

# Investigation on Makerspaces

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## Abstract

The University of Miami has a plethora of advanced digital fabrication labs colloquially known as Makerspaces. These labs feature specialized machines such as 3D Printers, CNC Machines, Laser Cutters and Programable Robots. Unfortunately, the majority of makerspaces in UM's ecosystem operate in isolation from one another, with varying degrees of transparency, accessibility, and restrictions.

## Introduction

Our project had three goals:

1. Document and Analyze the Capabilities and Processes at existing makerspaces
2. Survey Student & Faculty opinion
3. Relay this information to relevant bodies

Makerspace Guide	
<b>Fabrication Lab</b> <small>Architecture</small>	FDM 3D Printing x1 Ultimaker 2 Ext. x1 Ultimaker 2 Powder Printing x1 ZCorp 310 Laser Cutting x1 Universal Laser x1 CO <sub>2</sub> 20" x48" x1 30" x18" Robotic Arm x1 KUKA KR 240
<b>MakerBot Space</b> <small>Engineering</small>	FDM 3D Printing x1 MakerBot x1 Stratasys Continuous Build Platform x1 Stratasys F120 SLA 3D Printing x1 Carbon M1
<b>Johnson &amp; Johnson</b> <small>Engineering</small>	Metal 3D Printing x1 EOS M100 x1 3D Systems ProX 310 x1 ThruXl Powder Monitor
<b>Creative Studio</b> <small>Reichter Library</small>	FDM 3D Printing x1 Ultimaker 2 x1 Ultimaker 2

Specialized Labs	
<b>Machine Shop</b> <small>Engineering</small>	CNC machines, Lathes, Milling machines, Drill Presses, Grinders, Band Saws, Welding Systems, Hydraulic Presses, 3D scanners, and Laser Engravers
<b>Model Shop</b> <small>Architecture</small>	CNC machines, Bandsaws, Table Saws, Panel Saws, Planers, Joiners, Lathes, Belt & Disc Sanders, and Hand Tools

## Methods | Design | Analysis

Our information was collected in the form of:



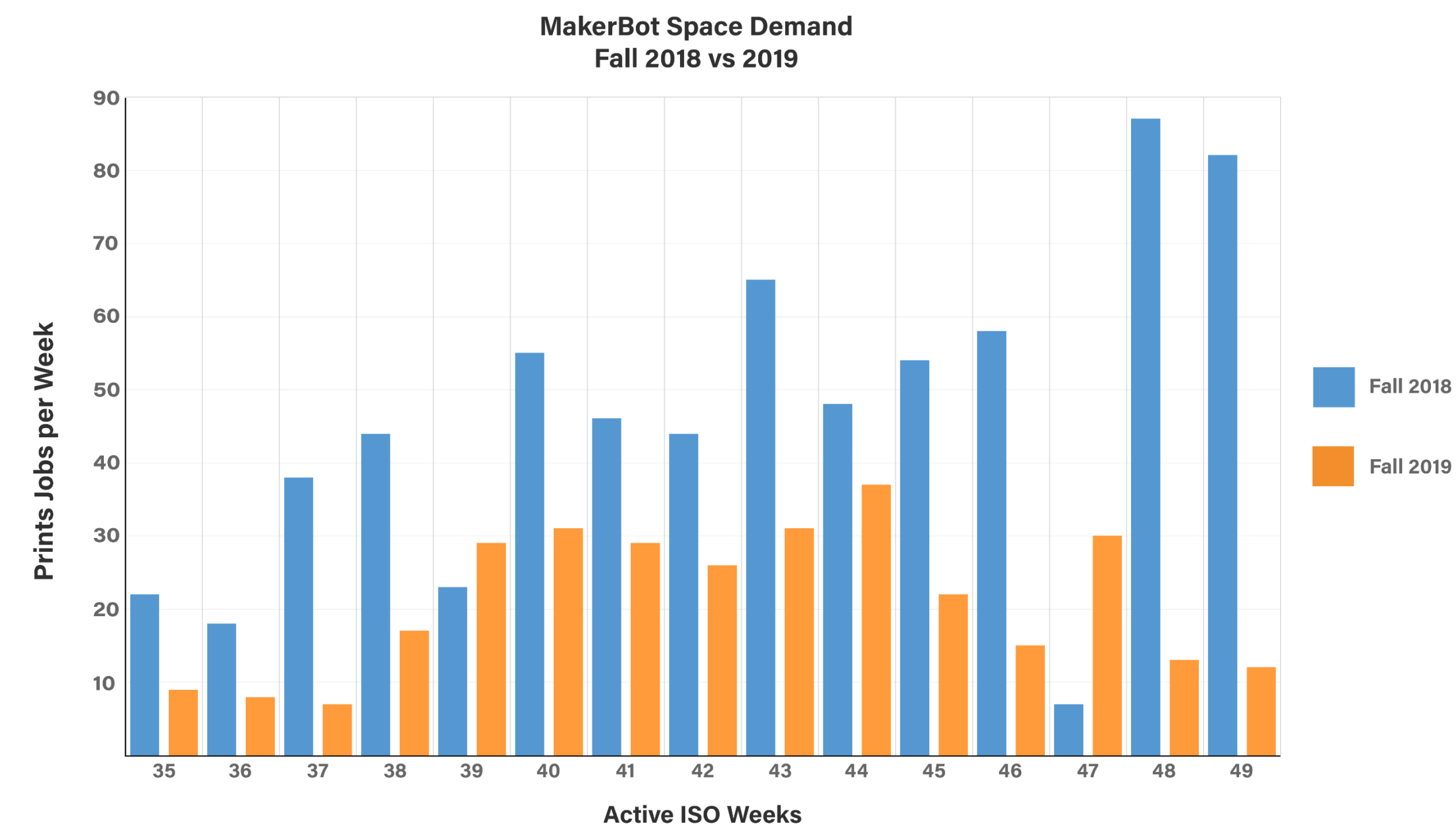
Interviews



Surveys



Utilization Metrics



## Results



72% drop in usage compared to PY



90% of students would like to use the makerspaces



Only 1-in-3 students are currently using makerspaces



95% of students would like a change to the curriculum

## Conclusion

The College of Engineering and the University as a whole must take steps to increase student involvement in their makerspaces via:

- Incorporating Makerspaces into its Coursework
- Making relevant skills a consistent part of curriculum
- Supplying sufficient funding to Makerspaces
- Advertising these spaces effectively to Students

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## References

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- <https://www.careers.jnj.com/building-the-future-of-healthcare>
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