



Lebanon Community Schools

High School Course Syllabus

Lebanon High School | Mr. Tim Helland | 2019-2020

Course Number and Title:

MTH 112 Trigonometry

Subject Area:

Mathematics

Credits:

Semester 1 0.5 Math or Elective Credit

Students may register for MTH 112 credit at LBCC through the College Now program. *See details on last page.*

Graduation Requirements:

The following Oregon Essential Skills will be addressed throughout this course:

x	Read and comprehend a variety of text	x	Use technology to learn, live, and work
x	Write clearly and accurately		Demonstrate civic and community engagement
x	Apply mathematics in a variety of settings		Demonstrate global literacy
	Listen actively and speak clearly and coherently	x	Demonstrate personal management and teamwork skills
x	Think critically and analytically		

Prerequisites:

Successful completion of Geometry *and* College Algebra

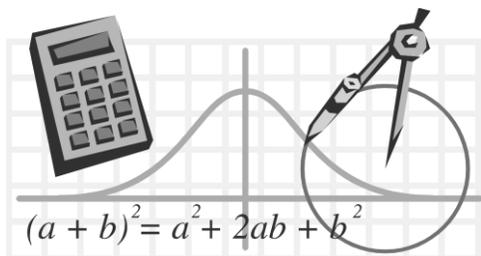
Course Overview:

In this course, you will study the trigonometric functions and apply them to a variety of contexts. You have most likely seen these with right triangles, but we will study their inverses, identities and graphs as well. MTH 112 will include a deep dive into complex numbers, polar coordinates, parametric equations, vectors and conic sections.



Topics of Study:

- ❖ **The Six Trigonometric Functions (1½ weeks)**
 - Angles and Degrees
 - Rectangular Coordinate System
 - Trig Function Definitions
 - Introduction to Identities
- ❖ **Right Triangle Trigonometry (2 weeks)**
 - Rectangular Coordinates
 - Trig with Acute Angles
 - Solving Right Triangles
 - Right Triangle Applications
 - Introducing Vectors
- ❖ **Using Radian Measure (2½ weeks)**
 - Reference Angles
 - Radians and Degrees
 - Circular Functions
 - Arcs and Sectors
 - Linear and Angular Velocity
- ❖ **Graphing and Inverses (3½ weeks)**
 - Graphs of Sine, Cosine, Cosecant, Secant
 - Amplitude, Period, and Reflections
 - Translations
 - Graphs of Tangent and Cotangent
 - Writing Equations from Graphs
 - Inverse Trig Functions
 - Graphs of Inverse Trig Functions
- ❖ **Identities and Formulas (2½ weeks)**
 - Proving Identities
 - Sum and Difference Identities
 - Double-Angle Identities
 - Half-Angle Identities
- ❖ **Trigonometric Equations (1½ weeks)**
 - Solving Trig Equations
 - Multiple-Angle Trig Equations
- ❖ **Triangles (2½ weeks)**
 - Law of Sines
 - Law of Cosines
 - Area of Triangles
 - Vectors
 - Dot Product
- ❖ **Conic Sections (2 weeks)**
 - Parabolas
 - Circles and Ellipses
 - Hyperbolas



TAG/ELL/Special Education Considerations:

If you need accommodations on assignments due to an IEP or desire more academic challenge (TAG), please talk to your teacher. Alternative assessments may be created between the teacher and student on a case by case basis. You will be pre-assessed on the knowledge and skills that you bring with you to this course. The purpose of the pre-assessment is to determine what you already know, guide instruction, and give you access to advanced and/or accelerated content when appropriate.

Formal or informal pre-assessments may include quizzes, student input and self-evaluation, placement tests, teacher observation, work samples, fist of five, thumbs up/thumbs down, and other forms of assessment. The following differentiation strategies will be used during instruction when appropriate: Enrichment, Multiple Intelligences, Acceleration, Compacting, Independent Projects, Assignment Modification, Tiered Assignments, and Student Contracts.

District Adopted Materials:



Trigonometry, 6th Ed
Charles P. McKeague, and
Mark D. Turner

Supplemental Resources:

Additional resources will be available on the following websites:
<http://trig.timhelland.com>

If you have limited Internet availability, please see the teacher for an alternate method of access.

Academic Honesty Policy

Plagiarism and cheating are unacceptable in any classroom. Students who submit work that is not their own may receive a score of zero, become ineligible for college credit, and/or be referred to the administration for disciplinary action.

Homework Policy

Mathematics is not a spectator sport. Complete your homework to learn, not just to get it done. Check your work carefully and correct your errors. Your scores on tests and quizzes will be a direct reflection on the effort you place in your homework. Even if you understand, you will perform better if you practice...ask any athlete!

Your understanding and completion of homework is assessed through homework quizzes. These will be unannounced quizzes worth 10 points that contain questions directly from or very closely related to your homework. *You may use your handwritten notebook during unannounced quizzes. Keep it up to date!*

Keep your homework organized and in your notebook. Be sure to clearly label your assignments so they are easy to find.

Behavioral Expectations:

To maintain a positive and productive learning environment each member of our classroom agrees to:

- ❖ Respect others with words and actions.
- ❖ Be seated and ready to begin when the bell rings.
- ❖ Use spill-proof containers for beverages and keep food at tables.
- ❖ Turn off and put away cell phones and entertainment devices unless otherwise directed by the teacher.
- ❖ Clean up before leaving the classroom.
- ❖ Follow the LHS Student Handbook and Network & Internet Use policies.

Grading Policy:

Your overall letter grade is weighted as follows:

Tests, Worksamples	60%
Notebooks, Quizzes, Projects	25%
Final Exam	15%

Semester grades are rounded mathematically.

Your letter high school grade will be determined as follows:

- A 90% or above
- B 80% to 89%
- C 70% to 79%
- D 60% to 69%
- F Below 60%



Extra credit opportunities in this course will be rare and by district policy may affect your overall course grade by no more than 3%.

See the last page for College Now grading information.

Assessments:

Tests are worth 100 points each and are announced in advance. Make arrangements prior to the day of the test if you expect to take longer than a class period.

You may retake one test during the semester after completing a review. Your retake will be averaged with your original score. Schedule retakes at least two days in advance and within 2 weeks of the original test.

Quizzes worth more than 10 points are announced in advance. At the end of the semester, you may drop one *quiz* or *homework quiz* score.

Students may complete one or more open-ended worksamples. Worksamples are worth 50 points and are scored using a rubric.

Students may use most calculator types during quizzes and tests *unless otherwise announced in advance*. However, all electronic devices with networking capabilities must be turned off and put away.

Excused Absences:

On the day of a test or announced quiz:
Complete your makeup promptly (days of absence plus one) to avoid a late penalty. The late penalty is 10% for the first week late and 20% thereafter.

Absent during a homework quiz:
The first homework quiz you miss will automatically use your quiz drop for the semester. Alternate assessments will be given for future missed homework quizzes.

Special consideration will be made for extended absence or emergencies. *Contact the teacher promptly.*

Course Goals:

- Calculate the exact or approximate values of the six trigonometric functions using both radian and degree measures
- Solve for all side lengths and angles of right or oblique triangles using the information given.
- Graph trigonometric functions and conic sections, transform their graphs and state important features of their graphs.
- Verify trigonometric identities and use them to solve equations involving one or more trigonometric functions.
- Perform calculations involving vectors and solve vector applications.

Contact Mr. Helland:

	Lebanon High School – Room 724
	(541) 451-8555 ext 1090
	tim.helland@lebanon.k12.or.us
	https://www.timhelland.com

Notebooks:

A notebook is required for this course. It is assessed with a rubric and worth 40 points per chapter. It should include:

- ❖ Course Syllabus
- ❖ Class handouts
- ❖ Completed assignments
- ❖ Cornell/Focused Notes
- ❖ Papers returned to you



Your completed chapter notebook is due on the day of the chapter test. Be sure to clearly label and organize your notebook.

Notebooks submitted after you take the test will be considered late. Late notebooks lose 10% of their possible value for one week and 20% thereafter. If you lose your notebook speak with the teacher as soon as possible and prior to the day it is due.

Your notebook should be complete. Selected assignments, notes, and resources will be reviewed for all students. If the selected items are missing, it will affect your score considerably.

Unexcused Absences:

Absent during a quiz or test (or choose not to take it when you are present):
The score on your makeup will be reduced by 20%.



Absent during an unannounced quiz:
There will be no opportunity to make up the quiz.

Absent on a due date:
The assignment will be considered late.

Mr. Helland's Schedule:

1	Robotics Exploration
2	<i>Planning & Preparation</i>
3	Trigonometry
4	Trigonometry
5	Game Programming
6	Web Design 1 & 2
7	3D Design & Animation

Materials:

In addition to basic school materials, the following materials are strongly suggested for this course:



A Physical Notebook
3-ring, spiral, and/or composition notebooks are acceptable. It will be turned in to the teacher each unit.

Graphing Calculator
Access to a graphing calculator is very helpful in this course

Important Note:

TI-89, TI-Nspire, HP40G, Algebra Fx and other calculators with Computer Algebra Systems are immensely powerful and helpful tools. However, be sure you can borrow another calculator on the day of the College Now exam or ACT since these tests do not permit calculators with algebra systems.

Tips for Success:

Here are some suggestions to maximize your learning in this course:

- ❖ Ask questions and be an active participant.
- ❖ Show and explain all of your work.
- ❖ Read the lesson from your text in advance.
- ❖ Schedule a consistent time to study.
- ❖ Prepare for tests well in advance.
- ❖ Join a peer study group.
- ❖ Take notes and be engaged.
- ❖ Review and interact with your notebook.
- ❖ Use your calculator as a tool, not a crutch.
- ❖ Read and follow instructions carefully.
- ❖ Use your resources!
- ❖ **Be persistent! Don't give up!**

College Now!

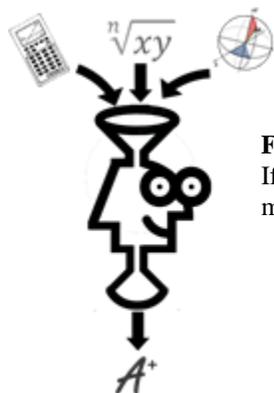
Students have the opportunity to earn credit for Math 112 through the College Now program at LBCC. To earn college credit students must meet all high school and LBCC expectations as outlined in the course syllabus, LBCC guidelines, and LHS curriculum guide for course credit.

All students who enroll for College Now credit will earn a grade of A, B, C, D, or F on their college transcript. The exception would be students who drop before the LBCC course drop deadline. Students who withdraw from the course will receive a W on their LBCC transcript.

I Need Help!

There are numerous and varied resources available to you if you get stuck or don't understand. Some of them are:

- ❖ Your teacher
- ❖ Your textbook
- ❖ Other math teachers
- ❖ Peer study groups
- ❖ Your teacher's website
- ❖ The textbook's website
- ❖ Peer tutoring
- ❖ Online tutorials



Focus on learning and understanding!

If you do everything in your power to master each concept, it *will* pay off!

College Now Grading Criteria:

LBCC Exam Grade	High School Term Grade	LBCC Term Grade
84% or Higher	A or B	HS Term Grade
	C	B
	D or F	HS Term Grade
70 to 83%	A or B	B
	C, D, or F	HS Term Grade
60 to 69%	A or B	C
	C	D
	D or F	F
50 to 59%	A or B	D
	C, D, or F	F
Less than 50%	A, B, C, D, or F	F

With advance notice the teacher reserves the right to adjust course guidelines to meet needs of students and the learning process.