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Library & Information Technology at Bucknell University

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## Designing Meaningful Information Literacy Assignments

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One of the challenges faculty face as they build their course syllabi is integrating information literacy concepts into student assignments. Another challenge is creating assignments that are meaningful to students in ways that reinforce these concepts and skills beyond traditional research papers.

Librarians Nancy Frazier, Jill Hallam-Miller, and Jason Snyder facilitated an Assignment Design workshop for faculty in November 2017. The workshop was intended for faculty interested in learning how to address these challenges in constructing assignments. Four faculty members who had collaborated with librarians on these types of innovative assignments were the featured presenters.

Panelists Moria Chambers (biology), Erica Delsandro (women's and gender studies), Jean Peterson (English), and Andrew Stuhl (environmental studies), spoke about their assignments and their work with librarians. Workshop participants were encouraged to bring their own assignments to work on, with assistance and feedback from faculty panelists and librarians.

Participants in the workshop represented not only a mix of veteran and relatively new faculty, but also a wide variety of academic departments, from engineering to the humanities. At the end of the session, the attendees paired off or worked in small groups to discuss ways in which they could enhance their own course assignments. Attendees commented that they were impressed and inspired by the authentic nature of the assignments and by the innovative learning activities devised by their peers.



Frazier, Hallam-Miller, and Snyder plan to offer the workshop again in the coming semesters and to gather feedback from workshop participants about effectiveness and ideas for enhancing the sessions.



Assignment Design guide, featuring the panelists' assignments, as well as selected assignments from other faculty.

[researchbysubject.bucknell.edu/lAssignmentdesign](http://researchbysubject.bucknell.edu/lAssignmentdesign)



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## From the Vice President for Library and Information Technology

**I**t was nearly two decades ago that Bucknell implemented its current business systems. I was still single (and now my son is driving), many of the faculty and staff we are hiring today were still in elementary school, and the applicants who recently received acceptance letters were not even born yet.

University President John Bravman has always challenged us to be data driven, and to make data-informed decisions. We all embraced this mindset, but found ourselves in a situation where we didn't have access to real-time data for everyday decision-making. On April 1, 2018, this changed. This is the day that Bucknell University went live with Workday for Finance, Human Resources, and Payroll.

It has been a long journey to get to this point. I am so proud of my colleagues in Finance, Human Resources, Payroll, and Library & Information Technology who worked tirelessly for a smooth implementation of Workday. We talk about the interdisciplinary work of our faculty and students when they work across departments and colleges. I'm not sure if there is an equivalent term for it on the administrative side, other than cooperation or coordination; but the Workday implementation project brought out the best of our teams in working across departments. This is not a Finance project, or a Human Resources project, or a technology project; it is a Bucknell project. Everyone involved had one simple principle in mind: what is best for Bucknell and our students, faculty, and staff.

Bucknell University is a human enterprise. At its CORE is a community of dedicated and passionate individuals committed to our mission of educating students for a lifetime of critical thinking and strong leadership. Workday will strengthen and streamline the processes that drive our community.

The CORE principles we followed for this complex project are:

- **Create Commonality:** As a community, we perform similar tasks in vastly different ways. Through the implementation of Workday, we seek to bring commonality to those activities and processes across the University in order to unify our practices.
- **Openly Communicate:** The transition to Workday is a significant and complex undertaking that affects each member of the Bucknell community. It is an iterative process and, as such, there are questions that cannot yet be answered. But we are committed to being open and transparent about the project and pledge to communicate through a variety of channels to keep the Bucknell community well informed of its progress.
- **Reimagine:** Bucknell's transition to Workday allows us to think differently about the ways in which we manage human resources and financial data, both on a personal and enterprise level. We will not simply recreate the processes currently in place; we will work to reimagine those processes so that they are simpler and more effective.
- **Evolve:** The launch of Workday is a beginning, not an end. As the needs of the institution evolve, Workday will evolve with it.

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# Smart Assistants For Campus Information

by Ken Flerlage, Business Intelligence Functional Architect | ken.flerlage@bucknell.edu

In February, despite being the underdog, the Philadelphia Eagles won the Super Bowl – and one very special device predicted it. If you had asked an Amazon Alexa-powered device who she thought would win the big game, you would have gotten the following response:

"The team favored to win is the (coughs), is the (coughs), excuse me, is the Patriots. (Clears throat) That was tough to get out. But I'm flying with the Eagles on this one because of their relentless defense and the momentum they've been riding off their underdog status. E-A-G-L-E-S. Eagles!"

Joking aside (sorry Patriots fans), personal "smart assistants" have become increasingly ubiquitous in our daily lives. Siri, Alexa, Google Assistant, and others regularly provide us with information and tools that make life easier. But how can these devices be used to help us in our mission to educate students? That's what we're trying to determine at Bucknell University.

We've begun piloting "smart assistants" in order to provide people with quick answers about a variety of on-campus topics. For instance, you can ask "What sporting events are scheduled this Friday?" or "What's on the menu today?" The pilot project includes four "skills" which address questions about dining, sporting events, and Bucknell facts. The fourth, suggestions, provides a feedback loop by which users can make suggestions for additional skills. In addition to physical devices in public spaces, mobile apps can deliver this functionality, turning every smartphone into a smart digital assistant. This is where Bucknell students expect to gain the most value—getting quick answers while on-the-go, without the need to stop and type a query into Google.

Smart assistants use natural language processing algorithms and techniques to parse and translate language into discrete data that can be searched and queried. For example, the question "What sporting events are scheduled for this Friday?"



*I believe that smart assistants are going to become an integral part of our lives. In the way that smartphones had a period of adjustment, smart assistants will soon be able to seamlessly participate in a multitude of assistive tasks, and I think it is a great idea that Bucknell is extending the capabilities of these technologies."*

*Patrick Newhart '18*

is very simple for humans to understand, but computers must fully understand what qualifies as a sporting event and they must also translate "this Friday" into an actual date. Once it has performed this parsing and translation, the program then executes a relatively simple query against a database, retrieves the data, then translates that data back into natural language. Of course, natural language processing is nothing new—the field has been around for many years—but it has historically been expensive and complex. Services such as Siri, Alexa, and Google Assistant are now changing that equation, making it easy and inexpensive to leverage these capabilities.

Bucknell intends to continue building out the skills available for smart assistant devices. Soon, you'll be able to get a list of events scheduled for the Weis Center, get shuttle schedules, and learn more about local businesses.

Aside from these tactical use cases, some more "visionary" ideas are also starting to emerge. Some examples are:

- **Self-guided campus tours** – Location-aware virtual tour guides.
- **Test preparation** – Allow students to prepare for exams, in a personalized manner, while commuting, walking, or exercising.
- **Analytics** – Ask data-based questions of the data warehouse and retrieve verbal answers or automatically create a visual display of the data.

While these use cases are at this point still theoretical and hold some significant challenges, the possibilities are endless. Natural language processing seems poised to be a game changer in many ways — in our personal lives, in business, and even in education.



*I'm hoping that having easier, immediate access to information like campus events will encourage people to attend more events and know more about what is happening around them. This streamlined approach to information access works both ways and will allow for better communication between administration and students. With the ability to make suggestions and give feedback via the smart assistants, students will be able to relay necessary information about student life." -Meghan Belinsky '18*



# A New System for Identity and Access Management

■ by Don Spidell, Director of Technology Architecture and Operations | don.spidell@bucknell.edu

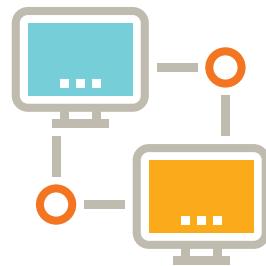
In today's modern technological landscape, effectively managing user identities and access to systems is a significant challenge. This is due, in part, to the ever-increasing number of systems, sources of authority, and particular access needs of users. To be manageable, identity and access management (IdAM) must be done in an organized and secure way while being very efficient.

For many years, Bucknell has utilized a homegrown IdAM system and somewhat manual processes developed in-house. It gets the job done but isn't very future-proof because it relies on aging code written by staff who have since retired. Midway through 2016, we decided it was time to take our IdAM system to the next level. Our goal was to implement a modern IdAM solution that will enable Bucknell to better facilitate the provisioning and deprovisioning of accounts and resources across current and future on-premise and cloud-based systems in a standard, automated, and consistent fashion. After a careful evaluation process, we selected Fischer International's self-hosted solution due to how well their robust product matches our needs.

We are currently in the early stages of implementing the Fischer solution. We will be deploying it in three phases. The first phase is slated to go live this summer and will include the account management functions such as integration with our sources of authority, account provisioning and deprovisioning across our integrated systems, self-serve account claim, and password reset. The second phase will be deeper integration with our multiple sources of authority which will allow us to replace more of our custom code and processes. The final phase will be to implement enhancements to add functionality that doesn't exist today. A prime example is role based access control (RBAC). This will allow us to define access roles based on job function. An individual will be granted the appropriate roles, rather than tying specific permissions to the person in each system they access. A main advantage of RBAC is ease of management which not only drives efficiency but can increase security as well.

L&IT is excited about this upcoming change and what it will mean for better organization, processes, efficiency, and ease-of-use. Bud Hiller, Technology Desk Manager, is especially looking forward to the self-serve password reset capability. He says, "At the Tech Desk, we've had to manually reset thousands of passwords over the years because we haven't had a good system for self-serve password resets. We're really looking forward to using a system that will be so much more helpful for users on and off campus."

We have months of work ahead of us as we foray into the brave new world of proper identity and access management, but we know that it will be worth the time and effort.



## From the Vice President for Library & Information Technology

(continued from P2)



We also adopted the following principles to ensure Workday's integration into Bucknell's technological suite.

- **Increase access to reliable and actionable data:** Bucknell community members will have real-time information presented on intuitive, device-agnostic interfaces to answer their questions and allow informed decision-making.
- **Align systems:** To every extent possible, integration between systems will be seamless, including transfer of critical historical and current data to the data warehouse as part of the Bucknell University Intelligence (BUI) program.
- **Optimize business processes:** Ensure that data enters the system as near to the point of origin as possible, enabling resources to be shifted from administrative/data-entry tasks to enhanced and strategic support for faculty and staff.

For more information about the Workday project, visit [www.bucknell.edu/workday](http://www.bucknell.edu/workday)

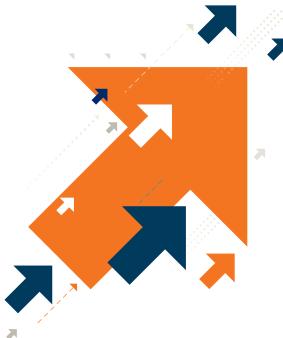
Cheers, Param

# Anything But Routine: Strategic Planning From the Ground Up

■ by Kathleen McQuiston, Director of Research Services and Information Literacy | [kathleen.mcquiston@bucknell.edu](mailto:kathleen.mcquiston@bucknell.edu)  
and Mark Yerger, Chief Technology Officer | [mark.yerger@bucknell.edu](mailto:mark.yerger@bucknell.edu)

Library & Information Technology's (L&IT) mission is to provide leadership, resources, and expertise that empower Bucknell students, faculty, and staff to engage in intellectual exploration, to create and share knowledge, and to implement solutions that further the university's mission. To do this well, we must think about our organization and the resources we apply to the work we do. We routinely do this with our assessment efforts, governance communities, and conversations with colleagues both on and off campus.

To kick off our strategic planning process, we realized that we need to be anything but routine. All our staff engaged in a series of sessions to reflect on who we are and where we are going. We affirmed our mission and vision, gave voice to our collective values, and identified several areas



for deeper exploration. We then formed small groups from across the division to examine the following topic areas: library space, academic core, information security, improving services, informed decisions/data analytics, organizational and cross-functional teams, and organizational values/culture.

The L&IT leadership team and group leaders met to discuss their recommendations and developed a draft strategic plan that, after being shared internally, is being shared with campus stakeholders, including faculty, staff, and students. With this feedback, the strategic plan will be finalized at the end of the academic year and will be used to guide us over the next several years. Without the deep engagement of L&IT staff at all levels of the process, we would not have developed such a comprehensive, wide-reaching, and innovative plan.

## Spotlight on Academic Strategic Initiatives

■ by Jill Hallam-Miller, Blended Learning Librarian | [jill.hallam-miller@bucknell.edu](mailto:jill.hallam-miller@bucknell.edu)  
and Kathleen McQuiston, Director of Research Services & Information Literacy | [kathleen.mcquiston@bucknell.edu](mailto:kathleen.mcquiston@bucknell.edu)

One of the goals developed in our strategic plan is to embrace our critical role in the academic mission of the university by collaborating with campus partners to drive innovation in teaching and scholarship. Two of the initiatives we have identified in this area are highlighted below.

**Provide Bucknell's faculty scholars with customized information, education, and guidance as well as the technical resources and support services they need throughout all steps of the scholarly communications process.**

Scholarly communication is "the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use" (ACRL, 2003). Technological innovations in the systems which support these steps in the process are providing scholars with greater opportunities to share their research. However, these innovations are also making the publication process more complicated.

Library & IT is uniquely positioned to apply holistic expertise and knowledge in support of scholarly communications for our faculty.

**Enhance teaching and learning by facilitating the use, creation, and sharing of open educational resources.**

Open educational resources (OERs) support Bucknell University's mission by enhancing teaching and learning through the use of technology, supporting innovative pedagogy, and reducing costs for students. At Bucknell we define OERs as "teaching, learning, and research resources that are free of cost and access barriers, and which also carry legal permission for open use." OER licenses permit users to "retain, reuse, revise, remix, and redistribute" these materials. Our initiative recognizes that equity in access to rich and diverse educational materials is key to supporting Bucknell University's academic mission. Promoting the use of low- and no-cost educational materials offers a sustainable model for reducing the cost of a high-quality education for our students.

# Save the Data! Librarians and Faculty Working Together to Raise Awareness About Endangered Data

■ Carrie Pirmann, Social Sciences Librarian | carrie.pirmann@bucknell.edu

Data is the foundation of an overwhelming amount of decision making that occurs on a daily basis. From weather data that reveals the patterns of climate change to demographic data that informs decisions about urban and regional planning, researchers, scientists, and policy makers rely on a wealth of data collected and made available by the U.S. government. But what happens when that data becomes endangered, when government officials threaten to curb the collection of or eliminate access to critical data sets?

In early 2017, with a new presidential administration assuming office, unprecedented threats to publicly available government data sets alarmed researchers, librarians, and concerned citizens alike. Among the first and most critical groups of data to be threatened were climate and environmental data. In response to these threats, the University of Pennsylvania spearheaded an effort called DataRefuge (<https://www.datarefuge.org/>), focused on safeguarding these data sets and making copies of them available in repositories safe from government intervention. Dozens of data rescue events were held across the country in a short timespan, to harvest and preserve as much vulnerable data as possible.

At Bucknell, concern arose not only about the state of climate and environmental data, but also about census data. A seemingly innocuous bill introduced in early 2017, the Local Zoning Decisions Protection Act of 2017, contained a critical passage that, if passed, could impact the future collection of census data. It states in part, “[n]o federal funds may be used to design, build, maintain, utilize, or provide access to a federal database of geospatial information on community racial disparities or disparities in access to affordable housing.” Alerted to this by Professor Vanessa Massaro (geography), who makes extensive use of census data in her research, we began to see the potential for a direct impact on faculty members and students’ academic work. In partnership with Bucknell’s Center for Social Science Research, staff from Library & IT hosted discussions about how we might address issues of endangered data. We surveyed faculty to determine what data sets they were most concerned about potentially losing access to, and worked to assess risks and determine whether other organizations were already working on collecting that data.

These growing concerns over access to data, as well as the desire to support faculty members’ research data needs, led to the formation of our Data Services @ Bucknell group. A cross-functional team comprised of staff from Research Services, Digital Pedagogy & Scholarship, and Discovery and Access Services, the group has been working for the past year to bolster our research data management services and outreach efforts. We hosted two faculty discussion panels, led a book discussion group on *The American Census: A Social History* by Margo J. Anderson ’67, and participated in events organized by the Digital Library Federation’s Endangered Data Week (<http://endangeredsataweek.org/>) program.

We continue to keep abreast of the latest threats and concerns regarding publicly available data. For more information about how the Data Services team can assist you, please visit our website at: [researchbysubject.bucknell.edu/dataservices](http://researchbysubject.bucknell.edu/dataservices) or email: [dataservices@bucknell.edu](mailto:dataservices@bucknell.edu)

<sup>1</sup><https://www.congress.gov/bill/115th-congress/house-bill/482/>; <https://www.congress.gov/bill/115th-congress/senate-bill/103>



## Faculty Scholarship Reception

On March 29, 2018 Library & IT hosted a reception to celebrate scholarship with a focus on published journal articles, exhibits, performances, films and other works. 67 faculty/staff members representing 28 departments were recognized. To view a full list of their works, visit  [facultyscholars.scholar.bucknell.edu/](http:// facultyscholars.scholar.bucknell.edu/).

# NSF Grant to Fast-Track Research Computing at Bucknell

by Matt Hughes, Assistant Director for Communications | matt.hughes@bucknell.edu  
and Mark Yerger, Chief Technology Officer | mark.yerger@bucknell.edu

## BUCKNELL'S RESEARCH COMPUTING NETWORK IS GETTING A TURBOCHARGE

Thanks to a grant of nearly \$400,000 from the National Science Foundation, Bucknell student and faculty researchers will soon have access to an exclusive, high-speed internet pipeline that will accelerate upload and download times as much as tenfold. The new addition to the Bucknell network referred to as "BISONet" will provide data-intensive research projects with segregated and unrestricted access to the university network, meaning researchers' data transfer speeds will not get bogged down by competing network traffic.



The projected gains in speed the project will enable are truly staggering. A file transfer of 1 terabyte over Bucknell's network now takes between 2 hours 40 minutes and 3 hours 20 minutes, depending on traffic volume. Over BISONet, it will take less than 20 minutes. Transfers of less than 15 gigabytes will be nearly instantaneous. In addition to the speed improvements on campus, the project will address the needs of researchers in sharing large files across the internet with colleagues around the world.

Bucknell is partnering with Cisco, the world's largest networking company, in designing and implementing BISONet. Bucknell faculty, writing in support of the grant, said the increased speed will take their research, which frequently includes undergraduate student collaborators, to a new and exciting level.

"In my research with Bucknell undergraduate students, we study how disease spreads between bats and humans using next generation sequencing and bioinformatics approaches," said Professor Ken Field (biology). "Our work on all of these projects is limited by the current network infrastructure [including] the severe network bottlenecks that occur when transferring hundreds of gigabytes of data from the data storage network to the high performance computing network (HPC) and back. These large data transfers slow the pace of data analysis and make it impossible to have multiple students (or even small groups of students) conduct this real-world data analysis. The implementation of [BISONet] and the co-location of the HPC on it, together with the deployment of a data transfer node, [will] have a large and immediate benefit for this work." In addition, once completed, BISONet will enable Professor Field's "Advanced Data Analysis and Bioinformatics" class to use real-world data sets (including those from his own research) which will dramatically increase the educational value of these projects.

Field is among an increasing number of Bucknell faculty, including numerous professors in the departments of biology and computer science, who have begun incorporating big data analysis in their research.

BISONet will reach beyond the sciences to include a large percentage of faculty and students engaged in cross-disciplinary work such as geographic information systems (GIS). To date, network limitations have prevented students from fully utilizing GIS in the classroom setting. BISONet will enable students to use this technology to its full potential, enhancing student learning and building Bucknell's reputation as a leading institution for GIS studies.

The project follows and is enabled by a series of recent upgrades to Bucknell's network, which include the University's connection to the PennREN high-speed fiber-optic network<sup>1</sup> and its membership in the Internet2 community<sup>2</sup>, which facilitates its connection to the nation's largest and fastest coast-to-coast research and education network.

<sup>1</sup><https://www.bucknell.edu/x95025.xml>

<sup>2</sup><https://www.bucknell.edu/x105296.xml>

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## Tech Table Arrives in the Langone Center Mall

The Tech Desk has been a mainstay on the first floor of the Bertrand Library for years, but this semester, the tech table arrived in the Langone Center Mall for a trial run. Designed to offer quick assistance to students who have questions about smartphones, network services, software availability, etc., the tech table is open 11a.m. – 1p.m. each weekday and is staffed by a combination of tech desk students and tech support staff.



Bucknell Student Government (BSG) proposed the idea of a space in the mall as a way to give students an alternative mode of getting tech help. According to some members of BSG, current students either weren't aware of the tech desk in the library, or were not sure of the phone number or the [techdesk@bucknell.edu](mailto:techdesk@bucknell.edu) email address. The central location in the mall, between the post office boxes, the Bison, and the Hearth Space with all of the Campus Activities offices, is ideal for attracting walk-up traffic.

## New Library & Information Technology Staff



(L-R):

JON MARRIOTT  
Network Administrator

ERIC LIPSKY  
Programmer Analyst