

3D Printing Submission Guidelines

- 1. Check your units!!!** The first thing you should do any and every time you create a model on a computer is set your units. For the purposes of printing you will probably want to set your default units to inches (or millimeters if you are more comfortable with the metric system).
- 2. Constrain your model.** It is important while you are modeling to keep in mind the dimensional limits of each printer. If you know which printer your model will be printed in you will want to make sure your model is no bigger than the print bed. The maximum dimensions for each printer are as follows:
 - i. Dimension (Plastic) Printer:** 10 x 10 x 12 inches
 - ii. ZCorp (Color) Printer:** 10 x 15 x 8 inches

Note: Maximum size does not mean we can actually print to that size. For example, in the Dimension printer when we make a model it puts down a “support structure” which is slightly bigger than the model itself. So if you have a model base that is 10in x 10in, we won’t be able to print. Also, the ZCorp printer has major problems when we print objects the full 8in tall. As such we can only print as tall as 7.5in.

- 3. Create a model with stable geometry.** This is very important. When you are creating your forms increase the amount of geometry by increasing your face values. The more geometry in a model the smoother that model will be. If you want a smooth surface you will need higher polygon counts. Do keep in mind the limits of your computers processing power. This is to say you do not need hundreds of faces. This may crash your computer. Depending on what you are creating stick around the 30-100 face range. Also be careful with complex operations such as Boolean which can compromise the stability of a form’s geometry. Watch for missing faces and/or reversed normals.
- 4. Keep in mind the structural integrity of your model.** This is especially important if you know you will be printing with the ZCorp (color) printer. The material used in the color printer is a bonded powder. This material is extremely fragile. The color printer is capable of making finely detailed models but the smaller these details are the more fragile they will be. Please be wary of including thin pieces on your model. If you are concerned with the possibility of a piece of your model breaking, please speak with one of the printing assistants.
- 5. If possible, make the model one, complete form.** Our software has a tendency to find less errors if the model is one, continuous geometric structure. If your model has several pieces it may not be enough for them to just be touching in virtual space. They may need to be combined. This can be

done with the Boolean function and then selecting Union before choosing your operands.

6. **Convert your model to an Editable Poly.** This is necessary for the software to process the model.
7. **Export to the correct file format.** This will depend on the printer your model will be processed in. The supported file formats for each printer are as follows:
 - i. **Dimension (Plastic) Printer:** STL (.stl) Yes that is the only file format the plastic printer accepts.
 - ii. **ZCorp (Color) Printer:** VRML (.wrl) is the only format that will transfer your color choices to our printer software. The color printer will also accept STL (.stl) files but the colors will not be embedded in the file.
8. **Take advantage of the printer's precision.** When exporting your file there will be an option regarding the digits of precision. Set this number to the maximum digit of precision. Our printers are capable of producing very high-resolution models. Please take advantage of this.
9. **Rapid Prototyping takes time! Files must be submitted at least four days before the model is expected to be completed.**
10. **When a model is completed it must be picked up within 24 hours of completion notice.** When a print is completed we notify the client and expect them to receive the model with 24 hours of notification.
11. **Contracts must be read and signed before any models can be printed.** We cannot make prints unless we have a signed contract with the student for each model. If you have any questions about the contract please contact the staff. We can process files in our edit software and give exact estimates without a written contract.

Send all submissions to:

CLAS-PRINT3D@UIOWA.EDU