MEMORANDUM

TO: Dr. Ralph Wilcox, Provost & Executive Vice President of Academic Affairs
Dr. Terry Chisolm, Vice Provost for Strategic Planning, Performance & Accountability

FROM: Kate M. Head, CPA, CFE, CISA
Interim Executive Director

DATE: February 26, 2017

SUBJECT: 17-010 Performance-Based Funding Data Integrity Audit

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University Audit and Compliance performed an audit of the university's processes and internal controls that ensure the completeness, accuracy, and timeliness of data submissions to the Board of Governors (BOG). These data submissions are relied upon by the board in preparing the measures used in the performance-based funding process. This audit will also provide an objective basis of support for the President and Board of Trustees Chair to sign the representations included in the Performance-Based Funding Data Integrity Certification to be filed with the BOG on March 9, 2017. This project is part of the approved UAC 2016-2017 Work Plan.

Measures One through Nine were based on data submitted through the State University Database System (SUDS) utilizing a state-wide data submission process for BOG files.

Measure Ten was based on data submitted to the National Science Foundation/National Institutes of Health through their annual survey of Graduate Students and Postdoctorates in Science and Engineering (GSS). This data is published annually by The National Center for Science and Engineering Statistics.

UAC's overall conclusion was that there was an adequate system of internal controls in place to meet our audit objectives, assuming corrective actions are taken timely to address the two medium-priority risks communicated separately in our management letter. **As of the date of this report, the two issues have been resolved.**

One of the two risks identified had a direct impact on the achievement score of the USF System for Measure Nine: Percent of Bachelor's Degrees without Excess Hours. **No other measure within the Board of Governors performance-based funding model was impacted**. Had this issue been identified and corrected earlier, it would likely have increased the USF System performance score in 2013-2014 and 2014-2015 for Measure Nine.

OVERALL CONCLUSION	
☐ Adequate System of Internal Control	Findings indicate that, as a whole, controls are adequate. Identified risks, if any, were low-priority requiring timely management attention within 90 days.
☒ Adequate System of Internal Control – with reservations	Medium-priority risks are present requiring urgent management attention within 60 days.
☐ Inadequate System of Internal Control	High-priority risks are present requiring immediate management attention within 30 days.

We received outstanding cooperation throughout this audit. Please contact us at 974-2705 if you have any questions.

cc: President Judy Genshaft, USF System
      Chair Brian D. Lamb, USF Board of Trustees
      John Long, Senior Vice President, Business and Finance and Chief Operating Officer
      Dr. Charles Lockwood, Senior Vice President, USF Health
      Dr. Paul Sanberg, Senior Vice President, Research, Innovation & Economic Development
      Dr. Sophia Wisniewska, Regional Chancellor, USF St. Petersburg
      Dr. Sandra Stone, Regional Chancellor, USF Sarasota-Manatee
      Nick Trivunovich, Vice President, Business and Finance and CFO
      Sidney Fernandes, Vice President & CIO, Information Technology

SCOPE AND OBJECTIVES

Our audit focused on the processes and internal controls established by the University of South Florida System as of September 30, 2016, to ensure the completeness, accuracy, and timeliness of data submissions to the BOG, which support the Performance-Based Funding (PBF) measures.

The primary objectives of our audit were to:

- Determine whether the processes and internal controls established by the university ensure the completeness, accuracy, and timeliness of data submissions to the BOG which support the PBF measures.

- Provide an objective basis of support for the President and Board of Trustees Chair to sign the representations included in the Performance-Based Funding Data Integrity Certification, which will be submitted to the Board of Trustees and filed with the BOG on March 9, 2017.

The scope and objectives of the audit were set jointly by the Chair of the University of South Florida Board of Trustees, the Audit & Compliance Committee via its Audit Liaison, and the university's Chief Audit Executive. UAC followed its standard risk assessment, audit program, and reporting protocols.

PROCEDURES PERFORMED

We followed a disciplined, systematic approach using the *International Standards for the Professional Practice of Internal Auditing*. The information system components of the audit were performed in accordance with the *ISACA (Information Systems Audit and Control Association) Standards and Guidelines*. The COSO and COBIT Control Frameworks were used to assess control structure effectiveness.

Testing of the control processes was performed on the most recent data file submissions as of September 30, 2016, unless a more recent submission was more representative of the control structure in place on September 30, 2016. Our testing focused on the tables and data elements in the files which are utilized by the BOG to compute the performance measure. The BOG provided specific mapping of data submissions to the PBF measures. (See Appendix A.)

UAC performed a comprehensive review of the controls and processes established by the university to ensure the completeness, accuracy, and timeliness of data submissions to the BOG which supported the Performance-Based Funding (PBF) metrics during our audit in FY 2014-2015. In addition, we reviewed any changes to the controls and processes in our audit in FY 2015-2016. As a result, the scope of the PBF audit this year was to identify and evaluate any material changes to the controls and processes which were in place during the prior audit period.

The following procedures were performed:

1. Identified and evaluated any changes to key processes used by the data administrator and data owners/custodians to ensure the completeness, accuracy, and timely submission of data to the BOG. This included verification of the new controls put into place to resolve

deficiencies identified in the prior year and review of the appointment of a new Data Administrator by the President.

2. Reviewed 2016 BOG SUDS workshop proceedings to identify any changes to data definitions used for the BOG PBF metrics.

3. Reviewed all User Service Requests (USRs) to modify data elements and/or file submission processes to ensure they followed the standard change management process and are consistent with BOG expectations.

4. Reviewed the Data Administrator's data resubmissions to the BOG since January 1, 2016, to ensure these resubmissions were both necessary and authorized, and evaluated that controls were in place to minimize the need for data resubmissions and were functioning as designed.

5. Updated the prior year Risk Assessment and Fraud Risk Assessment to reflect changes identified.

6. Reviewed the new application manager process implemented in Fall 2015 for the January 2016 Retention File submission.

7. Verified that data submitted to the BOG for Measure Nine - Percent of Bachelor's Degrees without Excess Hours, via the Hours to Degree file, is accurate, complete, and consistent with BOG expectations.

PRIOR UAC PROJECTS

UAC performed an audit during FY 2015-2016 of the controls and processes established by the university to ensure the completeness, accuracy, and timeliness of data submissions to the BOG which supported the Performance-Based Funding (PBF) metrics (UAC 16-010, issued February 29, 2016). The one recommendation was reported as implemented by management as of February 29, 2016.

During this year's audit, UAC verified that the new documentation procedures implemented in Spring 2015 for Measure Ten had been implemented and was effectively mitigating the risks identified. The recommendation for Measure Ten listed in UAC 16-010 was implemented in Spring 2016. These procedures were in effect for the Fall 2015 reporting period, which will be reported by the NSF in Spring 2017. As a result, the new procedures cannot be verified until next year.

BACKGROUND

USF SUB-CERTIFICATION/EXECUTIVE REVIEW PROCESS

✓ **A formal Sub-certification and Executive Review process is in place to ensure that institutional data submitted to the BOG accurately reflects the data contained in the primary systems of record. Data Stewards, Sub-certifiers and Executive Reviewers who had operational and/or administrative responsibility for the institutional data are assigned key roles and responsibilities.**

KEY ROLES AND RESPONSIBILITIES

Key Role	Performed By	Appointed By	Responsibilities
Institutional Data Administrator (DA)	Associate Vice President of Resource Management & Analysis (RMA)	President	Responsible for certifying and managing the submission of data to the Board of Governors (BOG). Appointed by the President.
Back-Up Data Administrator	Assistant Director of RMA	President	Responsible for managing and supporting BOG state reporting activities. The activities include, but are not limited to, file generation, certification, and executive review meeting oversight, submission, and resubmission for mandatory reports of the BOG.
Executive Reviewer	Executive level administrator	Data Administrator, with approval of the Provost and Chief Operating Officer	Responsible for reviewing and approving the file submission prior to requesting that the Data Administrator submit the file to the BOG. Role is assigned based on the area of responsibility in relationship to the data source.
Sub-certifier	A senior-level employee, responsible for the institutional data contained in a submission.	Executive Reviewer	Oversees the definition, management, control, integrity, and maintenance of institutional data. Responsible for coordinating the data collection process, monitoring the data to ensure current processing procedures are effective, and certifying the data represents facts based on accurate data from programs and offices.
Data Steward[1]	An employee, who has administrative and/or operational responsibility over institutional data.	Sub-certifier	Responsible for ensuring that the data has been collected systematically, entered accurately, and reviewed by the Sub-certifier; controlling data definitions to ensure consistent definitions over the life of the data, and resolving discrepancies in information. Collaborates with other offices and programs responsible for producing data and information impacting the submission.

[1]An enterprise application may have teams of Data Stewards, each responsible for varying functions.

In 2008, USF put a formal review process in place for all BOG file submissions which is managed by Resource Management & Analysis (RMA). This process ensures that each submission has been assigned to at least one Sub-certifier who is responsible for the data contained in the submission and who must certify the data accurately reflects the data contained in the related primary system(s) of record. If a file has multiple systems of record, then multiple Sub-certifiers may be assigned to the file. Sub-certifiers are assisted by Data Stewards who have administrative and/or operational responsibility for the institutional data used in the submission. Data Stewards are responsible for ensuring that the data has been collected systematically, entered accurately, and monitored for referential integrity within the primary systems of record.

✓ **USF has developed several tools to assist the Sub-certifiers and Data Stewards in fulfilling these obligations:**

- DocMart. The USF Documentation Mart (DocMart) portal is maintained as a central repository to manage and maintain detailed information regarding data elements for each BOG SUDS file, called data derivations. In addition, data steward groups are set up in the DocMart to facilitate communication among the Data Stewards assigned to a BOG submission. Changes to data derivations are managed and approved through DocMart.
- State Reporting Portal. The USF BOG State Reporting Portal houses important information and resource links for Data Stewards and Sub-certifiers and others involved with state reporting. User guides, policies and procedures, work activities documentation, and executive review documentation are located in the reporting portal.
- HubMart. The BOG schema contains a series of tables and database views that are designed to exactly mirror the BOG's desired reporting formats. The HubMart is a view-only tool, created by Information Technology, to allow Data Stewards and Sub-certifiers read-only access to the BOG submission table content to assist with data validation. A BOG data request schedule for USF is also maintained in HubMart.

✓ **There are controls integrated within our operational processes to ensure the integrity of the data.**

Ensuring the validity of the data in the BOG submissions begins with ensuring the validity of data in the primary systems of record. Data Stewards are responsible for ensuring that the data has been collected systematically, entered accurately, and monitored for referential integrity within the various modules contained in the student information system (OASIS), human resources system (GEMS), and financial system (FAST). Data quality reports are generated throughout the year to identify data inconsistencies and correct errors as they are identified. As data from these systems are fed into the Faculty Academic Information Reporting system (FAIR), data completeness reconciliations are performed. Since these systems are paramount to the operation of the USF System, there are numerous individuals who review the data daily and would be in a position to identify and report discrepancies.

BOG SUBMISSIONS AND USF FILE GENERATION PROCESSES

Submission	System of Record	File Generation Process	Table	Measures Impacted	Term Reviewed
Operating Budget (OB)	FAST	Application Manager	Operating Budget	3	2015-2016[1]
Hours to Degree (HTD)	OASIS, Degree Works	Application Manager	Hours to Degree	9	2015-2016[1]
			Courses to Degree	9	2015-2016[1]
Student Financial Aid (SFA)	OASIS	Application Manager	Financial Aid Awards	7	2015-2016[1]
Student Instructional File - Degree (SIFD)	OASIS	Application Manager	Degrees Awarded	1, 2, 4, 6, 8	Spring 2016
Student Instructional File (SIF)	OASIS, GEMS	Application Manager	Person Demographics	1, 2	Spring 2016
			Enrollments	4, 5, 7	Spring 2016
Student Instructional File - Preliminary (SIFP)	OASIS, GEMS	Application Manager	Person Demographics	1, 2	Fall 2016
			Enrollments	4	Fall 2016
Expenditure Analysis (EA)	BOG[2]	Application Manager	Expenditure Analysis Extract	3	2015-2016[1]
Retention File (RET)	BOG[3]	SQL Script	Retention Cohort Change	4	2014-2015[3]
Instructional & Research Database (IRD)	FAIR	Application Manager	Workload Activities	3	2015-2016[1]

[1]Since these files were produced annually, UAC chose to use the October 2016 submissions, which were more representative of the control structure in place as of September 30, 2016.
[2]The Budget Extract file is generated by the BOG annually based on data in the OB and IRD files. USF generates the Expenditure Analysis file based on the BOG Budget Extract file.
[3]The Retention File is generated by the BOG annually from the SIF, SIFP, and SIFD. USF generates the Retention Cohort Change file based on the BOG Retention file. The 2014-2015 file generated in January 2016 was the latest available file.

FILE GENERATION PROCESSES

Application Manager Process

USF utilizes an automated process, Application Manager, to extract data files from the original system of record and to reformat and redefine data to meet the BOG data definition standards. This process was initiated in 2008 in order to provide a consistent and secure method for generating the BOG submission files.

The only data derivation used by the PBF model, not generated by the Application Manager process, is "person years" used by the IRD file. The FAIR system computes "person-years" from the data

input by faculty and instructional personnel. The IRD files are then generated based on views of data extracted from the FAIR workload activity module. All other processing occurs within the Application Manager process.

✓ **The Application Manager jobs can be launched by authorized Data Stewards; however, individuals responsible for the collection and validation of the data have no ability to modify the Application Manager jobs.**

✓ **The Retention File and Expenditure Analysis File are generated by the BOG and are download from the BOG SUDS portal by RMA to the HubMart. The Data Stewards and Sub-certifiers cannot change the files.**

BOG File Creation

Each BOG file submission has two Application Manager jobs associated with it:

- Hub Load Job. The Hub Load job is used to extract data from the original system of record based on the BOG file submission table requirements. A historic file of all data extracted is maintained in Hub tables stored in the Data Warehouse. Access to these tables is restricted and is read-only. Data quality reports are generated by the Application Manager jobs which are automatically emailed to the Data Steward groups defined in the DocMart. These reports mimic many of the BOG SUDS edit checks and are used to clean data prior to the data being loaded into SUDS.

✓ **All corrections are made to the original system(s) of record and the Hub Load job is rerun until the file is free of material errors. The only data files that can be impacted outside of the Application Manager process is the Hours to Degree submission.**

- BOG-OUT Job. The BOG_OUT job populates BOG target tables in the Data Warehouse under the BOG schema from the Hub tables. Access to these tables is restricted. The BOG_OUT job also produces statistical reports used to verify that the record counts for the Hub table and BOG table match. The BOG_OUT job also extracts the data from the BOG schema and saves the data in a read-only flat file on a server maintained by IT. The file is then transferred by the Application Manager job to the transfer server for upload by RMA via the SUDS portal. **Individuals with access to these files cannot modify them**.

There are two areas where Application Manager jobs can impact data integrity:

- Required data derivations occur within the Application Manager jobs. These data derivations include: (1) general reformatting of the original source data to meet BOG data consistency standards among state institutions, (2) populating static fields, which include data such as reporting institution, reporting term, and data source, and (3) creating a limited number of calculated fields. Data derivations are only changed at the request of the BOG Information Resource Management (IRM).
- Application Manager jobs are also used to filter out any excluded populations per the BOG reporting requirements. For example, individuals receiving their second bachelor's degree are excluded from the Hours to Degree (HTD) file.

✓ **Any changes to the data derivations, data elements, or table layouts in the Application Manager jobs are tightly controlled by RMA and Information Technology utilizing a formal change management process.**

This process includes the development of business system requirement documentation, which includes documentation to demonstrate that the change is consistent with the BOG data definitions, approval of the User Service Request (USR) by Sub-certifiers, and user acceptance testing by Data Stewards. Sub-certifiers must approve the Application Manager job changes prior to implementation.

There are IT controls designed to ensure that changes to the Application Manager jobs are approved via the standard USF change management process and that access to BOG submission-related data at rest or in transit is appropriately controlled.

Hours to Degree Verification Process

The Hours to Degree file submission has two primary tables: 1) Hours to Degree (HTD) that contains information regarding the students and the degree issued and 2) Course to Degree (CTD) that includes information regarding the courses taken and utilization of the courses to degree.

Data in the HTD and CTD files comes from USF's student records system (Banner) and degree certification and advising system (DegreeWorks) that utilizes student information obtained from Banner. DegreeWorks does not contain a specific data element that indicates whether the courses are "used to degree" or "not used to degree". The CTD file element 01489 – Credit Hour Usage Indicator must be derived from DegreeWorks scribe "blocks" and course utilization logic.

The Office of the Registrar utilizes custom Banner forms to refine the HTD population and to manually verify and correct attributes that are derived from elements in Banner and DegreeWorks in the CTD file.

✓ **Only the Data Steward and two Data Custodians in the Office of the Registrar can change data utilizing the custom Banner forms.**

BOG File Upload and Verification Process

Once all data integrity steps are performed and the file has been loaded into the SUDS portal, additional edit reports are run to ensure the file will pass the BOG IRM data validity checks.

- **Only RMA and IT server administrators have access to the transfer server. Only RMA staff can upload a file from the transfer server to SUDS, edit submissions, generate available reports, or generate reports with re-editing.**

RMA logs onto the transfer server using Windows Remote Desktop and opens an internet browser which is locked down to only access the SUDS portal. RMA uploads BOG_OUT job files into SUDS through the SUDS portal, then notifies the Data Steward and Sub-certifier that the file has been uploaded and that edits have been requested.

Any underlying errors identified during that process which cannot be explained must also be corrected at the primary system of record, and the same Application Manager process is used to regenerate the file for upload to the SUDS portal. No changes can be made to SUDS file loads via the SUDS portal. Once all errors are corrected or explained and the Data Steward and Sub-certifier are ready to request approval to submit the file to the BOG, the Executive Review process is initiated.

Prior to holding an Executive Review meeting, the Data Steward and Sub-certifier must prepare and approve an Executive Review form. The Executive Review form is designed to provide information regarding the file's purpose, explainable errors, historical trends, recent submission issues, as well as assurance that the data has validity. Data Stewards and Sub-certifiers are expected to provide a summary of the key data elements, including a comparison of data for at least three to five previous reporting periods. The Sub-certifier(s) and Data Steward(s) present the results to the Executive Reviewer and the Data Administrator or Backup Data Administrator present at an Executive Review Committee meeting.

- **The file will not be submitted to the BOG by the Data Administrator until the meeting is held and the Executive Reviewer(s) approve the file.**

Measure Ten – Number of Postdoctoral Appointees

The BOG developed a ten-metric Performance Funding Model of which one metric is chosen by the university Board of Trustees. The list of metrics from which the Board of Trustees can select is associated with the accountability reports submitted annually by each SUS institution. At the October 23, 2013 board meeting, the Number of Postdoctoral Appointees was selected as the chosen metric. This metric was held to be representative of resources focused on the university's research mission and is generally representative of the maturity of that mission. The source of the data is the annual NSF/NIH GSS Survey.

Survey Background

The Graduate Students and Postdoctorates in Science and Engineering (GSS) survey is an annual census of all U.S. academic institutions granting research-based master's degrees or doctorates in science, engineering, and selected health (SEH) fields as of Fall of the survey year. The survey, sponsored by the National Science Foundation and the National Institutes of Health, collects the total number of graduate students, postdoctoral appointees, and doctorate-level non-faculty researchers by demographic and other characteristics, such as source of financial support.

Data is collected separately for each SEH unit (academic departments, programs, research centers, or health care facilities) within an institution. In addition, Morsani College of Medicine's SEH units are reported in a separate survey than other SEH disciplines. A web survey is the primary mode of data submission. Respondents report aggregate counts on graduate students, postdocs, and doctorate-holding non-faculty researchers in each eligible unit, as of the Fall term of the academic year.

The SEH units submit rosters of reported postdocs to the primary Data Steward for verification.

Our audit was based on the most recent survey results published in April, 2016. The survey is completed in the Spring of each year based on data from the previous Fall term. Survey results are not published until the following Spring. As a result, the results published in April 2016 were from Fall 2014 data.

Definition of a Postdoctoral Appointment

The GSS survey instructs respondents to utilize their institutional definition when reporting postdoctoral appointments.

The Office of Postdoctoral Affairs (OPA) publishes an annual Postdoctoral Scholar Handbook which contains a uniform definition of a postdoctoral scholar. The handbook in place at the time the Fall 2014 data was compiled states:

> "A postdoctoral scholar is an individual holding a doctoral degree who is engaged in a temporary period of mentored research and/or scholarly training for the purpose of acquiring the professional skills needed to pursue a career path of his or her choosing. Postdoctoral appointees can pursue basic clinical or translational projects so long as their primary effort is devoted toward their own scholarship. Postdocs are essential to the scholarly mission of the mentor and host institution, and thus are expected to have the freedom to publish the results of their scholarship."

In Fall 2014, USF utilized three postdoctoral job codes (9180, 9194, and 9195) in GEMS with a benefit-earning salary plan (08) and an uncompensated salary plan (98) to permit tracking of visiting scholars and other externally-funded postdoctoral appointments. Postdoctoral research appointments are limited to three to five years.

USF Reporting Structure

The Office of Postdoctoral Affairs serves as the institutional coordinator for the USF System. SEH units are given the choice to either complete the survey using the web application or to submit a written copy of the survey to the Office of Postdoctoral Affairs who enters the data on their behalf. The individual responders from each SEH unit were responsible for the completeness and accuracy of the data they submitted in the survey.

The Division of Research, Innovation, and Economic Development provides the Office of Postdoctoral Affairs with data on externally-funded postdoctoral scholars affiliated with USF research who are employed by tenants of the USF Research Park.

The USF Morsani College of Medicine has an affiliation with the Moffitt Cancer Center in which Moffitt-ranked faculty are concurrently appointed in non-compensated positions at USF. The postdoctoral scholars appointed by Moffitt are often mentored by these dual-appointed faculty. As a result, Moffitt assisted with the reporting of postdoctorates appointed by Moffitt but affiliated with the USF Morsani College of Medicine.

Data Verification

The primary Data Steward in OPA verifies the accuracy and completeness of the SEH-prepared rosters. If errors are identified by the primary Data Steward, the SEH Unit Coordinator (Data Steward) is requested to change the survey data online. There may be cases where the primary Data Steward may make changes to the unit submitted data or report a unit's data if there is no department coordinator available. All of these changes must be approved by the Sub-certifier. In these cases, the primary Data Steward will provide justification for the change using the roster form for that department. A copy of the completed roster will be given to departments to update their records.

Prior to final submission of the GSS survey, the data goes through a Sub-certifier review process. The Data Steward will provide a master roster of reported postdocs, along with a report of the aggregated data contained in the GSS system. The Sub-certifier will verify that the roster data conforms to the criteria for postdoctoral appointees listed in the Guidelines for Reporting Postdocs and Non-Faculty Researchers.

Measure Ten utilizes the same Executive Review process as the other nine measures.

Beginning in FY 2015-2016, new procedures were implemented to enhance oversight and monitoring of the GSS survey responses from affiliates. These procedures were in effect for the Fall 2015 reporting period, which will be reported by the NSF in Spring 2017.

APPENDIX A

PERFORMANCE MEASURES DATA SOURCES

Measure	Description	University Provided Data Source	Data Used/Created by the BOG
One	Percent of bachelor's graduates employed full-time in Florida or continuing their education in the U.S. one year after graduation	BOG submission: SIFP, SIF, SIFD	National Student Clearing house, Florida Education and Training Placement Information Program
Two	Median wages of bachelor's graduates employed full-time in Florida one year after graduation	BOG submission: SIFP, SIF, SIFD	Unemployment Insurance wage data
Three	Average cost per bachelor's degree	BOG submission: OB, IRD, EA	BOG created Budget Extract File
Four	Six year FTIC graduation rate	BOG submission: SIF, SIFP, SIFD, Retention Cohort Change File	BOG created Retention File
Five	Academic progress rate	BOG submission: SIF	
Six	Bachelor's degrees awarded within programs of strategic emphasis (includes STEM)	BOG submission: SIFD	
Seven	University access rate	BOG submission: SFA, SIF	
Eight	Graduate degrees awarded within programs of strategic emphasis	BOG submission: SIFD	
Nine	Percent of bachelor's degrees without excess hours	BOG submission: HTD	
Ten	Number of postdoctoral appointments in science and engineering	NSF/NIH survey data completion	NSF/NIH Survey of Graduate Students and Postdoctorates in Science and Engineering

MEMORANDUM

TO:	Dr. Ralph Wilcox, Provost & Executive Vice President of Academic Affairs Dr. Terry Chisolm, Vice Provost for Strategic Planning, Performance & Accountability
FROM:	Kate M. Head, CPA, CFE, CISA Interim Executive Director
DATE:	February 26, 2017
SUBJECT:	17-010 Management Letter – Performance-Based Funding Data Integrity Audit

University Audit and Compliance performed an audit of the university's processes and internal controls that ensure the completeness, accuracy, and timeliness of data submissions to the Board of Governors (BOG). These data submissions are relied upon by the board in preparing the measures used in the performance based funding process.

UAC's overall conclusion was that there was an adequate system of internal controls in place to meet our audit objectives, assuming corrective actions are taken timely to address the two medium-priority risks appearing in this Management Letter. As UAC audit reports are focused only on high-priority risks, these medium-priority risks were not addressed in our audit report.

The two medium risk issues identified for management attention related to Performance Measure Nine: Percent of Bachelor's Degrees without Excess Hours. Issue One was not considered high risk because the issue was resolved in time to resubmit the 2015-2016 Hours to Degree file. The resubmitted file was accepted by the BOG on February 21, 2017. Had this issue been identified and corrected earlier, it would likely have increased the USF System performance score in 2013-2014 and 2014-2015 for Measure Nine.

The risks identified had no impact on the awarding of degrees or the excess hours surcharge, as the error occurred outside the DegreeWorks system.

As of the date of this report, both issues have been resolved.

Please contact us at 974-2705 if you have any questions.

cc: President Judy Genshaft, USF System
        Chair Hal Mullis, USF Board of Trustees
        John Long, Senior Vice President, Business and Finance and Chief Operating Officer
        Dr. Charles Lockwood, Senior Vice President, USF Health
        Dr. Paul Sanberg, Senior Vice President, Research, Innovation & Economic Development
        Dr. Sophia Wisniewska, Regional Chancellor, USF St. Petersburg
        Dr. Sandra Stone, Regional Chancellor, USF Sarasota-Manatee
        Nick Trivunovich, Vice President, Business and Finance and CFO
        Sidney Fernandes, Vice President & CIO, Information Technology

MEDIUM PRIORITY RISKS	RESOLVED
1. **The script used to populate the derived field, "Credit Hour Usage Indicator", contained logic flaws.**	**Yes**

The Hours to Degree file submission has two primary tables: 1) Hours to Degree (HTD) that contains information regarding the students and the degree issued and 2) Courses to Degree (CTD) that includes information regarding the courses taken and utilization of the courses to degree. While most of the data comes from Banner, one field in the Courses to Degree (CTD) table is derived from data contained in DegreeWorks, the university's degree certification and advising system. The CTD file element "Credit Hour Usage Indicator" (#01489) is derived from DegreeWorks scribe "blocks" and course utilization logic.

The script was written to produce the 2011-2012 HTD file, following the implementation of DegreeWorks. The HTD file was not used to support a performance measure until 2013-2014. The intent of the script logic was to review courses in the DegreeWorks blocks and determine if the course work was "used toward degree" or "not used toward degree".

UAC selected a random sample of 134 transfer students for testing. UAC focused on transfer students in order to validate a new process, designed to better optimize coursework in DegreeWorks, which would not impact the integrity of the HTD file submission.

We compared the DegreeWorks degree audit to the CTD file to ensure consistency between the system of record and the CTD file submission. During this review, we identified the logic flaw in the script which affected both transfer and non-transfer students. The logic error identified only affected the "Credit Hour Usage Indicator" field. More information on the logic errors identified is located in Appendix A.

There have been no major changes to the primary logic used by the algorithm to set the "Credit Hour Usage Indicator" to "D" or "N" since inception. The script errors identified likely have been occurring since 2011-2012.

> **Recommendation:** **The Office of Undergraduate Studies should work with Information Technology to correct the logic errors contained in the script and resubmit the Hours to Degree file.**

Management Attention Required: ☐ Immediate ☒ Urgent ☐ Timely

Resources/Effort Required: ☒ Significant ☐ Moderate ☐ Minimal

Management's Response: The HTD algorithm's programming logic was rewritten to include the prefix, course number, and the term to prevent an insufficient or repeated course from being unintentionally selected. Programming corrections were also made to ensure that block comparisons accurately flagged courses identified in blocks flagged as "Used". The resubmitted file was accepted by the BOG on February 21, 2017.

UAC has verified that all errors identified in our testing have been resolved.

MEDIUM PRIORITY RISKS	RESOLVED
2. **Audit logging needs to be enhanced to ensure all critical fields are captured.** Changes to critical data fields must be captured and monitored for accountability. An Application Manager job is used to identify the HTD population. The systematically-identified population is loaded into a custom Banner table for validation (SWBHGRP). The Data Steward authorizes corrections to the initial population via a Banner form (SWAHGRP), which allows students to be added to the HTD population or removed from the HTD population as needed. An Application Manager job is also used to generate the Courses to Degree file, which includes all student coursework for the HTD population. The CTD file is loaded into a second custom Banner table (SWRHCTD) for validation. The course data is accessed through two separate Banner forms: SWAHCTD and SWAHPBF. The Data Custodian, and authorized Data Stewards, use the forms to add missing courses, and to update derived data elements such as course system code, course grouping codes, credit hour usage indicator, course section type, excess hours exclusion, and repeat indicator. No changes are made to the data in the primary data tables in Banner; this only affects derivations in the CTD file. Only the Data Stewards and two Data Custodians in the Office of the Registrar can add or remove students from the HTD population or make changes to the attributes in the CTD table. Our review determined that less than 0.4% of the HTD population and CTD course records were manually changed. • The SWAHGRP form tracks additions and removals from the HTD population, but does not track the individual who made the change. No audit logging is occurring at the SWBHGRP table level. • The SWAHCTD and/or SWAHPBF form does not track the specific change made, but does indicate a manual change has occurred. No audit logging has been established to track changes to the SWRHCTD table. **Recommendation:** **The Office of Undergraduate Studies should work with Information Technology to enhance audit logging on the SWBHGRP and SWRHCTD tables. At a minimum, the log should track what attribute was changed, the date and time of the change, and who made the change.** **Management Attention Required:** ☐ Immediate ☒ Urgent ☐ Timely **Resources/Effort Required:** ☐ Significant ☒ Moderate ☐ Minimal **Management's Response:** Adequate audit logging has been implemented.	**Yes**

APPENDIX A

ALGORITHM LOGIC ISSUES

DegreeWorks does not contain a specific data element which indicates whether the courses are "used toward degree" or "not used toward degree". The CTD file element 01489 – "Credit Hour Usage Indicator" must be derived from DegreeWorks scribe "blocks" and course utilization logic.

DegreeWorks utilizes "blocks" to track specific degree requirements. Ellucian consultants originally scribed the DegreeWorks blocks. As the years progressed, new degrees and degree blocks were scribed. DegreeWorks blocks were used for degree certification requirements as well as other purposes (such as tracking courses used in various GPA calculations), which has made it more difficult to clearly identify specific courses required for the degree. Blocks required for degree are referred to as "used" blocks. All other DegreeWorks blocks are referred to as "designated" blocks since the algorithm designates them as either "used toward degree" or "not used toward degree".

"Used" blocks include state mandated, degree, major, concentration, specializations, college, or major-based core or support coursework, and general education requirements for students who did not transfer in with a Florida associates degree[1]. "Used" blocks are reflected in the CTD file with a "Credit Hour Usage Indicator" of "D" (used toward degree).

Assignment of Insufficient Coursework

The "Insufficient" block in DegreeWorks stores failed or incomplete coursework, as well as the repeated coursework for courses which can only be used once toward a degree. When a course is in the DegreeWorks "Insufficient" block, the algorithm logic is designed to set the "Credit Hour Usage Indicator" to "N" (not used toward degree).

The script logic identified a course by prefix and course number, but did not consider the course term. As a result, all instances of a course were set to "N" (not used toward degree). This resulted in the course the student took to replace the insufficient course being reported as "not used toward degree". When the repeated course was in a "Used" block, the algorithm logic incorrectly set the "Credit Hour Usage Indicator" to "N" (not used toward degree).

Assignment of Coursework to meet Maximum Catalog Hours (Electives)

When a student's total credit hours in the DegreeWorks "Used" blocks was less than 100% of the "maximum catalog hours"[2], the algorithm's logic was designed to review all remaining courses to determine if the courses were needed to meet the degree's required total credit hours.

This step applies to elective courses for First Time in College (FTIC) students and for students transferring in without a Florida associates degree[1]. This step is also used to apply lower level course work for students who transferred to USF with a Florida associates degree[1] since DegreeWorks does not automatically scribe these courses into the general education "Used" blocks[3].

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[1]Florida college system or Florida university associate's degree.
[2]As set by the BOG.
[3]Students who complete an associate's degree at one of the USF System institutions and who are accepted into a degree program at another USF System institution are treated as transfer students.

When a course is selected by the algorithm logic to be "used toward degree", the "Credit Hour Usage Indicator" is changed to "D".

The logic identified a course by prefix and course number, but did not consider the course term. As a result, all instances of the course where a passing grade had been obtained were set to "D" (used toward degree). If the course selected by the algorithm logic was a repeated course, this resulted in multiple instances of the same course being applied to the degree when only one instance of the course was eligible.

Assignment of Coursework in both "Used" and "Designated" Blocks

A course may meet the requirements of multiple DegreeWorks blocks. In some instances, a course may be associated with a "Used" block and a "Designated" block. The logic did not do a block comparison of all uses of the course and may not have properly associated the course with the "Used" block it was assigned to.

STATE
UNIVERSITY
SYSTEM
of FLORIDA
Board of Governors

Name of University: _____ University of South Florida _____

INSTRUCTIONS: Please respond "Yes" or "No" for each representation below. Explain any "No" responses to ensure clarity of the representation you are making to the Board of Governors. Modify representations to reflect any noted audit findings.

Performance Based Funding Data Integrity Certification Representations			
Representations	Yes	No	Comment / Reference
1. I am responsible for establishing and maintaining, and have established and maintained, effective internal controls and monitoring over my university's collection and reporting of data submitted to the Board of Governors Office which will be used by the Board of Governors in Performance Based Funding decision-making.	☒	☐	
2. These internal controls and monitoring activities include, but are not limited to, reliable processes, controls, and procedures designed to ensure that data required in reports filed with my Board of Trustees and the Board of Governors are recorded, processed, summarized, and reported in a manner which ensures its accuracy and completeness.	☒	☐	
3. In accordance with Board of Governors Regulation 1.001(3), my Board of Trustees has required that I maintain an effective information system to provide accurate, timely, and cost-effective information about the university, and shall require that all data and reporting requirements of the Board of Governors are met.	☒	☐	
4. In accordance with Board of Governors Regulation 3.007, my university shall provide accurate data to the Board of Governors Office.	☒	☐	
5. In accordance with Board of Governors Regulation 3.007, I have appointed a Data Administrator to certify and manage the submission of data to the Board of Governors Office.	☒	☐	

Performance Based Funding
Data Integrity Certification

Performance Based Funding Data Integrity Certification Representations			
Representations	Yes	No	Comment / Reference
6. In accordance with Board of Governors Regulation 3.007, I have tasked my Data Administrator to ensure the data file (prior to submission) is consistent with the criteria established by the Board of Governors Data Committee. The due diligence includes performing tests on the file using applications/processes provided by the Board of Governors Information Resource Management (IRM) office.	☒	☐	
7. When critical errors have been identified, through the processes identified in item #6, a written explanation of the critical errors was included with the file submission.	☒	☐	
8. In accordance with Board of Governors Regulation 3.007, my Data Administrator has submitted data files to the Board of Governors Office in accordance with the specified schedule.	☒	☐	
9. In accordance with Board of Governors Regulation 3.007, my Data Administrator electronically certifies data submissions in the State University Data System by acknowledging the following statement, "Ready to submit: Pressing **Submit for Approval** represents electronic certification of this data per Board of Governors Regulation 3.007."	☒	☐	
10. I am responsible for taking timely and appropriate preventive / corrective actions for deficiencies noted through reviews, audits, and investigations.	☒	☐	
11. I recognize that the Board's Performance Based Funding initiative will drive university policy on a wide range of university operations – from admissions through graduation. I certify that university policy changes and decisions impacting this initiative have been made to bring the university's operations and practices in line with State University System Strategic Plan goals and have not been made for the purposes of artificially inflating performance metrics.	☒	☐	

Performance Based Funding
Data Integrity Certification

Performance Based Funding Data Integrity Certification Representations			
Representations	Yes	No	Comment / Reference

I certify that all information provided as part of the Board of Governors Performance Based Funding Data Integrity Certification is true and correct to the best of my knowledge; and I understand that any unsubstantiated, false, misleading, or withheld information relating to these statements render this certification void. My signature below acknowledges that I have read and understand these statements. I certify that this information will be reported to the board of trustees and the Board of Governors.

Certification: _Judy Genshaft_ Date_3/10/2017_
President

I certify that this Board of Governors Performance Based Funding Data Integrity Certification has been approved by the university board of trustees and is true and correct to the best of my knowledge.

Certification: _____ Date_3/9/17_
Board of Trustees Chair

Note: The Performance Based Funding Audit identified an algorithm that was being applied incorrectly in the creation of the data file that contributes to the determination of Degrees Without Excess Hours (Metric #9). Once identified, corrections were made and the corrected information was submitted to the Board of Governors. It should be noted that while the correction yielded improved performance, the University of South Florida was already at the highest level of points allowed for this metric.