**CST325. FINAL PROJECT (deadline May 14, 11:55 PM)**

(**20%** of your grade**.)*No late submissions will be accepted.***

*The Final Project is a combination of homeworks and labs throughout the semester into a single, large project READ CAREFULLY - SEE THE GRADING RUBRIC BELOW.*

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**Submission Instructions:**

* **Project**: submit a zipped folder with DirectX project on ilearn. If it is too large, submit a link to google drive folder with zipped DirectX project. **THE PROJECT MUST COMPILE.** no partial credit available for non-compiling project.
* **Comments:** In the comments, indicate which of the **Pick2** elements you chose to implement for your project. You can also specify whether you have decided to pick 3 for extra credit.
* **Plan:** Final Plan must be submitted to the iLearn location
* **Topics WriteUp:** A write up must be submitted to the iLearn location.

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**Title: Space Simulator**

**Create a game that lets you explore a virtual world in which you fly through the sky (skybox)**. In the game you can fly (using WASD keys) a loaded model lit with lighting through an environment made up of a skybox and various 3D and/or 2D objects.

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**Grading rubric:**

**Plan**: **(10%)** come up with a schedule for your project. Give yourself deadlines and report progress. First part is due ***April 25***. (fill out the section for each week in “Beginning of Week Plan”). Final Worksheet is due ***May 14*** with all sections completed. Update this each week in relation to what parts of the project you have finished, adjust your beginning of the week plans accordingly.

* **Initial Plan (5%)**
* **Final Plan (5%)**

**WriteUp**: **(10%)** Write up of topics within the final project (instructions TBD)

**Functionality: (80%)** *The below describes what elements should exist in your project*

**(60%)Complete All: Your project should include all of the following:**

* **(10%)** A Skybox with a space theme
* **(10%)** Add a 3D object obj file (can use the dragon or airplane from class) use WASD keys to move it.
* **(10%)** A Planet with a moon rotating around it.
* **(10%)** A Box (from labs or homework) with a light rotating around it with lambertian lighting. Give the box a gradient of color
* **(10%)** Use the mouse to move the camera angle in the x direction (left and right), use arrow keys [<https://docs.microsoft.com/en-us/windows/desktop/inputdev/virtual-key-codes> ] to move the camera around the scene in the Z and X directions
* (**10%)** *Scale all the objects* on keypress “j” in a tleast one direction (ie x-direction, etc), then scale them back to 1 on keypress “k”

**(20%)Pick2: Your project should also include 2 of the following [Your choice] (or 3 for 5% extra credit on the project) Specify which of these you picked in the comments section of your code submission:**

* **(10%)** Add Specular lighting to the 3D obj file (or all objects)
* **(10%)** Add Billboards with “asteroids” textures to the scene
* **(10%)** Add a 2D object you draw (add a new shape, at least 6 triangles) to the scene, add a color gradient to it using the pixel shader
* **(10%)** Add another 3D object (ie a cube, sphere, or 3D obj) to the scene, add a space related texture to it.
* **(10%)** Animate a texture (ie like an explosion, etc)