

## **Annual Report, 2014-2015**

### **Information Technology Services**

#### Introduction

Information Technology Services (ITS) values its role as partner to many at the College in using technology to further the mission of the Institution. In fiscal year 2015, the College moved forward on a number of projects and customer-focused service enhancements. We continue to put priority on data security initiatives, including reallocating one staff member to work with our information security officer. We've conducted extensive "protected data sweeps" to try to minimize the number of data files with protected or sensitive data; reduced the number of department employees with access to those files we need to maintain; and worked with departments on understanding that business practices need to change with the times.

The department, in addition to ongoing support activities, engaged in 43 technology projects, with all but one completing on time and all on budget. All ITS technology spending accounts finished the year under budget, though this was challenging after several years of no operating budget increases. The department advanced strategic priorities and improved business operations at the College. For example, this year we added a video/lecture capture system, moved several systems to "the Cloud," and partnered with many departments on improving their business processes through technology. Success breeds more ideas for further initiatives in the coming year.

ITS achievements in fiscal year 2015 include:

- Contracted with a Cloud-based video capture system and conducted extensive training with our faculty and staff on its use. In its first year, 116 hours of content was recorded, for more than 36 courses, including one course where the faculty member recorded all of his lectures.
- Enhanced student technology services by adding the Lynda.com online technical and business training service, renovating the O'Kane lab for more collaborative uses, and assisting in the implementation of several mobile apps for campus services.
- Completed a number of data security projects, including automated file scanning for protected data, password changes, two-factor authentication, campus video monitoring, and removed access to protected data from employees that do not need access.
- Performed upgrades to PeopleSoft systems, wireless services, classroom projection, and other systems.
- Implemented new systems for video capture, athletics ticketing, athletics recruitment, digital signage, online technical and business skills training, and grants management.

#### About Information Technology Services

Information Technology Services is a service organization, reporting to the Vice President for Administration and Finance. The department is charged with balancing resources and projects across six areas: technology support, applications development, network operations, audio-visual, change control and training, and information security. ITS is committed *to supporting advanced technology in a distinct academic computing environment.*

Support of Mission

The Information Technology Services department values its place within the College of the Holy Cross in providing essential services to the Community. While technologists may view technology as an end unto itself, we try to appreciate that technology is a tool— one that can support the intellectual growth of the community. Technology can enhance our teaching and learning, yet we understand the pre-eminence of the face-to-face teaching that happens at Holy Cross. Technology must not diminish this core aspect of our mission. The ITS operating budget represents a significant percentage of the College budget. It is important that this resource align with its mission.

Benchmarks

Data surveys on technology use in higher education provide valuable comparisons of Holy Cross to other institutions. Figure 1 below shows budget and staffing ratios for the College’s Peer List, taken from the 2013 Core Data Service (www.educause.edu). Holy Cross fell below the 50th percentile in funding and continues to be below the 25<sup>th</sup> percentile for staffing. The reasons for the low ratios could relate the relatively large student body size and the decentralized Educational Technology support staff (Ed Tech reports to the Library).

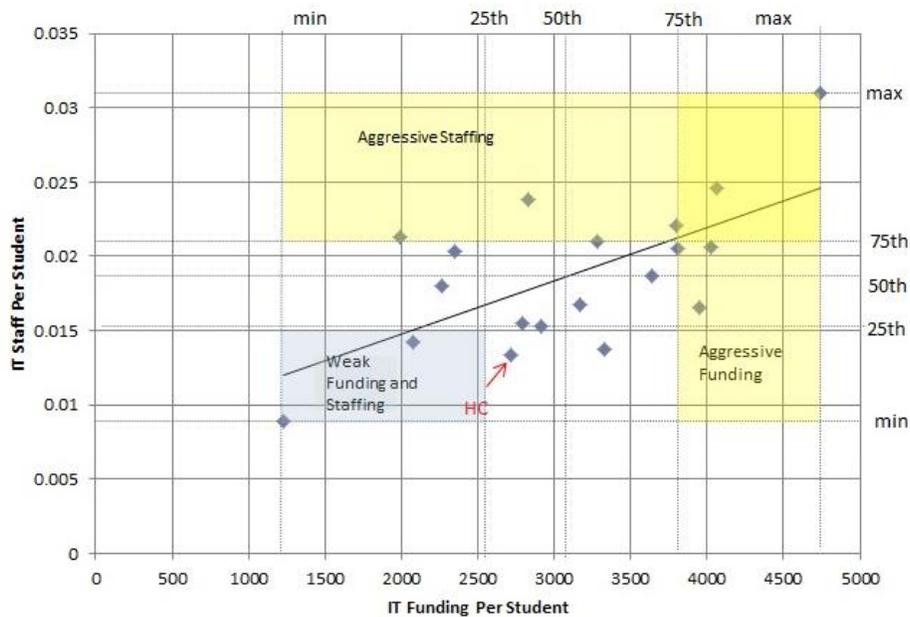


Figure 1. CDS 2013 Data Comparison for HC Peer List

Holy Cross allocates 5.4% of its total campus expense to IT (including capital funding).

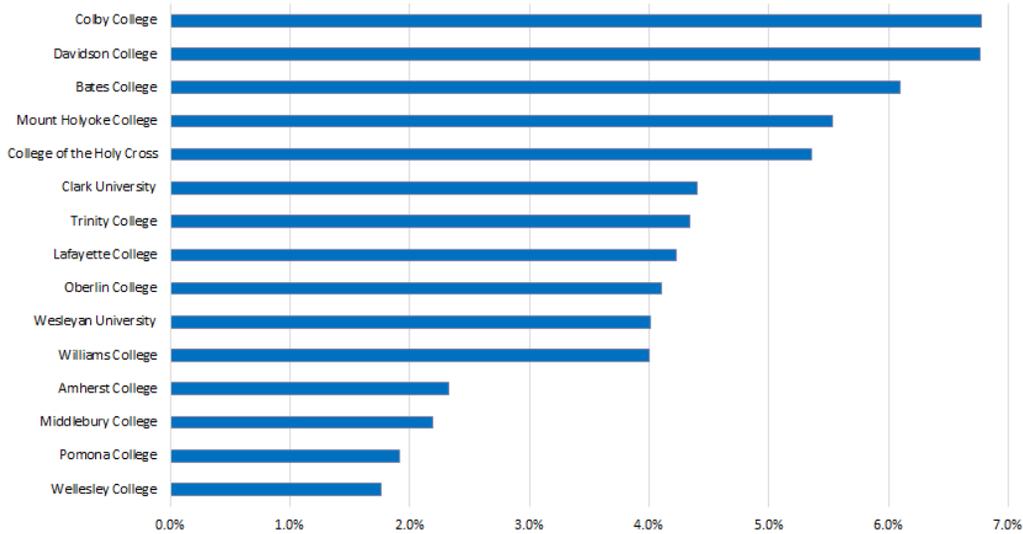


Figure 2. IT Funding as Percent of Institutional Budget

Spending

Figure 3 shows the allocation of operating (\$7.3M) and capital resources (\$1M) for FY15.



Figure 3. Budget Allocations FY15

In FY15 more funds were allocated to data security and audio-visual/classroom technology projects compared to prior years. All ITS spending accounts ended the year within budget.

Governance and Advisory Committees

The IT advisory committee structure is well-established, providing advice to and receiving direction from the central IT Steering Committee and College Cabinet (see Figure 4). The advisory committees, whose members are drawn from across the College, counsel on IT policy, architectural standards, PeopleSoft, administrative systems, emerging and educational technologies. Forty-five different people from various College departments, including students, sit on one or more committees.



Figure 4. IT Advisory Committees

### Staff Resources

The ITS department employs 45.5 FTE in six major areas: Technology Support, Network and Operations, Applications Development, Audio-Visual, Change Management & Training, and Information Security. With the rapid pace of technology change and the complexity of technologies on campus, it is crucial to have highly skilled staff. ITS staff highlights include:

- The average length of professional experience of ITS staff is 20 years.
- More than two-thirds of the staff hold degrees in technology or related disciplines.
- One third of the staff hold professional or technical industry certifications, such as in information security and advanced programming, or hold board positions with professional organizations.
- ITS staff frequently present at regional and national conferences and ITS staff are often quoted in industry publications on topics of IT security, new technologies, and IT leadership. See the ITS Facebook page: [www.facebook.com/pages/Information-Technology-Services-College-of-the-Holy-Cross/66332436461](http://www.facebook.com/pages/Information-Technology-Services-College-of-the-Holy-Cross/66332436461)
- ITS staff serve on the College's Community Standards, Emergency Response, Environmental Task Force, and Postvention teams. Staff participate in other community activities, such as midnight breakfasts and Masses.

Staff turnover was low this year. One part-time employee resigned. The College supported the creation of a second information security position, filled by a member of the department. ITS managers are developing a training plan to ensure IT staff have current skills as required to move forward on College strategy, such as data analytics and mobile app development.

### Support of the College Strategic Plan

The Information Technology Services department is committed to helping all at the College realize their education, research, and operational goals. We continue to move forward strategically with IT initiatives, such as moving services to "the Cloud" and reducing paper processes through business workflow redesigns. We partner with other departments at the College on priorities from the Strategic Plan 2012-2020. The President added a strategic

initiative for "Technology in the Classroom" and, working with the Dean of the College and the Educational Technology group, ITS is a key participant. This year we installed Apple TVs for wireless projection in many classrooms, added a video capture service that has proven popular, offered seminars to faculty on a variety of topics, such as "bring your own device" (BYOD) techniques in the classroom, and consulted with senior staff on possible online learning projects.

Technology Support

The *technology support* team is the department's primary interface with the Community. Customer service feedback shows a high level of overall satisfaction with support, though we were challenged with an extended wireless service problem last fall. The help desk generates 764 service tickets per month, on average. The figure below shows that three quarters of our faculty and staff and 40 percent of our students used the Help Desk services in the past year.

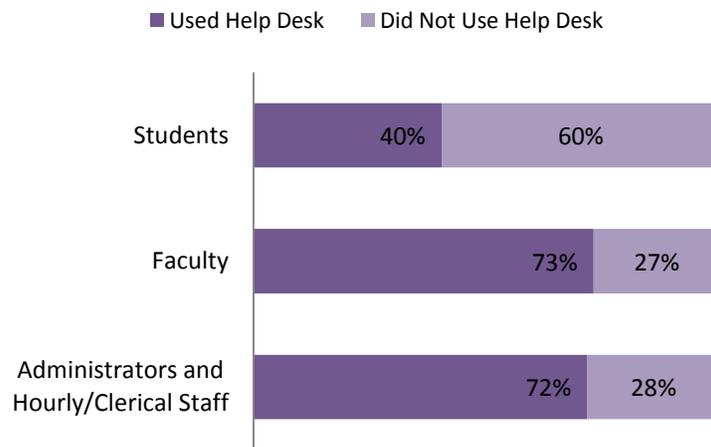


Figure 5. Help Desk Customers by Type

Computers are given to all faculty and office staff. Student ownership of computers is near 100%, with many students connecting multiple computers, gaming devices, phones, and other systems to the network. Smartphone and tablet usage has increased significantly for students. Figure 6 shows the breakdown of devices using our wireless networks. The Bookstore sells HP laptops to students. Twenty percent of the College-owned computers are laptops.

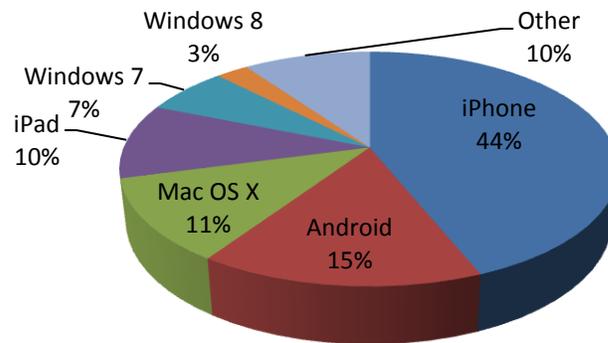


Figure 6. Wireless Clients by Type

In FY15, ITS spent approximately \$15,000 on desktop software licenses, almost all for academic departments. Additionally, \$70,000 in annual support contracts for such things as statistical and graphics packages are supported each year.

Software Training

Technology training is offered to all constituents of the College, including orientation for each new employee on College IT and data security policies. Software training is expanding through just-in-time training online via a Lynda.com subscription, available to all students, staff, and faculty. Google Apps and security topics continue to be popular for on-campus training.

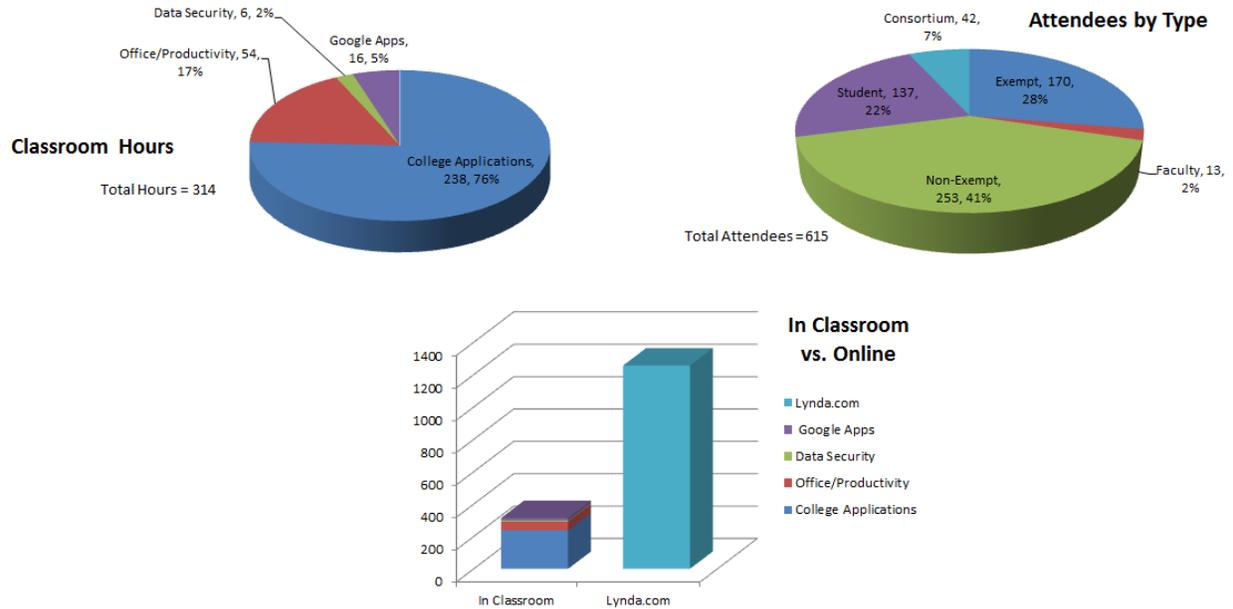


Figure 7. Software Training

Network Operations

The College of the Holy Cross has made significant investments in a high-performance, highly secure network infrastructure. All offices, classrooms, labs, residence hall rooms, and other locations are wired to the network. Wireless is available across the campus. In FY15, we expanded the Aruba wireless capacity due to a large increase in wireless devices brought to campus last fall as compared to the prior academic year.

Information Security

While the College has been aggressive about network security for many years, particularly since MA law 201 CMR 17 passed in 2010, the number and complexity of threats is greatly expanding. Our obligations for protecting personal information such as social security, bank account, and credit card numbers is greater and the attacks are growing. Intrusion prevention systems, antivirus software, firewalls, and SPAM blockers help prevent the spread of malware on the campus and keep the network performing well. Figure 8 below shows our vulnerability management program has made strides of late, reducing external security issues over time despite continuous discovery of new vulnerabilities. Mandatory employee training on IT security is in place. Under the direction of our Information Security Officer (ISO), we implemented new

data protection systems for two-factor authentication, data file scanning, and secure and restricted data storage. The ISO does extensive outreach to user departments and delivers a briefing to the College Cabinet each year.

One hundred percent security is not attainable, however, given the dynamic nature of technology. While we have spent years automating our business systems and processes with convenient access for employees to the data they require in their jobs, we are now pulling back access and introducing additional layers of protection. Further, we now “sweep” network drives and local hard drives monthly for files containing protected information then either delete them or move them behind additional protections. Lastly, we hired an additional staff person in ITS dedicated to information security administration. This is a moving target, but we will do our best to ensure proper protections and business practices are in place.

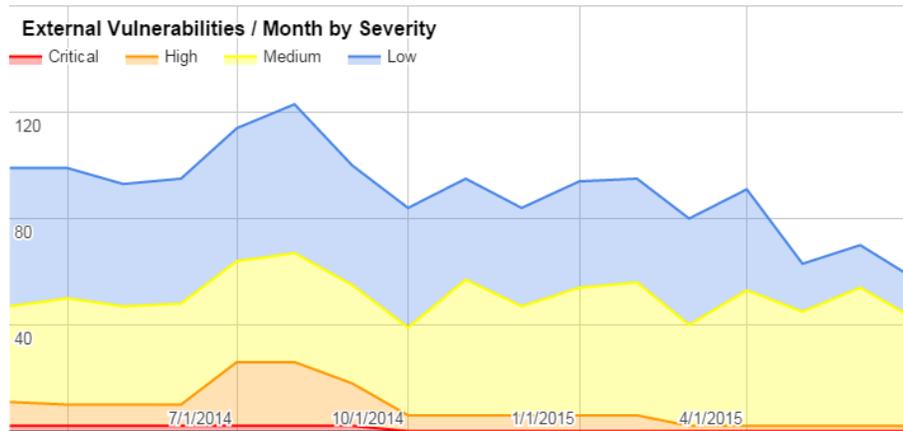


Figure 8. External Vulnerabilities

### Applications Development

The College strives for excellence in technology in support of teaching, learning, and administration. The Application Development staff develops and integrates a wide range of complex and distributed applications to give timely, secured data access to students, faculty, staff, alumni, prospective students, and other College constituents.

The Administrative Systems Advisory Group (ASAG) provides governance support, along with the IT Steering Committee, on new applications or major upgrades. All such projects must go through ASAG review and signoff.

Table 1 lists part of the College’s IT applications inventory (see the ITS web site for the full list).

Purpose	Vendor and Product
ERP systems for Student, Finance, HR	Oracle/PeopleSoft
Alumni	Ellucian Advance C/S
Course management	Moodle (open source)
Events and room scheduling	Dean Evans EMS, Certain Events (Cloud)
Email, calendar, collaboration	Google Google Apps for Education (Cloud)
Library	Innovative Interfaces Inc. Millennium
Document management	Lexmark Inc. ImageNow
Time tracking & reporting	KRONOS Workforce/Timekeeper Central

ID card system	Heartland; DataCard
Physical Plant facilities management	FAMIS
Web content management system	Drupal (open source) (Cloud)
Bookstore e-commerce	Sequoia Systems (externally hosted)
Bookstore data system	Missouri Book Systems (externally hosted)

*Table 1. Selected Applications Inventory*

### Change Management

The College's information technology environment is large, complex, and interconnected. The pace of software releases and onslaught of external security threats make it critical to be diligent in security and change management. A change control program, with a single manager responsible for oversight, is well-established. Any changes to a production system go through formal change control review and signoff. Attention is given to user impact, interactions with other systems, operational documentation, and help desk support. Additionally, security reviews are conducted on all major upgrades and installations. Risks and exposures are identified in an initial review, held early in the development process. Security review signoff occurs when all steps to mitigate risks are taken and the remaining exposures are accepted by the data owners. (It is not possible to eliminate all risk.)

Table 2 lists a breakdown of projects for this year.

<b>8 projects continued into FY15 from FY14</b>
<b>38 new projects started in FY15</b>
<b>30 projects completed in FY15 (4 canceled)</b>
<b>12 projects will continue into FY16</b>
<b>28 new projects are planned to begin in FY16</b>
<b>97% of projects completed in FY15 were on time</b>
<b>100% of projects completed in FY15 were on budget</b>

*Table 2. Projects Summary*

### Educational Technology

Given our mission, special attention should be paid to the department's support of educational technology. Use of various technology tools, such as our course management system, computers and audio-visual equipment in the classrooms, numerous technology labs, and specialized software help our faculty and students reach their educational goals more quickly or more effectively. Use of technology is pervasive, though not generally on the cutting edge. We are working towards more innovation in use of technology. Smartphones, iPads, Cloud services, and technology-savvy students present opportunities for new thinking about educational technology. As already mentioned, technology in the classroom is one of the President's additional strategic plan focus areas. Video capture is a new service offering this year. Numerous workshops were offered collaboratively by Ed Tech and ITS.

Oversight for educational technology comes from several sources. The Educational Technology director and her staff, who report to the Library, collaborate with Technology Support staff in ITS. The Educational Technology Advisory Group (ETAG), with membership from the Dean's office, the Center for Teaching, the faculty, Library, Ed-Tech, and ITS, meets regularly.

### Trend Watch

An important role of ITS is to inform and advise the College on emerging technologies and trends in the industry. Technologies must be evaluated for maturity, relevance to Holy Cross, and our readiness to adopt or make required business process changes. A "Future Technologies" IT advisory committee advises in this area. Below are highlighted just a few of the items on our watch list.

*"The Cloud": Outsourcing, Externally Hosting, and Software as a Service (SAAS).* Sourcing strategies are a major area of attention these days, not only in IT. While "the Cloud" can mean a variety of things, generally it indicates that services are provided over the internet rather than from software installed on an organization's premises. Arrangements can vary from a dedicated hosted site, to a shared hosted site, to a broadly distributed service hosted across multiple, redundant sites (e.g. Google). Benefits include rapid deployment, less ongoing infrastructure to support, and lower capital expense. The ongoing operating expense is generally higher for Cloud services, however. Table 3 lists our current inventory of Cloud services, as broadly defined above. FY15 was an active year for moves to the Cloud and more is planned for FY16.

<b>Service</b>	<b>Fiscal year</b>	<b>Service</b>	<b>Fiscal year</b>
Bookstore e-Commerce	05	InterviewExchange recruitment	07
Blackboard Connect	08	Certain event registration	09
Google Apps for Education	11 & 13	Heartland OneCard	11
Artstore	12	BoardEffect eBoard Books	13
Google search for HC web sites	13	Samanage Help Desk Ticketing	13
University Health Plans	14	Bepress digital repository	14
Lynda.com online training	15	Panopto video capture	15
College web site (Acquia)	15	Signum digital signage	15
JumpForward athletics recruiting	15	NeuLion Athletics ticketing	15

*Table 3. Cloud Services*

*Mobility/BYOD.* The College's workforce increasingly needs to stay connected to the IT systems, whether in the office, in the classrooms and labs, at home, or on the road. With widespread wireless access available on campus and off, laptop computers are more in use, as are other mobile devices such as iPhones and iPads. A survey of incoming first year students shows 97% ownership of smartphones (85% iPhones). The prevalence of these devices among students, faculty, and staff is causing us to rethink communication strategies. In FY15 our campus web site became "responsive" and mobile-friendly. Many of our business systems are mobile-enabled. As of this year, students are able to place orders to dining locations and monitor laundry machines using their mobile devices.

*Technology in the Classroom:* As mentioned, the President acknowledged an important trend in higher education when he added “Technology in the Classroom” as a strategic priority to the College Strategic Plan soon after arriving at Holy Cross. Many top tier institutions, including liberal arts colleges, are exploring new methods for teaching and learning with technology. One example is the “flipped classroom,” where course content is delivered through technical means such as course/video management systems, podcasts, or electronic documents, outside of the class meeting times so that students and faculty can spend valuable class time engaging together with the course content. In a sense, the lectures are outside of class and the “homework” is brought inside (hence a “flipped classroom”). This year, we implemented a video management system to make it easy for faculty to create videos to supplement lectures. Uses include explanations of particularly complex topics, additional exercises and examples, and full lectures. Also, in collaboration with the academic departments involved in CreateLab, we re-architected the 7x24 computer lab to support team collaboration and innovation using technology by adding moveable white boards, walls painted with white board paint, laptop hookups, projection, and movable furniture.

In his message to the Community, Fr. Boroughs explained that “we have begun to explore what it means to employ technology to enrich our signature liberal arts experience. Our focus is on projects that allow faculty members and students to augment and improve their current courses in order to teach and to learn in ways that would have been impossible without advanced technological support but are still delivered in a format that relies on face-to-face interaction.” ITS looks forward to continue working with others at the College on these initiatives.

*Business Process Redesign and “Paperless” initiatives:* The College has significantly reduced its paper printing in recent years. Networked printing dropped another 7% from last year and is down 57% in 5 years. Some of that reduction is due to the numerous online projects in the past couple of years, including online bills, online pay stubs, first-year forms, student insurance waivers, housing preference forms, a near paperless Admissions process, and a new set of online program application forms that include workflow. We hope to undertake one major project each year to further reduce our paper usage on campus.

### Department Goals for FY16

The number of active IT projects continues to be very high, with 40 planned for FY16. Each College division continually looks for ways to improve its operations through technology. We will need to prioritize these projects with focus on 1) improving our services to students, 2) moving our data systems where appropriate to the Cloud, 3) keeping up with information security best practices, and 4) very importantly, expanding our technology services in and out of the classroom.

Goals for ITS in FY16 include:

- Make further data security enhancements, including replacement of intrusion prevention and email data loss prevention tools, a “self-phishing” program, an information security standard implementation, and student employee security training.
- Rewrite the Admissions acceptance portal to be more customer-centric (user friendly, mobile). Explore implementation of a new Admissions data system.
- Deploy new “802.11ac” wireless capacity across campus.

- Implement a budget and planning system (Cloud-based).
- Expand the deployment of digital signage systems to the Science Complex, Career Services and the SGA Hogan lobby.
- Perform upgrades to ImageNow, Kronos, STAR, Finance, and all Oracle instances; expand our internet bandwidth.
- Replace the events calendar system and move the entire conference services system to the Cloud; also move Moodle and the blog service to the Cloud.
- Upgrade A-V systems in classrooms, including two dozen Apple TVs for wireless projection and several video cameras for video capture.
- Work with divisions on data analytics projects.

### Conclusion

Fiscal year 2015 was successful for the Information Technology Services department. All spending areas finished under budget, all but one project completed on time, and relationships with our partners across the College were strengthened as we ensure effective use of IT resources. We are partnering on a new level with the Dean's office and Educational Technology in support of technology in the classroom initiatives. Our goal is to lead the College in the use of technology in support of our mission. Clearly, information technology is having an impact on every dimension of college life; and we continue to do our best to add value to the education and research processes of our faculty and students. While it is not possible to predict exactly where technology will advance in the coming years, it is important that, as we move forward into FY16 and beyond, ITS both positions itself to respond to new opportunities and ensures a stable foundation of services and support.