grade. No retest will be given after the chapter exam retest deadline.

   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.
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>
</tr>
</tbody>
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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:
- A scientific calculator. Graphing calculators are NOT allowed.

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

Windward Community College is an equal opportunity, affirmative action institution.
DISABILITIES ACCOMMODATIONS
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 ‘Ākoakoa 213 for more information.

TITLE IX
Title IX prohibits discrimination on the basis of sex in education programs and activities that receive federal financial assistance. Specifically, Title IX prohibits sex discrimination; sexual harassment and gender-based harassment, including harassment based on actual or perceived sex, gender, sexual orientation, gender identity, or gender expression; sexual assault; sexual exploitation; domestic violence; dating violence; and stalking. For more information regarding your rights under Title IX, please visit: https://windward.hawaii.edu/Title_IX/.

Windward Community College is committed to the pursuit of equal education. If you or someone you know has experienced sex discrimination or gender-based violence, Windward CC has resources to support you. To speak with someone confidentially, contact Karla Silva-Park, Mental Health Counselor, at 808-235-7468 or karlas@hawaii.edu or Kaahu Alo, Designated Confidential Advocate for Students, at 808-235-7354 or kaahualo@hawaii.edu. To make a formal report, contact the Title IX Coordinator at 808-235-7393 or wcctix@hawaii.edu.

ACADEMIC INTEGRITY
Work submitted by a student must be the student’s own work. The work of others should be explicitly marked, such as through use of quotes or summarizing with reference to the original author.

Students can upload papers to http://www.TurnItIn.com to have papers checked for authenticity, highlighting where the paper potentially fails to appropriately reference sources.

In this class, students who commit academic dishonesty, cheating or plagiarism will have the following consequence(s):

  Students will receive a failing grade for plagiarized assignments.

All cases of academic dishonesty are referred to the Vice Chancellor for Student Affairs.

ALTERNATE CONTACT INFORMATION
If you are unable to contact the instructor, have questions that your instructor cannot answer, or for any other issues, please contact the Academic Affairs Office:

Location: Alakai 121
Phone: 808-235-7422
Email: wccaa@hawaii.edu
# Tentative Schedule – Fall 2018

**Math 75X  Intro to Math Reasoning** (CRN 64224)
**TTh 11:30 am – 1:20 pm**  
**Mano 101**

**Instructor:** Clayton K. Akatsuka  
**Office:** Manao 112
**e-mail:** akatsuka@hawaii.edu

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## Important Dates

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Aug 28</td>
<td>Last day to register/add/drop and to receive 100% refund of tuition</td>
</tr>
<tr>
<td>Sept 11</td>
<td>Last day for 50% refund of tuition and to withdraw without a “W” grade</td>
</tr>
<tr>
<td>Oct 29</td>
<td>Last day to withdraw with a “W” grade or choose CR/NC grade option</td>
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## Tuesday

**Aug 21**

- **In Class:**
  - Introduction/Course Overview
  - Chapter 1/Cluster 1: *Properties of Arithmetic*

- **Assignment:**
  - Do: Ch 1/Cluster 1 *How Can I Practice*
  - pp.25-26 #2-7.

**Aug 28**

- **In Class:**
  - Review/Collect Assignment
  - Ch1/Cluster 3A: *Percentages*
  - Estimation

- **Assignment:**
  - Do: Ch 1/Cluster 3A *How Can I Practice*
  - pp.98-99 #1, 3b, 4, 6, 8a, 14*(estimation)*

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## Thursday

**Aug 23**

- **In Class:**
  - Review/Collect Assignment
  - Ch 1/Cluster 2: *Problem Solving With Fractions and Decimals*

- **Assignment:**
  - Do: Ch 1/Cluster 2 *How Can I Practice*
  - pp.46-47 #1-5(write final answer in a complete sentence), 6ijnoruv.

**Aug 30**

- **In Class:**
  - Review/Collect Assignment
  - Ch1/Cluster 3B: *Dimensional Analysis*

- **Assignment:**
  - Do: Ch 1/Cluster 3A
  - pp.76 #6b; P.77 #12; p.79 #18; P.91 #10; and p. 101 #15 (in meters only)

**Sep 4**

- **In Class:**
  - Review/Collect Assignment
  - Ch1/Cluster 4: *Problem With Signed Numbers*

- **Assignment:**
  - Do: Exercise Act 1.12 pp.112-115 #4, 5, 7, 9, 15, 17;  
  - Do: Exercise Act 1.13 pp.123-126 #1, 2, 8, 10, 12, 14; and  
  - Do: Exercises Act 1.14 pp.132-134 #3, 4, 6, 7, 8, 10.

**Sep 6**

- **In Class:**
  - Review/Collect Assignment
  - Chapter 1 Gateway Review

- **Assignment:**
  - Do: Ch 1 Gateway Review
  - pp.147-150 #8-12, 14, 15, 17, 21, 22, 28, 29, 31, 32, 34*(estimation)*, 35, 37, 39, 40-53, 58.
<table>
<thead>
<tr>
<th>Date</th>
<th>In Class:</th>
<th>Assignment:</th>
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<tbody>
<tr>
<td>Sep 11</td>
<td>Collect Assignment</td>
<td>Chapter 1 Exam</td>
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<td>None</td>
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<tr>
<td>Sep 13</td>
<td>Review Ch 1 Exam Results</td>
<td>Chapter 2/Cluster 1: Symbolic Rules and Expression</td>
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<td>Sep 18</td>
<td>Review/Collect Assignment</td>
<td>2.5, 2.6</td>
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<td></td>
<td>Do: 2.5 pp. 198-201 #1, 4, 5, 7, 9, 11; and Do: 2.6 pp.206-211 #2, 3, 12, 14.</td>
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<tr>
<td>Sep 20</td>
<td>Review/Collect Assignment</td>
<td>2.7, 2.8</td>
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<td></td>
<td>Do: 2.7 pp.216-218 #2, 5, 7, 9, 11, 13; and Do: 2.8 pp.223-225 #1, 3, 7, 8, 15.</td>
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<tr>
<td>Sep 25</td>
<td>Review/Collect Assignment</td>
<td>2.9, 2.10</td>
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<td>Do: 2.9 pp.238-241 #2-12 evens, 17, 19, 20aeg, 23ae, 23bg; and Do: 2.10 pp.244-247 #1, 2, 4acd, 7.</td>
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<td>Sep 27</td>
<td>Review/Collect Assignment</td>
<td>2.11</td>
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<td>Do: 2.11 pp.253-258 #1, 3c, 6-16 evens, 20aeg.</td>
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<td>Oct 2</td>
<td>Review/Collect Assignment</td>
<td>Ch 2 Review</td>
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<td>Do: Ch 2 Gateway Review pp.273-279 #1a-f, 2abe, 3, 4df, 5a-f, 6, 7ab, 8ab, 10acdf, 11abc, 13a-e, 14abef, 16a-e, 17a, 18abc, 19a-c.</td>
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<tr>
<td>Oct 4</td>
<td>Collect Assignment</td>
<td>Chapter 2 Exam</td>
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<td>None</td>
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<td>Oct 9</td>
<td>Review Ch 2 Exam Results</td>
<td>Ch 3/Cluster 1: Function Sense</td>
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<td>Do: Ch 3/Cluster 1 How Can I Practice pp.322-326 #2, 4, 8-14.</td>
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<td>Oct 11</td>
<td>Review/Collect Assignment</td>
<td>3.5, 3.6</td>
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<td></td>
<td>Do: 3.5 pp.337-341 #5, 8, 10, 11; and Do: 3.6 pp.351-353 #7, 10, 11, 15, 17.</td>
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</table>
| Oct 16 | In Class:  
| • Review/Collect Assignment  
| • 3.7, 3.8  
| Assignment:  
| Do: 3.7 pp.358-360 #1, 3, 4, 5;  
| and  
| Do: 3.8 pp.370-372 #2, 6, 8, 10, 13, 18, 19. |
| Oct 18 | In Class:  
| • Review/Collect Assignment  
| • 3.9, 3.11(a)  
| Assignment:  
| Do: 3.9 pp.390-393 #1b, 2b, 3b, 4b;  
| and  
| Do: 3.11(a) pp.401-402 #1abef |
| Oct 23 | In Class:  
| • Review/Collect Assignment  
| • 3.11(b), 3.12  
| Assignment:  
| Do: 3.11(b) pp.405-407 #5, 6, 9, 11ab; and  
| Do: 3.12 pp.412-413 #1ac, 2bc. |
| Oct 25 | In Class:  
| • Review/Collect Assignment  
| • 3.14  
| Assignment:  
| Do: 3.14 p.425 #4, 6, 8, 10, 12;  
| and  
| Chapter 3 Review Sheet Handout |
| Oct 30 | In Class:  
| • Review/Collect Assignment  
| • Ch 3 Review  
| Assignment:  
| Ch 3 Review Sheet Handout |
| Nov 1 | In Class:  
| • Collect Assignment  
| Chapter 3 Exam  
| Assignment:  
| None |
| Nov 6 | Holiday  
| Election Day |
| Nov 8 | In Class:  
| • Review Ch 3 Exam Results  
| • Ch 4/Cluster 1: *Polynomials*  
| Assignment:  
| Do: 4.1 pp.455-459  
| #4, 6, 8, 10, 12, 14, 16, 18, 21ac, 22a. |
| Nov 13 | In Class:  
| • Review/Collect HMK  
| • Ch 4/Cluster 1: *Working With Exponents*  
| Assignment:  
| Do: 4.2 pp.467-470  
| #1-30, 43. |
| Nov 15 | In Class:  
| • Review/Collect Assignment  
| • 4.4 *Solving Quadratic Equations*  
| Assignment:  
| Do: 4.4 pp.493-496  
| #11, 2ac, 3bc, 5, 6; and  
<p>| Do: 4.7 pp.515-518 #1, 3, 5, 6b. |</p>
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<thead>
<tr>
<th>Date</th>
<th>In Class:</th>
<th>Assignment:</th>
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<tbody>
<tr>
<td>Nov 20</td>
<td>• Review/Collect Assignment</td>
<td>Do: 4.7 pp. 515-518 #7, 8, 9.</td>
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<td>• 4.7 <em>Graphing the Parabola Using the 5-Step Method</em></td>
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<td>Nov 22</td>
<td>Thanksgiving Recess</td>
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<td>Nov 27</td>
<td>• Review/Collect HMK</td>
<td>Assignment: Ch 4 Review Sheet Handout</td>
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<td>• Ch 4 Review</td>
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<td>Nov 29</td>
<td>In Class:</td>
<td>Assignment: Final Exam Review Sheet</td>
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<tr>
<td></td>
<td>• Collect Assignment</td>
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<td></td>
<td>• Chapter 4 Exam</td>
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<tr>
<td>Dec 4</td>
<td>In Class:</td>
<td>Assignment: Final Exam Review Sheet</td>
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<tr>
<td></td>
<td>• Review Ch 4 Exam results</td>
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<td></td>
<td>• Review for Final Exam</td>
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<tr>
<td>Dec 6</td>
<td>In Class:</td>
<td>Assignment: Final Exam Review Sheet</td>
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<td>Last Class</td>
<td>• Review for Final Exam</td>
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<td>Dec 11</td>
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<td>Dec 13</td>
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<td></td>
<td>Final Exam</td>
<td>Final Exam Review Sheet</td>
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<td>11:30 am – 1:30 pm</td>
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