INFORMATION AND TECHNOLOGY SERVICES
ANNUAL REPORT
2018 - 2019

Luther College

Vision

The following principles help us to consider the services that meet the mission of the college and how we go about deploying the resources that allow us to adapt to an environment of continual technological change. These principles also inform our decision making and help us to carefully allocate limited resources. As technology continues to evolve, our focus on, and approach to, a particular principle might vary from year to year.

1) Improves Teaching and Learning Outcomes for Faculty and Students

With each discussion of a new service, process improvement, or project we need to think about how it enables and supports improved teaching and learning for faculty and students. Our success is a reflection of the successful transformational journey our students experience at Luther College. In our efforts we need to consider how we contribute to student retention, improved graduation rates and students' transition to their first "next step" after they graduate. Besides providing basic essential services, we endeavor to bring our campus community innovative technologies such as the Digital Media Center which enables students to develop advanced forms of video communication and the Makerspace which helps students to visualize the world in new ways through virtual reality experiences and 3D object development. Ensuring that faculty have the appropriate technological classroom resources is essential to the success of these efforts and facilitates the creation and nurturing of learning communities. Teaching our campus community how to use the resources we make available is essential.

2) Provides students exposure to and hands-on experience with the technologies they will use both at the college and in their pursuit of lifelong learning

There continues to be a heightened level of concern about students' success in whatever post-college experience they may choose to pursue whether it be a job, a service program, graduate studies or other endeavor. Whatever that choice might be, we want to make sure we think about what will help make our graduates differentiated and successful in achieving their desired next step. We do this when we have facilitated teaching and learning through the technological tools we provide that will lead to additional skills and hands-on experiences that make a difference in their pursuit of those. We seek to make available the tools necessary for our faculty to provide learning experiences that our students can leverage to differentiate themselves and continue the journey of "lifelong learning." Within ITS we need to evaluate each new service, process improvement, or project with an eye towards how it increases the likelihood that students and parents will select Luther College. We strive to meet and exceed expectations in service levels of essential services and hope to have had a positive impact on graduates' success attributable to the efforts of ITS.

3) Provide reliable, effective, and efficient information technology infrastructure for Luther College

We are charged with providing essential information technology infrastructure which will support and enable the processes of delivering higher education at Luther College. An additional major factor in our planning and decisions is the fact that the student population is almost entirely residential and the services they expect in their living environment are often based on what they experienced in their home. There are many interdependencies

that require a concurrent focus on security, high reliability, ubiquitous availability, and excellent performance. The ability to provide 24/7/365 system accessibility is essential. New and alternative site-based or cloud-based architectures in networks, systems and services provide us choices but it also complicates decision-making. Staying ahead of aging and obsolete hardware and software is an ongoing effort. Additionally, business continuity and disaster recovery are critical elements that need to be embedded in our planning process.

4) Provide technical support to offices with the collection and transformation of 'data' into 'information' that leads to timely and effective decision-making.

The many data collection systems we operate in coordination with our internal constituencies and our external vendors generates a significant amount of potentially useful data. It is imperative that information is collected in a manner so that it can be transformed into useful information. We need to make sure the data the college collects is relevant, timely, accurate and complete. Key components to accessing that data and transforming it into information are the reporting tools those various systems provide. ITS

must assist the college community with those reporting tools in a manner that allows them to extract information in meaningful ways. We need to be in the forefront of providing expertise to our constituencies in the selection, implementation and ongoing maintenance of those systems.

Our Mission

Information Technology Services supports the work and mission of the Luther College community by providing:

• **access** to appropriate communication and information resources,
• **expertise and training** in the effective and efficient use of information and technology, and
• **places** to explore and express ideas, ourselves, and our community.

Results and Accomplishments for Goals and Objectives for 2018-19

1. Improves teaching and learning outcomes for faculty and students

Continue upgrading analog classrooms to digital.

Accomplished: Upgraded Loyalty Boardroom, Regents 224, and CFL Recital Hall to digital equipment.

Going Forward: Continue upgrading analog classrooms to digital.

Continue upgrading classroom projection.

Accomplished: Installed large venue projection in Regents 224, Noble Choir room, Loyalty Boardroom, and CFL Recital Hall. Consulted on purchase of performance grade, mobile projector and lens for the CFL Main Hall.

Going Forward: Continue upgrading classroom projection with larger projectors and larger TV Monitors.

Continue installing Skype and Video Conferencing systems in classrooms and meeting spaces.

Accomplished: Installed a video conferencing system in the Loyalty Boardroom, Koren 205, Koren 224, and VP of Student Life office.

Going Forward: Continue installing Skype and Video Conferencing systems in classrooms and meeting spaces.

One Button Studio: Research and design self-service "One Button" Studio to allow Luther faculty, staff, and students to record audio and video projects on their own.

Accomplished: Research and design phase completed. Hardware has been purchased and tested.

Going Forward: More testing will be done during summer 2019, and the studio will be ready for use at the beginning of Fall 2019.

Makerspace: Offer more services and workshops/projects for classes. Increase collaboration between faculty and Makerspace staff.

Accomplished: During the school year 2018-2019, a variety of projects were completed through the use of the Makerspace.

Going Forward: Develop and host more workshops in 3D printing and Virtual Reality and increase Makerspace awareness and visibility on campus via social media channels.

2. Provides differentiation for prospective students and parents

Perceptive Content document imaging workflow implementation is planned for student records, financial aid and human resources. Schedule Content upgrade to version 7.2.3 to enable new functionality and interface with Colleague. Perceptive Content is capable of stream-

lining processes, forms, data retrieval, and reducing paper forms for students and staff.

Accomplished: ITS worked with the Registrar's office staff to review all the documents and workflows for Student Records. Hyland consulting assisted with the organization and design of the student records Content workflow. ITS is working with Financial Aid to inventory all the documents they process and identify areas where automated workflow will gain efficiencies.

Going Forward: Content upgrade to 7.23 is planned for summer 2019.

Implement the Colleague, reporting, and data interfaces with auxiliary systems that are needed to support the Gender and Chosen name policy for students to support new data, display, reporting, and publications that will be impacted.

Accomplished: The Gender and Chosen name policy and workflow procedure went into effect in August of 2018. Students initiate the process through a form and conversation in the Student Life office.

Going Forward: ITS will work with the Human Resources office on a policy and procedure for employees who request a chosen name.

The Colleague Self Service portal will provide students and parents information to support better faculty advising and course planning, financial aid award information, student financial statement information, and student work time entry.

Accomplished: ITS worked with the Registrar's office and a group of faculty and students to pilot the new Student Planning process in Fall of 2018. Student Planning was available for all students and faculty for Fall 2019 registration in April. Financial Aid went live on May 10th. Employee tax forms and earnings statements are available. Human Resources will promote using Norse Hub this summer.

Going Forward: ITS is working with Student Accounts to review and setup Student Finance. When student records, financial aid, and student finance are available we can enable Parent Proxy and direct parents to use the new functionality in Norse Hub.

3. Improves prospect of differentiation for graduates on their next steps (service, jobs, vocations, graduate school, etc.)

Continue to partner with the student success team and the Luther community to support Google Sites for student ePortfolios in the classroom, in advising, and in other settings.

Accomplished: A New Google Sites template was created and sent out to all faculty in December 2018. Faculty were given the option if they wanted to use it. Multiple departments were visited to promote the idea of using ePortfolios in classes, work study and for advising. Nursing is implementing ePortfolios. The Anthropology lab will be using ePortfolios for their work-study students. The Modern Language department will continue to use ePortfolios and expand use if needed.

Going Forward: Starting Summer 2019 a select group of incoming first-year students will create an ePortfolio after their ROAD visit. That ePortfolio will be monitored by ePortfolio team members for the summer and fall semester. At that time, it is the hope of the committee that the student's advisor will take over the monitoring. During the fall semester of school the committee will be visiting with advisors to teach them more about the project.

Continue to transfer responsibilities to Technology Help Desk student workers, especially student managers.

Accomplished: Students played a larger role in training and developed teamwork, consensus, and leadership skills through a team game that spanned the spring semester. Students also largely created their own schedules. Student managers met bi-weekly and participated in hiring. We created an internship for one student during the summer, with a focus on project management.

Going Forward: Current student managers are revising student manager transition documentation. Student managers and Technology Help Desk managers will review training documentation. A work study ePortfolio will be put in place to help all students visualize what they've learned and what they want to learn, thereby taking responsibility for their own learning.

4. Improves relationships to alumni/ae, friends of the college

In collaboration with the Alumni Office and other campus departments, determine a timeline and transition plan for moving away from Norse Apps for alumni and toward a better system for staying in touch with alumni.

Accomplished: The timeline for transitioning graduating seniors has been determined. Materials are online at www.luther.edu/helpdesk/transitiongrads/ and www.luther.edu/helpdesk/transitionnorseapps/.

Going Forward: Continue conversations regarding Norse Apps accounts for alumni.

To improve conversations based on the information in the Reeher Customer Relationship Management system, Advancement has requested additional data be included in the daily data transfer. Phase II of the project to update Colleague with Development Officer donor contact notes from the Reeher CRM will improve the information available to the donor records staff as well.

Accomplished: New and different information has been added to the nightly Reeher exports from Colleague. We have exported some of the Colleague information and made it available to the Development office to create reports with Colleague and Reeher information as a temporary solution until we develop full integration.

Going Forward: Collaborate with other Colleague and Reeher customers to develop a Colleague import of contact information.

5. Infrastructure

Improve Energy Efficiency in our Data Center by implementing the Hot Aisle/Cold Aisle design recommended to us in our Energy Audit done by ClearResult and Alliant Energy.

Accomplished: We have established a plan for how to rearrange the servers to create Hot Aisle/Cold Aisles. We have begun moving racks into this arrangement. To avoid needing to take down all of our server and network infrastructure at once we are moving a few servers at a time. This extends the amount of time it takes to complete the project but minimizes the amount of disruption caused by the project.

Going Forward: Finish the server, rack and power moves and this project.

Continue to improve security posture by further network segmentation.

Accomplished: Our Fortinet Fortigate based VPN service was replaced with the Aruba Virtual Intranet Access (VIA) VPN service that runs on our wireless controllers. The VIA VPN service was implemented with multiple levels of access to give different types of users remote access to only network services that they need.

Going Forward: Continue with more segmentation.

Improve wireless network by upgrading Towers to 802.11AC wireless running on the Aruba platform.

Accomplished: The wireless networks in Miller Hall, Dieseth Hall, and Brunsdale lounge were upgraded to 802.11AC wireless access points during the summer of 2018.

Going Forward: No further upgrades are needed at this time.

Improve wireless network by upgrading Brandt to 802.11AC wireless running on the Aruba platform.

Accomplished: The wireless network in Brandt was upgraded to 802.11AC wireless access points during the summer of 2018.

Going Forward: No further upgrades are needed at this time.

Improve wireless network by upgrading College Apartments to 802.11AC wireless running on the Aruba platform.

Accomplished: The wireless network in College Apartments was upgraded to 802.11AC wireless access points during the summer of 2018.

Going Forward: No further upgrades are needed at this time.

Improve wireless network by eliminating all MSM430 model wireless access points. They will either be replaced new Aruba APs, or replaced with AP model MSM460 that have been replaced in their original locations.

Accomplished: All MSM430 model access points were removed from service.

Going Forward: Removed all MSM460 model access points from service to complete our transition to Aruba wireless.

Select, purchase, and implement an automated server patching system.

Accomplished: Set up a test of Ivanti Automated Patching System and tested automation capabilities.

Going Forward: Set up Microsoft System Center for testing and test Kbox doing Server Patch Management. Kbox has the ability to do task chaining. We will decide which server patch management system to implement after testing all 3 patch management systems.

Upgrade Networker backup software to the newest version.

Accomplished: We have installed EMC Networker 9.2.1.5 backup software on the Networker servers, Legato and Legato-Proxy. We upgraded all of the client servers to Networker 9.2.1.5 client software.

Going Forward: The backup system is set to undergo a replacement with backup software from Avamar that will allow for a hybrid on-site and cloud-based environment.

Research KnowB4, SANS training, or facilitate 'escape rooms' to educate users how to identify phishing attacks.

Accomplished: We evaluated a number of different IT security training options, most of which met our needs. We opted to go with a vendor Luther already had a relationship with for student life training, EverFi.

Going Forward: Once purchasing is complete we will work with the vendor to get LDAP/ADFS login working. Set up roles for each department.

Explore the use of open source software to perform a penetration test/vulnerability scan of our network.

Accomplished: Rather than doing our own scan we signed up for a service of the Department of Homeland Security's National Cybersecurity Assessments and Technical Services (NCATS) Office to have them do their Cyber Hygiene Scan and report to us what they've found weekly.

Going Forward: This is only an external scan, so it would still be good to do some scanning for vulnerabilities inside the firewall.

Select and install a multi-factor authentication solution that integrates with ADFS for use with Colleague Self Service and other campus systems.

Accomplished: We've done some evaluation of both Azure AD/Azure Multifactor and Duo. We need to do some further evaluation of Azure AD/Azure Multifactor and figure out funding for this project before it can move forward.

Going Forward: Figure out how to fund this project and move on to implementation.

Develop identity management policies and procedures to better manage account life cycles.

Accomplished: Several meetings have been held to discuss this topic, but more work is needed.

Going Forward: Continue working to accomplish this.

Integrate logging & monitoring solution to our nightly automated workflow processes to alert our developers of any failures before our clients notice issues in the morning.

Accomplished: We continue to see the need for this and have a few ideas on how this could be created, but it has been a low enough priority that no work has been done on this last year.

Going Forward: ITS individuals check the status of tasks currently.

Continue to reduce telephone budget through multiple bids for items needed.

Accomplished: Began comparing prices through multiple vendors. Have found there is a vast difference in pricing as well as shipping times.

Going Forward: Continue above process.

Maintain voicemail and phone switch integrity by implementing a more aggressive cleaning schedule.

Accomplished: Phone switch and voice mail system cleaned bi-monthly with the hope of extending their life.

Going Forward: Continue the above.

Work with various vendors to secure a viable solution to replace our current voicemail and phone switch.

Accomplished: Information has been gathered regarding the current system configuration and station counts. The virtual server and storage environment is being upgraded to provide the appropriate infrastructure should a new phone system be housed on-site.

Going Forward: An RFP is being developed to seek proposals from various vendors for a replacement phone system. The exact timeframe for releasing the RFP has not yet been determined.

Configure Business Objects to authenticate through Active Directory and upgrade to version 4.2.

Accomplished: Business Objects version 4.2 is called Reporting2 and is authenticating against AD.

Going Forward: We are still working with the vendor to resolve some unusual errors with the new version of the software. Additionally we will migrate SQL 2017 in near future.

Update policies and procedures surrounding data privacy regulations for GLBA and GDPR compliance.

Accomplished: Updates to the Information Safeguarding Policy and Red Flags policy were completed in coordination with the Information Security Committee.

Going Forward: Future plans call for completing an internal collection of data required in preparation for a formal external security assessment. Also, a vendor has been selected to provide online information security awareness training and coordination with HR will be required on how the training should be administered.

Improve the wired and wireless network in the second floor Jenson-Noble Music Office.

Accomplished: The wired network in the Jenson-Noble Music Office was redone, and there is no longer a wall mounted wiring enclosure on the wall in the music office. An additional wireless access point was added to improve wireless service in that area.

Research options for standardizing data integrations and enterprise data reuse to improve efficiencies in the data transfers to auxiliary software systems and services.

Accomplished: No significant work completed on this goal.

Going Forward: We have identified colleges that use Reeher and Colleague and will contact them to collaborate on the integration work needed for Reeher contact information.

Assist the VP of Communications and Marketing with content management system research, selection, and implementation planning.

Accomplished: Software Development worked in drafting a task force and project proposal. Initial meetings are scheduled for June.

Going Forward: Consider Carleton's direction to move toward WordPress. Review CLAC surveys, APC course management solutions, and Alumni and Development communication systems research in considering campus-wide solutions.

ITS Team Reports

During the 2018 - 19 academic year, the Information Technology Services (ITS) team included:

- **Dennis Blake** (Telephone and Network Technician)
- **Dustin Cote** (Programmer Analyst and Database Administrator)
- **Robert Erickson** (Classroom and Meeting Space Technology Lead)
- **Adam Forsyth** (Director of Network and Systems)
- **Mark Franz** (Executive Director of Information Technology Services)
- **Faust Gertz** (Programmer Analyst)
- **Diane Gossman** (Director of User Services)
- **Marcia Gullickson** (Director of Software Development)
- **Matthew Hammen** (Workstation Support Systems Administrator)
- **Matt Hughes** (Workstation Support Communications Administrator)
- **Dave Huinker** (Systems Administrator)
- **Patty Livingood** (Program Support Coordinator),
- **Ahmed Muaz** (Multimedia and Makerspace Lead)
- **Jesse Mulert** (Technology Help Desk Co-Lead)
- **Jean Ryan** (Programmer Analyst and Database Administrator)
- **Lane Schwarz** (Technical Support Analyst)
- **Peter Sharp** (Programmer and Information Security Analyst)
- **Aaron Shouse** (Multimedia Strategic Fellow)
- **Larry Sikkink** (Workstation Support Lead)
- **Paul Vanney** (Programmer Analyst)
- **Chris Stuckman** (Systems Administrator)
- **Erin Zidlicky** (Technology Help Desk Co-Lead)

We are working with many areas on campus on acquiring new software. Software research in progress:

- ITP internships for Social Work
- APC course management
- CMS content management system to replace REASON
- Blackbaud Guided Fundraising for phonathon callers
- Alumni and Development communications management software
- Handshake for Career Center
- IndiCo bookshop point of sale and inventory system

Upgrades planned and in progress:

- Colleague UI upgrade to version 5.9
- Content upgrade to version 7.23
- SQL Server 2017 upgrade
- Colleague infrastructure move to virtual machines to improve disaster recovery
- Upgrade of Micros point-of-sale and campus card Odyssey system in Dining Services

We welcomed two new members to our team this year. Paul Vanney has been instrumental in the Colleague Self Service and Content projects. Peter Sharp has taken on leading information security and upgrading Business Objects reporting. We look forward to completing the Colleague Self Service implementation, Colleague interfaces for Advancement and auxiliary systems, and infrastructure improvements.

Software Development

The highlight of this year was rolling out Norse Hub and Student Planning for faculty and student use for Spring student registration for Fall courses. Our team worked on the infrastructure, multiple version upgrades, and with the Registrar's office to work through configuration details, training, and communication. Our analytics showed 168 people were using Norse Hub simultaneously on one of the registration nights. We also worked with Financial Aid and Human Resources to enable self service functionality for students and employees.

Our team also worked with the Registrar's office on digitizing new documents for student records and additional workflow development for the Office for Financial Services and Student Accounts. We are currently working with the Financial Aid office on identifying documents and workflows for their office.

Classrooms and Meeting Spaces Audio-Visual Support

Classroom and meeting space technologies continued to be upgraded and expanded (see completed objectives above for details).

New tools like classroom collaboration systems that present wirelessly were explored.

The removal of microphones from classrooms and meeting spaces that are using banned frequencies continued to happen.

Removed all Digital Signage from the Cable TV system and then networked them.

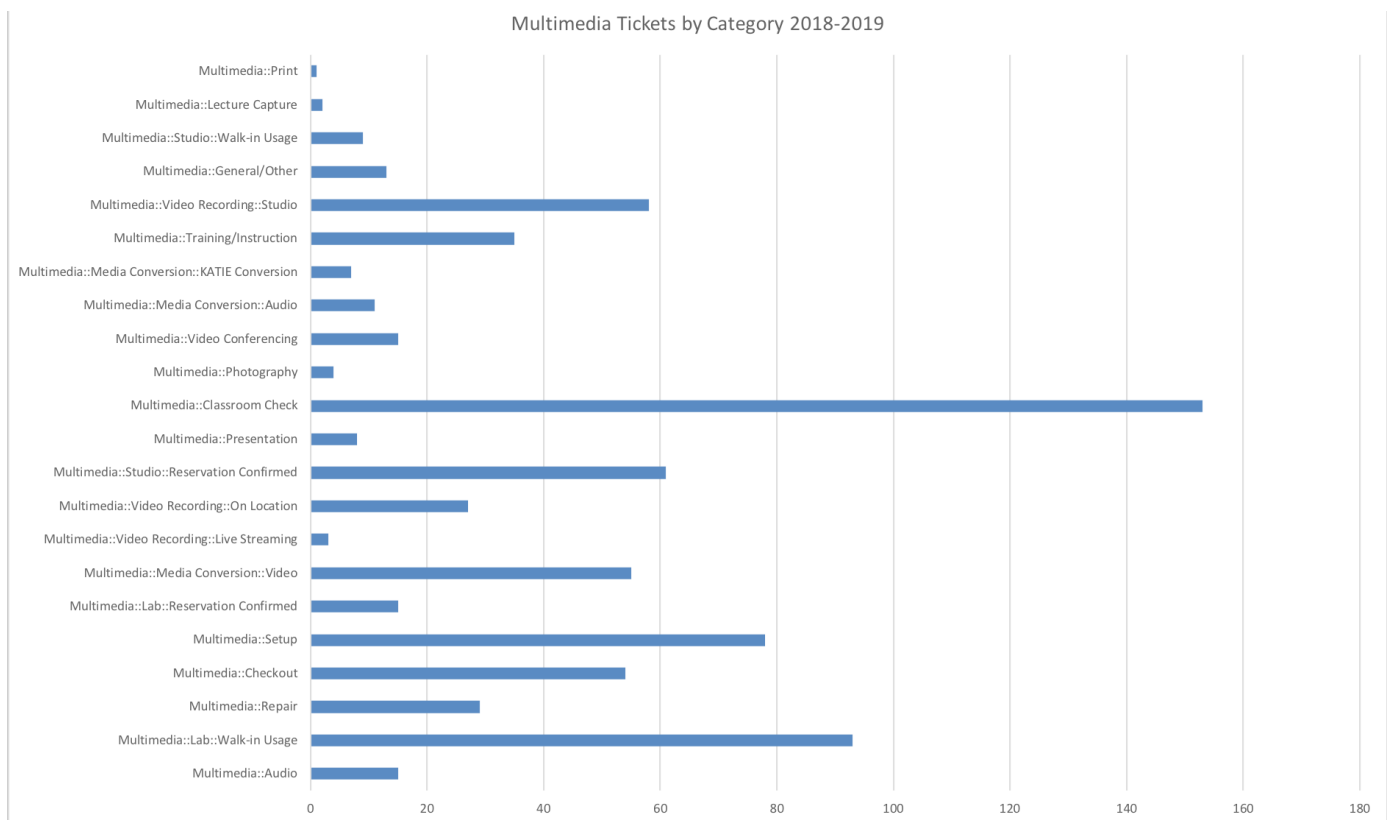Worked with Sodexo leadership and installed a new sound system in Marty's.

Digital Media Center

The Digital Media Center is located on the lower floor of Preus Library. Luther faculty, staff, and students are welcome to use the multimedia lab and multimedia studio. The lab is available for use whenever the library is open; the studio is available by appointment. The Digital Media Center is staffed from 7:30 a.m. to 9 p.m. Monday through Friday, and 1:00 p.m. to 5:00 p.m. Saturdays and Sundays during the academic year.

The multimedia lab consists of an open learning space with high-end Macs for editing photo, media, and video projects. The multimedia lab is also home to the support desk, from which student workers provide expertise to those working in the space, and respond to campus-wide requests. The multimedia studio is ideal for creating projects that include video, audio, and photography.

The Digital Media Center is the service point for multimedia requests. Requests may be entered online, emailed, phoned in, or submitted in-person. The multimedia team supports the Luther community's questions when using the multimedia lab and multimedia studio, requests for media conversion from one format to another, video creation and editing requests, issues related to technology in classrooms and meeting spaces, video conferencing requests, recordings of lectures, and video streaming of high-profile academic-related events on campus such as Giving Day and Commencement.

The 2018-2019 academic year saw a total of 746 tickets classified under Multimedia. Our top three categories were classroom check, Lab Walk-in Usage, and Setups (which most commonly included video conferencing setups for Skype/Google Hangouts/GoToMeeting/Zoom, as well as sound system setups and projector setups across campus).

Multimedia Tickets by Category 2018-2019

Category	Value
Multimedia::Print	1
Multimedia::Lecture Capture	2
Multimedia::Studio::Walk-in Usage	9
Multimedia::General/Other	13
Multimedia::Video Recording::Studio	58
Multimedia::Training/Instruction	35
Multimedia::Media Conversion::KATIE Conversion	7
Multimedia::Media Conversion::Audio	11
Multimedia::Video Conferencing	15
Multimedia::Photography	4
Multimedia::Classroom Check	153
Multimedia::Presentation	8
Multimedia::Studio::Reservation Confirmed	61
Multimedia::Video Recording::On Location	27
Multimedia::Video Recording::Live Streaming	3
Multimedia::Media Conversion::Video	55
Multimedia::Lab::Reservation Confirmed	15
Multimedia::Setup	78
Multimedia::Checkout	54
Multimedia::Repair	29
Multimedia::Lab::Walk-in Usage	93
Multimedia::Audio	15

Survey responses from tickets during the 2018-2019 academic year provided useful data outlining the success of work and productivity from Multimedia. Out of a total of 20 survey responses, 19 were rated 4 or higher.

Multimedia Survey Satisfaction 2018-2019

Rating	Responses
5	15
4	4
3	0
2	0
1	1
0	0
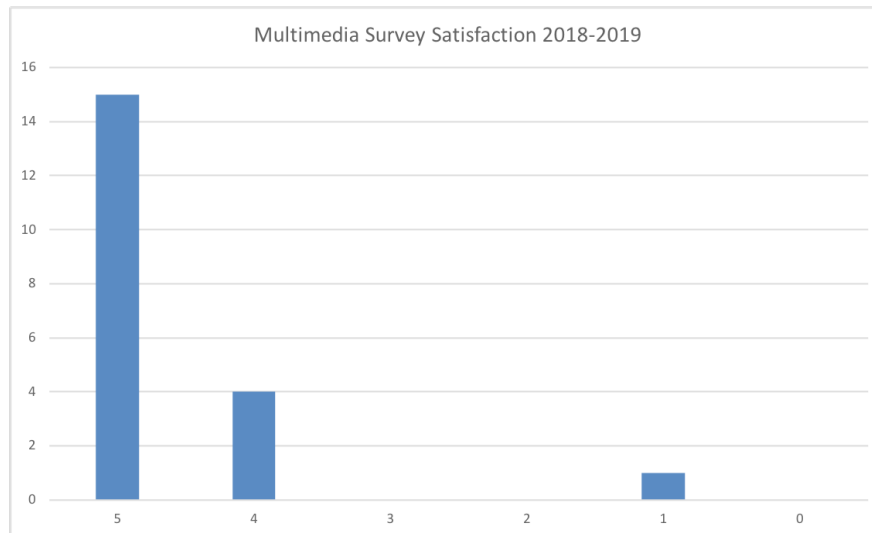
Workshops and projects conducted during the 2018-2019 academic year for organizations/classes as a group (does not include individual usage for academic or personal projects)

- SPAN 302: Video Production Workshop/Project
- ANTH 101: Video Production Workshop/Project
- ENVS 485: Podcast Production Workshop/Project
- THE 185: Video Production Workshop/Project
- ENVS 185: Stop-Motion Video Production Workshop/Project
- SPAN 239: Video Production Workshop/Project
- CST 201: Video Production Workshop/Project
- THE 100A: Audio Recording Project
- SW 201: Video Interview Workshop/Project
- Preus Library "Read" Posters Photography Project
- COMS 258: Tuesday/Thursday Regular Class

Makerspace

The Luther College Makerspace is a place where students, faculty, and staff can gather to create, invent, tinker, explore, and discover using a variety of tools, technologies, and materials. We bring together a cross-disciplinary community of students, faculty, and staff who all share a passion for creation and collaboration.

The Makerspace is equipped with Prusa 3D printers, 3D scanners, Carbide Nomad Pro CNC, Dremel Digilab Laser Cutter, HTC Vive VR headset, Oculus Rift VR headset, Cricut Vinyl & Stencil Cutter, Brother LS 590 sewing machine, Microprocessors & Sensors, and Soldering Iron station.

Workshops and projects conducted during the 2018-2019 academic year at the Makerspace:

- Chemistry Labs: One of Luther's chemistry labs 3D modeled some of their own laboratory equipment and 3D printed their models in the Luther College Makerspace.
- Science 240 - Pathophysiology: Science 240 students used the Luther College Makerspace to explore the human body and diseases in Virtual Reality ("You" VR app by Sharecare). Forty-six students had the opportunity to spend 15-20 minutes exploring various body systems over the course of 3 evenings Fall 2018. In addition, Makerspace staff recorded immersive tours in the form of short video clips to show students in a lecture format (in 2D video format).

- Art 205 - Art & Technology: Art and Technology used the Luther College Makerspace to enhance the art student experience in exploring and developing new technologies, specifically Virtual Reality, 3D design, and 3D printing.
- Art 206 - Graphic Design: Graphic Design students used the Makerspace for their branding project.
- CS 450 - Operating Systems & Architecture: CS 450 students used the Makerspace to program and test Arduinos using Google Now and Alexa API.
- Art 209 - Art 2D Studio: Students in 2D studio used the Makerspace to expand their printmaking capabilities. The course used the opaque Epson printer and Cricut cutter for silk screen printing and stencils. Students also used 3D modeling software to make matrices from 2D images. Those matrices were then 3D printed and used for either embosses or etching-esque printing on a traditional etching press. The entire class also made extensive use of the camera, lighting, and imaging software for documenting work and assembling final professional studio portfolios.
- Art 207/307 - Art 3D Modeling: The 3D modeling courses used both virtual reality and 3D printing for final projects. Students developed 3D assets on 3D Studio Max and Zbrush and could choose which platform to present their assets to the public. Makerspace developed a "blank" virtual reality space where students could essentially drag and drop their assets. Students who chose 3D printing worked with Makerspace staff and work-study students to edit models for the printing platform. Students printed smaller test prints to see what their assets looked like and then worked to tweak the digital files for the final prints.

In addition to the projects listed above, we conducted 2 demo workshops on VR and 3D printing for staff groups. Twenty-five 3D print jobs were also completed outside the projects listed above.
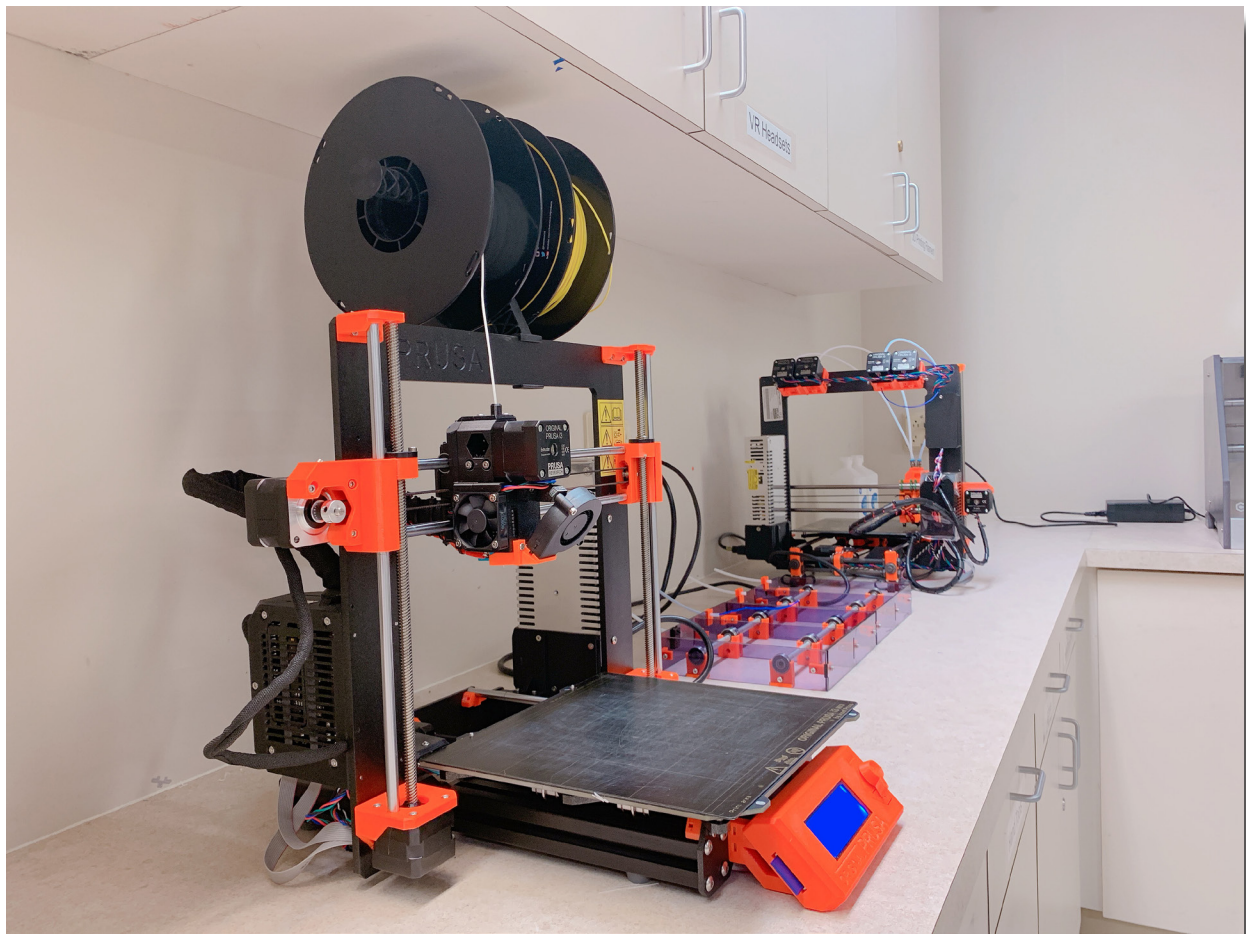
Network & Systems

Wireless Network Stats

Each year we upgrade a portion of our older wireless access points with newer more cable ones. We have over 1000 wireless access points on campus. During the 2018-2019 school year a portion of our older 802.11N capable access points were replaced with 802.11AC access points. The following graph shows the capabilities of our wireless access points as of 5/31/2019.

Wireless Access Points by Capability

802.11N
21.2%

21.2%

78.8%

802.11AC
78.8%
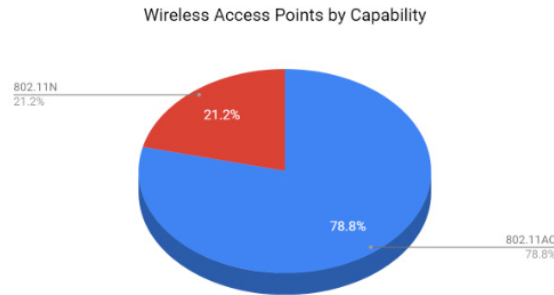
Server Statistics

Over the past few years we've been moving more and more of our servers to virtual servers rather than physical servers. This work continued during the 2018-2019 school year.

Physical vs Virtual Servers

Physical
27.5%

Virtual
72.5%
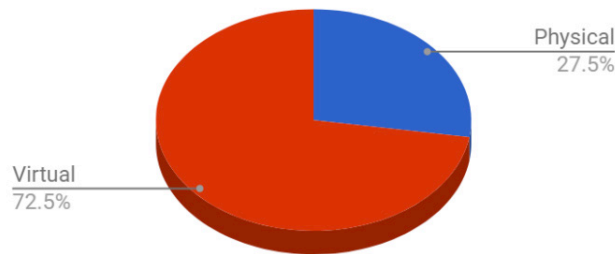
Technology Help Desk

The Technology Help Desk is the front door to ITS for the technology needs of the Luther community and visitors. Every day, the Technology Help Desk student technicians and professional staff deal with a wide range of issues from computers to Internet to multimedia to education and training and more.

Behind the scenes, the Technology Help Desk works with others in ITS to identify and plan for transitions in campus technology and the effects those changes may have on our users. Through individual and campus wide communications, the Technology Help Desk provides a link to the campus community and ITS. In addition to immediate service, the Technology Help Desk creates and maintains tutorials and self-support resources for the Luther community.

The Technology Help Desk also provides an opportunity for professional growth among our student staff, many of whom aspire to careers in information technology, but also go on to other fields where technology plays a key role.

Between June 1 2018 and May 31 2019, the Technology Help Desk team touched 8,970 of the 15,432 tickets touched by ITS as a whole (58%). ITS as a whole touched 12% fewer tickets than the year before and the Technology Help Desk touched 27% fewer tickets. Much of that discrepancy is because the Technology Help Desk performed a ticket audit last year that affected 5,287 tickets, including past tickets and tickets that only involved other areas of ITS. No tickets were audited this year.

While overall touches is a good indicator of work performed, new tickets better represent the current demand for services. If we only consider those tickets created after June 1, then the Technology Help Desk touched 8,533 of 12,019 tickets (70%). Compared to the prior year, the Technology Help Desk touched 6% fewer new tickets. Of those tickets, 32% were resolved on first contact, down 5% from the year before, possibly because we didn't audit tickets to correct this default-unchecked field. Our Average Satisfaction Rating was 4.9 out of 5, up from 4.7 the year prior.
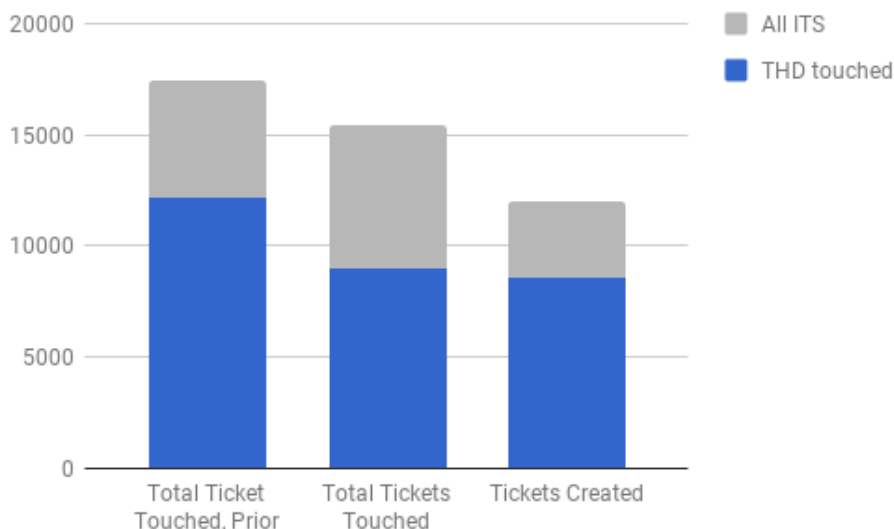
Our ten most popular services make up 70% of our interactions, a small decrease from 72% the prior year. Notably, the number of Technology Help Desk collaborations with Workstation Support increased by 77%, while tickets passed to Software Development, the KATIE Support team, and Multimedia all dropped markedly. Two services we watch closely — help with Admin Access and 2-Step Verification — both were less demanded this year, signaling that users are becoming familiar with the services and more capable of providing self-support.

Service	# Tickets	% Change
Password Reset	1544	13
Printing-related	1075	-2
Device registration	1056	-6
Workstation Support-related	678	77
General software support	631	1
Software Development-related	489	-19
2-Step Verification	290	-29
KATIE Support-related	235	-30
Network-related	195	7
Multimedia-related	164	-30

Of the major initiatives the the Technology Help Desk team took part in, a few are worth highlighting:

• We informed faculty and staff about Google's new Team Drives feature and helped departments migrate and structure content. This protects the institution from disruption and data loss during transitions.

• We informed staff about the LastPass password manager and assisted departments and individuals in imple-
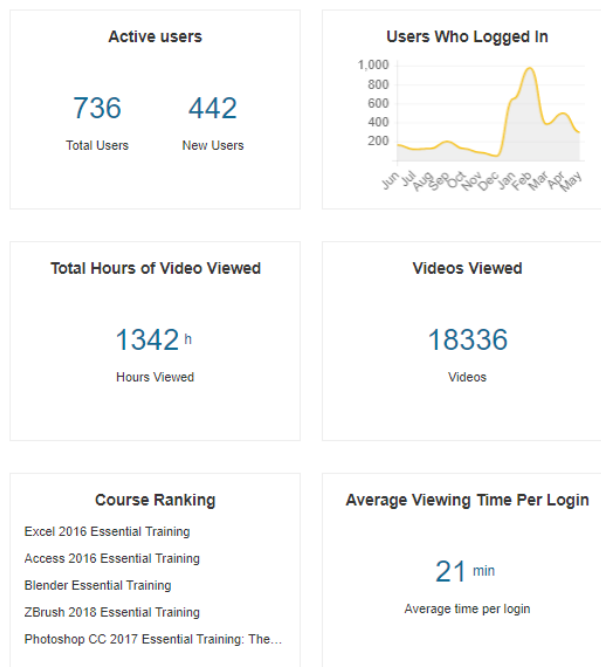
mentation. While ITS and a few other departments already used LastPass Enterprise, this was the first time that individuals were asked to use consumer-grade password managers for both their work and personal lives. Even when employees only use password managers for their personal life, the institution is more secure because of their generally improved security practices and is especially insulated from the dangers of password re-use.

• We assisted the Network Systems and Workstation Support teams as they transitioned network drives to new servers. Our contribution was to help users prepare by organizing and evaluating their files and to provide assistance after the migration.

• We informed students that Norse Apps would be deactivated after graduation for the class of 2019 and later, as well as supported students through that transition and relayed feedback about that policy change. This change was a major effort because it involved many composite services and required students to take several timely actions.

Training Summary

The following charts show the usage of LyndaCampus, web-based software training videos and resources, from June 1, 2018 to May 31, 2019. January 2019 we moved from piloting LyndaCampus to purchasing a 3-year subscription of the campus-wide product. Faculty, staff, and students interested in using the software may login to lynda.luther.edu with their Norse Key username and password.

Summary for Jun 1, 2018 to May 31, 2019

Active users

736 — Total Users
442 — New Users

Users Who Logged In

Total Hours of Video Viewed

1342 h

Hours Viewed

Videos Viewed

18336

Videos

Course Ranking

Excel 2016 Essential Training
Access 2016 Essential Training
Blender Essential Training
ZBrush 2018 Essential Training
Photoshop CC 2017 Essential Training: The…

Average Viewing Time Per Login

21 min

Average time per login

Workstation Support - Classrooms and Labs

Over the course of the Summer, all Windows classrooms and labs were upgraded to Windows 10. The following spaces were also upgraded with solid state drives: Olin 112, Olin 202, Olin 320, Valders 377, SHL 190, SHL 290, SHL 390. In addition, new monitors were added to both CFA 118 and the Library second floor lab.

Mac workstations were upgraded to macOS High Sierra. No other significant changes were made to Mac labs on campus.

Workstation Support - Faculty

Workstation Support continues the process of Supercharging, adding extra memory and Solid State Drives (SSD) to workstations in lieu of purchasing new machines. In addition, we have been encouraging employees to switch from Macs to Windows where possible. This is due in part to Apple's changing strategies and an increase in prices. It is also part of the College's cost-saving measures.

During the summer of 2018, workstations were upgraded for faculty in the Division of Mathematics, Science, and Physical Education as we continue our move to a staggered replacement cycle with 1/4th of the Luther faculty receiving refreshed workstations each summer. These Windows employees now have Windows 10 and Office 2016. Mac employees now have macOS High Sierra and Office 2016.

Workstation Support - Staff

Beginning with the 2010-11 academic year, staff computer upgrades are now on a staggered 3-year cycle. The departments are divided into thirds, and every year one third of all staff computers are refreshed. This new cycle is manageable for most needs and maximizes our hardware investments. Windows employees now have Windows 10 and Office 2016. Mac employees now have macOS High Sierra and Office 2016.

Departments upgraded during the 2018-19 academic year included: Campus Programming, Campus Safety & Security, Environmental Services, Facilities Services, Financial Aid, ITS, Legends Center, Library, Media Relations, Music, Registrar's Office, Student Activities, and Visual Media.

Workstations on Campus

Summary of Workstations
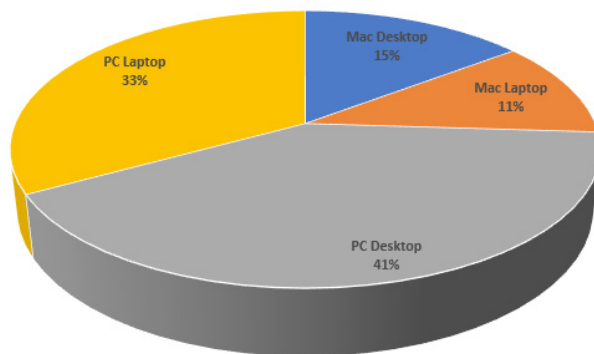
Count of Asset Id	Column Labels				
Row Labels	Mac Desktop	Mac Laptop	PC Desktop	PC Laptop	Grand Total
Acad	45	109	50	106	310
Admin	77	64	187	254	582
ITS	5	2	1	2	10
Kiosk	29		1		30
Lab	69	10	339	159	577
Podium	7		52	1	60
Research	4		39	17	60
Grand Total	236	185	669	539	1629

Objectives for 2019-20

The following are ITS objectives for the upcoming year.

1) Transition Adobe ETLA installations from serialized licensing to named user licensing (faculty and staff workstations) and device licensing (lab/classroom/podium workstations).

2) Upgrade and/or install technology in various classrooms and meeting spaces on campus which may include: Dahl Centennial Union (Admissions conference room, Nansen, Nobel, Peace, Hammarskjold), Regents Center (dance studio), and Baker Village Commons.

3) Finish upgrading Luther-owned Windows workstations to Windows 10 prior to the EOL for Windows 7 in January 2020.

4) Transition Luther faculty, staff, and students from LyndaCampus to LinkedIn Learning.

5) Software solution research and acquisitions in progress:

• ITP internships for Social Work
• APC course management
• CMS content management system to replace REASON
• Blackbaud Guided Fundraising for phonathon callers
• Alumni and Development communications management software
• Handshake for Career Center
• IndiCo bookshop point of sale and inventory system

6) Content upgrade to version 7.23 and Financial Aid and Human Resources implementation.

7) Upgrade to Microsoft SQL Server 2017 database .

8) Improve disaster recovery time and improve fault tolerance of our server and network infrastructure.

• Move Colleague infrastructure off of physical serves and onto virtual machines.
• Upgrade our Storage Area Network (SAN) to accommodate the need for additional virtual servers. Have a second SAN in a different location that houses a live replicated copy of all data on the primary SAN.
• Expand our VMWare system with physical servers in a different location. These servers will be able to run our virtual servers if the primary servers or storage are unavailable.
• Rearchitect the core of our server network, firewalls, and campus network so that their service is not dependant on a single building.
• Implement the Dell/EMC Integrated Data Protection appliance to replace our existing Data Domain and EMC Networker backup infrastructure. Routine day to day backups will be done disk to disk, and longer term backups will be copied to cloud storage.

9) Evaluate options and replace our digital PBX with a Voice over IP (VOIP) system. This project will likely also need to include updating some network switches to models that provide power over ethernet where existing switches don't provide that capability.

10) Upgrade Micros point-of-sale and campus card Odyssey system in Dining Services .

11) Rewrite portions of webpages with the luther.edu/helpdesk and luther.edu/its branches.

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