

To: Michael Halleran
From: Scott Nelson
Gene Roche
Date: May 21, 2013
Re: Committee Report

We are pleased to submit the final report of the Digital Education Technology Committee. The report is presented as three documents. The first is a general summary of opportunities in e-learning and a set of findings and recommendations of ways in which the College might respond to technological challenges facing higher education. The second is an essay which puts the current e-learning conversation in historical context and identifies some of the central characteristics that define the educational experience at William & Mary. The third is a copy of the committee working paper providing a snapshot of e-learning activities at the College as of mid-April, 2013.

We would welcome the opportunity to discuss our findings in whatever forum might be appropriate.

Submitted on behalf of the committee members:

Rachel Brooks
Mark Brush
Karen Conner
Kathleen DeLaurenti
Joshua Erlich
Trotter Hardy
Judith Harris
Arthur Knight
Charles Lampkins
Barbette Speath
John Swaddle

Report of the Digital Education Technology Committee

In the fall of 2012, Provost Halleran formed a Digital Educational Technology Committee, asking it to describe educational technology use on campus and make “recommendations to advance our efforts... in ways that are consonant with the W&M educational experience and sensitive to the rapid and continuing changes in the field.” This is that committee’s report.

William & Mary is one of the most successful universities in the country. Student selectivity continues to increase; our alumni are pleased with their experiences; and the College supplied ten of the top 300 professors in a recent national survey of students. Our status as a research university feeds a steady stream of innovation, while our pride in our 300 years of history nurtures an equally strong sense of tradition. The goal of this committee is to identify and recommend effective ways to improve learning within that context through multiple educational uses of technology, which we label eLearning.

The findings and recommendations of the committee outlined below emphasize a balanced approach to expanding William & Mary’s use of eLearning. Members of this committee have had enough experience in eLearning in its many forms to be both aware of educational technology’s potential to enhance learning, and skeptical of uses that might conflict with the educational context and mission of the College. At present we see opportunities in three areas:

- * *Expanding eLearning options in selected programs in the professional schools and in graduate programs in the Arts and Sciences.* Graduate programs in business, education, law and selected programs in Arts and Sciences may wish to expand their offerings with additional blended and online programs. Such programs would need substantial instructional and technological support and flexibility to compete with the offerings of other regional and national institutions.
- * *Identifying high-quality, extant online educational resources that we can use in W&M courses.* Developing, testing, and refining high-quality digital learning materials demands considerable financial and human resources. At this stage of W&M’s eLearning development, we suggest focusing more upon finding and appropriating high-quality materials developed elsewhere than producing our own. At the same time, we think it is important to remain open to low-risk experiments that publicize the abilities of William & Mary’s teacher-scholars.

- * *Expanding “extension“ activities and programming* that would provide ongoing learning opportunities for community members within and beyond the College. This could include programs focused on connecting with W&M alumni who want to “go back to the College” for a lecture or a workshop, with Christopher Wren Association members who wish to take a short course online, or with prospective W&M students who might appreciate engaging with a sampling of content and assignments in selected William & Mary courses.

A Brief Taxonomy of eLearning

Before presenting our findings and recommendations, we think it is important to note that there are different eLearning techniques and methods. Most of the recent attention to eLearning in the press has focused on MOOCs—Massive, Online, Open Courses. However, there are hundreds of educational technologies and thousands of tools and resources that can be used instructionally. These can be conceptualized in terms of time and place, instructors’ and students’ roles, and proportion of campus-based activity.

Time and Place: eLearning can occur synchronously or asynchronously. On a synchronous schedule, eLearning can occur at the same time and in the same physical space (e.g., in a campus computer lab) or at the same time with students in different places. On an asynchronous schedule, eLearning can occur at different times for different students in different physical locations (e.g., an online course in which students work through modules at their own pace) or at different times with students in the same place (e.g., a campus-based course in which students proceed through a virtual reality simulation individually).

Instructors’ and Students’ Roles: Instructors can direct, facilitate, or manage eLearning activities. Students can participate in these activities independently; cooperatively with other students, working in parallel on different segments of the activity; or collaboratively, working together on all aspects of a common project. Courses can be designed which are almost entirely instructor-managed, are almost entirely student-driven or which combine both kinds of activities.

Proportion of Campus-Based Activity: Another way of classifying eLearning courses is by the proportion of campus-based activity. The Sloan-C consortium defines courses as follows: “(O) nline courses are those in which at least 80 percent of the course content is delivered online. Face-to-face

instruction includes courses in which zero to 29 percent of the content is delivered online; this category includes both traditional and web facilitated courses. The remaining alternative, blended (sometimes called “hybrid”) instruction has between 30 and 80 percent of the course content delivered online”.

It will be important to offer ongoing professional development for W&M faculty in multiple, flexible, and responsive formats, to help them to understand the types of eLearning that are available so that they can select, combine, and offer those that best match students’ learning needs and preferences.

Findings and Recommendations

The following findings and recommendations support the three general opportunities we identify in our introduction.

#1 Finding Many William & Mary faculty are already using eLearning to enhance student learning. We recommend expanding the College’s support of this work through the establishment of a Center for Teaching, Learning, and Technology. Many methods of online learning have long histories and have been examined by researchers. Such research can guide faculty members in making good use of eLearning tools in their classes. Currently it is difficult for faculty to find guidance and support since resources are spread throughout the College.

We recommend that the provost work with the deans to determine the best organizational structure to create such a center so as to capitalize on the existing programs of Swem Library, the Charles Center, the School of Education’s Technology Integration Center, eLearning initiatives at the other professional schools, and IT’s Academic Information Services Group. The structure of the center would also integrate initiatives that don’t yet have an organizational home, such as support for the new general education curriculum and projects of the Creative Adaptation Fund.

The provost and deans would convene an ad hoc committee with responsibility for doing a more wide-ranging survey of faculty in the schools of eLearning needs. The final goal of this committee would be to form a permanent university-wide committee (which we will here call the “Teaching, Learning, & Technology Committee”). This committee would be similar to current faculty committees that deal with libraries and other academic resources. The

committee would be the advisory and oversight body for the Center, which would have a small central staff structured along the lines of established teaching centers at many of our peer institutions.

Another component of this plan is the establishment of a full-time position such as a director of university eLearning initiatives. We believe that this position should report to the provost and should have the responsibility of working with the Deans to insure that programs in the professional schools and in Arts and Sciences are carefully reviewed by the appropriate faculty representatives and that eLearning planning activities are coordinated to make the best use of College resources. This director could also serve as the director of the proposed center if the advisory committee determines this to be the best course of action.

#2 Finding: *The potential benefits of eLearning need to be carefully explored. The issue of “transfer” credit for eLearning outside of the College’s offerings is especially important and needs immediate attention, particularly in light of the rapid spread of credit recommendations for online courses in other states. The College needs to have a process to evaluate emerging sources of credit and determine which--if any--merit W&M credit.*

An immediate charge to the Teaching, Learning, & Technology Committee would be to work with the Registrar’s Office and all other appropriate committees and administrative offices to assist faculty in determining policies and procedures for awarding credit. As we plan the College’s future with eLearning, it is important that we continue to distinguish what constitutes a high quality course for W&M and find ways to articulate those expectations.

The committee recommends that the College continue its rigorous approach to awarding credit for courses taken at other institutions--both online and in face-to-face venues--and maintain its current policy of requiring students to complete a substantial portion of their learning on-campus.

We recommend that the Teaching, Learning, & Technology Committee--in concert with departments and schools--outline procedures for awarding credit for non-W&M eLearning that can be applied across schools and departments. For example, students might bring course “portfolios” from external eLearning courses (e.g., course syllabus, a record of class assignments, instructor responses to those assignments) to W&M for evaluation for credit by individual departments and schools, as is currently done for transfer credit for traditional external courses.

#3 Finding: *Blended (hybrid) learning has much greater potential for the College than purely online learning. This form of teaching and learning allows us to use the power of new technology while maintaining W&M's established ability in face-to-face teaching and individual student engagement.*

The current media fascination with MOOCs is obscuring a central understanding: an excellent liberal arts college education of the sort the College is renowned for is not a collection of course credits. It is an integrated experience that involves multiple courses taught by experienced professors with different perspectives and teaching methods. It also requires a wide range of other curricular, co-curricular, and extracurricular experiences that are best organized as a whole and delivered on-campus.

We believe that the best strategy is to emphasize the College's commitment to residential, face-to-face education. Face-to-face, even one-on-one or very small group, teaching and learning is vital to the core definition of what constitutes the William & Mary experience. Within that educational framework, it is certainly possible that courses developed by other providers could be enhanced by using College-developed materials and supplemented with ongoing interaction with faculty and other students. We anticipate that one of the primary functions of the Center for Teaching, Learning and Technology will be to encourage faculty to experiment with such resources.

Since the College endorses, and is so well known for, face-to-face teaching, it is important that we clearly communicate the values of this way of teaching to students, parents, funders and the campus community. This is particularly important in the face of the mass of publicity that focuses almost exclusively on course delivery rather than on student learning. William & Mary faculty and administrators should seek opportunities to participate in regional and national initiatives that focus on improving learning through blended learning.

#4 Finding: *Additional revenue generation may be possible with selected Elearning programs in the professional schools. Income might also be generated from the addition of Elearning courses in traditional undergraduate programs like summer school, or a "boot camp" program to help transfer students, but this income is not likely to have a substantial impact on the overall budget of the College.*

We were asked to review the possibilities that eLearning might bring additional revenue to the College. We found no evidence that traditional students--those who are 18 years old, educationally successful and ambitious, and who enter

college straight from high school--are looking to replace the residential experience with online learning. Therefore, we see no potential revenue sources from using eLearning to bring additional students into our traditional undergraduate program.

A much larger--and more competitive--market exists among nontraditional students who are looking to complete a degree for vocational reasons. W&M has some presence in that market through our transfer programs, but the committee does not see future investment in online learning as a way of expanding the number of nontraditional learners as a good use of college resources.

We do think there are some specialized undergraduate programs, such as summer school, remedial and enhancement courses, which could generate revenue for the departments through eLearning courses or modules. We recommend support of such programs through the Center for Teaching, Learning and Technology to allow departments to augment funds with summer school and other programs that would provide support for departmental initiatives. Policies will need to be adopted which will allow departments to retain a substantial portion of the tuition generated if these initiatives are to foster innovation.

#5 Finding: *We find very little evidence that substantial cost savings at the institutional level can be made by substituting online teaching for face-to-face instruction. There is some evidence that departments could restructure large-enrollment gateway courses to reallocate faculty time in ways that provide benefits to the departments without sacrificing student learning. Securing those benefits would require strong commitments by departments or programs and a significant investment in the redesign process.*

Carol Twigg at the National Center for Academic Transformation has looked closely at these large-enrollment gateway courses, finding that they make up a large percentage of the enrollments in most curriculums. The NCAT has redesigned courses for underserved students in community colleges and large state schools and found that interweaving lectures with, for example, computer-based tutorials and low-stakes quizzes has helped student learning.

Faculty at W&M have already adopted many of the techniques that the NCAT reports have promoted, including clickers, think-pair-share exercises, and student learning maps. Our smaller-scale courses have allowed faculty to identify, test, and share our own best practices with each other in the

University's Teaching Enhancement Project. While the learning gains appear substantial in the NCAT-endorsed model, the learning context (massive classes, high dropout and failure rates, and widespread student apathy) appears quite different from W&M courses, even the very largest ones.

After review of the literature, we believe that departments and programs should initiate decisions about course redesign, and we stress that any redesign initiatives would require substantial support from the College for upfront costs. The costs of doing such a redesign are substantial—the baseline grant for NCAT redesigns was \$250,000—and most of the university participants were less selective and had less skilled teachers than W&M. Our examination of many of these projects shows that savings and learning gains are determined largely by contextual matters that may not easily be replicated at William & Mary. Departments may want to evaluate NCAT reports to determine possible strategies for improving a particular course, but it would be inappropriate to initiate such course design as an administrative mandate.

#6 Finding: *We find little evidence to suggest that competency-based models of higher education promoted by many states and the Federal Government will have transforming effects on traditional institutions like the William & Mary.*

Measuring and documenting accomplishment--decoupled from seat time--is getting a lot of attention from every quarter--starting with the Obama administration and continuing throughout every level of government, think tanks, and other interested groups.

Competency-based approaches are much more likely affect institutions which serve a higher percentage of adult learners. There may be some lessons here for service learning, internships, professional programs, and other experiential learning courses, but we think it unlikely that these types of eLearning programs will have much impact on the core curriculum of the college.

#7 Finding: *William & Mary should continue to experiment with new eLearning tools when they are appropriate.*

One area in which the committee did not reach consensus was on the extent to which the College should invest resources in becoming a content provider for experiments in open learning initiatives. The more cautious strategy might be to invest primarily in finding ways to use online resources to enhance our existing courses or extend our reach to courses were are not able to offer. However, several committee members remain committed to the idea that the

College should continue to consider experiments that might raise our visibility and expand our reach while highlighting the high quality of our teachers. We recommend continued exploration and possible investment in an experiment that might involve offering a MOOC or some other far-reaching initiative. One area of exploration might involve some collaborative effort between historians and Colonial Williamsburg.

In Conclusion

We believe that ELearning technologies are being used effectively throughout the College and that faculty will continue to search for ways to enhance teaching with technology when it is appropriate to do so. Few generations of teachers and scholars have experienced this much change in the tools and techniques available to enhance student learning. Our report offers a snapshot of the situation at the college at this particular time, and we encourage continued critical conversation on these topics.

An Inventory of E-learning at William and Mary

Provost's Committee on Digital Educational Resources

Committee Working Paper

May 20, 2013

E-learning Initiatives at William and Mary	3
<i>Ongoing Projects</i>	<i>3</i>
Applied Science Courses	3
Executive EdD Program	3
Mason Business Law	4
Marine Science Minor	4
Other Business School Initiatives	4
Other School of Education Initiatives	5
Other VIMS Initiatives	5
Initiatives at Swem Library	6
Rich Media Grants	6
E-learning Professional Development Summer Course	7
<i>Creative Adaptation Projects Awaiting Final Reports</i>	<i>7</i>
<i>Experimental Projects Under Development</i>	<i>8</i>
Business School Blended MBA Program	8
Self-Directed Faculty Development for eLearning (CAF Grant)	8
Development and Integration of Research-Based Data Analysis Exercises into the Large	
Introductory Biology Lab (CAF Grant)	9
Blended Learning: A New Introductory Course in the Arts (CAF Grant)	9
Offering Geospatial Graduate Courses in the Northern Virginia and DC Area (CAF Grant)	9
<i>Next Steps</i>	<i>10</i>

E-learning Initiatives at William and Mary

Note: There are two important points to remember in using this section of the committee report. First, the document was originally developed as a working paper for the committee and has not been discussed and vetted to the extent as the other two documents that make up the report. Data was collected from multiple committee members on the project wiki, and no attempt has been made to find a consistent voice for our presentation of the data. Second, this is a snapshot; the last revisions were made in mid-April and there have been multiple new e-learning projects launched at the College while others have been expanded.

If we take a broad definition of **e learning**, a majority of our faculty can claim to be using at least some technology-enhanced techniques in their teaching. If we use a more restricted definition that focuses on distance learning or blended learning, we have a much smaller of projects that qualify. The current document is a recent inventory of e-learning projects that fall into that second group, including both ongoing projects and experimental ones. Ongoing projects are defined as those that have actually been tested with students, and experimental ones are defined as those that are in development but have not yet been evaluated.

Ongoing Projects

The following projects are those that have been offered at least once and for which some data has been generated that allows for evaluation.

Applied Science Courses

Professor Michael Kelley in Applied Science has been a leader in synchronous teaching across multiple campuses. His most recent course offering, *Introduction to Materials Characterization*, was delivered synchronously to 39 students on multiple campuses including Virginia Tech, UVA, NSU, and VSU. After being taught in various classrooms across campus—including at least one semester in Courtroom 21—his classes have now found a home in Morton 321, which was constructed specifically as a videoconferencing venue with funds from the Class of 1971. Since its construction, the classroom has had multiple upgrades funded by IT and is supported by technicians from the Classroom Support group.

Professor Kelley has worked closely with colleagues at partner universities and with William and Mary Information Technology staff members in designing and delivering the course, and he uses his appointment at Virginia Tech to provide resources that are not available at WM. The ability to share his slides and lectures on a central server is central to his success in teaching these courses, and he has used Tech's tools to record and share course materials. If other faculty members are to share Prof. Kelly's methods and techniques, it will be important for William and Mary to develop the same capacity.

Executive EdD Program

The School of Education has launched an Executive EdD degree program that uses Adobe Connect for lectures, Blackboard's interactive and collaborative writing tools, and group project

spaces. The students in the Executive Ed D program are located along the East Coast from New York to Florida, and are currently employed in administrative positions in K-12 schools. Distance learning makes up about a third of the content of one of the courses offered during the regular semesters, and an even more significant portion of the other.

The first of the courses—*Data-Driven-Decision-Making*--has been offered twice with good results; the course on School Finance and Facilities is being offered this semester. The DDDM Course requires students to complete five modules to learn the basics of Microsoft Excel and to complete some additional online tutorials on research skills. Students then spend four intensive days on-campus applying what they have learned. Student satisfaction ratings indicate that the format works well for students; a detailed departmental review has yet to be conducted.

The content for the School Finance course is delivered entirely asynchronously. The first iteration of the course is in progress, and formative assessment indicates that the students are satisfied with the delivery mechanism. Detailed departmental review has not been conducted.

Mason Business Law

This past academic year the Mason School of Business successfully completed delivery of a hybrid course in business law, in which students met online for about 80% of the class meetings and face-to-face for the remainder. The students also completed group discussions and projects in the Adobe Connect online meeting space. In order to learn how to best implement other courses such as this one, five Mason faculty completed a seminar during the summer on using blended learning tools to enhance instruction.

The Mason School of Business provided stipends for faculty who participated in the program, and a number of new programs resulted from the summer course. As a result of this successful experience, the Business School is going forward with multiple other projects, including an expanded professional development seminar in the summer of 2013.

Marine Science Minor

The undergraduate minor in Marine Science introduces students to the global importance of marine ecosystems, their role in driving global biogeochemical cycles, and their significance to society as a source of food and in regulating climate. The minor is jointly offered and administered by William & Mary's School of Marine Science (SMS) at the Virginia Institute of Marine Sciences (VIMS) and Arts & Sciences. Courses are offered both on the main William & Mary campus and on the VIMS campus in Gloucester Point. Undergraduate students who are unable to travel to VIMS for classes may take courses by videoconference using dedicated facilities in Morton Hall.

Other Business School Initiatives

There have also been several successful experiments using e-learning in the Flex MBA Program, where faculty members have used Adobe Connect for synchronous online class

sessions. Doing so has allowed both faculty and students to participate in class from their homes, freeing them from the need to travel to the Peninsula Center in Newport News.

Another Mason professor used Adobe Connect to provide an opportunity for W&M students to learn and work collaboratively with students in Austria. An additional blended course was taught where the online (synchronous) sessions were held in Adobe Connect, and students had the flexibility to participate in internships (outside the Williamsburg area) while also taking the class.

Other School of Education Initiatives

Blended learning designs have been adopted and implemented in selected courses in master's programs in Gifted Education and Educational Administration, and were just approved for a completely redesigned master's program in Literacy Leadership. Faculty in the SoE are also working on a complete redesign/reformatting of the majority of the educational technology and higher education graduate elective (as opposed to required) courses that will make them more accessible to grad students and unclassified students (K-12 and college educators) wishing to take electives for professional development. All SoE students learning to be teachers and school counselors are required to maintain an online multimedia professional portfolio during their time in their programs, which they use as part of their job searches. Over 300 student portfolios are included in the more than 700 active wikis offered through the College's collaborative writing platform.

Other VIMS Initiatives

Faculty at the Virginia Institute of Marine Science routinely use e-learning tools and technologies in a variety of academic and professional settings. The following list summarizes some projects in progress in the spring of 2013.

- Core Courses (MSCI 501, 503, 504) are now recorded using Adobe Connect and posted to Blackboard, in addition to the videoconferencing provided for the Marine Science Minor.
- Some of our advanced courses (MSCI 550+) make use of online data sets, statistical analysis programs, and calculators
- Several courses post materials to Blackboard.
- Some faculty have offered lectures using polycom and have(are) explored(ing) options for co-teaching courses with faculty at other institutions using e-Learning tools.
- Fall 2011 "MSCI 698 Estuarine Ecology": students developed a wiki (W&M wikis) to synthesize the material covered during the semester. In future offerings this will be repeated, or students will update and improve the existing site. (Mark Brush and Linda Schaffner)
- Spring 2012 "MSCI 698-06 York River Sediment Dynamics": students and instructor developed a wiki-based text (W&M wikis) of the material covered over the course of the semester. (Carl Friedrichs)
- Adobe Connect for an on-line course in Fall 2010, co-taught with faculty from Univ of NH and UMass Dartmouth, and five students spread across four institutions, including VIMS. (Troy Hartley)
- Adobe Connect and Skype for Coastal & Marine Policy Implementation course, MSCI 684, linking in guest speakers from afar. (Troy Hartley)

- Web-casts of seminar speakers and storage of recordings on VA Sea Grant's web site for MSCI 698, the 1-credit seminar as part of the marine policy sub-concentration. (Troy Hartley)

Initiatives at Swem Library

Swem staff members have been active in the campus e-Learning community, sought out campus partnerships like the Rich Media Grant program, and have proactively initiated a number of new programs to support e-learning at the William & Mary Campus. A brief summary of some of these programs follows.

Kyle Collaboration Lab: The Kyle Collaboration Lab was made possible through a private donation to Swem Library in F12. The Collaboration Center is located on the ground floor of Swem Library and serves as a resources center for faculty to attend professional development sessions on what online content Swem has to support e-learning, techniques for managing online content, and other associated issues like scholarly communications, copyright, and licensing of content for e-learning. The lab also serves as a dedicated faculty space for learning how to use different software and hardware for developing their own online content and digitizing and managing online objects or collections related to their research.

Patron-driven E-book Collections: Swem has established patron-driven e-book collecting policies and is poised to join a statewide effort lead by the Virtual Library of Virginia (VIVA). Patron-driven e-book collections allow Swem to add thousands of titles to the collection without purchasing them. All students, faculty, and staff on campus will see this books as part of the collection. Swem purchases items only when someone has used them a specified number of times. This method of collection development allows Swem to expand our e-book offerings while only making purchases of materials actually used for research and study on campus.

Student Media Lab: Swem is currently consulting architects to design a new student media lab that will allow for group instruction in developing and executing digital media projects. This will enhance the current studios already in place and create a new collaborative workspace for students to conceive and execute digital projects that take advantage of new modes of communication.

Media Clip Service and E-Reserves Pilot in Spring 2013: In Spring 2012, Swem launched a media clip service that offers drop-off digitization for faculty who need to convert media for use in the online classroom or for their research needs. This pilot is part of a larger initiative for e-reserves that will give faculty a centralized mechanism for requesting, procuring licenses, and maintaining digital content needed for their courses. This centralized system will support the arrangement and persistent access to both library-purchased and faculty-developed digital content related to courses.

Rich Media Grants

Collaboration among Swem, AIS and the Charles Center produced 12 grants--all of them having some technology component. Some were fairly easy for faculty members to implement; others

required entirely new software and hardware with which support staff had little experience. Many of those are iPad-based, as the iPad seems to have captured the attention of a fair number of our faculty. Several are clearly e-learning oriented, including Jim Barber's [Flipping the Classroom Project](#) and several others that are producing reusable content that can be repurposed in multiple ways.

E-learning Professional Development Summer Course

Faculty and administrators from Information Technology, the Mason School of Business and the School of Education submitted the grant proposal under the Creative Adaptation Fund. Seventeen faculty members are participating in the seven-week E-learning Professional Development (ePD) course, which began in early June. The course, taught by four instructors from the Mason School of Business and School of Education, enrolled 17 faculty members.

The goal of the course was to prepare faculty members to teach their own blended classes – either new or redesigned ones -- in 2013. Although the ePD course does include [some minimal] technological training, it is mainly focused on instructional topics and how the faculty members can best use technology to achieve their teaching goals.

Creative Adaptation Projects Awaiting Final Reports

This section compiles information on projects that have been completed, but for which final evaluations have not yet been completed.

Redesign the Principles of Economics Course. The department of economics has received a \$50K award to develop online learning modules for two of their introductory courses. In each of the last four years, more than 1,000 William & Mary students have taken Economics 101. More than 600 students have taken Economics 102. It's a gateway course, a prerequisite for students interested in majoring in Economics, International Relations or Public Policy. These modules are not based on the pedagogical model that is being put forth by the MOOCs; students are engaged in activities that will allow them to extract economic principles from the work that they do. The modules were custom programmed in Flash by a contract programmer hired by the department of economics. The modules were presented within a structured shell using the Blackboard LMS.

Virtual Chemistry Lab: This project will create new lab experiences for non-science majors seeking their General Education Requirement lab credit in Chemistry, primarily through the use of on-line virtual lab exercises. The idea arose because laboratory space is currently at a premium and figures to remain that way for the foreseeable future. For several years, the Chemistry Department has been running its labs at near 100-percent capacity, and in some cases turning students away. The overall goal is to create a more engaging and technologically appropriate lab experience for both CHEM 101 and CHEM 103 students.

Teaching Masters of Accounting Prerequisite Courses: This project will teach four prerequisite Masters of Accounting classes – Accounting, Financial Management, Statistics, and

Information Technology -- via e-learning in order to maintain and improve its Number 1 ranking among small programs and Number 22 overall. The side benefit to the program is that many W&M non-business undergraduate students seek employment at government not-for-profit organizations. Many of these employers require these basic courses for entry-level positions. The non-business students thus will have a great opportunity to the necessary employment requirements through a W&M program, rather than through a program offered by another institution.

Experimental Projects Under Development

These projects have recently been launched, and it too early to tell how they will eventually play out. Descriptions of projects funded by the Creative Adaptation Fund are taken directly from the College's web site announcing the next round of grants.

Business School Blended MBA Program

The Mason School of Business is aggressively pursuing the launch of a hybrid MBA program to launch in the spring of 2014. The number of students is still under review, as is the business model, but the current plan calls for a steady-state enrollment of approximately 500 students. Also under study is the potential for an online Masters in Accounting program and some online programs in the School of Education. This is a major initiative by the business school.

Self-Directed Faculty Development for eLearning (CAF Grant)

School of Education/Technology Integration Center
Investigators: Gene Roche, Carrie Cooper

Diminished state appropriations, uncertain federal support and widening concerns about student debt are among factors pressuring even the strongest institutions to rethink their academic delivery programs. Educational technology provides a set of tools and techniques to help respond. Properly designed and delivered, e-learning can help transform academic programs, offer new levels of individualized student learning and help faculty implement new activities that have greater impact on student learning -- sometimes at lower overall cost.

Some, but not all, William & Mary faculty have significant experience with modern eLearning, whose instructional models are significantly different than traditional models, offer more options for customization of student learning, are more easily documented and measured and have been at least moderately more effective. This project offers faculty the opportunity to gain knowledge and skills required to design, deliver and assess blended learning.

While the six-week community model used last year is the "gold standard" for faculty development, it requires a significant time commitment to a fixed schedule. An alternative method is to provide the same content but in smaller "chunks" that faculty members can access at times that are convenient to them. These instructional modules will be high quality, carefully designed and will provide faculty with both a pedagogical understanding of e-learning and the

opportunity to develop specific skills. Each module will be self-contained and carefully focused so that they can be completed in a relatively short time.

Development and Integration of Research-Based Data Analysis Exercises into the Large Introductory Biology Lab (CAF Grant)

Department of Biology

Investigators: Margaret Saha, Mark Forsyth, Kurt Williamson, Drew LaMar and Robin Varney

The field of biology is becoming more and more data-driven. Researchers increasingly make discoveries through examining biological processes in silico—or through computer simulation. The Medical College Admission Test (MCAT), the standardized test for admission to medical school and other health care professions, has an augmented computational component.

This Creative Adaptation proposal aims to increase teaching efficiency while at the same time preparing William & Mary's biology students for the increased quantitative demands of biology-based careers and allowing them to contribute to current research projects at the university by creating more relevant, engaging and authentic lab experiences.

Blended Learning: A New Introductory in the Arts (CAF Grant)

Department of Music

Investigators: Greg Bowers, Anne Rasmussen, Katherine Preston, Kathleen DeLaurenti

A new introductory music course at William & Mary will provide students the chance to learn in the first Tegrity classroom in the Arts & Sciences. Tegrity technology can capture audio, video and computer activity from a course and make it available online with multiple interactive features. According to its Creative Adaptation proposal, the new course will utilize e-learning techniques and technologies and be offered in a large-lecture format in Ewell Recital Hall. Currently, the largest courses in music can accommodate about 60 students. Ewell Recital Hall seats up to 140.

The course will be developed as a May 2013 seminar, allowing faculty members to explore new pedagogical approaches – included blended learning techniques -- that they may not have been able to implement in smaller classrooms. The Tegrity system will allow them to do things such as display and annotate musical scores.

The technological upgrades to the hall will also improve its use as a performance space, allowing performances by students, faculty members and guest artists to be recorded and even broadcast. These abilities will not only benefit the university's reputation as an innovative place for the performing arts, they may also generate revenue.

Offering Geospatial Graduate Courses in the Northern Virginia and DC Area (CAF Grant)

Center for Geospatial Analysis, Office of Graduate Studies

Investigators: Stuart Hamilton, John Swaddle

Students and faculty from many departments have learned how to use GIS—geographic information systems—to advance their own research through classes and mentoring offered by William & Mary’s highly advanced Center for Geospatial Analysis.

GIS is a collection of techniques that allow data to be mapped and analyzed. It’s an extremely powerful and versatile approach that is used by researchers in the natural sciences, the social sciences and the humanities.

The Hamilton/Swaddle Creative Adaptation initiative proposes exporting the GIS revolution from Williamsburg, by setting up a GIS graduate certificate program to Northern Virginia and Washington, DC, where there is a demand for trained GIS professionals. The program will be based out of William & Mary’s D.C. Office initially.

Next Steps

As outlined in the recommendations section of the committee report, the College should establish a college-wide committee with the charge of collecting and evaluating information on the use of e-learning tools and techniques across the various schools and faculties. If possible, a procedure should be adopted which allows continuous monitoring of key e-learning projects in the face of the extremely rapid growth of new learning methods across higher education.

What is William & Mary about, and how does it fit into higher education generally?

When prospective faculty come to the on-campus interview at William & Mary they are frequently puzzled by the day's agenda. They must do the traditional lecture about research, but also spend time alone with undergraduates who quiz them about their future direction as scholars. At a lunchtime meeting with faculty they are quizzed about teaching philosophy and then must answer dozens of questions about how they teach: What do you do with the quiet students? How do integrate reading and lecture and primary sources? How do you sharpen students' analytical skills in a class of 35?

Welcome to William & Mary. Some candidates are pleased; most are puzzled by this daily agenda. We are often asked, "Isn't this a research institution?" or "We never got these questions in the mock interviews at my school." The teaching talk is a sink-or-swim event, and some candidates sink. The meeting with undergrads is an especially tough exercise because our college is filled with "nerdcore" students who are, it is widely admitted, wickedly smart and difficult to please. For those of us who teach them it is exhilarating to defend our fundamental premises or basic assumptions when we enter the classroom. Newly-minted PhDs often leave these interviews like refugees.

Most schools are not like this. The Scottish clergyman James Blair founded the College in 1693, eight years after the Church of England sent him to build up religious instruction the colony of Virginia. Trained himself in Scottish universities at Aberdeen and Edinburgh, he conceived of a curriculum on the Scottish model, with six masters or professors and roughly one hundred students. The model was not Oxford or Cambridge, but Edinburgh and St. Andrews: small classes and independent thinking, with students deciding which courses to take. Adam Smith, an instructor in the same system, praised this Scottish model of "little schools" for producing students with critical thinking skills. Each year the students paid a guinea a piece to their instructors on top of the small annual stipend provided by the college. According to Smith this extra incentive insured that the best instructors would attract the most students in order to supplement their earnings. Seminar and small-lecture teaching, since the College's founding, has been almost a fetish among the faculty.

Many Research I schools like William & Mary pride themselves on faculty research, publications, the impact-factor of journals, and international recognition. The strong implication in most school rankings is that faculty do research and educate students (by lecture), colleagues (by articles), and to the public (by books). Alumni, ranking agencies, and deans often reinforce this one-way model of learning. But like James Blair and Adam Smith we think the classroom, even the big classroom, ought to remain a small-scale back-and-forth enterprise. Our method of instruction produces students who are bespoke and outspoken. We would not have it any other way.

You will hear many pundits tell you that education is an industrial-age enterprise, built like an assembly line, and that students are now in an information age where the old rules no longer apply. From our perspective as faculty, staff, and students this is simply not true. The "modern" university was a product of the Gilded Age (1865-1900), but it was designed to produce

scientists and scholars, not factory workers. At that time fewer than two percent of Americans (mostly men but including a few women) earned bachelors degrees.

William & Mary's model of teacher-scholar and student-scholar embraces technology that enhances learning. Since about 1800, William & Mary has had research labs so that professors could move back and forth from direct research to teaching. Students learned the latest information about changes in the field, mostly because professors read the latest journals produced in Germany. The discoveries of Gilded Age – the periodic table, the cellular structure of plants, antiseptic techniques, electromagnetic force, and the structure of atoms – all grew out of little lecture courses. Some, like the periodic table, were expressly designed for teaching. The rapid discoveries in universities persuaded students then that their intellectual facilities could conquer the world around them, giving them the confidence that was the hallmark of the Gilded Age.

Since 1900, some universities have veered away from their undergraduate teaching mission into pure research. The lecture course with 1500 students is the result. Community colleges of pure teaching have exploded with instructors so overwhelmed with teaching that they cannot stay abreast of research in their field. William & Mary has doggedly stuck to the strategy outlined first by James Blair in 1693. Like many other liberal arts universities William & Mary combines research, teaching and technology. Our teacher-scholars are at the leading edge, from plasma physics and the Higgs Boson to lab-built molecules and vertebrate embryogenesis. But we are suspicious of fads that will pull resources away from the "little school," which we believe to be the source of invention and innovation.