Modeling in Google SketchUp for 3D Printing.
Download for SketchUp Make - Free
https://www.sketchup.com/products/sketchup-make

1. Open SketchUp and select 'Choose Template'
2. Scroll to the bottom of the list and choose either '3D Printing-Inches' or '3D Printing-Millimeters,' which ever unit you prefer.
3. Select 'Start using SketchUp,' you will see a bounding box, which is not for the same printer we have in the studio. Our 'Makerbot' has a max. build size of a 10 inch diameter and a 15 inch height. You may delete this bounding box.
4. Using the 'Shapes' tool, choose either rectangle, circle or polygon, whichever you feel is closest to the general shape of the model you want to make.
5. Click once to start your shape and pull your cursor out, do not drag.
6. Notice your measurements changing in the bottom left of your screen, click again to end your shape at the desired size, or simply type in the dimensions you wish for. You do not have to move your cursor and click on the measurements read out, just start typing the numbers after you clicked once to start your shape.
   -For a rectangle, type Length, Width
   -For a circle, type the diameter,
   -If you choose polygon, before you click to start the shape, you may type to enter number of sides. Then click to start shape, then type in diameter measurement.
7. Select the Push/Pull tool and click on your shape to start extruding. Again you may type in the desired distance for to Push/Pull or simply click to end extruding.
8. Now you have your starting block for your model. You may use the shape tools and the pencil tool to draw on the faces of your shape, and Push/Pull those shapes. Other helpful tools are the scale tool, move tool and the rotate tool, which can all be used on the entire shape (triple click to select entire model) or just faces of the shape. Also offset is helpful for making lips.
9. Keep your model all as one piece, do not make separate pieces and move them on top of each other. This model would not be possible to print. It must be a single shape you have manipulated to become the model you want to print.

Exporting in Google SketchUp for 3D Printing.

1. Triple click your model to select the entire model>Right Click>Entity Info.
2. You will see xx# Entities in the Entity Info Window.
3. Right Click model>Make Group. Now the read out into Entity Info Window should say Solid Group. This is what you need for the Model to be 3D printable. If you just see Group, there is a stray plane, shape or line in your selection and it must be found and deleted so you can select everything, Make Group and get the Solid Group readout in the Entity Info Window.
4. Once this is achieved, go to Window>Extension Warehouse.
5. In the Extension Warehouse window, there should be a top extensions list, and SketchUp STL should be listed. If not you can use the search bar to find and select the extension.
6. Download and sign in to your google account and Agree.
7. Press Install, Ok and exit the Extension Warehouse window.
8. Select your model. File>Export STL>Export.
9. Name your file, do not remove the .stl extension from the file name. Choose where you want your file to export to.

Follow the link below to the Order Form for the 3D Printing Studio in Snell Library.
http://library.northeastern.edu/order-form-3d-prints

Visit Our Website for Information about the 3D Printers available.
http://library.northeastern.edu/services/3d-printing-studio