Blender can be downloaded from: http://blender.org
Our Blender notes can be found at: http://cs.oregonstate.edu/~mjb/blender

18:13:53 Is it a good idea to version control your Blender project like with git?

Basically, it’s a good idea to do version control / backup on everything: code, documents, reports, Blender files, etc. Like I always say: “There are two types of people – you are either paranoid or you are inexperienced.”

18:37:29 How can we build a skeleton system in Blender for a 3D model?

You can probably find a lot of such Blender files on the internet. I have a simple human Blender model. You can get the file at: http://cs.oregonstate.edu/~mjb/blender/model.blend

18:39:58 If you don’t mind, what is the major difference between OpenGL and Vulkan?

Vulkan is meant to provide a far more efficient interface between your application and the graphics hardware. This comes at the expense of simplicity and friendliness, which, as you know, is what OpenGL excels at. Various people have developed “simplifying” tools to help reduce Vulkan’s complexity, such as C++ classes.

You can find our Vulkan notes at: http://cs.oregonstate.edu/~mjb/vulkan I am teaching the Vulkan course next quarter, in addition to Shaders.

18:43:13 Does Vulkan share the same GLSL syntax with OpenGL?

Yes, mostly. There are a small number of differences, but, overall, the GLSL you know will work in Vulkan.

18:44:15 I think Vulkan uses SPIR-V? But it can be compiled from GLSL.

True. In OpenGL, as we are using it, the GLSL compiler is in the driver. Vulkan requires an external compiler program which changes your GLSL code into an intermediate representation called SPIR-V. Then, at runtime, the Vulkan driver changes your shaders’ SPIR-V code into the machine code specific to the graphics hardware it is running on.

You can actually do this same SPIR-V process with OpenGL-GLSL as well. We are not doing it that way in CS 450/550 so that your attention is focused on getting your GLSL logic to work, not focused on wrestling with the external compiler.
18:55:16 If we wanted to add another sphere to this sphere, how would you do that? How do you merge two objects (like two spheres) together?

In Blender, you can just overlap them and it looks like two spheres together. If you want them to act like two spheres melded together, then use the Modifier called Boolean to do a Venn Diagram union of the two spheres. That will leave you with just the outer shell with nothing in the interior. This is what would make the two spheres suitable for 3D Printing.

19:07:08 The more I look at this torus, the more I want donuts

That is definitely a disadvantage of doing Blender Night around dinnertime. 😊

19:08:04 I was thinking of the LOTR ring haha

“One torus to rule them all.”

19:11:41 It seems the shadow has a lower quality to it. Is there a way to prioritize the smoothness of shadows over the object that is projecting it?

I know of two ways. (1) Increase the polygonalization of the primitive by either creating it with more polygons to begin with or by using the Subdivision Surface modifier. A smoother object generates smoother shadows. (2) Increase the pixel resolution of the rendered image.

19:12:44 Does Blender follow additive color or subtractive?

Combining colored lights follows additive, just like if you had colored theater lights. The interaction of light colors with material colors follows subtractive, just like OpenGL lighting does. If you start playing with colored transparency and colored lights, you will see subtractive behavior.

19:17:30 Exporting Blender objects as an OBJ file will come with the vt and vn needed for OpenGL?

For objects made with the standard mesh primitives, yes, because Blender already had normals and texture coordinates for those mesh primitives.

19:33:22 This is a playlist of "Low Poly" models of popular characters through the years. It shows a whole bunch of unique gaming insights into the limitations of hardware and how developers have to adjust to make characters look as best as they can: https://www.youtube.com/playlist?list=PLDBXdd2IJRvUs7_jpFp2Z4RrC3h2gBLXS
I know some gaming platforms use the key shapes to size the objects in realtime.

Key Shapes are another Blender feature we could go over at another Blender night, if you all are interested. We could also cover some of the built-in physics and advanced rendering. Let me know if you are interested.