

Library stories: 3D printing across disciplines



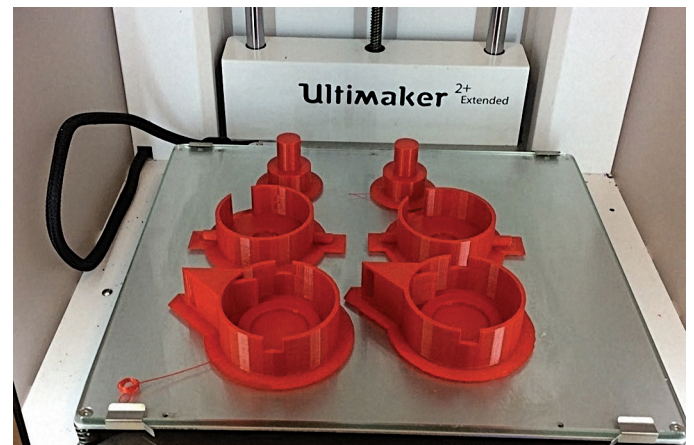
A model of an RNA molecule designed by a biology student using Tinkercad. This model was created to supplement the student's biology senior capstone project.

After writing a successful grant proposal, and with support from many departments on campus, we were able to build the Lawrence University Interdisciplinary Makerspace for Engaged Learning (though we usually just call it “the makerspace”). We’ve been very happy with the response it has received from professors and students from across campus. I’m happy to report that after almost two years in operation, students and professors have used the makerspace for projects in Anthropology, Art, Art History, Biology, Chemistry, Conservatory of Music, Computer Science, Innovation and Entrepreneurship, Physics, Religious Studies, and Theatre. That’s not all of the majors and programs represented on campus, but we think it’s a good start. Additionally, a group of students representing an even wider range of majors and interests have formed the Makerspace Club. Students in the club are able to use the makerspace for non-academic purposes.

3D printers have by far been the most popular pieces of equipment in the makerspace. Easy to use design programs like Tinkercad and fascinating object databases like Morphosource make 3D design and printing in academic settings easier than ever. The opportunity to work with such popular, cutting-edge equipment is also a big draw for many students. For those of us who do training sessions and manage the makerspace, it’s

The library is at the heart of any college campus. It is a place where students from all majors gather to study, interact, and work together. When a group of professors, librarians, and support staff from all over campus began the planning process for a campus makerspace, the library was unanimously chosen as the home. The vision was to have a space that, like the library, would support the creativity and academic work of students from all academic disciplines.

wonderful to see students come to us with an idea and watch it come to life. It’s also great to see them become comfortable with a type of equipment that is initially completely unfamiliar. Many students return with ideas for additional projects, spread the word to their friends, and often assist others with the machines.

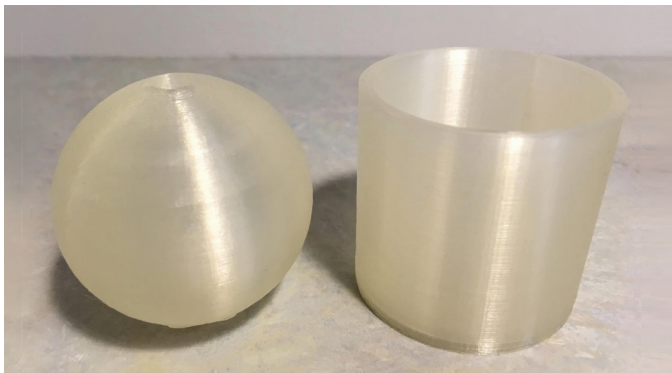


A Band-Aid dispenser designed and printed by Innovation & Entrepreneurship (I&E) students. Students in the I&E course, Pursuit of Innovation are instructed to create a product that could solve a problem. The students who designed this tool were outdoor enthusiasts who hoped for a quicker way to provide first aid care. It was designed to hang from a belt and was created in Tinkercad.

The best way to show how the 3D printers have been used across disciplines at Lawrence University is through some examples. The photos shown contain projects that were designed and 3D printed by students (and a professor) in our makerspace. Many more examples are shared on our website.



A Studio Art professor made ceramic pendants of her face by making a 3D scan and 3D printing a model in the makerspace, then using the 3D printed model to create a mold. She will replicate this project with ceramics students in an upcoming course.

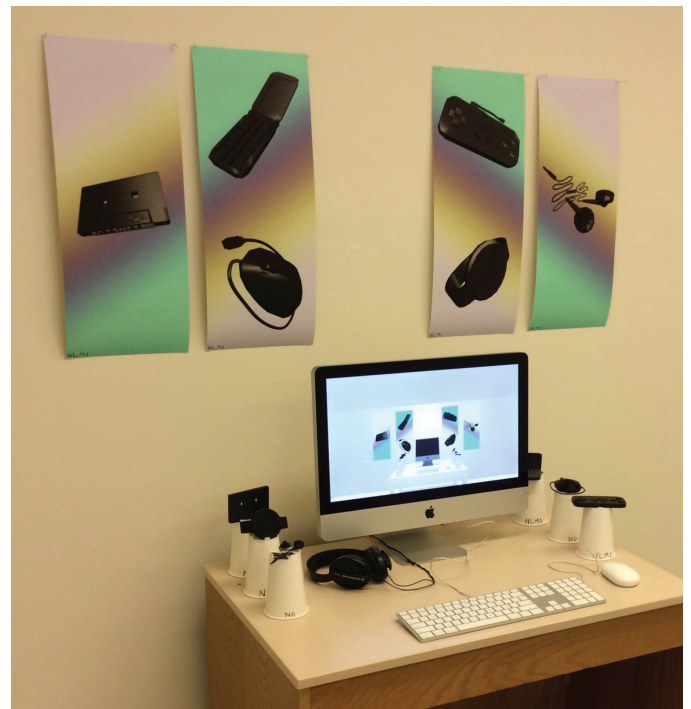


To visually represent a theorem discovered by Greek mathematician Archimedes, a student designed this sphere and cylinder in Fusion 360 and printed them to precise specifications. More about the theorem and the project can be found in the student's summary of her work on our website.

These were just a few of the amazingly creative projects students have made thanks to our 3D printers. We look forward to many more – and are especially excited to see what students make with our recently-purchased Ultimaker 3.

Interested in setting up your own makerspace?

In the spirit of the maker community, please feel free to use these resources for your own makerspace: blogs.lawrence.edu/makerspace.



For his studio art junior show, this student created a virtual environment that could be navigated and explored, and brought the objects from the virtual world to life with a 3D printer. This student expanded this project for his senior show, using a VR headset along with more 3D printed objects.

About Ultimaker

Ultimaker has been in operation since 2011, and over the years has grown to become a market-leader; creating powerful, professional and accessible desktop 3D printers with offices in the Netherlands, New York, and Boston, plus production facilities in Europe and the US. Ultimaker's team of over 300 employees continually strives to offer the highest-quality 3D printers, software, and materials on the market to accelerate the world's transition to local digital manufacturing.

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