Through support from the Andrew W. Mellon Foundation, Library and Information Technology has provided student-faculty research project grants over the past three summers. Each project is supported by members of Digital Pedagogy and Scholarship and Research Services. One project undertaken this summer was by Professor Janice Mann (Art and Art History) and Rebecca Reeve ’17, entitled The Packwood House Digital Archive of the Personal Papers, Ephemera and Photographs of Edith and John Fetherston.

The Packwood House Museum, located in downtown Lewisburg, is the former home of Edith (Class of 1905) and John Fetherston, and has operated as a public museum since 1976. In addition to the Fetherstons’ collections of art, furniture, and textiles, the museum is also home to their personal papers. It was this collection that sparked the interest of Rebecca Reeve as a student in Professor Mann’s class, The West Encounters the Rest, and led to the development of their summer research project.

Since their funds are limited, the museum welcomed the opportunity to partner with the Bucknell project to begin the digitization of the Fetherston’s personal papers. Reeve began the summer by taking inventory of the archives’ holdings, and created a digitization plan based on current research interests in the collection and its preservation needs. After examining the collection, the team decided to begin with Mrs. Fetherston’s postcard collection. Over the course of the summer, Reeve digitized and created metadata for over three hundred postcards. Future students will have the opportunity to work on Edith and John’s diaries, letters, and photographs.

Throughout the project, Professor Mann and Reeve received support from Digital Pedagogy and Scholarship and Research Services. Carrie Johnston, former CLIR Postdoctoral Fellow, and Courtney Paddick, Librarian for the Arts and Humanities, were assigned as the main points of contact for the project. Johnston managed the project and provided support and guidance on implementing the Omeka platform for the digital collection; Paddick provided direction on creating metadata for the digital objects using Dublin Core, and on processing and arranging the physical materials in the archive. Additional support for the project came from Diane Jakacki, Digital Scholarship Coordinator, who assumed leadership on the Omeka efforts and customization of the public site, and from Deb Balducci, Digital Pedagogy Specialist, who gave the students instruction on photographing museum items.

Through separate funds, Nicole Adams ’18 and Ariel Senackerib ’17 also worked on complementary projects within the museum which are included in the Omeka site. All three students presented at the Susquehanna Valley Undergraduate Research Symposium and presented with Professor Mann at the Bucknell University Digital Scholarship Conference.
We are in an exciting time at Bucknell University, as we are transitioning our enterprise information systems. The last time we undertook this was in the late 1990s, a time when we were still going to the bank to deposit our checks, going to the mall to do our holiday shopping, calling a travel agent to book our vacations and airline tickets, and (as it hit me the other day), the faculty and staff who were hired in the past few years were probably still in elementary school.

The systems we implemented nearly two decades ago served us well, but they remain purely transactional; they have not evolved in a way that allows us to make data-informed decisions or that provides strategic value to Bucknell. One of our institutional goals is to become data driven, and hence, provide the data to the individuals who need it to make decisions on a daily basis, not keep it only in the hands of a few users. In addition, as our staff who worked on these systems retire or leave, it is becoming increasingly difficult to hire new staff to support the aging systems. We must expect the same from these systems as we do from our banks, financial investment companies: anytime, anywhere access, on any device.

Over the past few years, we have decided to implement “best of breed” systems for Admissions, Finance, Human Resources, Payroll and Development & Alumni Relations. It is a change from having a single enterprise resource planning (ERP) system to ones that provide a niche system for individual offices.

The transformational solutions that were selected are:
- **Slate** for Admissions (live since 2016)
- **Workday** for Finance, Human Resources and Payroll (Summer 2017 expected implementation)
- **Blackbaud** for Development & Alumni Relations (Fall 2017 expected implementation)

We adopted the following principles in evaluating multiple solutions:

- **Increase access to reliable and actionable data.** Bucknell community members, including prospective students, 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, integrations between these 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.

The one question we get asked the most is how will these systems integrate? The following chart answers that question. The key to this integration is the Enterprise Systems Bus (ESB – Mulesoft’s Anypoint platform), which ties the systems together so that they can communicate and interact as a whole.

If you have any questions about any of the initiatives in *The Next Page*, please don’t hesitate to contact the individual authors, or me at param.bedi@bucknell.edu

Cheers, Param
What do Business Intelligence (BI) and fantasy football have in common? We’ll get to that shortly, but let’s start by talking about BI. Have you ever wondered what Bucknell’s BI team does all day? You may assume that we create pretty reports. We do, but that’s only a small part of it. Much of our time is spent acquiring data, cleansing it, blending it with other data, and transforming it into a format that is conducive to reporting. This is a lot of work. Experts estimate that data professionals spend upwards of 80% of their time on these activities. I could spend the next few minutes talking about ETL, star schemas, and different data modeling approaches, but instead I’d like to use a real-world scenario to give you a small glimpse of how this all works. This is where fantasy football comes in.

With the football season now in full gear, I thought it would be interesting to see which players consistently achieved the highest number of fantasy points-per-game over the past decade. After a brief search, I was able to find some data, but it came in four separate files, each containing three years of data. Unfortunately, I quickly saw that the format of the files had changed over time, so I had to get them into a standardized format and then merge them together into a single file. I then noticed that the data had a number of problems. First of all, the team abbreviations had changed over time (e.g., the abbreviation for New England had changed from NEP to NE). So, I had to update the data to conform to a single standard. I then noticed that the file only had team abbreviations (no name or location), so I enriched the data set with team names and locations. I now had a complete data set with the key stats for each player for the past decade. From there, I used the scoring system documented on NFL.com to calculate points for each of the various stats (passing/receiving/rushing yards and touchdowns, interceptions, lost fumbles). Finally, I performed some aggregation and calculations in order to obtain the total points-per-game for each player over the past decade.

With my data set complete, I was finally able to create a report. I used Tableau to create the following data visualization.

While this visualization did require some effort, it would not have been possible without first taking the time to collect, cleanse, enrich, and model the data. This, on a small scale, is what the BI team does every day. Our job is to bring data together, from numerous sources, so that the rest of the organization can easily understand it, report on it, analyze it, and, ultimately, use it to drive insights that can help us better serve our students and the campus community.

If you’d like to interact with the dashboard I created, you can check it out on Tableau Public: tinyurl.com/kens-data
Once again, we find ourselves in the midst of a great migration, as first-year college students across the country head to campuses in droves. Once the car is unloaded and the dorm room arranged, parents will no doubt depart campus feeling a little apprehensive as their daughter or son begins the next step in their academic career.

Will their child be up to the rigors of collegiate academic work? Are they prepared to handle living in a new environment? Most frightening, what happens if the answer to either is “no”?

Earlier this year, one university president did anything but alleviate those fears, as he reportedly likened struggling first-year students to bunnies that needed to be drowned and put out of their misery. The inapt simile rightfully drew lots of criticism across higher education and beyond. Given the cost of a college degree and its ultimate pay-off, a “sink or swim” attitude towards student success is simply indefensible. His comments were driven by the desire to improve retention rates. This is a noble cause which also carries benefits for an institution.

On a national average, only three in five students will graduate from college within six years, which leaves considerable room for improvement. Even institutions such as Bucknell University, which enjoys a 91 percent graduation rate, are working in earnest to retain more students. But that final nine percent was proving especially difficult to crack.

Until now.

On the opposite end of the spectrum from “drowning the bunnies” are an increasing number of colleges and universities generating groundbreaking ways of ensuring that students are given every opportunity to succeed. The keys to that success that for decades proved elusive are now being revealed thanks to the evolving knowledge and use of big data.

At Bucknell, we have worked for the past year alongside Deloitte Consulting to analyze information from the last five entering classes. That analysis has enabled us to see trends and pitfalls, and develop a model to address those challenges and facilitate first-year success, beginning with the class of 2020. For any college, the largest portion of a single class’s attrition occurs prior to sophomore year. Solving the puzzle of first-year success goes a long way to ensure students stay and succeed.

While no two students are identical, our model identified three overarching factors that impact a first-year student’s success. At a highly selective university, there are students who may find the environment more challenging to navigate than they anticipated. Meanwhile, gateway courses (e.g., large lectures or introductory courses) that establish a foundation for success can be challenging even for the most prepared students. Finally, students who enter college undecided about a major or are conflicted about their academic pathway may struggle to feel connected.

From a university’s perspective, not every student who fits one of these profiles will struggle. In fact, most will do just fine. However, harnessing the deeper detail of data will help the institution identify students who are most prone to struggle, provide appropriate and timely support, and thus increase the chance the student stays enrolled and succeeds in their academic career.

Parents do not need a data model, as they know their children best. If their student falls into one or more of the categories mentioned above, parents should ensure that their child is their own advocate, knows where to go for assistance, and gets help before the fourth week of classes. Parents should also know what is available to their child and expect the university to care deeply about her/his success. When the students succeed, institutions succeed.

It may seem like a chore to load up the car every August for the next four summers, but it sure beats not making the trip again. Parents can rest assured that Bucknell wants what they want: for students to thrive.
Lynda Takes You Where You Want To Go

by Bud Hiller, Manager of Technology Desk | bud.hiller@bucknell.edu

As technology becomes integral to every aspect of our lives, it becomes harder and harder to keep up. Fortunately, there’s Lynda.com, a leading online learning company that helps anyone learn business, software, technology and creative skills to achieve personal and professional goals.

Bucknell subscribes to Lynda, so there are thousands of courses available to all students, staff, and faculty. Web development, software development, and design – there are hundreds of courses in each of these categories, ranging from an introductory level to advanced skills.

Lynda.com is easily accessed by going to bucknell.edu/lynda. All of the video content is created by hundreds of talented industry professionals, and is available on your computer, Android or iPhone, or tablet. Content can also be viewed off-line, so it’s accessible anywhere and anytime.

How to add links to Lynda.com in Moodle: tinyurl.com/lynda-bucknell

The video tutorials on lynda.com will be a useful resource for students in my Digital Sculpture course. I plan to encourage my students to access the tutorials to augment the technical presentations I offer during class and bolster their technical knowledge of computer-aided design.

– Joe Meiser, Associate Professor of Art

I’ve taken several courses in Python and PHP on lynda.com. I found the videos to be clear, concise, professionally developed, and interesting. I was able to quickly learn the basics of these programming languages and apply what I learned to many aspects of my job.

– Mike Dahlberg, Systems Administrator

(continued on P6)
Newly Expanded Special Collections/University Archives Spaces

■ by Tracy Hower, Executive Assistant and Library Building Liaison | tracy.hower@bucknell.edu

Bertrand Library recently expanded and renovated the Special Collections/University Archives department on Lower Level 1. In addition to expanding collections storage space in its existing area, the department’s space was increased to include additional storage in the form of compact shelving, a processing area, and two staff offices. The Reading Room, where researchers work and instructional classes are held, now has a projection screen for use during class visits and an additional table to accommodate researchers and exhibit material.

Celebrating Faculty Scholarship

■ by Tracy Hower, Executive Assistant and Library Building Liaison | tracy.hower@bucknell.edu

Library and Information Technology hosted the annual Bucknell Scholarship Reception on October 4, 2016, to recognize books and book chapters published within the last year. Thirty-seven authors representing 27 departments were recognized for their scholarship. Fifty individual publications were on display for guests to browse. Faculty speakers, Professors Anna Paparcone, Rafe Dalleo, and Carol Wayne White, discussed the scope of their research and shared highlights of their work.

For a listing of faculty publications, see: facultyauthors.scholar.bucknell.edu/

Digitizing the Collections of a Local Treasure (cont.)

For a full list of grant recipients and projects funded, see the Bucknell Digital Initiatives website: tinyurl.com/bucknell-grants

The Omeka site for the Packwood House Museum Digital Collections can be found at: packwood.omeka.bucknell.edu/omeka/

For more on this story, see the Fall 2016 issue of Bucknell Magazine: bucknell.edu/BucknellMagazine

For more information about the Packwood House Museum: packwoodhousemuseum.com/

(continued from P5)

Bucknell University Joins HathiTrust (cont.)

What Does This Mean For Bucknell?

• All volumes in HathiTrust are fully indexed, meaning that users can search within a specific volume held by HathiTrust to find relevant information.

• 246,211 out-of-copyright volumes that the Bertrand Library holds in print will now be accessible electronically, meaning Bucknell students, faculty, and staff will be able to read, download, and print these resources from anywhere in the world.

• 516,016 print volumes held by the Bertrand Library are protected by copyright, but our partnership with HathiTrust guarantees preservation of these monographs and serials. If our copy is damaged, deteriorating, lost, or stolen, and a copy is not available on the market at a fair price, we will be able to access an electronic copy (per 17 U.S. Code § 108). Additionally, users with print disabilities will be able to gain electronic access to all 516,016 volumes (per 17 U.S. Code § 121).
New Library and Information Technology Staff

CHRIS BERNARD, Chief Information Security Officer
Chris joined Bucknell in May as the Chief Information Security Officer, responsible for developing and driving the strategy for securing Bucknell’s information assets. Chris has eight years’ experience in higher education at Miami University in Oxford, Ohio as Director Network Engineering as well as three years as an adjunct faculty member in Computer Programming and Gaming. Chris currently holds several security certifications and a Master’s in Business Administration degree from Xavier University and is currently pursuing his Ed.D in Educational Leadership from the University of New England.

GALEN DUNKLEBERGER, Programmer Analyst
Galen joined the Library and Information Technology in March as a Programmer/Analyst for the Enterprise Systems team. He came to Bucknell from Tura, an eyewear design and distribution company, where he spent the last ten years writing enterprise software. Prior to that, Galen worked as a contract software developer for Sandia National Laboratories in Albuquerque, NM. Galen was born and raised in Montoursville, PA. He received his degree in Business Information Systems from Susquehanna University. Galen is excited to be developing integrations for the new Workday system going live next summer. In his spare time, Galen enjoys homebrewing and spending time with his wife and four daughters.

KEN FLERLAGE, Business Intelligence Functional Architect
Ken joined Library and Information Technology in April as a Business Intelligence Functional Architect. Prior to Bucknell, he spent 16 years with First Quality Enterprises where he held multiple roles, most recently acting as the leader of the organization’s emerging analytics practice. Ken has a passion for data and is excited to help continue the growth of the business intelligence program at Bucknell. Ken grew up in Kentucky, earning his Bachelor's degree in Computer Science from Northern Kentucky University in 1999. He resides in Williamsport with his wife and two children. When he is not spending time with family or coaching his kids’ sports teams, Ken enjoys analyzing, visualizing, and writing about interesting publicly-available data sets on a range of topics including politics, sports, and science.

CHRIS KERN, Programmer Analyst
Chris joined Library and Information Technology in March as a Programmer Analyst for the Enterprise Systems Development Team. Prior to joining Bucknell, he worked as a Web Developer at Geisinger Health System. Chris holds a Bachelor’s degree in Geo-Environmental Studies from Shippensburg University, but has continued a career in IT because he enjoys the endless opportunities it provides to solve problems in new and innovative ways. Here at Bucknell, Chris is part of a team responsible for integrating the university’s many platforms and applications so that data and functionality remain in-sync and is excited to learn and apply new skills to address these challenges in continually improving ways. When not doing something technical, Chris enjoys spending time with his wife, being outdoors, and home improvement projects.

STEPHEN O’HARA, Director of Technology Services
Stephen joined Library and Information Technology in April as the Director of Technology Services. This includes managing the Equipment and Tech Desk, Classroom and Lab Support, Event Support, and Technical Support. Prior to joining Bucknell, Stephen held various levels of leadership roles in a number of Fortune 500 companies. He holds a Master of Business Administration from Rutgers University and a Bachelor of Science from Penn State University. Stephen and his family have relocated to Lewisburg from Bridgewater, NJ. He enjoys coaching basketball, martial arts, playing squash and watching his children play soccer and basketball.

TODD SUOMELA, Digital Pedagogy Specialist
Todd joined Library and Information Technology in September as a Digital Pedagogy Specialist. He works with faculty in science, technology, math, and engineering fields to improve the use of digital technologies in the classroom. Todd comes from a post as a CLIR Postdoctoral Fellow in Data Curation at the University of Alberta, where he focused on web archiving. He completed his Ph.D. in Communication and Information at the University of Tennessee with a dissertation on communication and information practices in citizen science. He has an M.S.I. from the University of Michigan and a bachelor’s in Philosophy and English from Yale University.
Looking for data from the 2016 Presidential Primaries?

**Look no further!** Social Sciences Librarian Carrie Pirmann, Assistant Director of Digital Pedagogy and Scholarship Emily Sherwood, and Emily Tevebaugh ’19, worked together to develop a dataset that includes presidential primary data for most of the United States. Data were sourced from finalized state election board results for the Democratic and Republican primaries. The data is in a format (.csv) that makes it easy to use with Excel, GIS, or other applications.

For more information and to download the dataset, please visit: [digitalcommons.bucknell.edu/election_data/1/](http://digitalcommons.bucknell.edu/election_data/1/)