Review and Discussion of the Fiscal Year 2017-18 Proposed Internal Audit Plan

FINANCE AND AUDIT COMMITTEE

June 5, 2017

University Internal Audit presents the proposed fiscal year 2017-18 audit plan to the Finance and Audit Committee for review and comment ahead of the final review, which will occur at the September meeting. An annual risk assessment was conducted to identify the entities that should receive audit attention in fiscal year 2017-18 and a core audit plan was developed.

For fiscal year 2017-18, more than 30 audit projects are proposed, with 75 percent of University Internal Audit's available resources committed to the completion of planned projects. A description of proposed projects has been provided within the audit plan. University Internal Audit's goal will be to complete 85 percent of the audit plan. The proposed audit plan may be modified based on the external audit environment or changes in regulations, management, or resources.

Virginia Tech

University Internal Audit
Fiscal Year 2017-18 Proposed Audit Plan
June 5, 2017

OVERVIEW

University Internal Audit conducts risk-based assurance engagements, compliance reviews, management advisory services, and investigations. The risk-based assurance engagement is an objective examination of evidence to provide an independent assessment of governance, risk management, and the control systems within the university. The objective of the compliance review is to ensure all senior management areas (even low risk) receive periodic reviews from University Internal Audit every five years to perform tests of compliance with major university business policies at a minimum. The nature and scope of management advisory service activities, developed through agreement with the client, add value and improve the university's governance, risk management, and control processes without the internal auditor assuming management responsibility.

RISK ASSESSMENT PROCESS

University Internal Audit leadership conducted an annual risk assessment to identify the entities that should receive audit attention in fiscal year 2017-18. University departments and administrative operations were grouped into approximately 175 auditable entities or responsibility centers based on common missions and the existing organizational structure.

For each auditable entity, University Internal Audit reviewed financial data, including expenditures, revenues, cash receipts, federal contracts and grants, and the total number of employees. The relative business risk was assessed on a judgmental basis for the following qualitative and quantitative factors.

Factors
Quality and Stability of Control Environment
Business Exposure (Materiality and Liquidity of Operational Resources)
Public and Political Sensitivity
Compliance Requirements
Information Technology and Management Reporting

Elements considered within these factors included:
- Management's awareness of internal controls;
- Stability and expertise of management;
- Interval since the last audit review;
- Complexity of operations and technology applications;
- Materiality or financial impact to the university;
- Potential impact to reputation;
- Impact of noncompliance with internal and external policy, procedure, regulatory, and statutory requirements; and

- Reliance on information and management reporting for operating decisions, monitoring performance, providing services, and allocating resources.

The chart depicts the results of the risk assessment classifications. The risk assessment results were consistent with previous risk assessments conducted by University Internal Audit.

Auditable Entities Risk Ranking

■ HIGH   ■ MEDIUM   ■ LOW
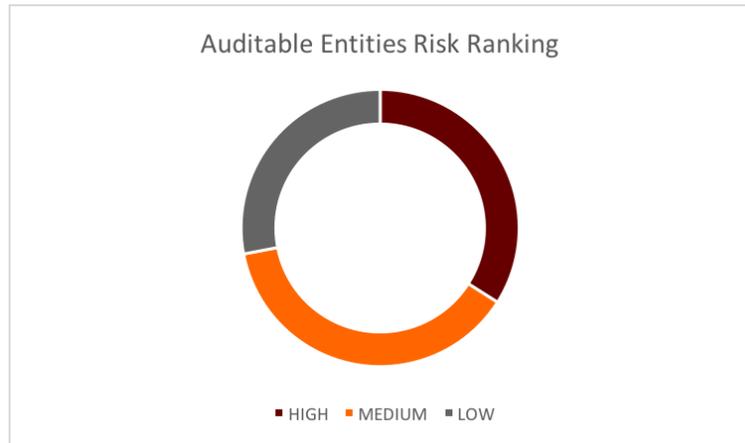
INFORMATION TECHNOLOGY RISK ASSESSMENT

University Internal Audit has also created a university-wide information technology (IT) risk-based audit plan mapped to the ISO 27002 standard, a best practice for developing and maintaining enterprise-wide IT security also references by university policies. University Internal Audit consulted with key IT personnel to ensure that audit coverage is maximized and properly targeted. The assessment of IT and business operations at the university identified four high-level risk domains intended to encapsulate the vast majority of the systems and computing environments within the university as follows:
- Student Systems;
- Finance and Administrative Systems;
- Human Resources Systems; and
- Research Systems.

The IT audit approach includes a variety of topical audits to gain a better understanding of the university-wide environment instead of narrowly focusing on the performance of individual departments. This approach also allows University Internal Audit to maintain current knowledge of the IT security and operating conditions in a dynamic industry through the constant evaluation and reassessment of planned audit engagements.

CORE AUDIT PLAN

University Internal Audit has identified certain critical areas for inclusion in the core audit plan to ensure that adequate coverage is provided over a reasonable time. To obtain additional insight and validate the plan, one-on-one discussions were conducted with senior leadership to identify reputation factors, regulatory changes, organization shifts, new initiatives, and deployment of new systems or technology tools.

The critical areas for core audit plan inclusion are:

- Academic Units
- Auxiliary Enterprises and Athletics
- Campus Safety and Security
- Enrollment Services
- Facilities and Operations
- Financial Management
- Human Resources
- Information Technology
- Off-Campus Locations
- Research
- Student Services

The core audit plan includes several multi-year audits that will allow for annual reviews of selected components of the entities with high external compliance risk and complex operations. These entities are University Scholarships and Financial Aid, Research, Human Resources, and Intercollegiate Athletics.

FISCAL YEAR 2017-18 AUDIT PLAN

The audit plan focuses on delivering value to Virginia Tech with an emphasis on the following risk areas: strategic, operational, financial, compliance, and IT. If new topics emerge during the audit plan period that require more immediate attention, reconfiguration of the plan can be undertaken to accommodate these changes. University Internal Audit's goal is to complete 85 percent of the audit plan. As each audit is undertaken, risks will be re-evaluated to ensure proper audit coverage with consideration of confidentiality, integrity, and availability. Annual expenditures and revenues referenced below reflect fiscal year 2015-16 data unless otherwise noted.

Risk-Based Assurance

Planned Engagement	Overview	Risk Area
Biochemistry	Biochemistry is the branch of the life sciences devoted to the identification and analysis of the structure, function, and mechanisms of action of the molecules of life. The B.S. program is one of the largest undergraduate programs in the U.S., and is accredited by the American Society of Biochemistry and Molecular Biology. Total expenditures were approximately $8 million, including approximately $4 million in research. Biochemistry has not previously received a dedicated review.	Operational – Academic
Biocomplexity Institute of Virginia Tech	The Biocomplexity Institute of Virginia Tech (formerly the Virginia Bioinformatics Institute) broadly integrates research disciplines, ranging from molecular science to policy analysis, to address pressing challenges to human health, habitat, and well-being. The complexity and scale of research at the Biocomplexity Institute of Virginia Tech demands coordination between experts in many different fields including mathematics, biology, physics, computer science, statistics, psychology, and more. Total expenditures exceeded $27 million, while research expenditures were approximately $13 million. The last targeted review was in 2010.	Operational – Research
Biological Systems Engineering	Biological Systems Engineering (BSE) is the engineering discipline that applies concepts of biology, chemistry, and physics along with engineering and design principles to solve problems in biological systems. The mission of BSE is to develop and	Operational – Academic

Planned Engagement	Overview	Risk Area
	disseminate engineering knowledge and practices that protect natural resources and improve sustainable production, processing, and utilization of biological materials. Total expenditures were approximately $9 million, including research in excess of $4 million. BSE has not previously received a dedicated review.	
Biomedical Engineering and Mechanics	In August of 2014, the Virginia Tech College of Engineering announced the merger of Engineering Science and Mechanics with Biomedical Engineering into a new department to be known as Biomedical Engineering and Mechanics (BEAM). BEAM is a unique multidisciplinary interface between fundamental mechanics, biomedical science, and real-world applications to enhance the quality of life. Total expenditures were approximately $17 million (representing approximately 65 percent growth over a 7 year period) and research expenditures totaled more than $6 million. The newly formed unit nor either of the two component units have previously received a dedicated review.	Operational – Academic
Chemistry	Courses in the Department of Chemistry provide the chemical foundation for all Virginia Tech science and engineering students and broaden their understanding about the structure and properties of matter. The undergraduate and graduate degree programs aim to prepare society's future chemists and scientists. The department continues to pursue multi-disciplinary research within and beyond the university, find innovative ways to instruct students, forge partnerships with industry and government, and establish a reputation as one of the world's highest ranking chemistry departments. Total expenditures were approximately $16.9 million, including approximately $8 million in research. The department last received a targeted review in 2009.	Operational – Academic
Controller's Office – Risk Management	The Insurance and Risk Management Office handles all insurance matters, including claims, for the university. In addition, the office provides risk analysis for various university activities and management of the Student Medical Insurance program, covering both undergraduate and graduate students.	Operational – Administrative
Endowed Professorship Utilization	Endowed chairs, professorships, and fellowships are established by a donor who provides an endowment to support the salary and/or operating funds of the professor. Funding levels determine whether the endowed position is a chair, professorship, or fellowship. Each college has formal procedures for the nomination and appointment to endowed chairs, professorships, and fellowships, which include review by a college honorifics committee or promotion and tenure committee. There are approximately 180 active endowed professorships across the university.	Financial
Fire Safety Compliance	The university is subject to mandatory compliance with the Virginia Statewide Fire Prevention Code and has policies relating to misuse of fire equipment, arson, disregard of fire alarm signals, and tampering with fire alarm and smoke detection equipment. The Virginia State Fire Marshal's Office conducts fire prevention inspections of state-owned facilities (including colleges and universities), inspection of construction projects in state facilities, and investigation of complaints. A targeted topical review of this particular nature has not been conducted previously.	Compliance & Operational – Safety

Planned Engagement	Overview	Risk Area
Global Activities	The university's emphasis on efforts to further develop its global presence presents distinct opportunities and challenges. Global operations can pose significant risks related to immigration compliance, economic and tax implications, fraud and loss of funds, life safety, transportation and evacuation, and reputational concerns, among others. Previously issued presidential memoranda and university policies require completion of requisite forms and reports as well as notification of the appropriate offices in advance of global activities, particularly when students are involved.	Compliance & Strategic
Human Resources: Benefits *	Human Resources administers the commonwealth benefits program and provides benefit management and guidance for approximately 7,500 faculty and staff. The benefits program is an integral part of the university's employee compensation package and includes health insurance, leave, legal resources, retirement plans through the Virginia Retirement System, tuition assistance, and workers compensation. This function was last reviewed in 2011.	Financial
Hume Center	The mission of the Ted and Karyn Hume Center for National Security and Technology (Hume Center) is to cultivate the next generation of national security leaders by developing and executing curricular, extracurricular, and research opportunities to engage students. Jointly operating in the National Capital Region and the Blacksburg campuses, Hume Center research activities principally focus on cybersecurity, resilience, and autonomy challenges faced by the national security and homeland security communities. While not officially established in its current format until 2010, organizational oversight of the Hume Center has transitioned several times since inception. Research expenditures totaled approximately $6.6 million. Elements of the Hume Center's activity have been previously reviewed; however, there has not yet been a focused audit.	Operational – Research
International Research, Education, and Development	The Office of International Research, Education, and Development (OIRED) supports the university's international mission by leading projects that raise the standard of living in developing countries. As part of the university's Outreach and International Affairs division, OIRED provides access to the full range of expertise available at Virginia Tech and through project partners around the world. Total expenditures were approximately $7.6 million, including research expenditures of $6.5 million. OIRED was included in a broader review of International Affairs in 2013.	Operational – Research
Recreational Sports	Recreational Sports is a department within the Division of Student Affairs that works to enhance the quality of life for the university community by encouraging healthy lifestyles, social interactions, and leadership skills in a fun, active, competitive, and educational environment. Recreational Sports provides opportunities for students, faculty, and staff to engage in physical activities to create healthy lifestyle habits and provides opportunities for youth in the community to start living an active life. Other programs include intramural sports, sport clubs, and aquatics. Total expenditures were approximately $7 million and revenue was approximately $10.4 million. This activity was last reviewed in 2011.	Operational – Student Services

Planned Engagement	Overview	Risk Area
Research: Animal Care and Use *	All personnel who are involved in the use of animals for either teaching or research at Virginia Tech have a responsibility for appropriate animal care and use. Further, each individual is accountable by law to conform to the basic regulations and policies governing animal use at the university. All teaching uses as well as any research involving vertebrate animal species (excluding human subjects), regardless of funding source, are under the purview of the Virginia Tech Institutional Animal Care and Use Committee (IACUC), a federally mandated committee. This activity was last reviewed in 2011.	Operational – Research
School of Public and International Affairs	The School of Public and International Affairs (SPIA), operating within the College of Architecture and Urban Studies, offers degree programs in the Center for Public Administration and Policy, Government and International Affairs, and Urban Affairs and Planning. Research initiatives are carried out by the Metropolitan Institute in the National Capital Region, and the Institute for Policy and Governance at the Blacksburg campus. Total expenditures were approximately $9.2 million while revenue was just over $2.2 million. SPIA has not previously received a dedicated review.	Operational – Academic
Services for Students with Disabilities	Services for Students with Disabilities (SSD) exists to assist the Division of Student Affairs and the university with advancing their missions and with protecting students' civil rights under the Americans with Disabilities Act. SSD establishes clear guidelines and procedures, creates collaborative partnerships, and provides progressive services to promote student learning, personal growth, and development of life skills. SSD endeavors to create a campus climate in which students with disabilities experience full access and inclusion in curricular and co-curricular opportunities in the academic community. SSD has not previously received a dedicated review.	Operational – Student Services & Academic
Telecommunications Operations	As a sub-unit of the Division of Information Technology and reporting to the Executive Director of Network Infrastructure and Services, the auxiliary component of Communications Network Services (CNS) exists to provide leading edge telecommunications services in support of the instructional, research, and outreach missions of Virginia Tech. CNS delivers voice, data, and video services to all segments of the university community. As an auxiliary, this unit operates in a self-funded manner, and revenues and expenditures were $20.3 and $20.2 million respectively. This activity was last reviewed in 2009.	Operational – Administrative
University Registrar	The Office of the University Registrar (Registrar) provides many services, including academic records maintenance for more than 33,000 current students across 250 undergraduate and graduate degree programs. Other areas of responsibility include data stewardship; data integrity; ensuring compliance with all agency, state, and federal regulations; and development of semester course offerings. The last dedicated review of this office was in 2012.	Compliance & Operational – Administrative
University Scholarships and Financial Aid	The Office of University Scholarships and Financial Aid (USFA) supports the university's student access, enrollment, and retention goals by providing the financial means to encourage economic, social, cultural, and academic diversity in the student body. USFA provided or monitored approximately $446 million in student	Compliance & Financial

Planned Engagement	Overview	Risk Area
	financial assistance in fiscal year 2015-16. A complete audit of the various activities within USFA is performed over a four-year period.	
Virginia Cooperative Extension – Central District	Virginia Cooperative Extension (VCE) is an educational outreach program of Virginia's land-grant universities: Virginia Tech and Virginia State University. VCE – Central District is made up of approximately 25 county and city offices and had $3.1 million in expenditures and $1 million in revenue which was almost entirely in the form of cash receipts. A review focused specifically on the Central District has not been conducted before; however, other districts have been reviewed previously.	Operational – Academic

* Entity receives an annual audit on different components of their operation.

Information Technology Assurance

Planned Engagement	Overview	Risk Area
IT: Windows Server Security	Servers are used widely to perform a variety of tasks, from network attached file storage or collaborative database hosting to processing email or print requests. As such, servers often present significant risks when not properly secured. A large percentage of the university's servers operate on the Windows platform. Focus will be on Windows Server security across the university, in various administrative, academic, and research departments. Windows Server security was last audited in 2014.	Information Technology
IT: Employee Access Lifecycle	From first-hire date to separation, university employees receive credentials that provide access to a number of information systems, networks, and other critical IT resources. System and network administrators, data stewards, and other central support staff must manage those credentials throughout the term of employment, which may include changes in the assignment of job duties, transfers between departments, and ultimately, separation from university employment. This audit will evaluate the assignment, modification, and removal of user credentials for university IT resources. Employee access has been reviewed in audits for specific IT resources; however, this will be the first broadly-focused audit of the employee access life cycle.	Information Technology
IT: Mobile Device Security	The use of mobile devices is now ubiquitous across the university's various business units. Smart phones and tablets are frequently used to access university data and systems including web-based applications and university email, which can include sensitive data in the form of attachments. Security configurations and requirements vary greatly across the industry. This audit will focus on the policies and procedures surrounding mobile device security from both the department and central administrative perspectives. Mobile device security was last audited in 2013.	Information Technology
IT: Third-Party Access to University Data	In addition to mandatory submission of data to third parties, the university has procured entire systems and services through outsourcing agreements to host and process institutional data. Examples include an outsourced e-commerce system for procuring goods or services and systems intended to meet requirements for meeting federal immigration requirements. In addition to these high-visibility centrally purchased systems, there may be departmental systems outside of the university environment that may have highly sensitive data, yet have not been approved by central administration due to long-term	Information Technology

Planned Engagement	Overview	Risk Area
	existence or relatively low financial impact. This audit is intended to identify and review the security of university data in outsourced systems as well as other third-party vendor access to data. The outsourced environment was last audited in 2013.	

University Policy Compliance Reviews

University Internal Audit will continue its program of limited scope reviews of senior management areas.   These surveys review major aspects of a department's administrative processes using internal control questionnaires and limited testing that provides broad audit coverage ensuring compliance with university policies on campus.

Planned Engagement	Overview	Risk Area
College of Engineering	The College of Engineering (COE) offers 14 undergraduate majors, 7 minors, and 17 graduate degree programs. COE had $204.3 million in expenditures and $91.1 million in sponsored research. The last compliance audit of this area was in 2013.	Operational – Administrative
College of Liberal Arts and Human Sciences	The College of Liberal Arts and Human Sciences (CLAHS) offers 29 undergraduate majors, 53 minors, and 32 graduate degree programs. CLAHS had $75.1 million in expenditures and $6.8 million in sponsored research. The last compliance audit of this area was in 2013.	Operational – Administrative
Department of Athletics	The Department of Athletics (Athletics), with 22 varsity sports at the NCAA Division I level, monitors more than 550 student-athletes each academic year. Athletics had operating revenues of approximately $83.8 million and total operating expenses of approximately $84.6 million. University Internal Audit conducts a complete audit of Athletics over a five-year period. This audit will be a limited compliance review of university policies and procedures. The last review of this nature was completed in 2013.	Operational – Administrative
Vice President for Advancement	The Vice President for Advancement is responsible for securing resources that will enhance the academic quality of the institution, promoting public understanding of and support for Virginia Tech, enhancing the perception and knowledge of various publics of the university's programs and accomplishments, and creating a positive public impression of the university and its faculty, students, and programs. Offices include University Relations, University Development, and Alumni Relations. The last compliance audit of this area was in 2011 (University Development and University Relations) and 2015 (Alumni Relations).	Operational – Administrative
Vice President for Research and Innovation	The Office of the Vice President for Research and Innovation is responsible for supporting and promoting Virginia Tech faculty members, staff, and student research, scholarship, and creative activity and supporting the university community and its missions by fostering quality research and scholarship. Offices include Office of Research Compliance, Animal Care, Sponsored Programs, Fralin Life Sciences, Virginia Tech Carilion Research Institute, Virginia Tech Transportation Institute, and the Biocomplexity Institute of Virginia Tech. The last compliance audit of this area was in 2012.	Operational – Administrative
Virginia–Maryland College of Veterinary Medicine	The Virginia–Maryland College of Veterinary Medicine consists of three academic programs and four departments. The college is a leading biomedical teaching and research center and the in-state	Operational – Administrative

Planned Engagement	Overview	Risk Area
	veterinary college for residents of Virginia and Maryland. Locations include the main campus in Blacksburg; the Marion duPont Scott Equine Medical Center in Leesburg; and the Gudelsky Veterinary Center in College Park, Maryland. The college had $55.6 million in expenditures and $23.1 million in sponsored research. The last compliance audit of this area was in 2013.	

Management Advisory Services

Planned Engagement	Overview	Risk Area
Facilities and Administrative Charge Utilization	Facilities and Administrative (F&A) charges, commonly referred to as indirect costs or overhead, are a complex component of sponsored programs. Indirect charges are simply costs that cannot practically, or in a cost-effective manner, be directly tied to a single project. Often used illustrations of F&A costs are electricity, water, sewer, general equipment/building depreciation, and administrative support. Additionally, administrative support costs, which include salaries and benefits for departmental, college, and university personnel involved in the central administration of the institution, are included. The Controller's Office negotiates F&A and fringe benefit rates with the university's cognizant federal agency. Approved rates must be accepted by other agencies, unless specific program regulations restrict the recovery of indirect costs. Understanding these costs is imperative when calculating research metrics in support of national rankings, sponsor relations, and regulatory compliance.	Operational – Research
Fair Labor Standards Act Practices	The Fair Labor Standards Act (FLSA) is a federal law that establishes minimum wage, distinguishes between covered (non-exempt) and excluded (exempt) employees, overtime threshold (40 hours in a week), overtime pay, record keeping requirements, and youth employment standards for employees in the private sector and in federal, state, and local governments. The university has established university policy 4320, Guidelines for the Fair Labor Standards Act, to help ensure compliance.	Compliance
Government Relations	The Office of Government Relations is the primary liaison between the university community and elected officials and government entities at the state and federal levels. It monitors legislative issues and works with other colleges and universities in support of higher education. The office is responsible for advising the President on government policy and proposed legislation and in developing institutional positions. This review is intended to benchmark with peers to compare processes and the utilization of performance metrics in an effort to maximize operational effectiveness.	Strategic
School of Plant and Environmental Sciences	The School of Plant and Environmental Sciences will be a national and international leader for improving human well-being and quality of life through learning, discovery, and engagement in plant and environmental sciences. The school will integrate three existing departments that share certain mission elements: Crop and Soil Environmental Sciences; Horticulture; and Plant Pathology, Physiology, and Weed Science. These units already share cross-cutting interdisciplinary research, and will be further connected through undergraduate curricula and linked graduate programs, as well as through statewide research, extension, and	Operational – Academic

Planned Engagement	Overview	Risk Area
	outreach activities. The school will initially consist of 86 affiliated faculty, 64 staff, and over 100 graduate students, and will have over $8 million in annual research expenditures. This review is intended to help ensure an optimal control structure for the operations of the new school as it continues to develop and emerge.	

Special Projects and Annual Audit Activities

Activity	Overview
Special Projects	Investigate fraud, waste, and abuse allegations.
Annual Audit Activities (Follow-up, Inventory)	Conduct follow-up audit procedures to ensure that management is implementing controls as described within their responses to audit report recommendations. Assist management with year-end inventory counts for financial statement verifications.
External Audit Coordination	Manage and serve as the liaison for all external audit services including contracted and regulatory-imposed audits.

AUDIT RESOURCES

The audit plan for fiscal year 2017-18 is based on professional staffing of 12 full-time equivalents (FTEs). Staffing will be augmented by the continuation of the student internship program in which two Virginia Tech students are employed. Approximately 75 percent of University Internal Audit's available resources are committed to the completion of planned audit projects, management advisory reviews, and investigations. The annual audit plan is designed to provide appropriate coverage utilizing a variety of audit methodologies including audits of individual units, functional and process audits, university-wide reviews, and information system projects. University Internal Audit conducts follow-up audit procedures throughout the year to ensure that management is implementing controls as described within their responses to audit report recommendations.

Audit resources are allocated as follows:
- 52 percent of the University Internal Audit's available resources are committed to the completion of planned audit projects and follow-up audit procedures.
- 13 percent to accommodate requests from management and consultations with university departments.
- 10 percent to conduct investigations into fraud, waste, and abuse allegations.
- 12 percent for employee professional development, internal quality improvement projects, and other internal administrative functions.
- 13 percent for compensated absences such as annual, sick, and holiday leave.