

Summary

Spring 2022 saw 7,434 students and faculty use the Media Commons, Maker Commons, and Immersive Experiences Lab initiatives across the Commonwealth. Much of this use was focused in **213 classes** in nearly every discipline offered at Penn State. To facilitate these interactions outside of University Park, traveling consultants **offered 136 remote sessions** to provide instruction, consultations and support.

One Button Studio 2.0 helped students and faculty create **2,803 academic videos**, comprising over **73 hours of video**. In addition, students from across the Commonwealth created **5,772 3D prints** in pursuit of their course work and their own curiosity.

The Dreamery, operated by the Interactive Experiences team, hosted **21 courses** during the Spring 2022 semester and facilitated these courses engaging with **40 different innovative learning experiences** ranging from virtual reality, augmented reality, playing What The Deck, and exploring simple robotics and sensors.

The report that follows breaks down our interactions with students and faculty and examines engagement levels with services offered, locations, and by individual colleges. Throughout the report we'll draw attention to exciting assignments, surprising class partnerships, and interesting observations from the semester - stories that tell the ways in which Penn State faculty and students are pushing the boundaries of education into the future. We also point out usage and technology trends that draw from the Creative Learning Initiatives group's proven history in supporting multimedia and emerging technology as well as reflect on challenges and opportunities in the coming semesters.

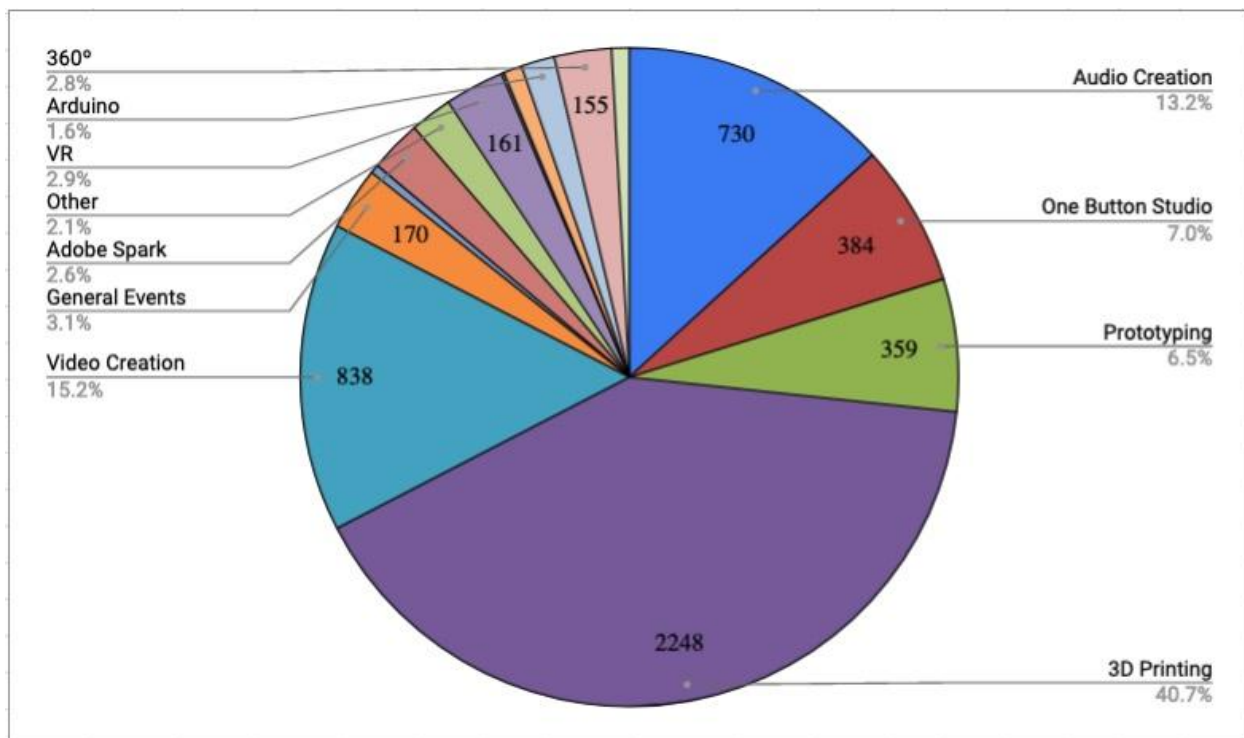
People Helped

Faculty and students used Media Commons and Maker Commons services in a variety of ways in all of our locations over the course of the semester. These charts count how many people were aided by our consultants in either 1-on-1 consultations or in-class workshops.

Media Commons @ University Park	# of People Helped
Pattee Library Knowledge Commons	802
Pollock Building Computer Lab	8
PAMS Library, Davey Lab	7
Immersive Experiences Lab, Agricultural Sciences & Industries Building	142

Media Commons Workshops	1,628
Maker Commons Workshops and 3D Printing Users	2,544
Immersive Experiences (IMEX) Workshops	219
Media Commons Events	170
University Park Total	5,520

University Park Technology Breakdown



Audio Creation	OBS	Prototyping	3D Printing	Video Creation	General Events	XD	Spark	Other	VR	3D Scanning	Cricut	Arduino	360°	Adobe Portfolio
730	384	359	2248	838	170	24	141	114	161	7	50	91	130	48

Featured Stories

- Interest in workshops involving new immersive technology continued to increase over the past semester with the continuation of the [Immersive Headset Pilot](#), initially launched at **University Park** in Fall 2021. Dr. Morgane Haesen utilized the VR app YouTube VR with students in her **FR 430 History of France** course. Two groups of 12 students joined together in the IMEX Lab to experience Parisian architecture from the 1980-90s in

contrast with the surrounding environment in VR. This experience was followed by an in-person discussion about what students saw.

Campus Engagement

Campuses often don't have their own local Media Commons support and so rely on our consultants to visit campus to work with faculty and provide workshops for students. We host several tailored faculty events each semester to discuss opportunities and visit campuses as often as possible to support class partnerships.

Western Campuses

Campus	# of Penn Staters Helped	# of Classes	Events	In-Person Visits*	Remote Sessions†
Altoona	142	5	-	3	36
Beaver	113	6	-	3	40
Behrend	76	1	-	2	29
DuBois	-	-	-	-	-
Fayette	113	-	2	2	1
Greater Allegheny	97	3	2	5	1
Harrisburg	413	2	1	-	3
Mont Alto	-	-	-	-	-
New Kensington	46	1	-	1	2
Pittsburgh Center	-	-	-	-	-
Shenango	42	1	-	-	2
Totals	1,042	19	5	16	114

* In-Person Visits include travel to campus for equipment and computer service and/or One Button Studio tune-ups.

† Remote Sessions denote online teaching workshops, faculty consultations, meeting with students, hosting events, critiques of project materials uploaded to Canvas, OneDrive, etc

Featured Stories

- Dr John Champagne's **HUM 100N at Behrend** challenged students to create video essays critiquing [film](#), [art](#), [music](#) and more while also commenting on the relevance of related controversies.
- Students in **IST 320 at Penn State Beaver** put project management principles into practice by working with Admissions as a client. Dr Ashu Kumar's class produced 360° video-based [campus tours](#) that met the project briefs they received from their campus customers.

Eastern Campuses

Campus	# of Penn Staters Helped	# of Classes	Events	In-Person Visits*	Remote Sessions†
Abington	76	3	-	1	3
Berks	393	9	1	4	9
Brandywine	160	8	1	7	4
Great Valley	40	2	-	2	-
Hazleton	70	1	-	1	2
Lehigh Valley	39	2	-	3	-
Schuylkill	26	1	-	-	1
Scranton	49	1	-	-	2
Wilkes-Barre	-	-	-	-	-
York	19	1	-	-	1
Totals	872	28	2	18	22

* In-Person Visits include travel to campus for equipment and computer service and/or One Button Studio tune-ups.

† Remote Sessions denote online teaching workshops, faculty consultations, meeting with students, hosting events, critiques of project materials uploaded to Canvas, OneDrive, etc

Featured Stories

- **Hazleton** students in Dr. Lorie Kramer's **HDFS 249N: Aging and Life Advice** were asked to film an interview with a senior citizen about their life and life advice for future generations. The students used Adobe Rush to edit their interviews together. Students participated in Media Commons training on best practices for interviewing and editing in Adobe Rush as well as a critique of their rough drafts.

- Students in **CAS 100A (Honors) at Scranton** were challenged by their instructor Jim Hart to select a historical topic and make a documentary about it. Students were provided with training sessions by a history professor with additional information on their chosen topic, a librarian to provide guidance on research, and a Media Commons consultant for instruction on best practices for storytelling and editing. Media Commons provided training and a critique session with the student. Students utilized Adobe Rush to complete their projects.

Class Partnerships Across Colleges

Media Commons consultants partner with faculty from every college at Penn State to help design multimedia and making assignments, provide workshops for students, and 1-on-1 consultations as the students complete their work. This table represents how many classes were worked with in which colleges during the semester.

Partnered Service Key: Media Commons = MeC, Maker Commons = MaC, Immersive Experiences Lab = IMEX

Colleges	University Park				Western Campuses				Eastern Campuses				Grand Totals
	MeC	MaC	IMEX	Total	MeC	MaC	IMEX	Total	MeC	MaC	IMEX	Total	
Agricultural Sciences	1	1	1	3	-	-	-	-	1	-	-	1	4
Arts & Architecture	-	7	3	10	-	-	-	-	-	-	-	-	10
Business	4	1	-	5	-	-	-	-	3	-	-	3	8
Communications	4	-	-	4	1	-	-	1	4	-	-	4	9
Earth & Mineral Sciences	6	1	-	7	-	-	-	-	-	-	-	-	7
Education	1	11	-	12	-	2	-	-	1	-	-	1	15
Engineering	-	39	1	40	1	-	1	2	3	-	-	3	45
Graduate	-	-	-	-	-	-	-	-	2	-	-	2	2
Health & Human Development	1	-	-	1	5	-	-	5	3	-	1	4	10
Information Sciences & Technology	1	6	-	7	2	1	1	4	1	-	-	1	12
Liberal Arts	49	15	4	68	6	1	-	7	9	-	-	9	84
Medicine	-	-	-	-	-	-	-	-	-	-	-	-	-
Nursing	-	-	-	-	-	-	-	-	-	-	-	-	-
Sciences	-	1	-	1	3	-	-	3	-	-	-	-	4
Schreyer's Honors	-	-	-	-	-	-	-	-	-	-	-	-	-
University Libraries	2	-	-	2	-	-	-	-	-	-	-	-	2
LaunchBox	-	-	-	-	-	-	-	-	-	1	-	1	1
Totals	69	82	9	160	18	4	2	22	27	-	1	29	213

Featured Stories

- Students in **CAS 271N at Shenango** (and remotely at several campuses) followed Dr. Tiffany Petricini in an exploration of the world's many cultures. Through researched-driven [video tours](#) and 3D models that represent significant cultural artifacts, students brought their societies of interest into focus for classmates.
- Working with Brad Grozniak, we revamped our standard Maker Commons tour into a showcase of Maker Commons technology, with real-time hands-on demos of the possibilities that exist in creating here in Pattee Library at **University Park**. His **ENGR 310** students then created projects to fulfill a semester-long assignment: design a product and sell it with the goal of generating \$200 profit. These projects varied from personalized lion-themed vinyl stickers to customized ball caps.
- At **University Park**, Ellen Taricani's **CAS 383N** (Culture and Technology) students from the College of Communications experienced an Augmented Reality workshop using Adobe Aero. They learned to create an augmented reality scene on provided iPad Pros to examine the potential future use cases for the technology to enhance communication such as presentations or posters.
- Eileen Grodziak at **Lehigh Valley** wanted students in her **HDFS 108N** class to experience mediation and relaxation techniques using VR technology. IMEX Lab was able to provide Quest 2 headsets and instruction for this [activity](#) to the 16 students in the class. The students explored [several 360° videos](#) and two apps for relaxation and exploration. For many it was the first time they had experienced VR technology.
- Students from the **HESE** program (Humanitarian Engineering and Social Entrepreneurship) in the **College of Engineering at University Park (ENGR455)** utilized Maker Commons services to create stickers, t-shirts, and safety vests to advance their group's social entrepreneurship ventures. Along with these promotional items, x4 360° cameras were taken to Kisumu, Kenya during their Maymester class and implemented during field testing of their technical solutions to address problems that community members are facing in rural sub-Saharan Africa.

Interactive Experiences

Dreamery Experiences

The Interactive Experiences team facilitated 40 experiences across 21 courses and events. The team currently offers four main experiences: virtual reality, augmented reality, robotics with LEGO Spike, and a cooperative, discussion-based card game that focuses on empathy, diversity, and technology. These experiences impacted 594 students and staff across six colleges.

Experience Key: Virtual Reality = VR, Augmented Reality = AR, Lego Robotics = Robo, WTD = What The Deck

Colleges	Dreamery Experiences				
	VR	AR	WTD	Robo	Total
Agricultural Sciences	1	-	-	-	1
Arts & Architecture	3	-	-	-	3
Business	3	3	1	-	7
Communications	3	3	2	-	8
Earth & Mineral Sciences	-	-	-	-	-
Education	-	3	-	3	6
Engineering	-	-	-	-	-
Health & Human Development	-	-	-	-	-
Information Sciences & Technology	1	1	1	-	3
Liberal Arts	-	-	-	-	-
Medicine	-	-	-	-	-
Nursing	-	-	-	-	-
Sciences	-	-	-	-	-
Events	4	3	2	3	12
Totals	15	13	3	6	40

Featured Stories

- Karen Johnson brought her **ECE 479** students to the Dreamery to foster behaviors of [“experimenting, exploring, and discovering”](#). The goal for the majority of these students is to become a pre-K to fourth grade teacher; having this type of experience allows these students to develop a toolbox of experiences that can be adapted and deployed in their future classrooms.
- Two student instructors brought their **IST 297** course to the Dreamery to explore the relationship between humans and technology through video games and immersive reality. This course was a part of the **Students Teaching Students (STS)** program,

which equips and enables Penn State undergraduates to teach official courses under the guidance of a faculty champion.

- Our team had the privilege of leading an adventure for the **THON Explorers Program** during THON weekend. A group of teenagers spent Saturday afternoon exploring virtual reality, augmented reality, and robotics and coding with LEGO Spike.

One Button Studio: On Campus + At Home

Media Commons supports the One Button Studio project across campuses and students in remote locations. The One Button Studio allows students and faculty to simply create quality academic videos, often for recording presentations, lectures, and demonstrations, or completing class assignments - both in-persona and via best practices to apply at home via Zoom.

In-Person

Location	# of Videos Created	Total Duration of Videos H:M:S
Pattee Library Knowledge Commons (2 studios)	1,123	35:05:00
Pollock Building Computer Lab (2 studios)	awaiting	2.0 upgrade
PAMS Library, Davey Lab	7	00:12:05
University Park Total	1,130	35:17:05
Abington	44	1:44:00
Altoona	141	2:49:00
Beaver	337	2:12:00
Behrend	43	0:21:00
Berks	114	1:41:00
Brandywine	61	1:31:00
DuBois	21	1:42:00
Fayette	91	6:42:00
Great Valley	13	0:04:00
Greater Allegheny	closed for	renovations

Harrisburg	88	1:02:00
Hazleton	1	0:01:00
Lehigh Valley	136	7:41:00
Mont Alto	19	0:10:00
New Kensington	215	3:40:00
Penn State Center	awaiting	2.0 upgrade
Schuylkill	26	0:14:00
Scranton	163	4:34:00
Shenango	13	0:36:00
York	147	1:58:00
Commonwealth Total	1,673	38:42:00
Total One Button Studio Use	2,803	73:59:05

OBS Online Resources

Page	# Unique Visits	Avg Time on Site
Using Your One Button Studio	678	1:29
One Button Studio at Home	333	3:02
OBS Best Practices	165	1:12
OBS 2.0 and Kaltura Assignments	104	3:01

One Button Studio 2.0 updates

Version 0.10.5 of OBS 2.0 was released to all studios at all campuses in January 2022. The update featured the following changes:

Bug Fixes

- Addresses intermittent connection failed errors which occur when starting a session and rendered the application unusable until restarted.
- Addresses issue where user may not have selected videos to upload to Kaltura or save to a thumb drive resulting in an application crash.
- Addresses duplicate video/audio playback which sometimes occurs.

- Addresses interface issue wherein a user must watch an entire clip preview before previewing another clip by allowing the user to select pause on the next clip and then play to start it at any point.

Features

- iPad application now lists the installed version number in the One Button Studio settings.

Maker Technologies

The Maker Commons offers students at University Park, the Commonwealth Campuses, and World Campus access to 30 3D printers through an online submission process. The printers are located at University Park but, through a partnership with University Libraries, are able to ship prints to any student for easy pick-up.

Registered 3D Printing Projects	54
Registered 3D Printing Project Students	1,736
Hours of Print Time <i>Registered and Personal 3D Printing</i>	13,515.7 hours (563 days)
Successful Prints	5,772
Filament Used	151.44kg (32.9 miles)

Featured Stories

- Students in Heather Toomey Zimmerman's **LDT 110** visited the Maker Commons to race **Lego Robotics** creations. In the process, they learn block coding and build prototyping skills while practicing iterative design. Working in teams, the students built a "Hopper" robot and raced against each other. Following the first race, students were permitted to iterate on their robot design and then compete again.
- This spring semester a record number of prints were submitted to Maker Commons from across the Commonwealth with **5,772 total successful prints**. Six Makers-in-Residence student employees deserve all the credit for keeping the service running at top-notch quality. In addition to registered class projects, Maker Commons also facilitated requests for 3D printing from Penn State THON, Penn State Hershey Medical Center, The Student Fair and numerous requests from faculty for printing instructional material such as **FRNAR** (Intro to Forensic Photography) and trophies for **ENGR 407** (Technology-based Entrepreneurship).

Website as Central Support Tool

The Creative Learning Initiatives online resources have shifted in their role as the central focus of all training and support with the continually increasing in-person modality in Spring 2022. Comparing traffic year over year, visitorship is down just over 39%, though largely via the Media Commons site as both the very presence-focused sister offerings, IMEX Lab and Maker Commons saw visitorship growth stay strong from Fall 2021, at 80% and 85% respectively. This very likely points to more in-person Media Commons instruction lowering student visitation of the site while a return to offering IMEX Lab viewing and equipment lending and access to Maker Commons tools raising student interaction with website information (this becomes particularly obvious given the 465% increase in visitation of “Picking Up Your Print”).

- The number of unique visitors reached **137,958 across all three services**:
 - 115,600 via Media Commons (-%47)
 - 11,499 via IMEX Lab (+%251)
 - 10,860 via Maker Commons (+%94)
- The pageviews for Media Commons reached 167,592. encompassing popular content including:
 - **Changing the Opacity of Objects in Illustrator** (new)
 - **Public Service Announcement** (-22%)
 - **Exporting Your Video from iMovie** (-74%)
- IMEX Lab pageviews reached 19,952, representing popular content including:
 - **Factory Reset Oculus Quest 2** (new)
 - **National Civil Rights Museum VR Tour** (+10%)
 - **Experience Catalogue + landing pages** (+59%)
- Maker Commons pageviews reached 78,957, representing views of the following content:
 - **3D Printing** (+109%)
 - **3D Printing Information** (+150%)
 - **Picking Up Your Print** (+465%)

Challenges, Opportunities & Notable Trends

Looking at some of our key performance indicators when compared to 1, 2, 5, and 10 years ago will help us identify areas of growth and change. There is an ebb and flow to each semester, but by analyzing in this way we will be better able to identify trends worthy of further investment or of reassigning resources.

KPI	1 Year Ago	2 Years Ago	5 Years Ago	10 Years Ago
Overall People Helped	+224%	+108%	-9%	+145%

University Park Partnered Courses	+231%	-3%	+131%	+571%
Commonwealth Campuses Partnered Courses	0%	-17%	+115%	+137%
One Button Studio videos	+729%	+218%	-76%	+281%
Successful 3D Prints	+283%	+167%	+161%	N/A