

University of Hawaii Maui College

MATH 140 - Precalculus: Trigonometry and Analytic Geometry (Precalc:Trig/Analytic Geometry)



1. **Course Alpha. Please click on the ? to the right for help.**

MATH

2. **Course Number. Please click on the ? to the right for help.**

140

3. **Course Title/Catalog Title. Please click on the ? to the right for help.**

Precalculus: Trigonometry and Analytic Geometry (Precalc:Trig/Analytic Geometry)

4. **Number of Credits. Please click on the ? to the right for help.**

3

5. **Contact Hours/Type. Please click on the ? to the right for help.**

- Hour lecture (3)

6. **Course Description. Please click on the ? to the right for help.**

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

7. **Pre-Requisites. Please click on the ? to the right for help.**

MATH 135 with grade C or better, or placement at MATH 140, and ENG 100 with grade C or better (or concurrent), or consent

8. **Co-requisites.**

n/a



9. **Recommended Preparation.**

10. **Is this a cross-listed course? Please click on the ? to the right for help.**

NO

11. **Reason for Proposal. Why is this course being proposed or modified? This question requires specific information as part of the explanation. Please click on the ? to the right for help.**

All campuses agreed to modify this course during the Faculty Discipline Meeting on 5/13/13.

12. **Effective Semester and Year. For new or modified courses, the effective year is one year from the semester proposed. For example, if proposed in Spring 2012, the effective semester is Spring 2013. Please click on the ? to the right for help.**

Fall 2014

13. **Grading Method. What grading methods may be used for this course? Please click on the ? to the right for help.**

- Standard (Letter,Cr/NCr,Audit) (0)

14. **Is this course repeatable for credit? How often can this course be counted toward a degree or certificate? Please click on the ? to the right for help.**

NO

15. **Course Student Learning Outcomes (SLOs). DO NOT ENTER TEXT IN THE TEXT BOX BELOW. Click on the yellow button "COURSE LEARNING OUTCOMES" and enter in that screen. Please click on the ? to the right for help.**



Course SLO/Competency	calculate and apply the trigonometric ratios of acute angles	evaluate the trigonometric functions of variables expressed in general angle and	analyze and graph trigonometric functions	analyze, graph and use inverse trigonometric functions	use the essential trigonometric identities to simplify expressions and prove	apply the Law of Sines and Cosines	solve trigonometric equations	use further trigonometric topics including vectors in plane, polar coordinates	describe properties of important conic sections, their
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		radian units			further identities			and complex numbers	special points, their standard forms, and their graphs.
Apply appropriate mathematical processes to solve problems that can be modeled by trigonometric functions and conic sections including the ellipse, the hyperbola, and the parabola.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Demonstrate effective use of technology in solving such problems.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Communicate the solution of such problems using Standard English and numeric, graphic or symbolic representations.			<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Course SLO

Apply appropriate mathematical processes to solve problems that can be modeled by trigonometric functions and conic sections including the ellipse, the hyperbola, and the parabola.

Demonstrate effective use of technology in solving such problems.

Communicate the solution of such problems using Standard English and numeric, graphic or symbolic representations.

16. Course Competencies. DO NOT ENTER TEXT IN THE TEXT BOX BELOW. Click on the yellow button "COURSE COMPETENCIES/ISSUES/SKILLS" and enter text in that screen. Course competencies are smaller, simpler tasks that connect to and facilitate the SLOs.

Competency
calculate and apply the trigonometric ratios of acute angles
evaluate the trigonometric functions of variables expressed in general angle and radian units
analyze and graph trigonometric functions
analyze, graph and use inverse trigonometric functions
use the essential trigonometric identities to simplify expressions and prove further identities
apply the Law of Sines and Cosines
solve trigonometric equations
use further trigonometric topics including vectors in plane, polar coordinates and complex numbers
describe properties of important conic sections, their special points, their standard forms, and their graphs.

17. Recommended Course Content and Timeline. The course content facilitates the course competencies. Course content may be organized by weeks, units, topics or the like.

Content
Week 1-4: Trigonometric Functions: Angles and Radian Measure , Trigonometric Functions: The Unit Circle , Right Triangle Trigonometry , Trigonometric Functions of Any Angle , Graphs of Sine and Cosine Functions , Graphs of Other Trigonometric Functions , Inverse Trigonometric Functions , Applications of Trigonometric Functions
Week 5-7: Analvtic Triaonometr v: Verifvina Triaonometric Identities . Sum and Difference Formulas . Double-Angle. Power-

Reducing, and Half-Angle Formulas, Product-to-Sum and Sum-to-Product Formulas, Trigonometric Equations, MIDTERM
 Week 8-11: **Additional Topics in Trigonometry:** The Law of Sines, The Law of Cosines, Polar Coordinates, Graphs of Polar Equations, Complex Numbers in Polar Form; DeMoivre's Theorem, Vectors, The Dot Product
 Week 12-15: **Conic Sections and Analytic Geometry:** The Ellipse, The Hyperbola, The Parabola, Rotation of Axes, FINAL

18. **Program Learning Outcomes. DO NOT ENTER TEXT IN THE TEXT BOX BELOW. Click on the yellow button "PLOs" and enter text in that screen. Program Student Learning Outcomes (PLOs) supported by this course. If you are not a "program" use the Liberal Arts PLOs, view them by clicking on ? icon to the right.**

19. **College-wide Academic Student Learning Outcomes (CASLOs). FIRST, fill out the CASLO grid located in the UHMC tab above. Click on the HELP icon for tips on determining support for the CASLOs and indicate your choices below by clicking on the box in front of each supported CASLO. NOTE: Our campus does not use the Preparatory Level, Level 1 and Level 2 designations in the chart below.**

	Creativity - Able to express originality through a variety of forms.
<input checked="" type="checkbox"/>	Critical Thinking - Apply critical thinking skills to effectively address the challenges and solve problems. <input checked="" type="checkbox"/> Preparatory Level
	Information Retrieval and Technology - Access, evaluate, and utilize information effectively, ethically, and responsibly.
	Oral Communication - Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes.
<input checked="" type="checkbox"/>	Quantitative Reasoning - Synthesize and articulate information using appropriate mathematical methods to solve problems of quantitative reasoning accurately and appropriately. <input checked="" type="checkbox"/> Preparatory Level
<input checked="" type="checkbox"/>	Written Communication - Write effectively to convey ideas that meet the needs of specific audiences and purposes. <input checked="" type="checkbox"/> Preparatory Level

GenED SLO

Critical Thinking - Apply critical thinking skills to effectively address the challenges and solve problems.
 Quantitative Reasoning - Synthesize and articulate information using appropriate mathematical methods to solve problems of quantitative reasoning accurately and appropriately.
 Written Communication - Write effectively to convey ideas that meet the needs of specific audiences and purposes.

20. **Linking. CLICK ON CHAIN LINK ICON IN UPPER RIGHT HAND CORNER TO BEGIN LINKING. Please click on the ? to the right for help.**

21. **Method(s) of delivery appropriate for this course. Please click on the ? to the right for help.**

- Classroom/Lab (0)

22. **Text and Materials, Reference Materials, and Auxiliary Materials. Please click on the ? to the right for help.**

- Blitzer. Precalculus. 5th. Pearson, .
- MyMathLab online system. Pearson, .

23. **Maximum enrollment. Please click on the ? to the right for help.**

23. Maximum enrollment. Please click on the ? to the right for help.

30

24. Particular room type requirement. Is this course restricted to particular room type? Please click on the ? to the right for help.

YES
Computer lab

25. Special scheduling considerations. Are there special scheduling considerations for this course? Please click on the ? to the right for help.

NO

26. Are special or additional resources needed for this course? Please click on the ? to the right for help.

n/a

27. Does this course require special fees to be paid for by students? Please click on the ? to the right for help.

NO

28. Does this course change the number of required credit hours in a degree or certificate? Please click on the ? to the right for help.

No

29. Course designation(s) for the Liberal Arts A.A. degree and/or for the college's other associate degrees. Please click on the ? to the right for help.

Degree	Program	Category
Associate in Arts:	Liberal Arts	FS - Symbolic Reasoning LE - Elective
AS:	ANY	QR - Quantitative Reasoning
AAS:	ANY	QR - Quantitative Reasoning
BAS:	ANY	QR - Quantitative Reasoning
Developmental/ Remedial:	N/A	

30. Course designation(s) for other colleges in the UH system.

FS in UH System

31. Indicate the year and page # of UHMC catalog referred to. For new or modified courses, please indicate the catalog pages that need to be modified and provide a sheet outlining those changes.

Page 133 of 2013-14 catalog.

The name of the course, its prerequisites and its description need to be changed as mentioned in the previous online forms.

32. College-wide Academic Student Learner Outcomes (CASLOs). Please click on the HELP icon for more information.

Standard 1 - Written Communication Write effectively to convey ideas that meet the needs of specific audiences and purposes.		
Outcome 1.1 - Use writing to discover and articulate ideas.		2
Outcome 1.2 - Identify and analyze the audience and purpose for any intended communication.		2
Outcome 1.3 - Choose language, style, and organization appropriate to particular purposes and audiences.		2
Outcome 1.4 - Gather information and document sources appropriately.		0
Outcome 1.5 - Express a main idea as a thesis, hypothesis, or other appropriate statement.		2
Outcome 1.6 - Develop a main idea clearly and concisely with appropriate content.		2

Outcome 1.7 - Demonstrate a mastery of the conventions of writing, including grammar, spelling, and mechanics.	0
Outcome 1.8 - Demonstrate proficiency in revision and editing.	0
Outcome 1.9 - Develop a personal voice in written communication.	1
Standard 2 - Quantitative Reasoning Synthesize and articulate information using appropriate mathematical methods to solve problems of quantitative reasoning accurately and appropriately.	
Outcome 2.1 - Apply numeric, graphic, and symbolic skills and other forms of quantitative reasoning accurately and appropriately.	3
Outcome 2.2 - Demonstrate mastery of mathematical concepts, skills, and applications, using technology when appropriate.	3
Outcome 2.3 - Communicate clearly and concisely the methods and results of quantitative problem solving.	3
Outcome 2.4 - Formulate and test hypotheses using numerical experimentation.	3
Outcome 2.5 - Define quantitative issues and problems, gather relevant information, analyze that information, and present results.	3
Outcome 2.6 - Assess the validity of statistical conclusions.	0
Standard 3 - Information Retrieval and Technology. Access, evaluate, and utilize information effectively, ethically, and responsibly.	
Outcome 3.1 - Use print and electronic information technology ethically and responsibly.	2
Outcome 3.2 - Demonstrate knowledge of basic vocabulary, concepts, and operations of information retrieval and technology.	2
Outcome 3.3 - Recognize, identify, and define an information need.	2
Outcome 3.4 - Access and retrieve information through print and electronic media, evaluating the accuracy and authenticity of that information.	2
Outcome 3.5 - Create, manage, organize, and communicate information through electronic media.	2
Outcome 3.6 - Recognize changing technologies and make informed choices about their appropriateness and use.	2
Standard 4 - Oral Communication Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes.	
Outcome 4.1 - Identify and analyze the audience and purpose of any intended communication.	2
Outcome 4.2 - Gather, evaluate, select, and organize information for the communication.	1
Outcome 4.3 - Use language, techniques, and strategies appropriate to the audience and occasion.	1
Outcome 4.4 - Speak clearly and confidently, using the voice, volume, tone, and articulation appropriate to the audience and occasion.	0
Outcome 4.5 - Summarize, analyze, and evaluate oral communications and ask coherent questions as needed.	2
Outcome 4.6 - Use competent oral expression to initiate and sustain discussions.	1
Standard 5 - Critical Thinking Apply critical thinking skills to effectively address the challenges and solve problems.	
Outcome 5.1 - Identify and state problems, issues, arguments, and questions contained in a body of information.	3
Outcome 5.2 - Identify and analyze assumptions and underlying points of view relating to an issue or problem.	1
Outcome 5.3 - Formulate research questions that require descriptive and explanatory analyses.	2
Outcome 5.4 - Recognize and understand multiple modes of inquiry, including investigative methods based on	1

Outcome 5.4 - Recognize and understand multiple modes of inquiry, including investigative methods based on observation and analysis.

1

[Redacted content]

Outcome 6.3: Sustain engagement in activities without a preconceived purpose.

[Redacted content]

33. Additional Information