INSTRUCTOR: Clayton K. Akatsuka, Professor, Mathematics

OFFICE: Mana 112

OFFICE HOURS: MW 11:15 am - 12:45 pm; TTh 11:15 am - 12:15 pm; or by appointments.

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

EFFECTIVE DATE: Fall 2014

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College is committed to excellence in the liberal arts and career development; we support and challenge individuals to develop skills, fulfill their potential, enrich their lives, and become contributing, culturally aware members of our community.

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

Linear equations, inequalities, systems of equations, polynomials, functions, fractional expressions and equations, exponents, powers, roots, quadratic equations and functions; rational, exponential and logarithmic functions.

Pre-requisite: Grade of “C” or better in Math 25, Math 29 or equivalent, satisfactory math placement test score, or consent of instructor.

WCC: FS
STUDENT LEARNING OUTCOMES

The student learning outcomes are:
1. Demonstrate proficiency in writing math expressions into different forms.
2. Employ algebraic techniques to find the solutions to equations and/or inequalities using complex numbers where appropriate.
3. Use algebraic techniques to analyze and solve applied problems.
4. Interpret equations geometrically and use geometrical information to obtain the equation of lines and circles.
5. Utilize introductory function concepts and draw the graphs of selected functions.
6. Utilize the definition of a logarithm and the properties of logarithms to simplify expressions or to solve logarithmic and exponential equations.
7. Demonstrate proficiency in solving systems of linear and second degree equations and inequalities.
8. Utilize precise mathematical language and symbols to effectively communicate mathematics in written and/or oral form.

Note: All SLO assessments are embedded in class activities, homework, quizzes, or exams.

FOUNDATION HALLMARKS

Math 103 fulfills 3 credits of the General Education requirements (Foundations: Symbolic) for an A.A. degree at WCC. Consequently, it meets the hallmarks of the symbolic reasoning requirement.

1. Students will be exposed to the beauty, power, clarity and precision of formal systems.
2. Instructors will help students understand the concept of proof as a chain of inferences.
3. Instructors will teach students how to apply formal rule or algorithms.
4. Students will be required to use appropriate symbolic techniques in the context of problem solving, and in the presentation and critical evaluation of evidence.
5. The course will not focus solely on computational skills.
6. Instructors will build a bridge from theory to practice and show students how to traverse this bridge.

COURSE CONTENT

Concepts or Topics

- A Review of Basic Algebra
- Equations and Inequalities
- The Rectangular Coordinate System and Graphs of Equations
- Functions
- Exponential and Logarithmic Functions
- Linear Systems
- Conic Sections and Quadratic Systems

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 GRAADING**

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 unit 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 may be accepted with penalty.

2. **Class Activity.** Class activities are done in class and 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.

3. **Unit Exam.** There are four unit exams given in class. A unit exam will be approximately 75 minutes in length and will be scored on a 100 point scale. **There is no retest.**

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 or voicemail. 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. **There is no retest.** There is no make-up.

6. **Calculators.** Calculator use is NOT allowed on exams.
Each letter grade for the course will be assigned according to the level of achievement as provided in the table below:

**Letter Grade**
- **A** earns 90% - 100% of the cumulative points possible.
- **B** earns 80% - 89% of the cumulative points possible.
- **C** earns 70% - 79% of the cumulative points possible.
- **Cr** earns 70% - 100% of the cumulative points possible.
- **D** earns 60% - 69% of the cumulative points possible.
- **NC** earns less than 70% of the cumulative points possible.
- **F** earns less than 60% of the cumulative points possible.

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:**
  Although not required, a Student Solution Manual is also available.

**Learning Resources:**
- Supplemental Instruction Leader: TBA
- 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.
# Tentative Schedule - Fall 2014

**Math 103 (CRN 62543)**  
**College Algebra**  
**MWF 1:00 pm - 2:15 pm**  
**Mana 101**

**Instructor:** Clayton K. Akatsuka  
**Office:** Manao 112  
**Office Phone:** 236-9279  
**e-mail:** akatsuka@hawaii.edu

## Important Dates

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Aug 25</td>
<td>Last day to register/add/drop and to receive 100% refund of tuition</td>
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<tr>
<td>Sept 8</td>
<td>Last day for 50% refund of tuition and to withdraw without a “W” grade</td>
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<tr>
<td>Nov 4</td>
<td>Last day to withdraw with a “W” grade or choose CR/NC grade option</td>
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<td>Last day to make up “I” grade from previous semester</td>
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## Schedule

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<tr>
<th>Aug</th>
<th>Monday</th>
<th>Wednesday</th>
<th>Friday</th>
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| 25      | In Class:  
• Introduction  
• R.1 Real Numbers  
**Assignment:**  
R.1 Read pp. 2-14  
Do pp. 15-17 #13, 15, 21, 25, 27, 29, 41, 45, 57, 67, 75, 81, 92, 95, 101, 108  |
| 27      | In Class:  
• Review/Collect HMK  
• R.2 Algebra Essentials  
**Assignment:**  
R.2 Read pp. 17-26  
Do pp. 26-28 #23, 24, 29, 30, 33, 34, 42, 50, 52, 61, 64, 79, 83, 87, 91, 95, 103, 107, 122, 124, 129, 131  |
| 29      | In Class:  
• Review/Collect HMK  
• R.3 Geometry Essentials  
**Assignment:**  
R.3 Read pp. 30-35  
Do pp. 36-37 #15, 17, 20, 37, 42, 45, 48  |
| Sept    | 1 Holiday Labor Day                          | 3 In Class:  
• Review/Collect HMK  
• R.4 Polynomials  
**Assignment:**  
R.4 Read pp. 39-47  
Do pp. 48-49 #29, 34, 43, 45, 55, 64, 70, 74, 92, 93  |
| 8       | In Class:  
• Review/Collect HMK  
• R.7 Rational Expressions  
**Assignment:**  
R.7 Read pp. 62-70  
Do pp. 70-72 #5, 14, 17, 20, 23, 30, 43, 47, 51, 63, 65, 71, 73, 76, 80, 81, 83, 87, 88, 94  |
| 10      | In Class:  
• Review/Collect HMK  
• R.8 nth Root; Rational Exponents  
**Assignment:**  
R.8 Read pp. 73-77  
Do pp. 78-80 #17, 23, 31, 33, 39, 41, 45, 50, 52, 53, 62, 64, 71, 77, 81, 84, 89, 97  |
| 12      | In Class:  
• Review/Collect HMK  
• 1.1 Linear Equations  
**Assignment:**  
1.1 Read pp. 82-89  
Do pp. 90-91 #23, 33, 49, 59, 69, 72, 73, 77 |
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<th>Date</th>
<th>In Class</th>
<th>Assignment</th>
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| Sept 15 | Review/Collect HMK  
Review for Exam I  
(Ch R and 1.1) | 1.2 Quadratic Equations  
Assignment:  
1.2 Read pp. 92-100  
Do pp. 101-103 #11, 21, 26, 28, 33, 45, 55, 111, 112 |
| 17 | Review/Collect HMK  
Review for Exam I  
(Ch R and 1.1) | 1.2 Quadratic Equations  
Assignment:  
1.2 Read pp. 92-100  
Do pp. 101-103 #11, 21, 26, 28, 33, 45, 55, 111, 112 |
| Sept 19 | Review/Collect HMK  
1.2 Quadratic Equations | 1.2 Quadratic Equations  
Assignment:  
1.2 Read pp. 92-100  
Do pp. 101-103 #11, 21, 26, 28, 33, 45, 55, 111, 112 |
| 22 | 1.3 Complex Numbers | 1.3 Read pp. 104-111  
Do pp. 111-112 #9, 11, 13, 15, 18, 19, 25, 27, 30, 32-35, 45, 48, 51, 53, 59, 66, 70 |
| 24 | Review/Collect HMK  
1.4 Radical Equations | 1.5 Solving Inequalities  
Assignment:  
1.5 Read pp. 119-126  
Do pp. 127-128 #25-27, 36, 39, 40, 45, 46, 50, 51, 59, 66, 73, 75, 83, 85, 87 |
| 29 | Holiday Presidents’ Day | 1.6 Absolute Value Equations and Inequalities  
Assignment:  
1.6 Read pp. 130-1332  
Do p. 133 #10, 19, 25, 27, 31, 39, 43, 45, 54, 57 |
| Oct 6 | Review/Collect HMK  
2.1 The distance and Midpoint Formulas | 1.7 Problem Solving and Applications  
Assignment:  
1.7 Read pp. 134-140  
Do pp. 141-142 #17, 21, 27, 33, 35, 39, 40, 45 |
| 8 | Review/Collect HMK  
2.2 Equations in Two Variables | 2.4 Circles  
Assignment:  
2.4 Read pp. 182-185  
Do pp. 186-187 #13, 21, 23, 27, 29, 34, 37, 39, 47 |
| 10 | Review/Collect HMK  
Review for Exam II  
(Sections 1.2 – 2.2) | 2.4 Circles  
Assignment:  
2.4 Read pp. 182-185  
Do pp. 186-187 #13, 21, 23, 27, 29, 34, 37, 39, 47 |
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<tr>
<th>Date</th>
<th>Oct</th>
<th>In Class:</th>
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<th>22</th>
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<th>24</th>
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<td>20</td>
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<td>• Review/Collect HMK</td>
<td>2.5 Read pp. 188-191 Do pp. 192-193 #23, 29, 33, 40, 42, 44</td>
<td>22</td>
<td>In Class:</td>
<td>3.1 Read pp. 200-210 Do pp. 211-212 #15, 17, 19, 23, 27, 29, 30, 33, 37, 39, 43, 45, 47, 51, 55, 61, 63, 65, 75, 80, 84</td>
<td>24</td>
<td>In Class:</td>
<td>3.2 Read pp. 214-218 Do pp. 218-219 #10; 13, 15-17, 20 (parts (a) and (b) only); 23, 25</td>
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<td>27</td>
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<td>• Review/Collect HMK</td>
<td>4.1 Read pp.272-278 Do pp. 278-280 #13, 18, 19 (do parts (a) and (b) only); 21, 23, 27, 29, 31, 38, 39; and 4.2 Read pp. 282-284 Do p. 286 #11 (do parts (a), (b), and (c) only); 17</td>
<td>29</td>
<td>In Class:</td>
<td>4.3 Read pp. 288-296 Do pp. 297-299 #31, 33, 42, 44 (do parts (a) and (b) only); 52, 71, 76</td>
<td>31</td>
<td>In Class:</td>
<td>4.5 Read pp. 309-311 Do p. 312 #9, 17, 21</td>
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<td>• Review/Collect HMK</td>
<td>5.2 Read pp.342-348 Do pp. 351-352 #13, 17; 25, 26, 29 (parts (a)-(d) only)</td>
<td>12</td>
<td>In Class:</td>
<td>6.3 Exponential Functions</td>
<td>14</td>
<td>In Class:</td>
<td>6.3 Exponential Functions</td>
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<td>• Review for Exam III</td>
<td>Exam III (Sections 2.3 – 6.1)</td>
<td>14</td>
<td>In Class:</td>
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<td>• Review/Collect HMK</td>
<td>6.3 Read pp. 421-432 Do pp. 433-434 #25-27, 63, 70, 75, 78, 80, 81, 82, 91, 93</td>
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<td>Nov 24</td>
<td>Review/Collect HMK</td>
<td>8.1 Systems of Linear Equations</td>
<td>8.6 Systems of Nonlinear Equations</td>
<td>Thanksgiving Recess</td>
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<td>Dec 1</td>
<td>Review/Collect HMK</td>
<td>8.7 Systems of Inequalities</td>
<td>Review for Exam IV (6.3 – 8.7)</td>
<td>Exam IV (6.3 – 8.7)</td>
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<td>Dec 8</td>
<td>Final Exam review</td>
<td>Final Exam Review Sheet</td>
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