MATH 75X – Introduction to Mathematical Reasoning
4 Credits, CRN: 64226
MW, 5:30 pm – 7:20 pm; 8/20 – 12/14; Hale Palanakila 214

INSTRUCTOR: David W.K.W.L. DONLIN, Lecturer, Mathematics
OFFICE: Hale Mana’opono 110A (DON’T GO HERE!! I don’t use this office.)
OFFICE HOURS: MTWR, 5:00 pm – 5:30 pm, Hale Palanakila 214
(students may drop in for help during this time, or by pre-arranged appointment)
TELEPHONE: 236-9276
EMAIL: donlin@hawaii.edu
ALTERNATE CONTACT INFO: Facebook: David William KWL Donlin
Instagram: David.William.KWL.Donlin
Twitter: @David_Donlin
Snapchat: david.donlin
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 Ko‘olau region of O‘ahu 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)

Pre-Requisite(s): None
Co-Requisite(s): None

STUDENT LEARNING OUTCOMES
Upon completion of the course, the student will be able to:

- 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 TASKS

The mode of instruction is primarily discussion-problem solving 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. Lectures, directed student explorations, group work, appropriate technologies, and projects will also be used as appropriate. After the completion of each unit, a review and exam will be conducted.

ASSESSMENT TASKS AND GRADING

The student will demonstrate competency in the objectives by participating in and completing all class activities, by completing and turning in all assignments as requested, by taking unit tests, and by taking a final exam over concepts and skill covered in the entire course. Class activities, unit tests, and the final exam are to be taken in the classroom and without any references unless otherwise stipulated by the instructor.

It is the student’s responsibility to obtain and complete all assignments that are given in any class meeting for which the student is unable to attend. Unless permission is granted by the instructor beforehand, assignments and tests must be completed and submitted to the instructor at the specified date and time.

Points will be assigned to each graded assignment, class activity, and tests as follows:

1. **Homework.** Homework sets will be assigned through MyMathLab (registration directions at the end of this syllabus). Homework assignments are worth up to 2 points and are graded on completeness. Homework assigned during any given week will be due at the first class meeting on the following week; typically this will be on a Tuesday. You are encouraged to write out problems and show your work to make it more useful to study with and easier for myself or others to help with errors. There is a total of 76 possible points for completion of all 38 online homework assignments. The homework score will then be averaged in to the final grade as if it were an exam out of 76 points, for the benefit to the student.

2. **Graded Homework.** Occasionally a short homework set of about 3 or 4 problems may be assigned to be graded more critically. Clarity of thought process will be important to earn the full 2 or 3 points per problem, depending on the problem (i.e. show your work, write out your thought process and present your work in a neat and organized manner).

3. **Class Activity.** Class activities are done in class only. Class activities will be graded on a 0 - 3 point scale. There is no make-up for a missed class activity. Students must be present in class to participate.

4. **Weekly Quizzes.** Weekly quizzes will be graded on a 0 - 5 point scale and will take place at the last meeting of every week. There is no make-up for a missed weekly quiz. Students must be present in class to participate.

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5. **Chapter Exam.** The four chapter exams are given in class at the end of each chapter covered during class. A Chapter Exam will be 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 unit test. Without this minimum requirement, a passing grade for the course is not possible.

*Note:* A completed Chapter Exam Review Assignment is the best way to prepare for the test at the end of each unit. The assigned Chapter Exam Review Assignment must be completed and turned in to the instructor in order to sit for the Unit Exam. The completed Chapter Exam Review Assignment is your “ticket” to take the Unit Exam! If the Chapter Exam Review Assignment is not completed or not turned in, a score of 0 will be recorded for the Chapter Exam. In this case, the student will have only the retest opportunity to earn a passing grade for this Chapter Exam.

**Retests.** After each Chapter Exam, a Retest Deadline will be given. One Retest is allowed without penalty for each module test if it is done by the specified Chapter Retest Deadline. The better of the two test scores will count towards your grade. No retests will be given after the unit retest deadline. Retests are arranged by appointments with your instructor, and Retests are taken in the WCC Testing Center in the Library.

To take a retest, all of the following must be met:
- a) All problems from the Chapter Exam at the end of the unit 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.
- d) The retest must be taken by the designated unit retest deadline.

6. **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 Unit Test 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.

During the Final Exam students will be allowed a single 3x5 index cards, hand written on both sides. This card will be collected at the end of the Final Exam.

**Make-up.** Make-up opportunity for a Chapter Exam or Final Exam will be possible only upon a timely presentation of a serious and justified explanation of the student’s absence from the class test. The instructor has the right to request documentation of the student’s absence from the class and to determine if the absence from the class test is justified. A make-up test must be taken within one week of the in-class test unless otherwise specified by the instructor.

**No more than one exam may be taken by a student on a make-up basis.**

7. A scientific calculator is required for this class. Graphing calculators are not allowed. A calculator **will not** be allowed on the first exam for Chapter 1. For all subsequent exams, including the Final Exam, a scientific calculator will be allowed.

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8. **Course Grade.** Grades used are A, B, C, D, F, N or CR, NC. Students must request for CR/NC grading by the designated deadline (usually the same as the Withdrawal Deadline). Minimum competencies are expected of students. Each student must:
   a. **score at least 70% of the total points on each Chapter Exam and**
   b. **score at least 60% of the total points on the Final Exam.**

**Until these minimums are met, grades of A, B, C, D, or CR cannot be assigned.** In other words, if a student does not meet the two criteria above, they must obtain the F grade for the course, unless they are qualified for an N or NC grade. If there is only a small part of the minimum competencies a student has not met, that student may request an I grade so that retesting opportunities, if still available, can be provided beyond the final exam period to allow the student to complete the course competencies.

If a student has achieved a minimum of 70% of the possible points for each unit test and a minimum of 60% of the possible points for the final exam, then a 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>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90% – 100% of the cumulative points possible.</td>
</tr>
<tr>
<td>B</td>
<td>80% – 89% of the cumulative points possible</td>
</tr>
<tr>
<td>C</td>
<td>70% – 79% of the cumulative points possible</td>
</tr>
<tr>
<td>D</td>
<td>60% – 69% of the cumulative points possible</td>
</tr>
<tr>
<td>F</td>
<td>below 60% of the cumulative points possible.</td>
</tr>
<tr>
<td>N</td>
<td>definition listed below</td>
</tr>
<tr>
<td>Cr</td>
<td>70% – 100% of the cumulative points possible</td>
</tr>
<tr>
<td>NC</td>
<td>less than 70% of the cumulative points possible</td>
</tr>
</tbody>
</table>

Note: The N grade is given at the discretion of the instructor and only when the criteria for the N grade is met by the student. Consult the WCC Catalog for the criteria of the N grade.

Note: Students must apply for the Cr/NC grading option at the Admissions Office. Consult the WCC Catalog for deadlines.

Note: W grade is given only when the student officially withdraws from the course at the Admissions Office. Consult the WCC Catalog for deadlines.

**LEARNING RESOURCES**

- Mathematics in Action – An Introduction to Algebraic, Graphical and Numerical Problem Solving, 5th ed., by The Consortium for Foundation Mathematics
- MyMathLab: [www.pearsonmylabandmastering.com](http://www.pearsonmylabandmastering.com)
- WCC Produced Tutorial Videos: [https://windward.hawaii.edu/jitmath/](https://windward.hawaii.edu/jitmath/)
- Brainfuse Online Tutoring: [http://windward.hawaii.edu/brainfuse/](http://windward.hawaii.edu/brainfuse/)
- Math Lab: La`akea (Library Learning Commons) Room 222 (Hours of Operation TBA)] [http://windward.hawaii.edu/Math_Lab/](http://windward.hawaii.edu/Math_Lab/)
- Kahn Academy Videos: [http://www.khanacademy.org](http://www.khanacademy.org)
- Testing Center: La`akea (Library Learning Commons) Room 228 Phone number: 235-7498

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Skills or Competencies/Responsibilities of Students
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 and the Math Lab personnel whenever necessary;
5. completing assignments by the designated date;
6. regular class attendance, participation and maintaining accurate class notes.

Past students who have successfully completed my class last semester leave the following advice for new students:
1. Do the fricken homework, or else u won’t be ready for the test!
2. Try your best not to miss class, or else you will be lost!
3. Come early to class and ask questions one and one.

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 wectix@hawaii.edu

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

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**TENTATIVE SCHEDULE**

**DONLIN – Fall 2018; MW 5:30 – 7:20 PM (CRN: 64226)**  
**Academic Calendar:** [http://windward.hawaii.edu/academics/Calendar/](http://windward.hawaii.edu/academics/Calendar/)

- August 28 – Last Day for 100% Refund  
- September 11 – Last Day for 50% Refund, Last Day to Withdraw without a “W” Grade  
- October 29 – Last Day to Withdraw with a “W” or Establish Credit/No-Credit and Audit Options

<table>
<thead>
<tr>
<th>Date</th>
<th>Class</th>
<th>Homework Pacing Guide</th>
</tr>
</thead>
</table>
| 8/20 | **Syllabus,**  
1.2 – Problem Solving Strategies | Completed: |
| 8/22 | 1.3 – Order of Operations & Scientific Notation | |
| 8/27 | 1.4 – Fractions  
1.6 – Ratios | 1.2, 1.3 |
| 8/29 | 1.7 – Proportions  
1.8 – Percent Change | |
| 9/3 | **Labor Day** | |
| 9/5 | 1.9 – Percent Growth/Decay  
1.10 – Consecutive Growth/Decay | 1.4, 1.6, 1.7, 1.8 |
| 9/10 | 1.11 – Rates  
1.12 – Signed Numbers | 1.9, 1.10 |
| 9/12 | 1.13 – Multiply & Divide Signed Numbers  
1.14 – Order of Operations with Signed Numbers | |
| 9/17 | **Chapter 1 Review & Exam** | 1.11, 1.12, 1.13, 1.14 |
| 9/19 | 2.1 – Evaluating Algebraic Expressions  
2.2 – Input & Output | |
| 9/24 | 2.3 – Verbal Rules into Symbolic Rules  
2.4 – Equivalent Algebraic Expressions | 2.1, 2.2 |
| 9/26 | 2.5 – ax = b  
2.6 – y = ax + b | |
| 10/1 | 2.7 – Formula for a Specified Variable | 2.3, 2.4, 2.5, 2.6 |
| 10/3 | 2.8 – Proportions & Equivalent Fractions | |
| 10/8 | 2.9 – Distributive Property  
2.10 – Simplify Algebraic Expressions | 2.7, 2.8 |

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<table>
<thead>
<tr>
<th>Date</th>
<th>Section(s)</th>
<th>Supplemental Material</th>
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<tbody>
<tr>
<td>10/10</td>
<td>2.11 – Solving Algebraic Equations</td>
<td></td>
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<tr>
<td>10/15</td>
<td>Chapter 2 Review &amp; Exam</td>
<td>2.9, 2.10, 2.11</td>
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<tr>
<td>10/17</td>
<td>3.1 – Functions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.2 – Average Rate of Change</td>
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<tr>
<td>10/22</td>
<td>3.3 – Evaluating Functions</td>
<td></td>
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<tr>
<td></td>
<td>3.4 – Solving Applications Using Function Notation</td>
<td>3.1, 3.2</td>
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<tr>
<td>10/24</td>
<td>3.5 – Slope</td>
<td></td>
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<tr>
<td></td>
<td>3.6 – Slope Intercept Form</td>
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<tr>
<td>10/29</td>
<td>3.7 – Using Slope Intercept Form to Solve Problems</td>
<td>3.3, 3.4, 3.5, 3.6</td>
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<tr>
<td></td>
<td>3.8 – Point-Slope Form</td>
<td></td>
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<tr>
<td>10/31</td>
<td>3.11 – System of Two Linear Equations</td>
<td></td>
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<tr>
<td></td>
<td>3.12 – Solving a System of Two Linear Equations</td>
<td>3.7, 3.8, 3.11, 3.12</td>
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<tr>
<td>11/5</td>
<td>3.14 – Linear Inequalities</td>
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<tr>
<td>11/7</td>
<td>Chapter 3 Review &amp; Exam</td>
<td>3.14</td>
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<tr>
<td>11/12</td>
<td>Veteran’s Day</td>
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<tr>
<td>11/14</td>
<td>4.1 – Simplify Polynomials</td>
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<td></td>
<td>4.2 – Properties of Exponents</td>
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<tr>
<td>11/19</td>
<td>4.4 – Solving Quadratic Equations</td>
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<td>11/21</td>
<td>4.7 – Quadratic Formula</td>
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<tr>
<td>11/26</td>
<td>Chapter 4 Review &amp; Exam</td>
<td></td>
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<tr>
<td>11/28</td>
<td>Final Exam Review</td>
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<tr>
<td>12/3</td>
<td>Final Exam Review</td>
<td></td>
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<tr>
<td>12/5</td>
<td>Final Exam Review</td>
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<tr>
<td>12/10</td>
<td>*Optional Review Day</td>
<td></td>
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<tr>
<td>12/12</td>
<td>Final Exam</td>
<td>5:30 – 7:30 pm</td>
</tr>
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</table>

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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

To register for Math 75X - Fall 2018:

2. Under Register, select Student.
3. Confirm you have the information needed, then select OK! Register now.
4. Enter your instructor’s course ID: donlin89249, and Continue.
5. Enter your existing Pearson account username and password to Sign In.
   You have an account if you have ever used a MyLab or Mastering product.
   » If you don’t have an account, select Create and complete the required fields.
6. Select an access option.
   » Enter the access code that came with your textbook or that you purchased separately from the bookstore.
   » If available for your course,
     • Buy access using a credit card or PayPal, or
   • Get temporary access by selecting the link near the bottom of the page.
7. From the You’re Done! page, select Go To My Courses.
8. On the My Courses page, select the course name Math 75X - Spring 2018 to start your work.

To sign in later:

2. Select Sign In.
3. Enter your Pearson account username and password, and Sign In.
4. Select the course name Math 75X - Fall 2018 to start your work.

To upgrade temporary access to full access:

2. Select Sign In.
3. Enter your Pearson account username and password, and Sign In.
4. Select Upgrade access for Math 75X - Fall 2018.
5. Enter an access code or buy access with a credit card or PayPal.

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Have you ever heard of Pokemon or Yu-Gi-Oh? These are what those in the know call collectable trading card games. To over simplify the matter and gleefully run the risk of annoying those in the know, these are essentially card games played with decks of colorful playing cards that have statistics on them (i.e. numbers representing attributes) that are used to define the various characters drawn on each card. The game itself is not consequential to my point, what is important is the behavior of the players of said games. To be blunt, the people who play these games are nerds, weeb to be more specific. While they mostly speak words we can all understand, the totality of their conversation comes across as nothing more than gibberish. They are also acutely detail oriented. While two cards might look the same to you or me, game “experts” will swear that one is infinitely better or worse than the other. They will also pour hours into reviewing their cards to catalog strengths and weaknesses, spend the time working out how cards can be played in combination during a game, and delve into the meta, the wealth of knowledge beyond just picking up some cards and playing the game. Their hobby is essentially homework, and like I said, these people are nerds; just like those who learn to speak the language of the Elves from *The Lord of the Rings*, or people who go to Klingon Summer camp, or people who learn the Jedi code and train to fight with a lightsaber (I swear these are real things, look it up on Google). All of these people are nerds, just like the people who came up with the math you’re about to study in this course. And just like those sci-fi/fantasy/weeb nerds, your travels into the world of mathematics will require that you learn intricate language and symbology to the point of exacting detail as well as draw upon knowledge and skills that we will build up during our class sessions to solve previously incomprehensible problems. I look forward to being your Gandalf/Yoda/Mr. Miyagi.

For my first wax on/wax off moment, I want you to keep two things in mind, as far as math is concerned, that are illustrated in the two pictures on the following pages:

1) The language and symbology of mathematics is exact. This is not an art class, and the positioning of numbers, letters, and the lines between them all have a purpose.

2) Much of the solution to a math problem is implied by the smallest of details and it will be up to you to bring the knowledge needed to solve these problems. This is very much unlike, for instance, an essay question, where you can sometimes extract part of your answer from the question or the way it is framed.
What does this symbol represent?

\[-8 - \left( \frac{9}{5} \right)^{-3} = 42\]
How do you solve the following problem?

Find the Volume of the Prism.

\[ V = Bh \]

There is a Right Triangle here and Pythagorean Theorem can be applied.

Leg 1 = 48 in.
Leg 2 = unknown
Hypotenuse = 60 in.

Height of the Triangle, but not Height of the Prism.

Prism is a Triangular Prism and the Base of the Prism is a Triangle.

Find the Volume of the Prism.

\[ h = \text{Height of the Prism (this is different from the Height of the Triangle)} \]

\[ B = \text{Area of the Base (The Base is a Triangle, so the Area Formula for a Triangle is needed: } A = \frac{bh}{2} \text{ where ‘b’ is the Base of the Triangle and ‘h’ is the Height of the Triangle.)} \]

Units here are in ‘feet’ but other measurements are in ‘inches’. All measurements need to be converted to the same Units of Measure, either feet or inches.

Pythagorean Theorem \((a^2 + b^2 = c^2)\) must be used to find this length, then multiply that value by 2 in order to find the Length of the Base of the Triangle.