MATH 140: PRECALCULUS, Trigonometry and Analytic Geometry
3 Credits (CRN 60058)
Tues/Thurs 10:00 – 11:15am, Mana’opono Room 102

INSTRUCTOR: Matthew Radio
OFFICE: Mana’opono 110A
OFFICE HOURS (times students may drop in for help): Tuesday & Thursday 9:00 – 10:00am
TELEPHONE: (808) 236-9276
EMAIL: mradio@hawaii.edu
EFFECTIVE DATE: Spring/2019

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 Oʻahu and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

CATALOG DESCRIPTION

Studies trigonometric functions, analytic geometry, polar coordinates, vectors, and related topics. This course is the second part of the precalculus sequence. (3 hours lecture)

Pre-Requisite(s): Grade of "C" or better in MATH 135 or equivalent, satisfactory math placement test score, or consent of instructor.

STUDENT LEARNING OUTCOMES

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

- Employ algebraic and geometric representations of trigonometric functions and other relations.
- Use appropriate techniques to analyze and solve application problems requiring the use of trigonometry or analytical geometry.
- Utilize precise mathematical language and symbols to effectively communicate mathematics in written and/or oral form.
COURSE CONTENT

- The Unit Circle, Trigonometric Functions of Real Numbers, Trigonometric Graphs, Inverse Trigonometric Functions and their Graphs.


- Polar Coordinates, Graphs of Polar Equations, Plane Curves and Parametric Equations.

- Vectors in Two Dimensions.

- Conic Sections: Parabolas, Ellipses, Hyperbolas, Shifted Conics.

FOUNDATIONS SYMBOLIC REASONING HALLMARKS

Math 135 fulfills 3 credits of the General Education requirements (Foundations Symbolic Reasoning) for both an A.A. degree at WCC and a Bachelor’s degree at 4 year UH institutions. Consequently, it meets the following 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 include computational and/or quantitative skills.

6. Instructors will build a bridge from theory to practice and show students how to traverse this bridge.
FOUNDATIONS QUANTITATIVE REASONING HALLMARKS

Math 135 also fulfills 3 credits of the General Education requirements (Foundations Quantitative Reasoning) for both an A.A. degree at WCC and a Bachelor’s degree at 4 year UH institutions. Consequently, it meets the following hallmarks of the Quantitative Reasoning requirement:

1. Provide students with theoretical justifications for, and limitations of, mathematical or statistical methods, and the formulas, tools, or approaches used in the course.

2. Include application of abstract or theoretical ideas and information to the solution of practical quantitative reasoning problems arising in pure and applied research in specific disciplines, professional settings, and/or daily and civic life.

3. Provide opportunities for practice and feedback that are designed to help students evaluate and improve quantitative reasoning skills by including a course component at least once per week with a maximum 30:1 student-to-teacher ratio.

4. Be designed so that students will be able to
   a. Identify and convert relevant quantitative information into various forms such as equations, graphs, diagrams, tables, and/or words;
   b. Select appropriate techniques or formulas, and articulate and evaluate assumptions of the selected approaches;
   c. Apply mathematical tools and perform calculations (including correct manipulation of formulas);
   d. Make judgments, create logical arguments, and/or draw appropriate conclusions based on the quantitative analysis of data, the assumptions made, the limitations of the analysis, and/or the reasonableness of results; and
   e. Effectively communicate those results in a variety of appropriate formats.

COURSE TASKS

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. The two lowest homework grades will be dropped.

2. JOURNAL – Students should keep a notebook or binder containing all work completed for the homework assignments. The journal should be neatly organized and contain both your incorrect attempts and your correct solutions. The journal must be turned in during each exam period for a grade.

3. 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.

Windward Community College is an equal opportunity, affirmative action institution.
4. 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.

5. 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.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>15%</td>
</tr>
<tr>
<td>Journal</td>
<td>10%</td>
</tr>
<tr>
<td>Classroom Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Midterm Exams</td>
<td>15% each</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
</tr>
</tbody>
</table>

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.
- The N grade will not be used in this course.

Windward Community College is an equal opportunity, affirmative action institution.
LEARNING RESOURCES

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.

  Required: Sections 5.1 – 5.5
  Chapters 6 and 7
  Sections 8.1, 8.2, 8.4, 9.1, 11.1, 11.2, 11.3, 11.4

- You may register on WebAssign with class key: wcc.cc.hi 3163 7435 at https://www.webassign.net

REQUIRED TECHNOLOGY: TI-83, TI-83+, or TI-84+ calculator.

MATH LAB: La’akea 220 – free drop-in tutoring
Brainfuse Online Tutorial Assistance: https://windward.hawaii.edu/brainfuse/
OLA (UH online tutoring program): https://manoa.hawaii.edu/ola/
TRiO Student Support Services: https://windward.hawaii.edu/trio/Student_Support_Services.php
Khan Academy Videos: https://www.khanacademy.org/math

ADDITIONAL INFORMATION

- 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.

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.

*Windward Community College is an equal opportunity, affirmative action institution.*
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, WCC has resources to support you. To speak with someone confidentially, contact the Mental Health & Wellness Office at 808-235-7393 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, Karla K. Silva-Park, at 808-235-7468 or karlas@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
## Math 140 Course Calendar

<table>
<thead>
<tr>
<th>Week Of</th>
<th>Tuesday</th>
<th>Thursday</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 6</td>
<td>5.1</td>
<td>5.2</td>
</tr>
<tr>
<td>January 13</td>
<td>5.3</td>
<td>5.4</td>
</tr>
<tr>
<td>January 20</td>
<td>5.5</td>
<td>6.1</td>
</tr>
<tr>
<td>January 27</td>
<td>6.2</td>
<td>6.3</td>
</tr>
<tr>
<td>February 3</td>
<td>Review</td>
<td><strong>EXAM 1</strong></td>
</tr>
<tr>
<td>February 10</td>
<td>6.4</td>
<td>6.5</td>
</tr>
<tr>
<td>February 17</td>
<td>6.6</td>
<td>7.1</td>
</tr>
<tr>
<td>February 24</td>
<td>7.2</td>
<td>7.3</td>
</tr>
<tr>
<td>March 3</td>
<td>7.4</td>
<td>7.5</td>
</tr>
<tr>
<td>March 10</td>
<td>Review</td>
<td><strong>EXAM 2</strong></td>
</tr>
<tr>
<td>March 17</td>
<td>SPRING BREAK... Enjoy!</td>
<td></td>
</tr>
<tr>
<td>March 24</td>
<td>Prince Jonah Kūhiō Kalanianaʻole Day</td>
<td>8.1</td>
</tr>
<tr>
<td>March 31</td>
<td>8.2</td>
<td>8.4</td>
</tr>
<tr>
<td>April 7</td>
<td>9.1</td>
<td>11.1, 11.2</td>
</tr>
<tr>
<td>April 14</td>
<td>11.3</td>
<td>11.4</td>
</tr>
<tr>
<td>April 21</td>
<td>Review</td>
<td><strong>EXAM 3</strong></td>
</tr>
<tr>
<td>April 28</td>
<td>Review for Final</td>
<td>Review for Final</td>
</tr>
</tbody>
</table>
| May 5         | **FINAL EXAM**  
Tuesday, 5/7/19  
10am-12pm |          |

- 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, 2019.
- Last Day to Withdraw with a W grade or establish CR/NC option is March 25, 2019.