



Lebanon Community Schools

High School Course Syllabus

Lebanon High School | Mr. Tim Helland | 2025-2026

Course Number and Title:

3D Programming

Subject Area:

Computer Technology

Credits:

Semester 1 0.5 CT or Elective Credit

Semester 2 0.5 CT or Elective Credit

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
	Write clearly and accurately		Demonstrate civic and community engagement
x	Apply mathematics in a variety of settings		Demonstrate global literacy
x	Listen actively and speak clearly and coherently	x	Demonstrate personal management and teamwork skills
x	Think critically and analytically		

Prerequisites:

Completed one of the following courses with a C or higher: *Game Programming*, *Geometry*, and/or *Robotics Exploration*

Course Overview:

In this course you will:

- Create 3D software, games, and simulations using industry-standard tools
- Explore 3D environments and their projections onto a 2D screen
- Add interactivity to games and simulations using C-style languages such as C++, C#, and/or Java.
- Apply math concepts frequently encountered in 3D programming
- Explore a variety of real-world relationships using virtual environments
- Use a variety of programming constructs including conditional logic, repetition, and recursion.
- Develop games and 3D worlds for use with a VR headset
- Increase your readiness for future careers involving computer technology. .



Semester 1 Topics of Study:

Unit 1: Introducing Unity 3D

About 3 weeks

- 3D Coordinates
- Basic Transformations
- Materials and Textures
- Lighting
- Project: Roll-A-Ball

Unit 3: The User Interface

About 3 weeks

- Variables and Arithmetic
- Canvas and UI Components
- User Events
- Project: Clickety Click

Unit 4: Transformations

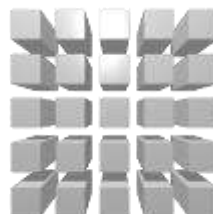
About 3 weeks

- C# Objects and Members
- Translation, Rotation, Scaling
- Radians and Degrees
- Time
- Project: The Crazy Clock

Unit 2: 3D Environments

About 3 weeks

- C# Syntax
- Keyboard Input
- Displaying Text
- Project: A Mazing Puzzle



Unit 5: Unity Physics

About 3 weeks

- Hinges, Motors, and Springs
- Drag, Gravity
- Orthogonal Vectors
- Project: Rube Goldberg Machine

TAG/ELL/Special Education Considerations:

Students will receive appropriate accommodations consistent with their IEP and/or TAG plan. Students are encouraged to self-advocate and communicate with their teacher if they have questions or concerns about their accommodations. You may 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, Critical Thinking, Assignment Modification, Flexible Grouping, and Student Contracts.

Supplemental Resources:

A variety of resources will be available on the following websites:

<http://moodle.mrhelland.com>

<http://www.unity3d.com>

If you don't have access to a reliable internet connection, 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 and/or be referred to the administration for disciplinary action.

You are encouraged to help your peers understand and make progress. But, help them learn and don't just give them your work. If multiple students submit work that is not sufficiently unique, the points for that work will be divided equally amongst them.

Homework and Late Policy:

Most learning activities in this course can be completed by an average student during the class period. If you do not complete a task during class, it will be necessary to complete work at home or by scheduling time to use the lab before or after school. The lab is also open at lunch one day per week.

Late assignments lose 10% of their possible value. For each week an assignment is late, it will lose an additional 10% in possible value. The maximum late penalty is 50%.

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 leave food at the door.
- ❖ 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.

Personal Electronic Devices:

In accordance with Executive Order 25-09, personal electronic devices (phones, smartwatches, earbuds, etc.) are not allowed during instructional hours. Devices must be turned off and stored out of sight. Repeated violations will result in restorative intervention and parent contact.



Using personal electronic devices during an assessment without prior arrangement will result in a score of 0.

Grading Policy:

Your overall letter grade is weighted as follows:

Tests & Quizzes	40%
Assignments & Participation	50%
Final	10%

Semester grades are rounded mathematically.

Labs & Assignments:

Many assignments will be scored based on detailed rubrics or sets of grading criteria. All other labs and assignments will earn a percentage of the total points possible. For example:



- Fully completed - Exceptional effort	100%
- Mostly completed - Average effort	70%
- Partially completed - Marginal effort	40%
- Barely completed - Effort lacking	0%

Assessments:

Unit Tests are usually worth 100 points each and are announced in advance. If you opt to delay a test without prior arrangement, the maximum earnable score is 80%. You may retake each test once after successfully completing a review activity.

The *final exam* is 10% of the final grade and may include both a written and performance component.

Excused Absences:

When you return to school, be prepared to make up any missing work within the number of days you were absent + 1 day. After this, the usual late penalty will apply. On the day you return, arrange to make up any tests, quizzes or projects that were due in your absence.

Special consideration will be made for extended absence or verified emergencies. Be sure to contact the teacher as soon as possible.

Your course letter 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%

You are encouraged to attempt any/all of the extra credit opportunities provided. Per district policy, extra credit may only affect your overall grade by a moderate percentage.

Notebook:

A notebook is required for this course. It should include all of the following:

- ❖ Cornell or focused notes
- ❖ Unit vocabulary
- ❖ Weekly reflection



You can use your written notebook on tests, quizzes and the final exam. Take readable notes and keep them organized for greatest benefit.

Notebook checks are 20 points. Your notebook score will be based on content, organization and overall usefulness. Use the *Cornell / Focused Notes* system to receive the highest possible score on your notebook.

Projects:

Projects may be assigned depending on available time.

You will likely need to work on projects outside of class to earn a high score or if you get behind.

Unexcused Absences:

If you have an unexcused absence, you will not be able to makeup in-class activities. Projects or unit tests that reflect multiple days of learning can be made up, but will lose a portion of their value based on the number of unexcused absences affecting that unit or project.



Course Goals:

- Use an integrated editor to create 3D and virtual-reality worlds
- Write scripts to respond to user interaction and determine game behavior
- Use C# to write code that completes a specific task or displays specific output
- Use a physics engine to control game behavior
- Understand math concepts crucial to 3D game design (e.g. vectors, 3D coordinates, angles, distance)

Materials:

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

***3-ring or spiral notebook***

It will be turned in to the teacher at the end of each unit.

Portable or Online Storage

A USB Storage device or Google Drive account may prove useful and convenient in this course.

Home Computer

A computer running a modern operating system such as Windows 10 or Mac OS X can be useful.

I Need Help!

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

- ❖ Your teacher
- ❖ Peer study groups
- ❖ Your teacher's website
- ❖ Course website
- ❖ Online videos
- ❖ Online tutorials
- ❖ Tutoring



With advance notice, the teacher reserves the right to adjust these guidelines to provide a safe and productive learning environment for all students.

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