



# Lebanon Community Schools

## High School Course Syllabus

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

### Course Number and Title:

3D Design and Animation

### Subject Area:

Computer Technology

### Credits:

Semester 1 0.5 CT or Elective Credit

### Graduation Requirements:

The following Oregon Essential Skills will be addressed during 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:

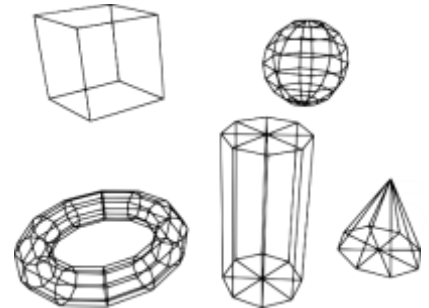
Introduction to Computer Science

### Course Overview:

This course will introduce you to the world of 3D modeling. If you can imagine it, it can be created! In this course you will:

- ❖ Explore the tools used to create mesh- and curve-based models
- ❖ Use materials and procedural textures to add detail to objects
- ❖ Use lighting to improve the realism and depth of your scenes
- ❖ Use keyframe animation to create short 3D videos
- ❖ Use particles, gravity, and other forces to add interest to your scene
- ❖ Create armatures for simple 3D objects (*as time allows*)

The skills you learn in this course can be applied in a variety of areas including game design, architecture, engineering, drafting, and interior design.



### Topics of Study:

#### Unit 1: Introduction to Blender

*About 2 weeks*

- The Interface
- Rendering
- Layers
- Pivots and Origins
- Cameras

#### Unit 2: Modeling with Meshes

*About 3 weeks*

- Vertices, Edges, Faces
- Subdivide and Cut
- Extrude
- Modifiers

#### Unit 3: Materials and Lighting

*About 3 weeks*

- Diffuse and Specular
- Opacity
- Environment Lighting
- Procedural Textures

#### Unit 4: Modeling with Curves

*About 3 weeks*

- Bezier Curves
- Taper and Bevel Objects
- Converting to Meshes
- Modifiers

#### Unit 5: Sculpting

*About 2 weeks*

- Sculpt Mode
- Multi-Res Modifier

#### Unit 6: Particles and Physics

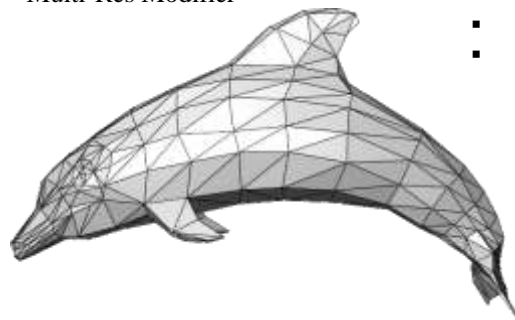
*About 2 weeks*

- Particle Systems
- Collision
- Cloth
- Explosions

#### Unit 7: Animation

*About 3 weeks*

- Keyframes
- Graph Editor
- Video Rendering
- Armatures



**TAG/ELL/Special Education Considerations:**

You will receive appropriate accommodations consistent with their IEP and/or TAG plan. You are encouraged to self-advocate and communicate with the teacher if you have questions or concerns about your 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, Assignment Modification, Tiered Assignments, and Student Contracts.

**Supplemental Resources:**



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

<http://3ddesign.timhelland.com>

<http://www.blender.org>

If you don't have access to a reliable internet connection, please see the teacher for alternate access methods.

**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, 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	30%
Labs Assignments Notebooks	60%
Final Project	10%

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%



You are encouraged to attempt any/all of the extra credit opportunities provided. Extra credit may affect your overall grade by no more than 3% per district policy.

*Semester grades are rounded mathematically.*

**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.

**Labs & Assignments:**

Most labs will be scored based on a detailed rubric or set of grading criteria. All other 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).

**Excused Absences:**

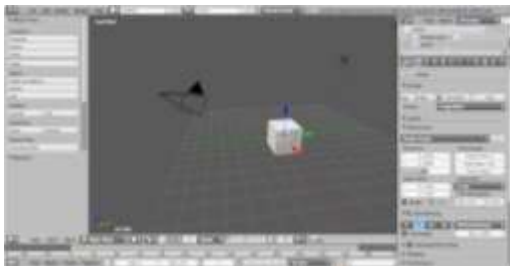
***On the day of an announced test or quiz:***

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.

***On the day any assignment or project is due:***

You will have as many days to make up the assignment as you were absent.

Special consideration can be made for extended absence or emergencies. Be sure to contact the teacher before you leave or on the day you return if the absence is unexpected.



**Course Goals:**

- Introduce the concept of computer generated 3D modeling
- Develop skills and techniques used to create 3D objects and meshes
- Explore the effect of materials, texture, and lighting on the final render
- Create smooth motion using keyframe animation
- Render 3D scenes as 2D artwork and short videos
- Analyze, critique, and evaluate the designs and renders of peers

**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).

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

**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.



**Contact Mr. Helland:**

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

**Mr. Helland’s Schedule:**

1	3D Design & Animation
2	<i>Planning &amp; Preparation</i>
3	College Algebra
4	College Algebra
5	Intro to Computer Science
6	Intro to Computer Science
7	Intro to Computer Science

**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 the course.

**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

