



# Lebanon Community Schools

## High School Course Syllabus

Lebanon High School | Mr. Tim Helland | 2018-2019

### Course Number and Title:

3D Programming

### Subject Area:

Computer Technology

### Credits:

Semester 1 0.5 CT or Elective Credit

Semester 2 0.5 Math\*, CT or Elective Credit

\*Students pursuing entrance to a 4 year college are highly encouraged to meet their math entrance requirements through traditional math courses such as Geometry, Algebra 2, College Algebra, etc.

### 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
	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.
- Increase your readiness for future courses (e.g. AP Computer Science)



### Semester 2 Topics of Study:

#### Unit 1: Decision Making

About 3 weeks

- Boolean Logic
- Conditional Statements in C#
- Collisions
- Project: Super Clicker

#### Unit 2: Vector Motion

About 3 weeks

- Vector Forces
- Unit and Component Vectors
- Project: Target Practice

#### Unit 3: Repetition I

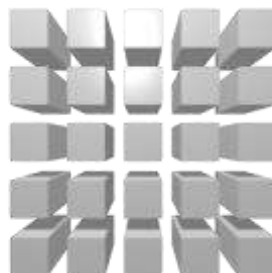
About 3 weeks

- For Loops
- While Loops
- Project: Stacking Coins

#### Unit 4: Repetition II

About 3 weeks

- Nested For Loops
- Scaling
- Project: The Great Wall



#### Unit 5: Recursion

About 3 weeks

- Randomness
- Recursion
- Fractals
- Project: Chaos Generator

#### Unit 6: Physics and Forces

About 3 weeks

- Physics
- Vector Forces
- Events
- Project: Watch Out Below!

**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://3dprog.timhelland.com>

<http://www.unity3d.com>

<http://repl.it>

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 Policy:**

The majority of learning activities in this course are designed so that most students will complete them during the class period. If you do not complete a task during the class period you may find it necessary to complete work at home or schedule time to complete the task in the lab before or after school.

Late assignments are accepted, but will incur a 10% deduction for the first week and an additional 10% deduction thereafter. No late assignments will be accepted during the last week of the term.

**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.

**Grading Policy:**

Your overall letter grade is weighted as follows:

Tests and Quizzes	40%
Labs & Assignments Notebook Participation	50%
Final Exam	10%
Total	100%

You are encouraged to attempt any/all of the extra credit opportunities provided. However, extra credit may only affect your overall grade by up to 3% per district policy.

Your 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%



To earn Math credit during second semester you will need to contact the teacher and demonstrate mastery in these topics:

- 3D Coordinate Systems
- Vectors
- Transformations
- Boolean Algebra and Logic
- Right Triangle Trigonometry

**Assessments:**

*Unit Tests* are worth 100 points each and are announced in advance. You may use your own handwritten notebook during a test. You may retake each test once after successfully completing a review activity. Your original score and retake score will be averaged.

*Quizzes* worth more than 10 points are announced in advance.



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

Unless permission is granted by the teacher *in advance*, using personal electronic devices during an assessment will result in a score of 0.

**Notebook:**

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

- ❖ Cornell notes
- ❖ In-class activities
- ❖ Unit vocabulary
- ❖ Weekly reflection
- ❖ Other course materials



You will be allowed to use your written notebook on tests and quizzes. This includes the final exam. Be sure to take accurate, organized, and readable notes.

Each unannounced notebook check is worth a possible 20 points. Your score is based on possession, organization, and completeness on the day of the notebook check. Use the *Cornell Notes* system to receive full credit on your notebook.

Late notebooks will lose 10% of their earned value (20% if more than a week late).

**Labs & Assignments:**

Many assignments will be scored based on a detailed rubric or set of grading criteria. All other labs and assignments will earn a percentage of the total points possible.

Late assignments will lose 10% of their earned value (20% if more than a week late).



Complete & carefully attempted	100%
More than half carefully attempted	60%
Less than half carefully attempted	20%
Far from complete or insufficient effort	0%

**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*. For one week following this deadline there will be a 10% late penalty and 20% thereafter.



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

**Unexcused Absences:**

If you have an unexcused absence, you will not be able to makeup in-class activities. Projects or unit tests that reflect many 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.

If you are present but choose not to take a test or quiz with the class, your future score will be reduced by 10% (20% if more than a week has passed).

**Contact Mr. Helland:**

	Lebanon High School – Room 721
	(541) 451-8555 ext 1090
	tim.helland@lebanon.k12.or.us
	<a href="http://www.timhelland.com">http://www.timhelland.com</a>

**Mr. Helland's Schedule:**

1	Introduction to CS
2	3D Design and Animation
3	3D Game Programming
4	<i>Planning</i>
5	Game Programming
6	Game Programming
7	Robotics Exploration

**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 7 or Mac OS X may be useful if you get behind or want to explore deeper into Web Design.

**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
- ❖ 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.*