MATH 135 PRECALCULUS: Elementary Functions

Spring 2017
CRN 64079 (3 Credits)
Time: MW 1:00pm – 2:15pm
Location: Mana’opono 113

INSTRUCTOR: Matthew Radio
OFFICE: Mana’opono 110A
OFFICE HOURS: Tuesday 8:30-10am, Wednesday 11:30-1:00, and by Appointment
TELEPHONE: (808) 236-9276
EMAIL: mradio@hawaii.edu

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.

Math 135 Catalog Description

An analysis of elementary functions. A study of polynomial, rational, exponential, and logarithmic functions. Topics also include graphing techniques, transformations, applications, and related topics. Emphasis is placed on topics that will prove useful to students planning to take Calculus and also to those who are interested in pursuing math related careers. (3 hrs lecture)

PREREQUISITES: Grade of "C" or better in MATH 103 or equivalent, or satisfactory placement test score, or consent of instructor.

Learning Resources and Required Materials

REQUIRED MATERIALS:

- Students are required to have access to the book in either hardcover or electronic format. In addition, students must obtain access to WebAssign to complete homework.
  - Option 1: Purchase a textbook with a WebAssign access code.
  - Option 2: Purchase a WebAssign access code online and have access to only the eBook.
- The textbook for the course is: Precalculus, Mathematics for Calculus, 6th ed., by Stewart, Redlin & Watson.
- You may register on WebAssign with class key: wcc.cc.hi 9678 7239 at https://www.webassign.net/v4cgi/selfenroll/classkey.html
- Calculator: TI-83 or TI-84 (any model)
SUPPLEMENTAL LEARNING RESOURCES:

- Math Lab: 220 La’akea  
  http://windward.hawaii.edu/About_WCC/Math_Lab/index.php
- Brainfuse: http://windward.hawaii.edu/Brainfuse/
- OLA (UH online tutoring program): http://manoa.hawaii.edu/ola/
- Wolfram Alpha: http://www.wolframalpha.com
- Khan Academy Videos: http://www.khanacademy.org

COURSE CONTENT


- Function, Graphs of Functions, Getting Information from the Graph of a Function, Average Rate of Change of a Function, Combining Functions, One-to-One Functions and their Inverses.

- Exponential Functions, Natural Exponential Functions, Logarithmic Functions, Laws of Logarithms, Exponential and Logarithmic Equations, Modeling with Exponential and Logarithmic Functions.

- Quadratic Functions and Models, Polynomial Functions and their Graphs, Dividing Polynomials (Synthetic Division), Real Zeros of Polynomials, Rational Functions.
STUDENT LEARNING OUTCOMES

1. Demonstrate proficiency in writing math expressions into different forms and finding the solutions to an equation and inequality using complex numbers where appropriate, by applying formal rules or algorithms.
2. Use appropriate symbolic techniques (such as algebraic techniques) to analyze and solve applied problems, and in the critical evaluation of evidence.
3. Interpret equations geometrically and use geometrical information to obtain the equation of lines and circles.
4. Utilize function concepts.
5. Draw the graphs of functions utilizing behavior information and/or transformations.
6. Utilize precise mathematical language and symbols to effectively communicate mathematics in written and/or oral form and in the presentation of evidence.
7. Traverse the bridge from theory to practice by using theorems related to polynomial functions and demonstrate proficiency in working with polynomial functions.
8. Apply concepts and properties of the logarithm functions.
9. Understand the concept of proof as a chain of inferences by doing some proofs.

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

FOUNDATIONS HALLMARKS

Math 135 fulfills 3 credits of the General Education requirements (Foundations: Symbolic) for both an A.A. degree at WCC and a Bachelor's degree at UH Manoa. 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 rules 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.

Instructors will build a bridge from theory to practice and show students how to traverse this bridge.

Course Assessments and Grading
1. HOMEWORK – Homework will be assigned regularly online via WebAssign. It is your responsibility to check WebAssign for homework assignments and due dates. Homework submitted late will receive a score of 0.

2. CLASSROOM QUizzes – A short quiz will be given periodically in class. Students must be present in class to take a quiz. There are NO makeups. Quizzes will be announced at least one class in advance. The two lowest quiz scores will be dropped.

3. MIDTERM EXAMS – There will be three midterm exams each covering specific chapters of the textbook (i.e., these exams will not be cumulative). Exam dates and coverage will be announced at least one week in advance.

4. FINAL EXAM – There will be one cumulative exam at the end of the course.

Notes:

- If you are unable to attend class on an exam day, discuss your situation with me 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 3:00 pm via voicemail or email. If the reason is justified then a make-up exam will be scheduled.
- For each student, no more than one make-up exam may be taken.
- There are no re-tests in this course.

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<tbody>
<tr>
<td>Homework</td>
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<tr>
<td>Classroom Quizzes</td>
<td>15%</td>
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<tr>
<td>Midterm Exams</td>
<td>15% each</td>
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<tr>
<td>Final Exam</td>
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Letter grades for the course are earned as follows:

- CR/NC grades require written instructor consent. Students must apply for CR/NC grading option at the Admissions Office by the posted deadline. If a student does not apply for CR/NC grading option at the Admissions Office by the required deadline and if s/he does not withdraw, a letter grade (A, B, C, D, F) will be assigned for the course.
• The W grade is given only when the student officially withdraws from the course by the posted deadline.

• The I grade is a temporary grade given at the instructor’s option when a student has failed to complete a small part of a course because of circumstances beyond his or her control. A student may qualify for the I grade if (a) they are unable to take the final exam and (b) taking the final exam could possibly raise their course grade. The I grade is given only after a student’s request and the instructor’s approval.

Additional Instructor Policies

• I am available to help during office hours. Stop by just to chat about the class or to clear up difficult concepts.
• Daily Homework: Students should come to each class prepared. Read the chapters ahead of time.
• It is your responsibility to attend class. If you are absent, you are responsible for any important announcements or assignments given during the class you missed. Check your UH email, the Laulima class website, and WebAssign for announcements regularly.
• Please respect your fellow students and act accordingly. Cell phones must be silenced when entering the classroom.
• Academic dishonesty will not be tolerated. All suspected cases of academic dishonesty will be investigated and reported to the Dean. Punishments will vary, but may include failure of the course. See http://windward.hawaii.edu/Policies/ for more information on the UH system-wide student conduct code.

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.
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<tr>
<th>Week Of</th>
<th>Monday</th>
<th>Wednesday</th>
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<tbody>
<tr>
<td>JAN 9</td>
<td>Orientation, 1.1</td>
<td>1.2, 1.3</td>
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<tr>
<td>JAN 16</td>
<td>No Class – MLK Day</td>
<td>1.4, 1.5</td>
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<td>JAN 23</td>
<td>1.6</td>
<td>1.7, 1.8</td>
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<td>JAN 30</td>
<td>1.10</td>
<td>1.11</td>
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<tr>
<td>FEB 6</td>
<td>Chapter 1 Review</td>
<td>EXAM 1</td>
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<td>FEB 13</td>
<td>Calculators, 2.1</td>
<td>2.2</td>
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<td>FEB 20</td>
<td>No Class – Presidents Day</td>
<td>2.3, 2.4</td>
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<td>FEB 27</td>
<td>2.5</td>
<td>2.6, 2.7</td>
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<tr>
<td>MAR 6</td>
<td>Chapter 2 Review</td>
<td>EXAM 2</td>
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<td>MAR 13</td>
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<td>3.2, 3.3</td>
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<td>MAR 20</td>
<td>3.4, 3.7</td>
<td>Chapter 3 Review</td>
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<td>MAR 27</td>
<td>No Class – Spring Break</td>
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<td>APR 3</td>
<td>3.7</td>
<td>4.1, 4.2</td>
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<td>APR 10</td>
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<td>APR 17</td>
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<td>APR 24</td>
<td>Chapter 4 Review</td>
<td>EXAM 3</td>
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<td>MAY 1</td>
<td>Final Review</td>
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<td>MAY 8</td>
<td>FINAL EXAM 1:00-3:00pm</td>
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- This calendar is tentative. Dates of assessments may change slightly based on class progress.
- Last Day to Withdraw without a W grade is January 30, 2017.
- Last Day to Withdraw with a W grade is April 3, 2017.