Project: UCLA Keychain
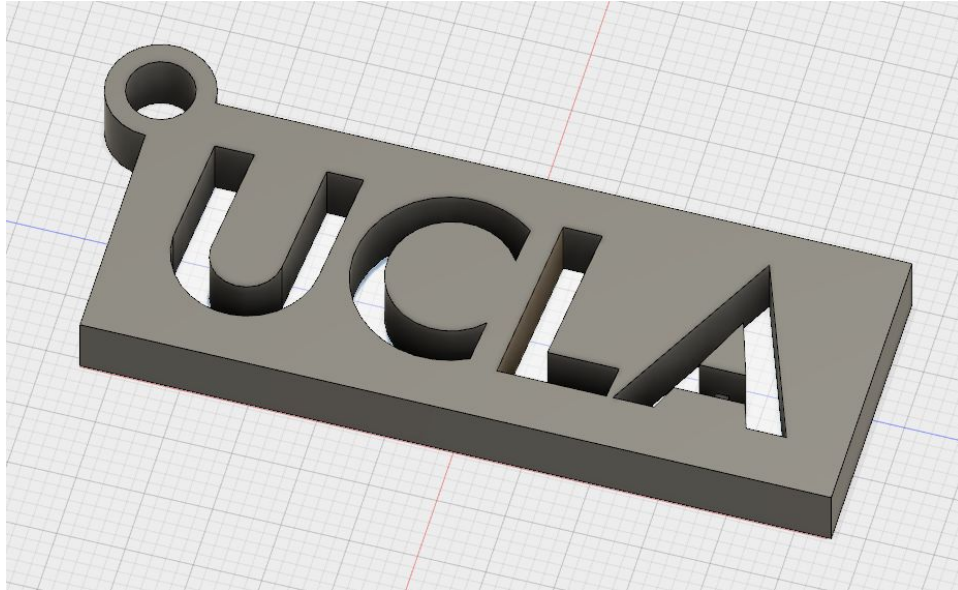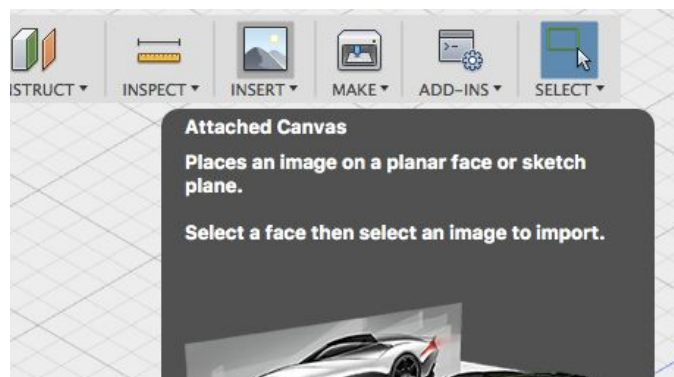
Description: This tutorial will guide you in building a 3D-printable UCLA keychain! You'll learn the some of the essential functions of Fusion 360, such as how to sketch basic shapes and extrude them into 3D. If you need help, message one of the instructors!
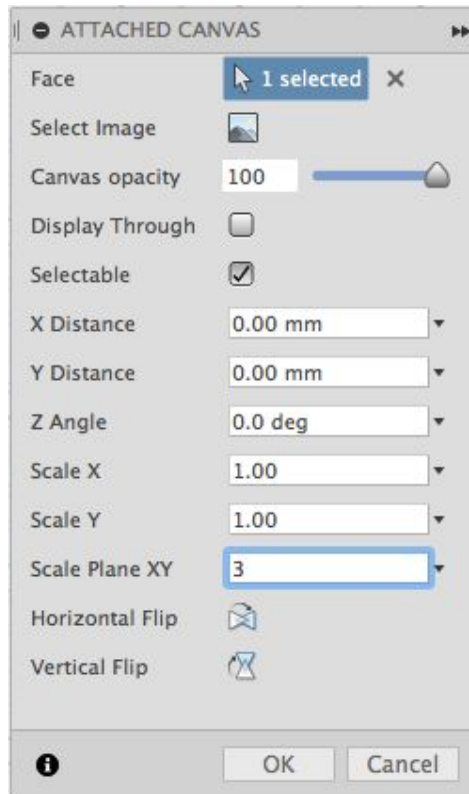

1. Download this UCLA logo

2. Insert the UCLA logo onto your canvas (so that you can use it as a reference later)
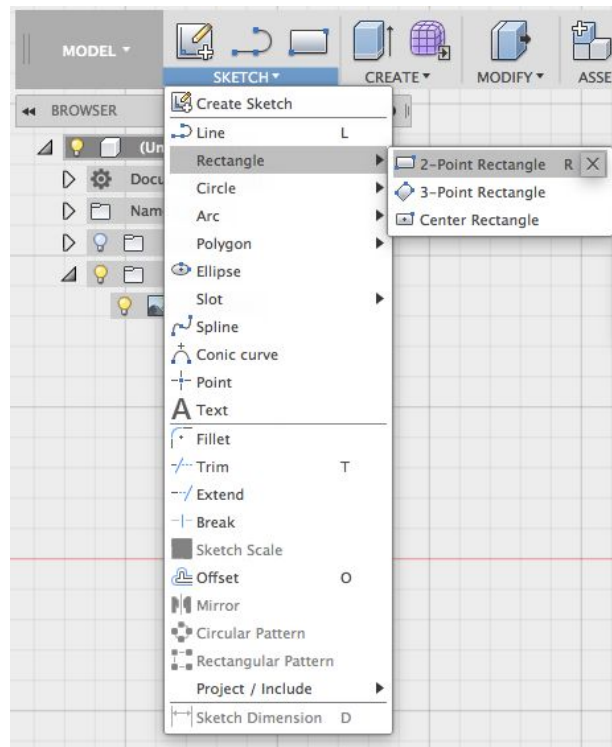   a. Click the image labeled "Insert" on the nav bar

    b. For "Face", select the bottom (XZ) plane
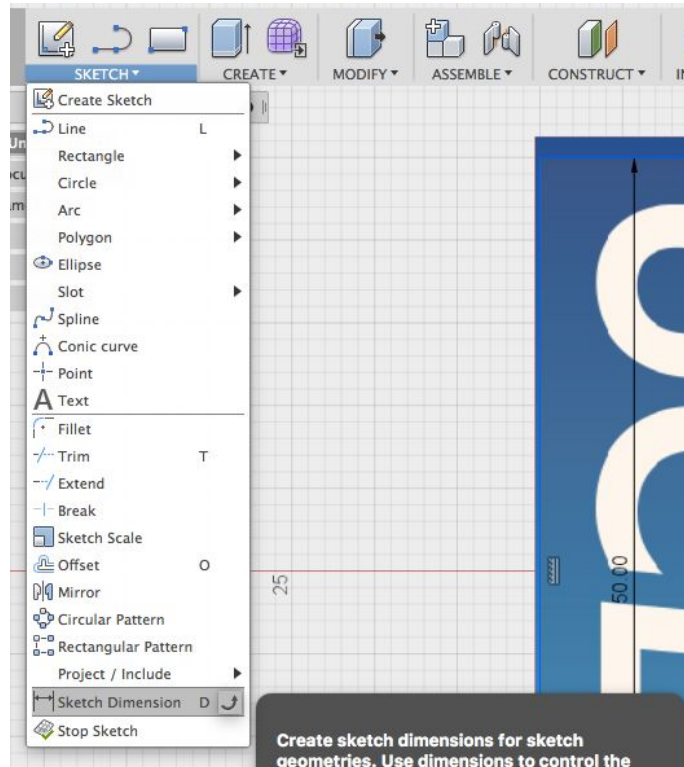
c. For "Select Image", select the image
d. For "Canvas opacity", set it to 100 or 50 (up to you)
e. For "Selectable", check it
f. For "Scale Plane XY", enter 3

3. Create the outline of your keychain
   a. Sketch -> Rectangle -> 2-Point Rectangle: Draw a rectangle

b. Sketch -> Sketch Dimension: Dimension the rectangle to 55 x 21 (Click the dimension button, select an edge, click inside the rectangle, enter 55; repeat for the other edge)
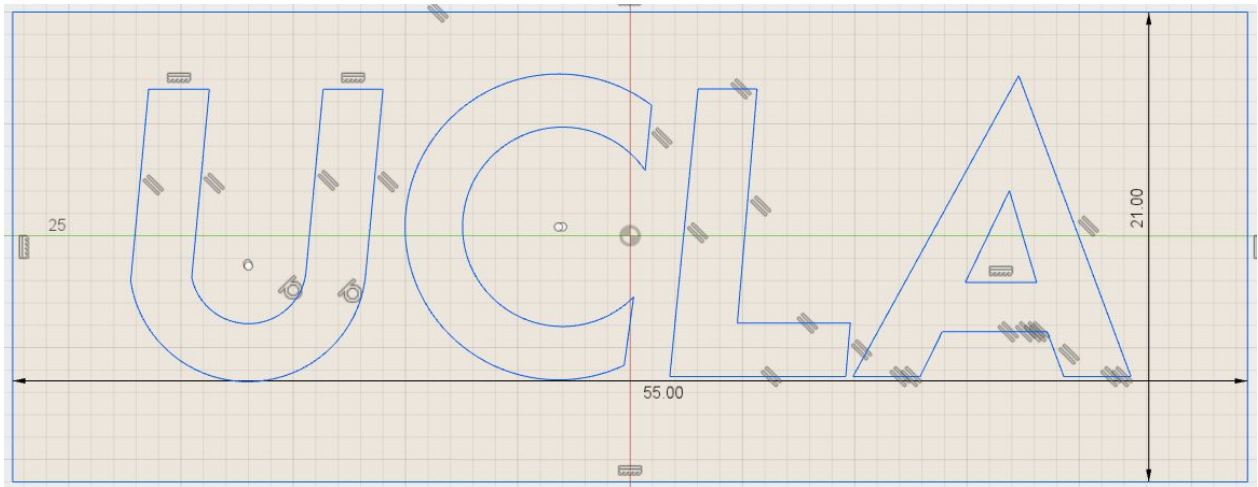

4. Trace the straight sections of the UCLA letters
   a. Sketch -> Line: Use the line tool to trace over the image on the canvas

(The above image shows what lines you should draw with the canvas hidden; you may hide your canvas by clicking the lightbulb on the left of the screen.)
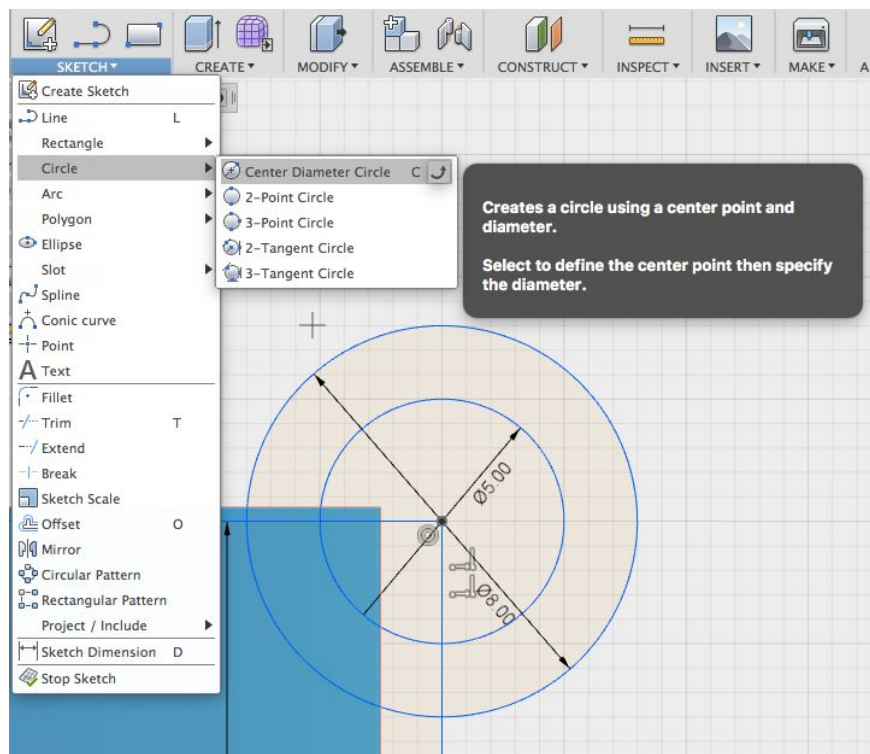
5. Trace the curvy sections of the UCLA letters
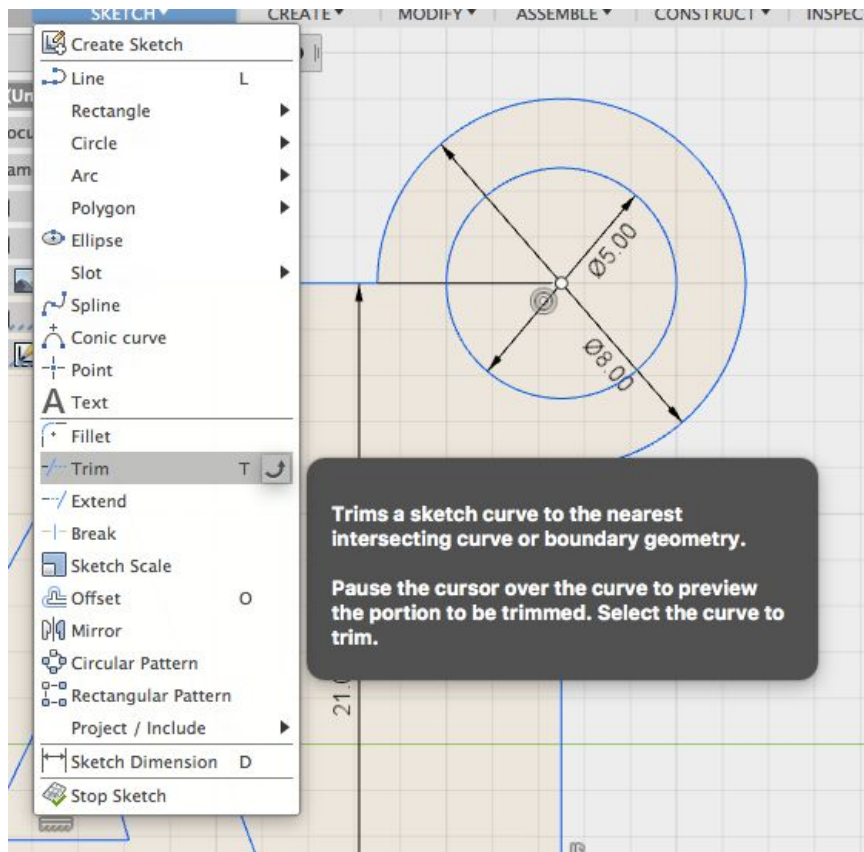   a. Sketch -> Arc -> 3-Point Arc: Use the 3-Point Arc tool to create curves

(The above image shows the lines and arcs together with the canvas hidden)

6. Sketch a keyring hole
   a. Sketch -> Circle -> Center Diameter Circle: Draw a Center-diameter Circle centered at the corner of diameter of 8
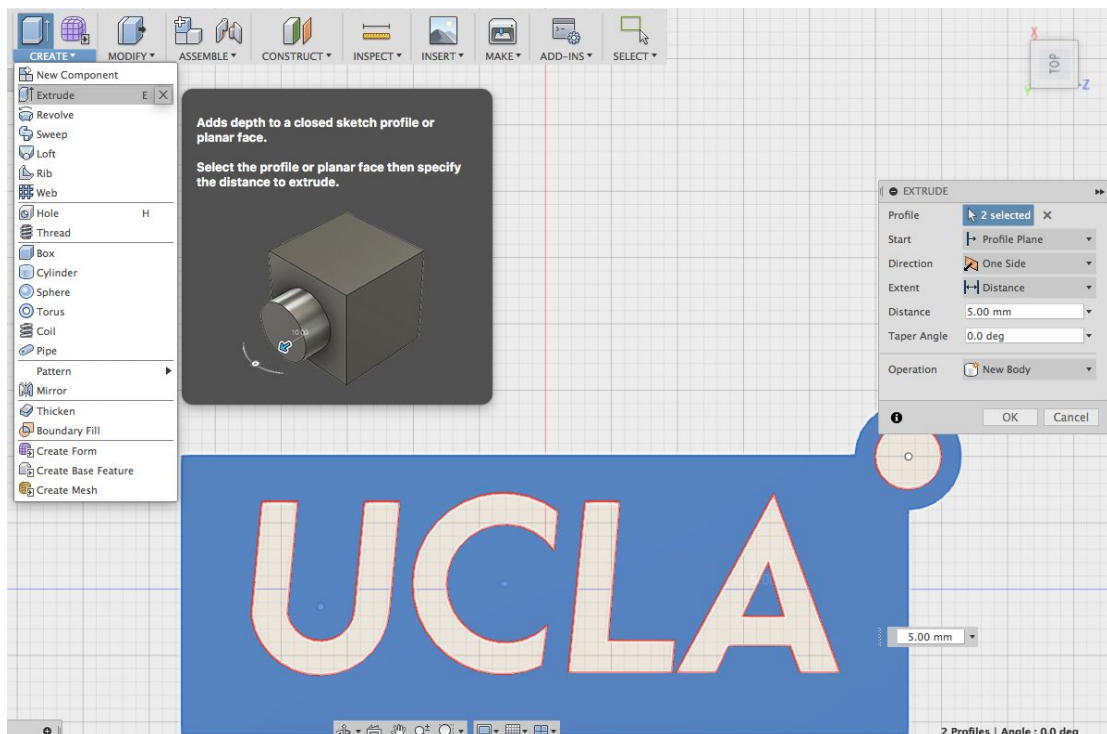

   b. Sketch -> Circle -> Center Diameter Circle: Draw another circle centered at the same corner as before with a diameter of 5
   c. Sketch -> Trim: Trim (remove) the extra lines so that it will not mess up the internal geometry
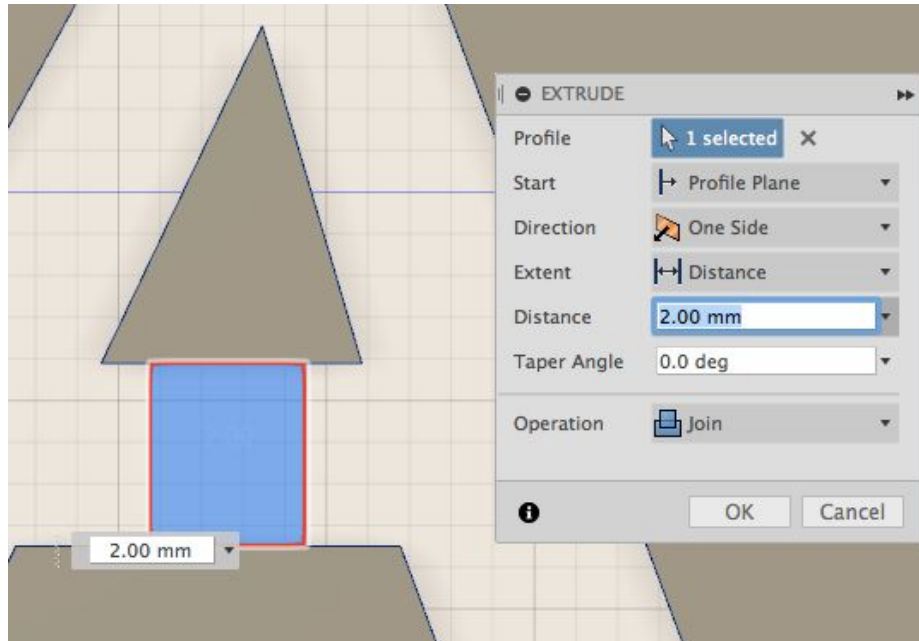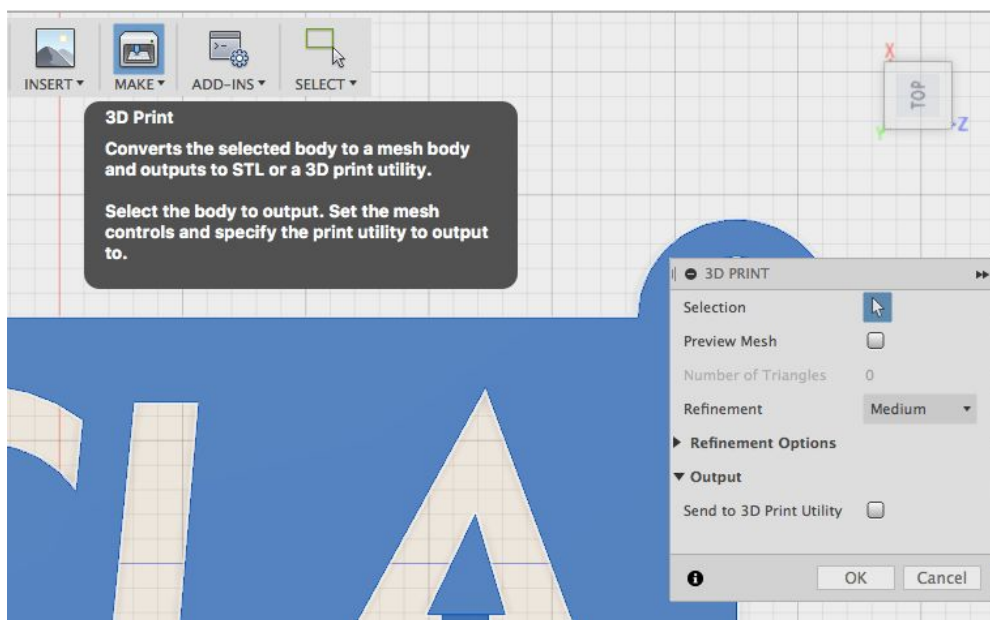
d. Stop the sketch

7. Create a 3D body
    a. Select the sketch by clicking it (remember to also extrude the inside of the A)
    b. Create -> Extrude: Extrude the sketch 5 in the Z direction and click "OK"

8. Connect the inside of the A to the rest of the keychain
    a. Unhide your sketch by clicking the lightbulb on the left of the screen
    b. Click the sketch
    c. Sketch -> Rectangle -> 2-Point Rectangle: Draw a rectangle to connect the inside of the A to the keychain
    d. Create -> Extrude: Extrude the rectangle by 2. For "operation", select "Join" (This will ensure the bodies are connected)

9. Export to STL
    a. Click the 3D Printer logo
    b. Select the body and deselect "Send to 3D Print Utility"
    c. Click OK and save it somewhere

10. Finished! This tutorial hopefully has taught you the following skills:
    a. Navigating the Fusion 360 user interface
    b. Using the canvas tool to import reference images
    c. Creating 2D sketches using rectangles and lines
    d. Turning 2D sketches into 3D using the extrude tool
    e. Exporting your model to STL to prepare it for printing