UNIVERSITY SYSTEM of MARYLAND

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Board of Regents
Committee on Education Policy and Student Life

Tuesday, November 6, 2018
9:30 a.m.

Towson University
Minnegan Room – Johnny Unitas Stadium

Agenda
Public Session

Action Items

1. New Academic Program Proposals
    a. University of Baltimore: Master of Science in Cyber Security Management
    b. University of Maryland, Baltimore: Bachelor of Science/Master of Science in Clinical Dental Hygiene Leader Program
    c. University of Maryland, Baltimore Accelerated Bachelor of Science in Health Science/Master of Science in Health Science-Physician Assistant

Information Items

2. Campus Safety Panel
3. Opening Fall 2018 Enrollment and FY 2019 Estimated FTE Report
4. Inclusion and Diversity: NSF-Funded PROMISE Academy
5. Report on the Instructional Workload of the USM Faculty

Action Item

6. Motion to Adjourn

UNIVERSITY SYSTEM of MARYLAND

BOARD OF REGENTS

SUMMARY OF ITEM FOR ACTION, INFORMATION, OR DISCUSSION

TOPIC: University of Baltimore: Master of Science in Cyber Security Management

COMMITTEE: Education Policy and Student Life

DATE OF COMMITTEE MEETING: Tuesday, November 6, 2018

SUMMARY: The University of Baltimore (UB) is proposing the first AACSB (Association to Advance Collegiate Schools of Business) accredited Master of Science(M.S.) in Cyber Security Management in Maryland. It will build on the proven history of the Merrick School of Business to deliver high-quality management education that prepares students for senior leadership roles in the management of information security. The M.S. in Cyber Security Management will prepare graduates for the unmet demand for cyber security expertise both nationally and regionally by instilling knowledge of leadership, strategy, and information security management, as well as incorporating important inter-disciplinary perspectives from criminal justice and psychology. The program will also feature a customized inter-disciplinary curriculum that will leverage existing expertise across the Schools of Business, Public Affairs, and Arts and Sciences at UB.

An analysis of unmet need for master's-level cyber security management professionals revealed an increase of 68 percent between later 2013 and early 2017 and during the last year the demand almost doubled for professionals in the field (EAB 2016). Furthermore, labor statistics show that more than 200,000 US cyber security jobs are currently unfilled, and the shortage is projected to grow to more than 1.5 million unfilled positions by 2019. It is evident that the cyber security job market continues to grow rapidly. This growth is especially apparent in the greater Washington, D.C. area where the talent shortage is particularly an issue in Maryland with more than 12,000 IT and Cyber Security companies. UB, with its demonstrated expertise in providing high-quality management education, is uniquely prepared to deliver the proposed curriculum for the Master of Science in Cyber Security Management.

ALTERNATIVE(S): The Regents may not approve the program or may request further information.

FISCAL IMPACT: No additional funds are required. The programs can be supported by the projected tuition and fees revenue.

CHANCELLOR'S RECOMMENDATION: That the Education Policy and Student Life Committee recommend that the Board of Regents approve the proposal from University of Baltimore to offer the Master of Science in Cyber Security Management.

COMMITTEE RECOMMENDATION:		DATE: November 6, 2018
BOARD ACTION:		DATE:
SUBMITTED BY: Joann A. Boughman	301-445-1992	jboughman@usmd.edu

UNIVERSITY SYSTEM OF MARYLAND INSTITUTION PROPOSAL FOR

X New Instructional Program

Substantial Expansion/Major Modification-existing program going online

Cooperative Degree Program

X Within Existing Resources, or Requiring New Resources

University of Baltimore

Institution Submitting Proposal

Master of Science in Cyber Security Management

Title of Program

Master of Science	**Fall 2019**
	Projected Implementation Date
0799-	**11.1003**
Program HEGIS Code	Program CIP Code
Department of Information Systems and Decision Science, Merrick School of Business	Danielle Fowler Department Chair; Candace Caraco Office of the Provost
Department in which program will be located	Department Contact
410-837-5243	ccaraco@ubalt.edu
Contact Phone Number	Contact E-Mail Address
	10-8-2018
Signature of President or Designee	Date

New Instructional Program

The University of Baltimore requests approval for the creation of a Master of Science (MS) in Cyber Security Management. UB is proposing the first AACSB-accredited master's in cyber security management program in Maryland, building on the business school's proven history of delivering quality management education in preparing students to take senior leadership roles in the management of information security.

The program features a customized, inter-disciplinary curriculum that will leverage existing expertise across three schools (Business, Public Affairs, and Arts & Sciences), and complement existing graduate specializations and programs in the area, including those from the business school (MBA specializations in Leadership, Managing Financial Performance, Data Analytics and Cybersecurity & Organizational Resilience), the Yale Gordon College of Arts and Sciences (MS in Applied Psychology - Industrial/Organizational Psychology), and the College of Public Affairs (MS in Forensic Science: High- Tech Crime).

A. Centrality to Mission and Planning

The proposed Master of Science (MS) in Cyber Security Management program will prepare graduates for the unmet demand for cyber security expertise both nationally and regionally by instilling knowledge of leadership, strategy and information security management, as well as incorporating important inter- disciplinary perspectives from criminal justice and psychology.

The program's professional career focus fits with the mission of the University of Baltimore (UB), which is to offer career-focused education for aspiring and current professionals, making excellence accessible to traditional and nontraditional students motivated by professional advancement. The student population at UB is diverse ethnically, racially, and in age, attracting a high proportion of both first- generation degree-seekers and first-generation citizens: all qualities prized in the cyber security field.

As a degree housed primarily within the business school, it also fits the Merrick School of Business' mission to use our urban education hub to offer practical, career-minded and globally engaged business education that inspires professional and entrepreneurial growth. The location of the campus next to Penn Station provides easy access both to students and to industry expertise throughout the Baltimore- DC region.

In addition to the expertise of the business school faculty, the program will draw on the inter- disciplinary expertise available from the Colleges of Public Affairs and of Arts and Sciences and will extend and complement the existing programmatic capacity at UB in the area of cyber, including:

- B.S. in Applied Information Technology (Information Security and Assurance track)
- B.S. Information Systems and Technology Management
- M.S. in Forensic Science - High-Tech Crime
- MBA specialization in Cyber Security and Organizational Resilience

Building out programmatic capacity in cyber across UB will also enable the University to pursue certifications such as National Center of Academic Excellence in Information Assurance/ Cyber Defense status from the National Security Agency and the Department of Homeland Security. While there are other institutions in Maryland with NSA certifications, cyber fields remain in high demand, particularly in Maryland with its high concentration of government and defense industry employers.

B. Regional and Statewide Needs as Identified in the State Plan

The State's 2017-2021 postsecondary education plan, *Increasing Student Success with Less Debt,* points out that most students are not traditional college students and that higher education has to meet the needs of this growing segment of students in higher education. The University of Baltimore has historically focused its programming, both undergraduate and graduate, on professionally ambitious students who are often working while attending school. UB endeavors to make its education affordable and as a public institution, maintains a reasonable cost for most students. This 30-credit master's degree will not charge premium rates and will schedule courses compatible with working adults.

One of the three thematic pillars of the current State Plan is innovation, with strategies directed at workforce readiness, research partnerships, and developing a culture of experimentation. This program uses innovative methods to extend the reach of students' educational and professional opportunities. It specifically notes the need for more cyber security workers in Maryland, placing special emphasis on workforce development as an element of economic growth and vitality. Its unique interdisciplinary structure will equip students to solve problems using a variety of lenses-technical, managerial, and psychological. The program will provide advanced professional education for individuals working in cyber security in the region's government agencies and contract organizations as well as private sector businesses w o are moving into management ranks, and defense and military cyber specialists moving into industry positions.

C. Evidence of Market Supply and Demand in the Region and State

The national and regional demand for technical cyber security experts in the USA has been well documented, but there is now recognition of a growing need for graduate education for mid-career technical specialists as they advance into more senior organizational roles. This proposed program aims to serve primarily this population: those who have some technical skills already and who seek to advance in management, whether moving from the military to the private sector or moving from a technical position to a more senior management position within the private or government sector.

UB commissioned the Educational Advisory Board (EAB) to prepare an analysis of demand for cyber management jobs. Their analysis shows regional employer demand for master's-level cyber management professionals increased 68 percent between late2013 and early 2017 (i.e., 340 to 570 job postings per year), but in the last year the number has almost doubted, to over 1000 jobs[1] .

The cybersecurity job market is thriving and continues to grow rapidly, particularly in the greater Washington D.C.-area. Burning Glass reports that cybersecurity job postings have grown 74% from 2007-2013-twice as fast as all IT jobs. On average, cybersecurity salaries offer a premium of over $15,000 over the salaries for IT jobs overall[2]

Labor statistics have shown that more than 200,000 U.S. cybersecurity jobs are currently unfilled, and the shortage is projected to grow to more than 1.5 million unfilled positions by 2019. The talent shortage is particularly an issue for Maryland, which has more than 12,000 IT and cybersecurity companies. The Maryland Department of Labor, Licensing and Regulation issued EARN (Employment Advancement Right Now) grants last November to target cyber and green industries. As the sector grows, more management positions within the cyberspace will be needed.

The Bureau of Labor Statistics Occupational Outlook Handbook does not list cyber security managers per se. Computer and information systems manager openings are expected to grow faster than average (at 12%}, with median wages at over $139,000.[4] This more general category, which includes various kinds of project managers, is broad enough to include cyber security mana gers.

The rapid growth in the sector and the increasingly clear impact on business and government points to a demand for an AACSB-accredited, high-quality MS in Cyber Security Management program in the state of Maryland. We respectfully suggest that we have the

expertise and resources to administer such a program.

D. Reasonableness of Program Duplication

Given the large market demand for a wide variety of positions in the cybersecurity space, and given the specifically interdisciplinary nature of the proposed program, there is no persuasive evidence that this proposed degree duplicates any of the cyber master's degrees offered in Maryland. Consequently, there should be no adverse effect on programs from other schools. The proposed UB program is unique in its inter-disciplinary focus and builds on an existing inventory of expertise available at UB, particularly in business, psychology and criminal justice. These characteristics will be leveraged to create a unique academic program suited to the broadening cyber job market, particularly in Maryland.

According to the State Program Inventory, the schools noted below are approved to offer graduate cyber degrees of some kind in Maryland:

Analysis of UB Program vs. Capitol Technology University

Capitol Technology University has three graduate degrees in cyber security, none of which have the interdisciplinary focus of UB's proposed program. The two master's degrees offered at Capitol are an MS in Cyber Analytics and an MS in Cyber and Information Security, and Capitol offers a DSc in Cybersecurity. All are online degrees, although the DSc requires students to come to campus twice a In terms of curriculum it is focused tightly on information assurance, with elective streams in network engineering, project management and writing, and software assurance. There is a course on cyber security principles that covers "the overarching security architectures and vectors of information assurance from a management perspective", but there are no courses on general business competencies such as leadership or financial performance, nor is there an inter-disciplinary focus including criminal justice or psychology. The MS in CIS is focused primarily on preparation for mid - management careers within the information systems security role (such as information systems security office or security manager), although it also lists CIO and CSO as destination jobs, so in that respect it overlaps with this program. But the core courses and elective pathways are distinct from the proposed UB program.

The MS in Cyber Analytics has minimal overlap with the data analytics theme available in this program, with courses that cover specific applications such as securing healthcare information or mobile medical devices (not business or financial analytics applications). There is no coverage of accounting, management, leadership, cybercrime or psychology.

A list of the core courses for the MS in CIS shows how different the curricula are : Access and Identity Management, Secure Information and Identity Management, Vulnerability Management, Healthcare Info Systems Security, Mobile Device/Application Security, Web Analytics, Analytics and Decision Analysis, Applied Statistics and Visualization for Analytics, and Big Data Warehousing and Analytics Systems.

Analysis of UB Program vs. Hood College MS in Cyber Security

The Hood College program is located within the Computer Science and Information Technology Department. The program does not assume a technical background (though it is preferred), and much of the program is dedicated to programming. There are no courses in management, accounting, or psychology. There are courses in programming, hardware, and systems engineering. The post- baccalaureate certificate (PBC) offered at Hood is within this master's degree, and the same issues apply.

Loyola College PBC - appears to be inactive per Loyola website (program not listed)

Analysis of UB Program vs. Morgan State University programming

Morgan State has the following graduate offerings in the area of cyber security:

1. Post-Baccalaureate Certificate in Cyber Security (Graduate)
2. Master of Science in Electrical Engineering with a Concentration in Signal Intelligence (Graduate)
3. United States Navy/ Morgan State University Master of Engineering (ME) in Cyber Engineering

The Morgan offerings are not duplicative with the proposed program as they have a fundamentally different disciplinary approach. All three programs focus on technical cyber security topics, particularly network security or signals intelligence. They are also offered out of the engineering school (all are EEGR courses), rather than their business school. The only managerial course is EEGR583 Introduction to Security Management. The Cyber Engineering program is open only to those employed by the Navy.

The proposed UB Master of Science (MS) in Cyber Security Management program is quite distinct from these off erings. It has a business focus, preparing students for senior management and leadership positions in information security, as well as providing exposure to a wide and inter-disciplinary set of skills and knowledge that are important in understanding how cyber security fits into the wider functioning of a business, particularly at a strategic level. The focus is on knowledge of leadership, strategy and information security management, as well as incorporating important inter-disciplinary perspectives from criminal justice and psychology. There is no overlap in content with the offerings from MSU.

Analysis of UB Program vs. UMES

The University of Maryland Eastern Shore offers a master's degree in Cyber Engineering. This program is entirely online and consists of five six-credit topics courses. It is narrower in scope and has a different delivery mechanism.

Analysis of UB Program vs. UMBC

UMBC offers several specializations in the area of cyber management through its master's in professional studies:

- Master's of Professional Studies: Cybersecurity (30 credits)
- Post-Baccalaureate Certificate in Professional Studies: Cybersecurity Strategy and Policy (12 credits)
- Post-Baccalaureate Certificate in Professional Studies: Cybersecurity Operations (12 credits)

Many of the courses in these offerings are related to technological issues such as firewall design and coding best practice. There is some overlap in topics in the area of risk assessment, cyber security operations management, and cyber law, but the UMBC programs do not have the inter-disciplinary focus of the proposed program. Their focus is primarily from an information systems and computer science perspectives: there is no leadership, analytics, financial expert ise, or psychology cont ent.
Further, the degree is an MPS, a general program, rather than a program approved specifically for cybersecurity.

Analysis of UB Program vs. UMCP

The University of Maryland is very active in cyber security and houses the Maryland Cybersecurity Center (MC2), but their offerings are not focused on cyber management

and are a collaboration of the School of Engineering, the College of Computer, Mathematical and Natural Sciences, and the Institute for Advanced Computer Studies.

Analysis of UB Program vs. UMUC Programs

UMUC has several program offerings in cyber security, but only one with a focus on management issues: the MS in Cyber Security Management and Policy. From the UMUC Program Website

(http://www.umuc.edu/ academic-programs/masters-degrees/cybersecurity-management-policy-ms.cfm):

> *"The Master of Science in cybersecurity management and policy at University of Maryland University College can help you gain the tools you need to join the management track in cyber security so that you can establish, implement, and oversee a cyber security policy structure for an organization. Learn how to create a security approach that combines technology, governance, and compliance perspectives. Gain advanced knowledge in organizational structures, communication, operational business processes, and the legal framework for cyber security policy.*

The program consists of 6 x 6 credit courses :

- CBR600 communications, problem solving and leading in cybersecurity
- CMP610 foundations in cybersecurity management
- CMP620 organizational cybersecurity management
- CMP630 public sector cybersecurity management
- CMP640 international cybersecurity management
- CYB 670 capstone

Course descriptions suggest the program is focused on governance and policy, applied to different sectors both public and private . In terms of the management of organizational security, our program differs in its broad and inter-disciplinary focus. Specifically, the UMUC program has no apparent coursework on financial operations, analytics, forensics, or psychology. Listed topics include business process design, operations management, organizational structures, communication, and a digital framework for cyber.

We believe the inter-disciplinary nature of our program is a point of distinction. We give a grounding in analytics, increasingly important in cyber management, and we bring a strong interdisciplinary focus, particularly in psychology which appears to be absent from any other cyber management program in

MD. This interdisciplinary focus gives technical personnel a broader appreciation of their field in addition to preparation for advancement.

Analysis of UB Program vs. Towson Programs

Towson has two programs in this area. One is an Information Security & Assurance Post-Baccalaureate Certificate. This certificate is focused on securing the software development process and network security, and hence has a technical cyber security focus.

The second is an M.S. in Integrated Homeland Security Management, which is an online-only program. The specializations in Information Assurance and Security Policy have some limited management coverage, specifically leadership and risk management. Their overall focus however is on securing critical infrastructures and wider physical security concerns such as bioterror preparedness, which is a very different focus than the proposed program.

Analysis of MS in Cyber Security Management Degree vs. the UB MBA Specialization in Cyber Security & Organizational Resilience

While the proposed master's program makes use of a number of existing UB MBA courses, the program has an identity distinct from the MBA program. The MBA is a generalist degree, designed to take students from a wide variety of backgrounds, and confer skills and knowledge from all of the major areas of business. The MS in Cyber Security Management is designed for students with technical security backgrounds, and provides both a deeper understanding of the information/ cyber security field, and the skills needed to advance through an organization to leadership positions such as CSO and CISO (Chief Security Officer, and Chief Information Security Officer).

Relevance to High-Demand Programs at Historically Black Institutions

As mentioned above, Morgan State has program offerings in cyber security, but they are housed within the school of engineering, not the business school, and are focused on technical cyber security topics such as signals intelligence. The proposed program is a business-focused, inter-disciplinary program that focuses on managerial competencies such as leadership, managing human behavior and decision making, as well as information security management issues such as governance and business continuity. There is no overlap in content area.

E. Relevance to Identit of Historical! Black Institutions

Cyber security is not the unique domain of any HBI. Morgan State University's programming in cyber security, as mentioned above, is technical-/ engineering-based rather than management-focused, is not run out of the business school, and does not take the inter-disciplinary approach of the UB program.

F. Adequacy of curriculum design & delivery to related learnin outcomes consistent with Regulation

1. Provide a list of courses with title, semester credit hours and course descriptions, along with a description of program requirement s.

The program curriculum can be seen in the figure below .

MS in Cyber Security Management

	Leadership & Human Behavior	Decision Making / Analytics	Business Fundamentals	Ethics / Law	Information Security Mgmt
Foundation (3)		Core 505+506 Stats I+II			
Core (19.5)	Mgmt 605 (1.5) Leading with Integrity	Core 605 (1.5) Business Analytics	Acct 505 (1.5) Accounting Essentials	FSC5601 (3) Legal Issues in High Tech Crime	Inss 605 (3) IT for Bus Transformation
	Appl 603 (3) Learning & Cognition				Inss 703 (3) Principles of Info. Sec Mgmt
	OPM 615 (3) Innovation & Project Mgmt				
Electives (7.5)	Mgmt Mgmt	Inss			
	Appl Appl L'ship		Inss Inss 622 (1.5) al Transforma		
Capstone (3)	INSS 753 (3) Info Sec & Bus Continuity				

The program is a 30-credit degree that can be completed through 30 credits of coursework. The program focuses on 5 areas of competence:

1. Leadership and human behavior
2. Decision making and analytics
3. Business fundamentals
4. Ethics and Law

10

5. Information Security Management

The program requires no new courses to be created, as it leverages courses offerings already in place, although there is scope to develop additional specialized electives. The structure and course offerings are detailed below.

Foundation (3 credits, waivable):

OPRE 505 Fundamentals of Statistics (1.5)
Emphasizes applications of descriptive statistics in business. Topics include basic probability concepts, summary measures of location and dispersion, discrete and continuous probability distributions, sampling distribution of mean, and introductions to confidence interval estimation and hypothesis testing. Excel-based software is used for computer implementation. Prerequisite: graduate standing.

OPRE 506 Managerial Statistics (1.5)
Emphasizes applications of inferential statistics in business. Topics include confidence interval estimation, hypothesis testing, analysis of variance, simple linear regression and an introduction to multiple regression. Excel-based software is used for computer implementation. Prerequisite: OPRE 505.

Core Courses (19.5 credits):

ACCT SOS Accounting Essentials (1.5)
Introduces students to the basics of corporate financial reporting and financial statement analysis from the manager's perspective. Emphasizes the analysis of financial statements and provides an overview of
U.S. Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS) rules for most critical accounting items. Prerequisite: graduate standing.

APPL 603 Learning and Cognition (3)
Study of the major theories and models of human learning from both the traditional behaviorist perspective and the contemporary cognitive perspective and an experiential overview of how people acquire, store and use information. Theoretical and empirical information is applied to the understanding of human behavior in a wide variety of setting s. Prerequisites: None.

FSCS 601 Legal Issues in High Technology Crime (3)
Examines the general regulations, general and computer-related law, and ethics and business policies associated with high technology crime. Areas of major focus include description of legal issues facing management and administration, traditional search and seizure as well as privacy issues, manager and supervisor responsibilities, criminal issues and definitions, chain of custody and ethical considerations. Problem-oriented course that focuses on applying the holdings of cases and analyses of statutes to different criminal fact patterns. Prerequisites: None.

INSS 605 IT for Business Transformation (3)
Examines the key roles that information systems and technologies play in the current business environment as well as the disruptive and innovative nature of information systems in promoting the fundamental transformation of industries, businesses and society. Covers current major issues in the field of management of information systems, such as social computing, cybersecurity, big data and mobile technologies. Prerequisites: graduate standing.

INSS 703 Principles of Information Security Management (3)
Awareness and management of information security has become critical to the management of any organization. This course focuses on the need for businesses to adapt to the changing security landscape, and provides an introduction to the different domain areas in information security from a managerial perspective. Topics will include security governance, legal regulations and compliance, environmental security, operations security, access controls, network security, disaster recovery response, and cryptography. Prerequisites: INSS 605.

MGMT 605 Leading with Integrity (1.5)
Focuses on leadership, integrity and core management principles. Provides an overview of concepts and practices essential to managerial effectiveness, including developing a vision for the organization in a complex business environment, setting objectives, planning, motivating others, managing for results, and a grounding in ethics at the individual and organizational level. Prerequisit e: graduate standing.

OPM 615 Innovation and Project Management (3)
Covers the essentials of innovation and project management from project selection through implementation, monitoring, control and termination. Topics covered include: product/process innovation, project identification, risk and uncertainty in project management, project planning and budgeting, selecting the project team, resource allocation, implementation and control, and project evaluation and termination. Prerequisite: OPM 505 or permission of instructor.

OPRE 605 Business Analytics (1.5)
Explores business analytics and its applications to management decision-making for a range of business situations. Covers problem structuring; big data; data mining; optimization; computer simulation; decision analysis; and predictive modeling. Prerequisite: OPRE SOS and OPRE 506 or permission of the M.B.A. program director.

Electives (7.5 credits)

ACCT 601 Forensic Accounting Principles (3)
Provides an overview of the field of forensic accounting, focusing on the roles, responsibilities and requirements of a forensic accountant in both litigation and fraud engagements. Examines basic litigation and fraud examination theory, identifies financial fraud schemes, explores the legal framework for damages and fraud and damage assessments and methodologies, and reviews earning management and financial reporting fraud. Other topics include computer

forensics and corporate governance and ethics. Actual litigation and fraud cases are used to highlight the evolving roles of forensic accounting.
Pre-requisite: ACCT SOS or equivalent.

ACCT 604 Litigation Support (3)
Addresses the relationship between the forensic accounting professional and the litigation process in which he or she may play a role. Specifically, this course covers the litigation process, the legal framework for damages and fraud, damage assessment methodologies, issues related to the presentation of evidence through expert testimony, practices used in supporting divorce cases and basic rules of evidence as they apply to forensic accountants. Prerequisite: ACCT 505 or equivalent.

ACCT 701 Accounting Ethics (3)
Considers business ethics issues within an accounting context from a multiple stakeholder perspective. Ethical theories, codes of ethics relevant to accountants, corporate governance and professional and corporate social responsibility are covered. The course emphasizes the application of concepts such as professionalism, integrity, independence and objectivity to individual decision-making. Prerequisite: graduate st an ding.

APPL 641 Organizational Psychology (3)
Studies how principal theories and empirical findings from research in organizational psychology are used to improve employee performance and satisfaction. Emphasizes the interactive effects of situational and individual difference variables as they influence organizational behavior. Overview includes motivation, leadership, employee morale, group dynamics and interpersonal communication. Students apply theoretical and empirical findings to solutions of work-related problems in case studies. Lab fee may be required.

APPL 642 Motivation, Satisfaction And Leadership (3)
Critical and in-depth examination of the research evidence for theories of leadership and job satisfaction. Using motivation as a central concept, students gain an understanding of how group dynamics and personal, environmental and cultural factors influence organizational behaviors. Students work in teams to solve performance-related problems presented in case studies. Lab fee may be required. Prerequisite: APPL 641 or approval of program director.

INSS 611 Data Science Toolkit I (1.5)
This course will introduce the basis of using the python programming language in data science, specifically to collect and manipulate data in preparation for exploratory data analysis and prediction. No prior programming experience is required. Topics will include python data structures, program logic and libraries, as well as data wrangling and data management. Types of data sources covered will include databases as well as unstructured data sources such as social media feeds. Prerequisites: graduate standing.

INSS 612 Data Science Toolkit II (1.5)
The effectiveness of business analytics depends on the quality of the data fed into the

analytics models used. Data scientists can spend as much as 60% of their time cleaning and organizing data. This course focuses on preparing data for analytics tasks, to improve the accuracy and reliability of the results. Using python students will learn to "wrangle" (clean, transform, merge and reshape) data. Techniques will include data parsing, data correction, and data standardization. Prerequisites: INSS 611.

INSS 621 Digital Transformation (1.5)
Digital technologies are playing a transformative role in the modern world. The changes associated with digital innovations such as social media, block-chain technology and smart embedded devices are rapidly disrupting a variety of industries across the globe and challenging institutions, organizational structures, and most importantly, the skillset needed for a successful workforce. This course focuses on bleeding-edge technologies and digital business transformation. It enables students to understand the challenges and opportunities of the dynamic complex and disruptive technological business environment of the digital age. Prerequisites: INSS 605.

INSS 622 Digital Innovation (1.5)
The digital revolution is constantly challenging businesses and managers to adapt to new realities. Many organizations are establishing market leadership in today's competitive environment by mastering digital innovation. This course is designed to assist students in understanding that the fundamental nature of digital innovation is not about information technology but is about thinking differently about how to organize to create value. It aims to equip students to competently identify technological and organizational opportunities, lead digital initiatives and develop new business models for existing and emerging organizations. Topics include digital disruption and innovation, digital platforms, digital business models and digital product and service development. Prerequisites: INSS 605.

INSS 722 Visual Business Intelligence (3)
This course will introduce students to the use of data visualization and visual business intelligence in a business environment. Students will develop a framework and language for analyzing and critiquing the visualization of data and learn to use data visualizations to effective support decision making. Topics will include data abstraction and validation, and how to handle different types of data, dataset and attribute types. Students will use software tools to create visualizations. Prerequisites: **INSS** 605.

MGMT 615 Managing in A Dynamic Environment (3)
Covers the processes and necessary skills for leading and managing people in organizations that compete in dynamic environments. Emphasizes leading and motivating diverse employee populations in global organizations, and human resource management issues, including evaluation, rewards, and employment law. Prerequisites: MGMT 605 or MGMT 600.

MGMT 730 Leadership, Learning and Change (3)
Based on the idea that the deeper we go into the exploration of organizational leadership,

learning and change, the more we need to deal with the dimensions of the sense-making, connection-building, choice-making, vision-inspiring, reality-creating roles of leaders. The course involves a series of workshops designed to help students learn something that cannot be taught: leading, learning and changing "from within." Readings, assignments and Web forum interactions are designed to inspire "practices of deep inflection": storytelling, historical inquiry, reflective reading and writing, dialogue and action research. Prerequisites: graduate standing.

Capstone Course (3 credits)

INSS 753 Information Security and Business Continuity (3)
This course focuses on information security at a strategic level, particularly information security governance and risk management, and business continuity. The key issues associated with protecting business information assets will be examined, including how risk and security assessments should be done in terms of impact on systems, staff, reputation and market share. Topics will include information security management, disaster recovery response, governance and compliance frameworks, and information security policy. Prerequisites: INSS 605.

1. **Describe the educational objectives and intended student learning outcomes.**

The MS in Cyber Security Management has the following program Learning Goals and corresponding Student Learning Objectives:

Goal 1: Analytical and Critical Thinking Skills-Graduates will possess the analytical and critical thinking skills needed by information/ cyber security professionals.

Learning Objective 1.1: Students will understand and apply the concepts surrounding the regulatory environment of different business sectors with respect to information security.

Learning Objective 1.2: Students will analyze data and interpret their findings to identify information security issues such as fraud or security breaches.

Goal 2: Information Analysis - Graduates will use appropriate methods from a variety of disciplines in order to identify and mitigate business risk and ensure business continuity.

Learning Objective 2.1: Students will be able to define the information needs pertaining to a strategic business problem arising from cyber security issues.

Learning Objective 2.2: Students will demonstrate the ability to analyze and suggest changes to business continuity processes.

Goal 3: An Ethical Perspective-Graduates will incorporate ethical considerations in their decision- making.

Learning Objective 3.1: Students will identify and analyze ethical dilemmas raised by cyber security issues and recommend appropriate resolutions.·

Goal 4: Effective Communication Skills-Graduates will have the skills to communicate both tactical and strategic information security problems and solutions persuasively, professionally, and in a clear and concise manner.

Learning Objective 4.1: Students will prepare effective written reports, using appropriate data, analysis, and conclusions .·

Goal 5: Leadership-Graduates will have the skills to lead an organization in its preparedness and response to cyber security threat s.

Learning Objective 5.1: Students will analyze the factors and behaviors associated with effective leadership.

1. **Discuss how general education requirements will be met, if applicable.**

Not applicable as this is a graduate program

2. **Identify any specialized accreditation or graduate certification requirements for this program and its students.**

The primary home of the proposed degree, UB's Merrick School of Business, is accredited by AACSB, the international accrediting body of choice for schools of business. Some courses in the proposed program will be available online, and AACSB expects institutions to demonstrate assurance of learning comparability across platforms.

If contracting with another institution or non-collegiate organization, provide a copy of the written contract.

Not applicable

G. **Adequacy of Articulation**

Students with an undergraduate degree in information technology or related discipline, and experience in the cyber security industry should be well prepared to complete this degree.

I. **Adequacy of faculty resources (as outlined in COMAR 13B.02.03.11)**

1. Provide a brief narrative demonstrating the quality of program faculty. Include a

summary list of faculty with appointment type, terminal degree title and field, academic title/rank, status (full-time, part-time, adjunct) and the course(s) each faulty member will teach.

The majority of courses in the MS in Cyber Security Management will be taught by full-time faculty. From the Merrick School of Business

- **Anil Aggarwal,** professor, received a Ph.D. from the University of Houston. His research and teaching interests are in the areas of business intelligence, databases, could computing and decision making among distributed groups. He has edited books on cloud computing and big data.
- **Regina Bento,** professor, has a Ph.D. from the Sloan School of Management at MIT, and an MD from the Federal University of Rio de Janeiro. Her teaching interests include leadership and organizational behavior. Her research interests include performance appraisal and rewards, stigma, leadership, and management education.
- **Danielle Fowler,** associate professor, received a Ph.D. from Swinburne University in Australia. She is the chair of the Department of Information Systems and Decision Science. Her research and teaching interests include cyber education, e-commerce and requirements engineering .
- **Rajesh Mirani,** associate professor, received a Ph.D. from the University of Pittsburgh. His research and teaching interests cover management information systems, including applications to healthcare and business-information technology alignment, as well as governance and public sector information technology initiatives.
- **Joel Morse,** professor, earned his Ph.D. at the University of Massachusetts at Amherst. His research and teaching interests are in the areas of investments, corporate finance, and business valuation, with a particular focus on goodwill impairment, volatility investing and derivat ives. He has been a course designer of online graduate teaching material and courseware since 1998.
- **Eusebio Scornavacca,** associate professor, received his Ph.D. from Victoria University of Wellington. He holds the Dean Clifford James Chair for Distinguished Teaching and the John and Margaret Thompson Professorship. His research and teaching interests are in the areas of mobile and ubiquitous information systems, disruptive innovation, and information security as a component of digital business.

- **Jaya Singha!,** professor, earned her Ph.D. at the University of Arizona . She has won the USM Board of Regents faculty award for scholarship, and she holds the Frank Baker Chair for Research Excellence. Her research focuses on topics in Management Science, Supply Chain Management, and Operations Management.
- **Kalyan Singhal,** professor, has a D.B.A from Kent State university. He is one of the founders of the Production and Operation Management Society (POMS), and serves as the Editor-in-Chief of the Production and Operation Management Journal. His research interest is in Trade-and-Innovation Dynamics and its science.
- **Lisa Stickney,** associate professor, received her Ph.D. from Temple University. Dr. Stickney's research interests include anger in organizations, emotional contagion, gender studies, and management pedagogy. Her research has been published in

  Human Relations, Sex Roles: A Journal of Research, The Journal of Management Education and in Research in Emotions in Organizations among others.
- **Lourdes White,** professor, received a doctoral degree from Harvard University in business with an accounting concentration. Her research and teaching interests are in the areas of management accounting and control, including performance management, cost and control systems, and accounting ethics. She has also published in the areas of quality assurance and student engagement in online education and has presented her work on the scholarship of online education at national and international academic conferences.

From the College of Public Affairs:

- **Pat Hall,** lecturer, is an attorney and director of the MS. in Forensic Science and High-Tech Crime. Attorney Hall has more than 30 years of experience with the legal process and criminal investigation of cybercrime in both corporate and public-sector organizations. Her expertise includes the CFAA and other business and organizational regulations. She has participated in various incident response teams representing the legal implications and evidence preservation.
- **Debra Stanley,** professor, earned her Ph.D. from the University of Maryland. She is currently executive director of the School of Criminal

Justice. Her research focuses on victimology, domestic violence, substance abuse and crime, violence prevention and program evaluation. Her teaching areas include Research Techniques in Criminal Justice, Advanced Criminology, and Administration of Justice.

From the College of Arts and Sciences:

- **Sharon Glazer,** professor, earned her Ph.D. from Central Michigan University. She is currently Chair of the Division of Applied Behavioral Sciences, and an affiliate Research Professor at the University of Maryland Center for Advanced Study of Language (CASL) and Department of Psychology. She is a cross-cultural organizational psychologist who studies the role of culture in individuals' organizational ABCs (affects, behaviors, and cognitions), changes in (organizational and national) cultures due to domestic policies in a globalizing world, and differences and similarities between (national and organizational) cultures on individuals, teams, and organizations' ABCs.
- **John Donahue,** assistant professor, earned his Psy.D from LaSalle University. His area of interest is the field of emotion regulation, and his expertise includes a clinical internship in the Federal Bureau of Prisons and research fellowship at the Portland VA Medical Center.
- **Thomas Mitchell,** associate professor, earned his Ph.D. from Virginia Commonwealth University. His expertise is in the area of industrial and organizational psychology, and his research has focused on understanding how applicant faking on personality tests affects job performance.

A mapping of faculty to course offerings is below:

Foundation (3 credits, waivable)		**Faculty**	**Status**	**Qualifications**
OPRE 505	Fundamentals of Statistics (1.5)	Jaya Singhal	Professor	Ph.D., Univ of Arizona
OPRE 506	Managerial Statistics (1.5)	Jaya Singhal	Professor	Ph.D., Univ of Arizona
Required Core (19.5 credits)				
ACCT 505	Accounting Essentials (1.5)	Jessica Kaufman	Adjunct	MBA Univ Baltimore, CPA
APPL 603	Learning and Cognition (3)	John Donahue	Assist Prof	Psy.D. LaSalle Univ
FSCS 601	Legal Issues in High Technology Crime (3)	Pat Hall	Lecturer	JD, Esq. Practicing Attorney,
INSS 605	IT for Business Transformation (3)	Rajesh Mirani	Assoc Prof	Ph.D. Univ of Pittsburgh
INSS 703	Principles of Information Security Management (3)	Eusebio Scornavacca	Assoc Prof	Ph.D . Victoria Univ **(NZ)**
MGMT605	Leading with Integrity (1.5)	Lisa Stickney	Assoc Prof	Ph.D. Temple University
OPM 615	Innovation & Project Management (3)	Kalyan Singhal	Professor	D.B.A Kent State
OPRE 605	Business Analytics (1.5)	Jaya Singhal	Professor	Ph.D., Univ of Arizona
Elective Courses (7.5 credits)				
ACCT 601	Forensic Accounting Principles (3)	Robert Carter	Adjunct	M S. Acct Bus Advis, CPA
ACCT604	Litigation Support (3)	Joel Morse	Professor	Ph.D. Umass Amherst
ACCT 701	Accounting Ethics	Lourdes White	Professor	D.B.A. Harvard
APPL 641	Organizational Psychology (3)	Thomas Mitchell	Assoc. Prof	Ph.D. Virginia Commonwealth Univ
APPL642	Motivation, Satisfaction and Leadership (3)	Thomas Mitchell	Assoc. Prof	Ph.D. Virginia Commonwealth Univ
INSS 611	Data Science Toolkit I (1.5)	Danielle Fowler	Assoc. Prof	Ph.D. Swinburne Univ (Aus)
INSS 612	Data Science Toolkit II (1.5)	Danielle Fowler	Assoc. Prof	Ph.D. Swinburne Univ (Aus)
INSS 621	Digital Transformation (1.5)	Eusebio Scornavacca	Assoc. Prof	Ph.D. Victoria Univ (NZ)
INSS 622	Digital Innovation (1.5)	Eusebio Scornavacca	Assoc. Prof	Ph.D. Victoria Univ (NZ)
INSS 722	Visual Business Intelligence(3)	Anil Aggarwal	Professor	Univ of Houston
MGMT615	Managing in a Dynamic Environment (3)	Regina Bento	Professor	Ph.D. MIT; MD Federal Univ. of Rio de Janeiro
MGMT 730	Leadership, Learning and Change(3)	Regina Bento	Professor	Ph.D. MIT; MD Federal University of Rio de Janeiro
Capstone (3 credits)				
INSS 753	Information Security And Business Continuity (3)	Danielle Fowler	Assoc. Prof	Ph.D. Swinburne Univ. (Aus)

J. Adequacy of library resources (as outlined in COMAR 13B.02.03.12).

As the program uses existing course offerings, the program has sufficient library resources through the Bogomolny Library to meet its needs. The UB library is a member of the University System of Maryland and Affiliated Institutions library consortium, which provides among the most robust interlibrary loan services in the country. Faculty and students have remote access to research database searches and electronic journals, and there is 24/7 reference help available. The library moved into a completely refurbished building in June of 2018.

K. Adequacy of physical facilities, infrastructure and instructional equipment (as outlined in COMAR 13B.02.03.13)

The Merrick School of Business is housed in the William Thumel Business Center, a five-story academic building with the classroom and technology resources to provide courses through a variety of electronic media. Faculty all have computers, there are student computer labs, an advising center, a business incubator, and ample classrooms and faculty offices. The University uses the Sakai learning management system, which has 24/7 support from Sakai, plus support from UB's Office of Technology Services.
Faculty are supported in online learning by the Bank of America Center for Excellence in Learning, Teaching and Technology.

As this program is focused on the management of cyber security, not technical proficiency, it has no requirement for specialized lab facilities. If it would suit instructors to demonstrate material in a lab setting, this can be done using the existing information systems lab space in the Merrick School (which includes a virtual lab), or the dedicated cyber security labs in the College of Arts and Sciences.

L. **Adequacy of financial resources with documentation (as outlined in COMAR**

13B.02.03.14) TABLE 1: RESOURCES:

Resource Categories	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
1. Reallocated Funds [1]	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
2. Tuition/Fee Revenue (c + g below)	**$360,750**	**$1,103,895**	**$1,501,297**	**$1,722,739**	**$2,147,681**
a. Number of F/T St udents[2]	0	0	0	0	0
b. Annual Tuition Rate[3]	$9,612	$9,804	$10,000	$10,200	$10,404
c. Total F/T Revenue (ax b)	$0	$0	$0	$0	$0
d. Number of P/T Students[4]	10	30	40	45	55
e. Credit Hour Rat e[5] (3 cr)	$2,405	$2,453	$2,502	$2,552	$2,603
f. Annual Credit Hour Rate[6]	15	15	15	15	15
g. Total P/T Revenue (d xex f)	$360,750	$1,103,895	$1,501,297	$1,722,739	$2,147,681
3. Grants, Contracts & Other External Sources	N/A	N/A	N/A	N/A	N/A
New students	10	20	20	25	25
Total students		30	40	45	50

[1] The program consists of existing courses within the MBA, MS Applied Psych, and MS Forensic Science-High Tech Crime. MS Cyber students will be integrated with students in these programs.

[2]The target market for the program is part-time students.

[3]The current rate for tuition for full-time, in-state students is used for year 1. Thereafter, a tuition increase of 2% per year is assumed. There are no program specific fees.

[4] See note 2. Enrollments projected to grow with better program identification in the market.

[5]The current tuition rate for for part-time, in-state, students for 3 credits is used for year 1. Thereafter, a tuition increase of 2% per year is assumed. There are no program specific fees.

[6] Program designed/marketed for two-year completion rat e. Students take 6-7.Scr/ term over fall, spring, summer.

TABLE 2: EXPENDITURES:

Expenditure Categories	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
1. Faculty (b + c below)	**$261,870**	**$368,445**	**$452,304**	**$461,350**	**$579,284**
a.# FTE[1]	0.5	1	1.5	1.5	2
b. Total Sa\ary [2]	$129,000	$181,500	$222,810	$227,266	$285,362
c. Total Benefits	$132,870	$186,945	$229,494	$234,084	$293,922
2. Academic Support St aff [3]	N/A	N/A	**N/A**	**N/A**	N/A
3. Technical Support and Equipment[4]	$5,000	$0	$0	$0	$0
4. Library [5]	$0	$0	$0	$0	$0
5. New or Renovated Space [6]	$0	$0	$0	$0	$0
TOTAL (Add 1- 6)	**$266,870**	**$368,445**	**$452,304**	**$461,350**	**$579,284**
Net Contribution: Tuition Revenue - Expenses	**$93,880**	**$735,450**	**$1,048,993**	**$1,261,388**	**$1,568,397**

[1] Year 1 FTE represents incremental FTE required to support the program. As enrollments grow, additional adjuncts will be deployed. Assume 2% growth in FT faculty salaries, fringe constant.
[2] Based on Fall 2017 FT faculty salaries plus adjunct salaries

[3]Able to accommodate growth in students with existing academic support over this time period

[4] Software: Cyber security management tools (SIEM) $5,000

[5] Library: no additional journals required

[6] Existing lab and classroom space sufficient

M. Adequacy of provisions for evaluation of program (as outlined in COMAR 13B.02.03.15). Discuss procedures for evaluating courses, faculty and student learning outcomes.

The Merrick School of Business is accredited by AACSB, which requires a self-study process and peer review of assurance of student learning. This accreditation is re-affirmed every 5 years. Faculty scholarship is also part of the review. As the proposed program will be housed and taught primarily by the Merrick School of Business, it will be incorporated into the AACSB review process, ensuring the program meets those standards.

Faculty are also evaluated through student evaluation of courses, annual review, promotion and tenure review, and post-tenure review.

The program faculty will engage in the assessment of program student learning outcomes to satisfy UB, University System of Maryland, and AACSB requirements for program review. Assessment of program learning objectives is conducted every two years, and recommendations for continuous improvement are prepared and implemented by faculty teaching in the program, under the guidance of the program director and the chair of the Department of Information Systems and Decision Science.

The associate dean of the Merrick School coordinates academic assessment for the School. UB uses TaskStream software for academic assessment to track the evaluation of student learning outcomes. The assistant provost for assessment, advising and retention, in conjunction with the Academic Core Assessment Team, oversees academic assessment processes at the university. The assistant provost provides a check to ensure that all academic assessment is on file within the software.

N. **Consistency with the State's minority student achievement goals** (as outlined in COMAR 13B.02.03.05 and in the State Plan for Postsecondary Education). Discuss how the proposed program addresses minority student access & success, and the institution's cultural diversity goals and initiatives.

The University of Baltimore has a majority minority population and is one of the most ethnically and racially diverse institutions in Maryland (see http://www.ubalt.edu/campus-llfe/diverslty-and-culture-center/diversity-profile.cfm and comparative information from the MHEC *Data Book,* 2017). The institution's entire history has been shaped by the goal of helping individuals gain the education they need to advance professionally and personally; now as in the past, a large percentage of UB students work full- or part-time while earning a degree . This program continues in that tradition by serving working professionals in the cyber industry wanting to advance professionally.

Like all University System of Maryland institutions, UB has goals related to closing the achievement gap between races and income groups. A key factor in completion of degrees is ease of access. It is critically important to keep students enrolled if they are to graduate, both for graduate and undergraduate programs. Providing the program online will facilitate efforts to keep students enrolled in the degree program, through achievement of the CPA credential and on to the degree.

UB has also works to track its impact on social mobility. Providing this program online, and thereby helping more students earn a valuable professional credential, is aligned with UB efforts to increase the incomes and social mobility of its student population.

0. Relationship to low productivity programs identified by the Commission: If the proposed program is directly related to an identified low productivity program, discuss how the fiscal resources (including faculty, administration, library resources and general operating expenses) may be redistributed to this program.

Not applicable

References

1. Data Snapshot: Employer Demand for Master's-level Cyber Management Professionals. Educational Advisory Board, 2016.
2. Burning Glass. http:// burning-glass. com/ research/ cybersecurity/
3. "Maryland cyber group aims to decrease number of unfilled industry jobs," Baltimore Business Journal. https://www.biz.journals.com/baltimore/news/2017/ 08/ 22/maryland -cyber - group- aims-to-decrease-number-of.html
4. https:// www .bls.gov/ ooh/ management/ computer-and -information -systems-managers.ht

UNIVERSITY SYSTEM of MARYLAND

BOARD OF REGENTS

SUMMARY OF ITEM FOR ACTION, INFORMATION, OR DISCUSSION

TOPIC: University of Maryland, Baltimore: Bachelor of Science/Master of Science in Clinical Dental Hygiene Leader Program

COMMITTEE: Education Policy and Student Life

DATE OF COMMITTEE MEETING: Tuesday, November 6, 2018

SUMMARY: The proposed University of Maryland, Baltimore (UMB) School of Dentistry Bachelor of Science/Master of Science in Clinical Dental Hygiene Leader (CDHL) is a unique, innovative and first-of-its-kind dual degree program at the forefront of dental hygiene education to prepare exceptional students for the dynamic oral health landscape. The Bachelor of Science/Master of Science CDHL is a two-year dual degree program geared toward students with a science background who have decided to specialize in dental hygiene and/or those who want a primary role in facilitating and responding to change in the oral health field. Admission to the program requires an initial bachelor's degree, including additional prerequisites, to enable students to obtain both a bachelor of science in dental hygiene and a master of science. The CDHL program will be housed at the Universities at Shady Grove and will be joining the UMB School of Nursing and School of Pharmacy graduate programs already offered at Shady Grove.

Current research demonstrates that there is a critical need for multidimensional oral health professionals in the workforce to improve access to oral health care, especially to the vulnerable and underserved populations in our state and region. In 2015, over 40,000 emergency department visits for oral healthcare were reported in Maryland. The graduates of the CDHL program will be exceptionally prepared with the dental skillset that only master's-level instruction can provide to meet the growing demands. UMB is uniquely qualified to prepare and deliver the proposed CDHL curriculum at USG.

ALTERNATIVE(S): The Regents may not approve the program or may request further information.

FISCAL IMPACT: No additional funds are required. The programs can be supported by the projected tuition and fees revenue.

CHANCELLOR'S RECOMMENDATION: That the Education Policy and Student Life Committee recommend that the Board of Regents approve the proposal from University of Maryland Baltimore to offer the Bachelor of Science/Master of Science in Clinical Dental Hygiene Leader Dual Degree Program.

COMMITTEE RECOMMENDATION:		DATE: November 6, 2018
BOARD ACTION:		DATE:
SUBMITTED BY: Joann A. Boughman	301-445-1992	jboughman@usmd.edu

UNIVERSITY of MARYLAND
BALTIMORE

BRUCE E. JARRELL, MD, FACS
Executive Vice President and Provost
Dean, Graduate School

Academic Affairs/Graduate School
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Baltimore, MD 21201
410 706 2304

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September 18, 2018

Robert L. Caret, PhD
Chancellor
University System of Maryland
3300 Metzerott Road
Adelphi, MD 20783-1690

Dear Chancellor Caret:

The University of Maryland School of Dentistry is requesting authorization from the University System of Maryland to offer a new B.S./M.S. Clinical Dental Hygiene Leader (CDHL) dual degree program.

The School's previously approved M.S. in Dental Hygiene program has been dormant and last conferred degrees in 2013.

The proposed new program will educate future leaders in the profession by offering a Bachelor of Science degree in Dental Hygiene and an accelerated Master of Science in Dental Hygiene degree.

This proposal also has been submitted to the Maryland Commission on Higher Education for its review.

We appreciate your consideration. Please contact me should you have any questions.

Sincerely,

Bruce E. Jarrell, MD, FACS
Executive Vice President and Provost

TABLE OF CONTENTS

New Academic Program Proposal Prepared for the Maryland Higher Education Commission: Dual-Degree Clinical Dental Hygiene Leader (CDHL) UNIVERSITY OF MARYLAND SCHOOL OF DENTISTRY

A. CENTRALITY TO INSTITUTIONAL MISSION STATEMENT AND PLANNING PRIORITIES

The University of Maryland School of Dentistry's (UMSOD) Clinical Dental Hygiene Leader (CDHL) program will be a unique offering at the forefront of dental hygiene education, preparing exceptional students for a dynamic oral health landscape. The two-year dual-degree program, to be housed at the Universities at Shady Grove (USG), will enable students to obtain both a bachelor of science in dental hygiene and a master of science. Requiring an initial bachelor's degree for admission (in addition to prerequisites), the program is geared toward students with a science background who have decided to specialize in dental hygiene and/or those who want a primary role in facilitating and responding to change in the oral health field.

While the CDHL program will represent the UMSOD's first program at USG, it will join already-existing graduate programs offered by two sister schools of the University of Maryland, Baltimore (UMB): the University of Maryland School of Nursing (UMSON) and the University of Maryland School of Pharmacy (UMSOP). As a UMB school, the UMSOD — and by extension, the CDHL program — adheres strongly to, and emphasizes the value inherent in, the university's mission, which is:

> To improve the human condition and serve the public good of Maryland and society at-large through education, research, clinical care, and service.

The CDHL program will further that mission, providing not only an innovative and first-of-its-kind dual-degree program that leads the way in oral health education, but a large clinical component serving not only the Shady Grove region, but the state and mid-Atlantic region as a whole. The UMSOD has an impressive history of service to Maryland communities, through such initiatives as Mission of Mercy and Sealant Saturdays, and the CDHL program will no doubt exhibit a similar commitment.

The desire to create the CDHL program at Shady Grove is a forward-thinking one, positioning both the UMSOD and USG on the cusp of a major transition in oral health delivery and medicine. Similar in focus to the Clinical Nurse Leader (CNL) program, offered at the UMSON and more than 100 other nursing schools throughout the country, the CDHL program will produce dental hygienists who can work inter-professionally as members of an interdisciplinary team, assuming key leadership roles in a wide variety of clinical, educational, public health, and healthcare settings.

In addition to offering the only master of science in dental hygiene in Maryland, the CDHL program will be the only one in the country combining the exceptional clinical and didactic dental hygiene baccalaureate education currently obtained at a dental school with dynamic graduate preparation in community and interdisciplinary oral health care as well as research methods and scholarly applications. Drawing upon the resources of the UMSOD, the first dental college in the world, CDHL students will work side-by-side with advanced education in general dentistry (AEGD) students and predoctoral dental students in a new Shady Grove clinical facility.

As befits an innovative dual-degree program, the didactic curriculum will also be cutting-edge, with a number of courses offered online exclusively to CDHL students, allowing them access to Baltimore-based UMSOD faculty members while benefiting from USG's interdisciplinary environment. Didactic courses will combine the outstanding baccalaureate education already provided at UMSOD, which has the only bachelor's program in dental hygiene in the state, with advanced graduate-level enhancements. The curriculum will place a strong emphasis on research and understanding the scientific literature, so that graduates are not just advanced clinicians, but experienced in, and wholly comfortable with, reviewing the latest findings in oral health and using evidence-based decision-making in patient care.

Notably, the dual-degree CDHL program addresses all six tenets of the UMB 2017-2021 Strategic Plan,[1] which are listed below:

Health, Justice, and Social Impact

Dental hygienists are preventive therapists who, with master's degrees, are better equipped to shape oral health policy and establish care programs in such entities as hospitals, federally qualified health care facilities, long-term geriatric care residences, and beyond. By doing so, and through patient care in clinics, the program will serve the community at large and provide care to those in need.

Research and Scholarship

Students in the CDHL program will engage in research both didactically and through course assignments and capstone projects. Many of their creative efforts will be publishable, adding to the broader scientific knowledge.

Student Success

Quite simply, this program aims to create leaders in health care. As demographics change and the research supporting the link between oral and systemic health grows, we need dental hygienists who will take the lead in addressing oral disease. Graduate-degreed dental hygiene clinic leaders will create those essential prevention programs and, in doing so, receive a similar level of responsibility and accountability currently given to colleagues in pharmacy, nursing, physical therapy, and occupational therapy.

Inclusive Excellence

Students enrolled in this program, and all of the other professional programs housed at USG, will be instrumental to the broader interprofessional environment, pursuing excellence in all disciplines. Students will follow the Interprofessional Educational Collaborative guideline, which focus on continuous development of interprofessional competencies by health professions students as part of the learning process.

These guidelines are related to four key domains:

1. Values/ethics;
2. Respect for roles and responsibilities;
3. Communication across professions; and
4. Teamwork for effective interprofessional practice.

Efficiency, Effectiveness, and Assessment

Creating a new dual-degree program at the USG campus utilizes the resources already present at UMSOD while providing cutting-edge education and clinical care to different localities of the state than those currently reached by Baltimore-based UMSOD.

Partnership and Collaboration

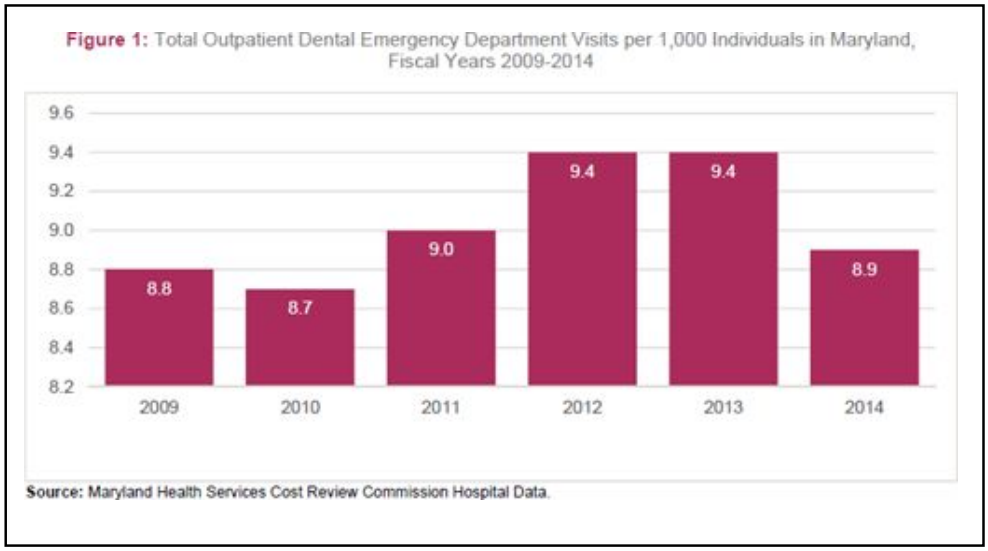
One fundamental aim of the USG campus is to foster interprofessional collaboration among students in health professions, which is a parallel emphasis of the CDHL program. Other partnerships in the community will enable the delivery of preventive oral health services to those in need.

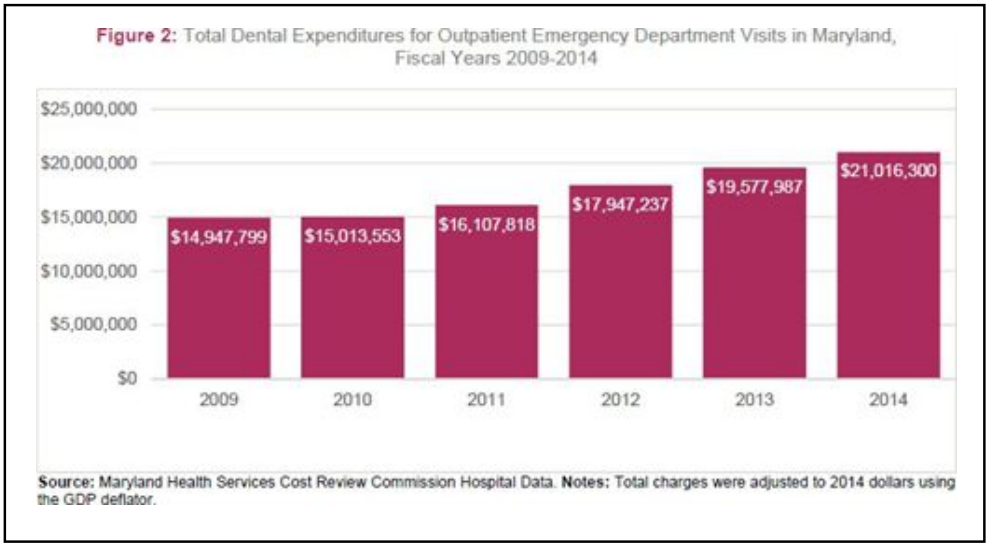
B. CRITICAL AND COMPELLING REGIONAL OR STATEWIDE NEED AS IDENTIFIED IN THE STATE PLAN

Current research demonstrates the link between oral and systemic health, and as healthcare delivery becomes ever more integrated, the demand for multidimensional professionals will grow correspondingly. There is also a growing agreement among oral health advocates that new workforce models are necessary to improve access to oral health care for vulnerable and underserved populations. Graduates of the CDHL program will be qualified for those positions that go beyond the standard private dental practice and require an enhanced dental hygiene skillset that only master's-level instruction can provide.

For example, in 2015, over 40,000 emergency department (ED) visits for oral complaints were reported in Maryland.[2] Figures 1 and 2 provide further information on the prevalence of oral health concerns in the state's EDs. Despite some statewide improvements, many Marylanders still lack access to oral health care and experience preventable oral disease. A CDHL graduate,

as an advanced clinician with research experience, could assess the state of oral health promotion in a hospital setting, implement an oral health plan, evaluate the plan's effectiveness, and disseminate relevant information to colleagues in medicine, administration, and beyond. Given that the healthcare industry seeks to create a system that achieves effective oral health interventions at lower costs, a CDHL's ability to provide expertise in oral health in diverse settings, not just the traditional dental practice, becomes invaluable.





The nation's aging population will present new challenges in oral health, as well, requiring dental hygienists with the advanced skillsets a CDHL can provide. Senior citizens will comprise a fifth of the U.S. population by 2030; already, 1.3 million Americans reside in long-term care facilities for the elderly. As the Institute on Aging notes, "[c]hronic illness has replaced acute illness as the major health problem of older adults — and increasingly so as medicine evolves."[3] A grayer United States will need oral health professionals who can work in long-term care facilities — often, across many different branches — tackling the unique issues and conditions of those communities.

Much like working across the many branches of a company providing long-term care, dental hygienists with a CDHL degree will be especially suited for the burgeoning corporate dentistry sector. Their experience as part of a multidisciplinary team, attuned to the latest research and looking broadly at oral health from a public health perspective, will serve them well when managing an entity with many moving parts. As well, a CDHL degree, with its emphasis on the scientific literature, will also allow dental hygienists to remain in academia as faculty members, drawing upon their dual background — both clinical and research-based — to better educate forthcoming students in dental hygiene about the changing oral health landscape.

In summation, UMSOD has an opportunity to bridge the gap between regional and statewide present and future demand through the CDHL dual-degree program. UMSOD's established credibility in providing pre-eminent education, patient care, research, public service, and global engagement, as well as the aligned CDHL curriculum and student outcomes, will result in our graduates possessing the elevated knowledge, skills, and abilities to close regional and statewide gaps. Table 1 outlines specific examples of our regional and statewide needs and how CDHL graduates can provide solutions. It is important to note, however, that while CDHL graduates will have an enhanced dental hygiene skillset, that will not translate into an enhanced scope of practice.

In addition, the CDHL program speaks to many of the principles set forth in the Maryland State Plan for Postsecondary Education 2017-2021,[4] notably "access," "success," and "innovation." Graduates from the CDHL program will increase Maryland's percentage of professional and technical workers (27.2 percent), already the second-highest among all states. Our proposed program adheres to the principles of public higher education in Maryland, accepting credits from all of Maryland's accredited institutions and thus fostering and valuing diversity. The program's administrators will also reach out to other schools within the USM in order to prioritize diversity within the program.

UNIVERSITY of MARYLAND SCHOOL OF DENTISTRY

CDHL Proposal

Table 1: Examples of CDHL Graduates Bridging Regional and Statewide Oral Health Gaps		
Present and Future Regional and Statewide Need		**Example CDHL Graduate Solutions**
Advancement and evolution of knowledge in:	Oral health among residents in long term care facilities.	▪ Design, develop, implement, and evaluate facility-wide, interprofessional education initiative on prevention of ventilator-induced pneumonia. ▪ Within the dental hygiene scope of practice, create facility-wide processes that incorporate risk assessments and identification of oral disease.
	The relationship between oral and systemic disease.	▪ Through interprofessional collaborations, create and establish basic oral cavity screening process to enhance patient healthcare outcomes.
	Decreasing Maryland Medicaid system spending on patients seeking emergency oral care services.	▪ Chair a community committee on oral health strategic planning and preventive care. ▪ Break the cycle of oral health emergency visits though oral health strategic planning and delivery, as well as interprofessional collaborations to design patient case management that leads to enhanced healthcare outcomes.
Expand educational opportunities and choices for minority and educationally disadvantaged students at institutions of higher education through:	Deployment into the workforce within a reasonable timeframe and expense.	▪ Employed through the utilization of enhanced knowledge, skills, and abilities applicable to the workforce demand; possesses dual degrees, Master of Science and Bachelor of Science, and dental hygienist licensure, as well as saving monies on tuition and fees.
	Improvement of access and care opportunities for diverse communities.	▪ Following in the innovative programmatic pathway, establish a pedodontics oral health education program within the Montgomery County school system, including but not limited to oral health care access and at-home oral health best practices.
Strengthen and expand the capacity of historically black institutions to provide high-quality and unique educational programs.		▪ As a student at the Universities at Shady Grove (USG) campus for two full years, identify an opportunity to support a Maryland state HBI program at the USG campus.

C. QUANTIFIABLE AND RELIABLE EVIDENCE AND DOCUMENTATION OF MARKET SUPPLY AND DEMAND IN THE REGION AND STATE

We are committed to ensuring the development of our healthcare workforce, which will serve growing regional, national, and global needs. Graduate-degreed oral health leaders can provide high-level care and assume leadership roles that shape comprehensive health care delivery and policy. Moreover, professionally accountable graduate-degreed oral health leaders can educate other health professional leaders and collaborate with them to establish needed in-house programs. Maryland's economy will, of course, stand to benefit from the introduction of a highly trained oral healthcare workforce. As we mentioned earlier, CDHL graduates will qualify for those positions that go beyond private practice and require an enhanced dental hygiene skillset, for which master's-level instruction is necessary.

The program reached out to two distinct groups in order to demonstrate market demand and the UMSOD's unique suitability to answer it: Dental hygiene leaders in the community were engaged, while current baccalaureate students at UMSOD, UMSON, and the University of Maryland, College Park (UMCP) were surveyed. In addition, a review of available dental hygiene leadership positions was conducted using online job search websites. The quantifiable and reliable data sources confirm the need for a dental hygiene oral health leadership role, given community support, interest from regional student, and the number of current vacancies.

The Maryland Dental Hygienists' Association president noted that:

> [T]here is a market and community value. In Maryland and across the country, access to care remains a problem. Many residents are finding it hard to find a provider that can treat them. Having a dental hygiene oral health leader adds a peg to the access to care wheelhouse to help residents achieve oral health. (Appendix C)

Of current UMSOD, UMSON, and UMCP students surveyed, 42 percent "somewhat agreed" or "totally agreed" that if a master of science in CDHL program were offered at Shady Grove, they would consider applying within the next three years. In regards to specific employment prospects, regional and national vacancy opportunities that preferred graduate-degreed dental hygiene candidates were identified. Moreover, regional vacancy opportunities include mid-level positions in the following areas: instruction and teaching, such as a dental hygiene clinical instructor at Howard Community College; and clinic management and coordination, such as a dental hygiene clinic coordinator at Education Affiliates. Looking nationally, a growing number of vacancies in community health and corporate dentistry leadership preferred graduate-degreed dental hygiene candidates, too, such as the lead public health dental hygienist at Staywell Health Care, health education coordinator at County of El Dorado (Calif.), and dental hygienist at Peak Dental Services. (For additional details on market research results, refer to Appendix C.)

D. REASONABLENESS OF PROGRAM DUPLICATION

UMSOD offers the only baccalaureate dental hygiene program in Maryland. The progressive curriculum provides a higher level of learning and a broad perspective that produces tomorrow's leaders, motivators, and educators in the field of dental hygiene. Our established and credible baccalaureate dental hygiene program provides the foundation to provide the only graduate dental hygiene program in the state.

E. RELEVANCE TO HIGH-DEMAND PROGRAMS AT HISTORICALLY BLACK INSTITUTIONS (HBIS)

There is no duplication of a similar program at any HBI.

F. RELEVANCE TO THE IDENTITY OF HISTORICALLY BLACK INSTITUTIONS (HBIS)

There is no duplication of a similar program at any HBI.

G. ADEQUACY OF CURRICULUM DESIGN, PROGRAM MODALITY, AND RELATED LEARNING OUTCOMES

1. Describe how the proposed program was established, and also describe the faculty who will oversee the program.

The CDHL program is a dual-degree program intended for students who have already earned a baccalaureate or higher degree from a regionally accredited college or university in a field other than dental hygiene and who also have completed the prerequisite coursework for the bachelor of science in dental hygiene program. An increasing number of leadership positions for dental hygienists has created a demand for graduate education in research, scholarly writing, scientific communication, management, traditional and online teaching, program management, and advanced community and interprofessional healthcare practice.

Partnering the existing bachelor of science degree in dental hygiene with the master of science degree prepares graduates to provide primary dental hygiene clinical care and advanced dental hygiene leadership skills alongside their educational, management, consultative, and research expertise in community, hospital, and interprofessional settings, as well as in private industry. Dual-degree students achieve clinical competency in the provision of dental hygiene services for all patient populations, including pediatric, adolescent, adult, geriatric, medically compromised, and individuals with special needs, as well as the spectrum of periodontally involved patients. Students also gain advanced skills in assessing, diagnosing, planning, implementing, evaluating, and disseminating information about oral health promotional programs in community-based health care settings.

While pursuing the existing bachelor's in dental hygiene, students will be dually enrolled in graduate courses in order to earn their master of science simultaneously. The courses taken for the CDHL master of science degree supplement the existing knowledge and skills gained in the bachelor's program with graduate curricula aimed at positioning students to achieve excellence in research, scholarly writing, scientific communication, interprofessional healthcare management and delivery, health promotion, and educational methodology. Division of Dental Hygiene faculty members in the UMSOD's Department of Advanced Oral Sciences and Therapeutics will oversee the program's curriculum and the clinic at the Shady Grove campus. Course masters will come from the UMSOD, the University of Maryland Graduate School, the University of Maryland School of Medicine (UMSOM), and UMB's Health Sciences and Human Services Library (HS/HSL). The program director from the Division of Dental Hygiene will report to both the director of the Division of Dental Hygiene and the chair of the Department of Advanced Oral Sciences and Therapeutics. This program will commence at Shady Grove in order to situate students in an interprofessional environment with other health and human services professions.

The CDHL program learning experiences will develop and strengthen the knowledge and skillsets of graduates, allowing them to pursue specialized career goals and assume leadership roles in a wide variety of clinical, educational, and public health care settings. Notably, CDHL students will obtain the clinical, educational, research, and managerial skills necessary to implement evidence-based practices in a rapidly changing health care delivery system. Self-evaluation and self-reflection will be encouraged throughout the program, and students will have

Table 2: Faculty Resources

Course Title	Course Master
New Clinical Dental Hygiene Leader Courses, UMSOD	
DHYG 611: Research and Technical Writing (4 credits)	Jacquelyn Fried, RDH, MS
DHYG 612: Communicative Oral Health Literacy and Advocacy (1 credit)	Lisa Bress, RDH, MS
DHYG 613: Scientific Method and Writing (1 credit)	Jacquelyn Fried, RDH, MS
DHYG 621: Research Seminar (3 credits)	Jacquelyn Fried, RDH, MS
DHYG 622: Practicum and Capstone I (5 credits)	Sheryl Syme, RDH, MS
DHYG 623: Practicum and Capstone II (5 credits)	Sheryl Syme, RDH, MS
DHYG 624: Foundations of Education (3 credits)	Sheryl Syme, RDH, MS
Health Science, UMB Graduate School	
MHS 600: Introduction to Library Resources and Scholarly Writing (1 credit)	Isabell May, PhD
MHS 602: Legal and Ethical Issues for Health, Human Services, and Clinical Professionals (2 credits)	Sarah Archibald, PhD, MS, MA, CCEP
MHS 615: Biostatistics for the Health Professional (3 credits)	Larry Magder, MPH, PhD
MHS 652: Communication and Leadership (3 credits)	Donny Ard, MHA, PA-C

opportunities to share and demonstrate their experiences, knowledge, and skills interprofessionally.

Courses will be taught and led by experienced graduate faculty members and academicians who have excelled at teaching in traditional and online formats. Table 2 provides the faculty course masters for the proposed program.

2. Describe educational objectives and learning outcomes appropriate to the rigor, breadth, and (modality) of the program.

The CDHL program is designed to guide students to the achievement of specific competencies in interprofessional health care delivery and education, leadership, and scholarship.

The CDHL program competencies identify and organize the knowledge, skills, and attitudes graduates must attain upon completion of the bachelor's and master's degrees. These competencies define the content of the curriculum, state what graduates must know and be able to do after completing the program, and establish a basis for the course content in the dual-degree program.

The educational objectives of the CDHL program are for students to:

- Demonstrate the skills required of a competent dental hygiene leader, including advancing the knowledge base of the profession, maintaining ethical practice standards, adhering to regulatory requirements, communicating effectively in oral and written formats, demonstrating cultural competence, and addressing the oral health care needs of diverse and complex populations groups.
- Develop a commitment to providing clinical dental hygiene care using contemporary professional knowledge, judgment, skills, and self-assessment processes to adapt practices as advances are made in evidence-based health care and interprofessional health care delivery systems.
- Apply the principles of ethical reasoning, ethical decision-making, and professional responsibility as they pertain to the academic environment, research, patient care, and interprofessional practice management.
- Develop strong scientific writing and research skills by learning about the research process, research design, and implementation, and sharing scholarly findings with other professionals through written publications and presentations at conferences and workshops under the guidance of mentors.
- Develop strong interprofessional relationships with faculty members, students, and mentors through the interprofessional clinical dental hygiene site and community practica, placing an emphasis on scholarship throughout the dual-degree program.
- Serve the community in a variety of private and public health settings and utilize information systems and technologies to improve patient health care outcomes.
- Engage in, conduct, disseminate, and demonstrate the scholarly application of knowledge and skills acquired in supervised community-based health interprofessional care settings.

- Lead in the promotion of health and prevention of disease by designing, providing, evaluating, and managing the care of a variety of patient populations with complex treatment and rehabilitative needs.
- Assume the responsibilities of a successful dental hygiene leader, including solving problems and making decisions in interprofessional settings; adapting to community health settings; communicating effectively; building relationships with patients, peers, faculty members, and mentors; and managing large and small projects involving interdisciplinary team members.
- Collaborate with other health care professionals to assess, provide a dental hygiene diagnosis, plan, implement, and evaluate patient health and social outcomes for diverse populations in a variety of health care settings.
- Engage in independent critical-thinking and interprofessional practice experiences that center on evidence-based decision-making.

The intended learning outcomes of the CDHL program are for students to be able to:

- Demonstrate ethical and professional conduct and adhere to regulatory principles in clinical dental hygiene, community health interprofessional practice, and research.
- Assess, plan, implement, and evaluate dental hygiene services for individuals and community groups as an integral member of the health team.
- Recognize the roles of members of the health-care team and that the dental hygiene leader functions as a member of the dental team and plays a significant role in the delivery of comprehensive patient health care.
- Describe the dental hygiene process of care as an integral component of total patient care and preventive strategies.
- Recognize the medical, dental, cultural, social, and behavioral influences impacting disease and health and the delivery of health services to individuals and communities.
- Demonstrate effective interpersonal written and oral communication skills during individual patient and community health interactions and with other members of the health care team.
- Initiate and assume responsibility for assessing the oral health needs of community-based programs, planning an oral health program to include health promotion and disease prevention activities, implementing the planned program, and evaluating the effectiveness of the implemented program in an interprofessional setting.
- Explain the laws which govern the practice of dental hygiene and how to access licensure requirements, rules, regulations, and state practice acts as a mechanism guiding professional judgement and practice.
- Demonstrate self-assessment skills and a commitment to lifelong learning and professional growth in the creation and presentation of a professional portfolio.
- Contribute to improving the knowledge, skills, and values of the dental hygiene profession by developing a capstone paper of publishable quality and sharing findings of the capstone culminating project.

3. Explain how the institution will:

a. Provide for assessment of student achievement of learning outcomes in the program

Learning outcomes are defined for each course and presented in detail in each course syllabi in the program. The course grading schema, educational presentation format, and description of grading criteria are clearly presented in each course syllabi. Course content, learning activities, and assessment mechanisms are in alignment with course outcomes and provide a pathway for achieving competence in all components of the graduate curriculum. Exams, assignments, quizzes, projects, papers, written and oral presentations, the capstone portfolio, and other assessments contain clearly defined evaluation criteria and procedures. Courses are periodically reviewed by the Dental Hygiene Curriculum Committee to assess for sufficient depth, scope, sequence of instruction, and quality to ensure achievement of the program's defined learning outcomes.

b. Document student achievement of learning outcomes in the program

UMB has optimal educational resources at the campus level as well as within the individual professional schools, which provide the best teaching and learning experiences possible and enable the achievement of excellence in all of its programs' courses. Courses are designed with learning outcomes that are appropriate to the rigor and depth of graduate coursework, and faculty members strive for consistency, coherence, equivalency, and academic excellence among the courses in the program offered in both traditional and online instructional formats. All courses assess student achievement of defined learning outcomes through regular and formal educational assessments. Student achievement of learning outcomes is documented in Blackboard, the course management system used at UMB. Students have access 24/7 to individual course assessment grades, grading rubrics, and course information.

Review of curriculum occurs on an ongoing basis at UMSOD by the Subcommittee for Course Reviews of the Dental Hygiene Curriculum Committee, which evaluates individual courses offered in the Division of Dental Hygiene. The Dental Hygiene Curriculum Committee is comprised of dental and dental hygiene faculty, student representatives, administrators at the school, the HS/HSL liaison, and alumni of the dental hygiene program. Additionally, confidential student feedback is obtained by UMSOD's Office of Evaluation near the end of each semester, which is submitted to the relevant faculty member, Division of Dental Hygiene director, Department of Advanced Oral Sciences and Therapeutics chair, and the senior associate dean for academic affairs.

4. Provide a list of courses with title, semester credit hours and course descriptions, along with a description of program requirements

The bachelor of science degree program in dental hygiene has been in existence since graduating its first class in 1972. The most recent accreditation reaffirmation for the UMSOD and the

bachelor of science dental hygiene program, conducted by the Committee on Dental Accreditation (CODA), occurred May 8-10, 2018.

While pursuing the existing bachelor's degree in dental hygiene, CDHL program students will be dually enrolled in graduate courses.

Course Descriptions and Credit Hours for Master of Science Degree (30 Total Credit Hours)

DHYG 611: Research and Technical Writing (3 credit hours) (new course)
Jacquelyn Fried, RDH, MS

This course is designed to 1) introduce students to the conduct of research, to heighten student awareness of the importance of research as the foundation and knowledge base for the profession of dental hygiene; 2) provide students with the skills necessary to critically evaluate the scientific literature; and 3) prepare students to communicate in writing to answer questions, explain ideas clearly, and demonstrate the conventions of organization and style appropriate in professional writing. Students learn how to provide peer critiques and self-evaluate, determining how and when to revise and edit their writing in order to produce professional written documents. Students will be asked to pose their own research questions and hypotheses, identify the elements of effective research, interpret research findings, and evaluate the quality of research publications.

MHS 600: Introduction to Library Resources and Scholarly Writing (1 credit hour) (existing course)
Isabell May, PhD

This course is designed to provide graduate learners the opportunity to develop skills in both accessing relevant online library resources and engaging in scholarly writing. The portion of the course focusing on library resources teaches and strengthens lifelong research and information competency skills by introducing students to the nature of research and the role of a library in the research process. Students learn the core concepts of information retrieval and essential techniques for finding, evaluating, analyzing, organizing, and presenting information.

The topics covered include: using online catalogs to locate books and other library resources; developing research strategies; exercising critical thinking to evaluate information; applying critical search techniques to electronic databases; understanding citation formats; and using the internet as a research tool. The scholarly writing of the course will place emphasis on organization, effective conveyance of thoughts through written words, and writing for multiple types of audiences. Students will have the opportunity to improve both their academic writing and their research skills as they write a literature review or a proposal. Emphasis is placed on conventions of scholarly writing and organizational strategies as well as grammar, editing, and usage.

DHYG 612: Communicative Health Literacy and Advocacy (1 credit hour) (new course)
Lisa Bress, RDH, MS

Research has shown that health literacy and health outcomes are directly linked. Additionally, individuals with low oral health literacy skills often have poor oral health knowledge, behaviors and health status, lower preventive service utilization, and increased oral health care costs. Students will learn to teach and create social and educational processes where patients and community groups obtain, process, and develop understanding of basic oral and craniofacial information and the services needed to make impactful oral health decisions.

DHYG 613: Scientific Method and Writing (1 credit hour) (new course)
Jacquelyn Fried, RDH, MS

This course is designed to develop students' scientific writing skills. Course focuses will be on learning and applying the principles of effective scientific writing and written research communication. Students will learn the steps of the research process, identify them in published works, and evaluate their quality. Throughout this course, adherence to ethical decision-making in research and adherence to scholarly writing style guides are emphasized.

DHYG 621: Research Seminar (3 credit hours) (new course)
Jacquelyn Fried, RDH, MS

This course provides the foundation for capstone project development. Students will receive in-depth information on proposal writing, the specific parts of the proposal, and what is included in each. Following established guidelines, students will assess the quality of selected proposals. They will refine their writing skills by drafting a mini-proposal on a topic of interest. In preparation for publication of their capstone projects, students will learn the rules of proper citation and authorship. Mechanisms for managing research, drafts, writing processes, logs, citation bibliography, manuscript writing, reference citation, and adherence to journal guideline will be discussed. Students will develop a capstone portfolio that includes their written works and relevant guidelines and protocols. Mentee/mentor relationships will be a focus with students devising a potential plan for selecting, and engaging with, a mentor.

DHYG 622: Practicum and Capstone I (4 credit hours) (new course)
Sheryl Syme, RDH, MS

Students will explore the diverse roles of dental hygienists in the health care system, seek the advanced knowledge and skills necessary to participate in these roles, and focus their interest in a chosen professional role through 1) community-based clinical service delivery; 2) interprofessional collaboration; 3) service learning; 4) hands-on experiences; and, most critically, 5) self-directed learning. Students will compose and revise a capstone paper under the guidance and approval of a dental hygiene faculty mentor. Students spend a minimum of 135 hours in hands-on activities at their practicum site and develop and submit target capstone deliverables (90 hours) in preparation for continuation to DHYG 623: Practicum and Capstone II.

MHS 615 (PH 621): Biostatistics for the Health Professional (3 credit hours) (existing course)
Larry Magder, MPH, PhD

We live in a time exploding with data — everything from individual wearable technology to community and national profiles, yet few students are prepared with the quantitative skills to analyze and evaluate that data and draw conclusions. This course will present basic statistical methods to a broad range of medical or public health problems. The course will emphasize the use of these methods and the interpretation of results using biomedical and health sciences applications, helping clinicians move beyond the data to decisions.

DHYG 623: Practicum and Capstone II (5 credit hours) (new course)
Sheryl Syme, RDH, MS

Students continue exploring diverse roles of dental hygienists in the health care system at their practicum sites with increasing self-directed learning. Through faculty feedback and rigorous self-assessment, students will rethink, edit, rewrite, and finalize their capstone papers. Students prepare for and deliver the final oral defense presentations and capstone portfolios at UMB before an invited audience of the relevant faculty capstone mentor and committee, CDHL and Dental Hygiene Program directors, and invited faculty members and graduate students. Since research typically is a collaborative process, this course will emphasize skills for providing and receiving constructive feedback. Students will be guided to publish their research utilizing more highly developed critical-thinking skills and greater self-directed learning. Each student spends a minimum of 135 hours in hands-on activities at the practicum site and 90 hours preparing for the finalization and presentation of the capstone paper.

DHYG 624: Foundations of Education (3 credit hours) (new course)
Sheryl Syme, RDH, MS

This course provides a foundation in the educational philosophies, learning theories, and teaching strategies requisite for the development, implementation, and assessment of curriculum applicable to health professional roles in commercial, private, public, and professional industries and organizations. Learners will understand educational concepts and principals of teaching; roles and responsibilities of faculty and instructional leaders; and state, professional, and national educational standards, and will match educational methods with desired learning outcomes. Participants will learn a variety of teaching techniques and share successful teaching delivery strategies.

MHS 602: Legal and Ethical Issues for Health, Human Services, and Clinical Professionals (2 credit hours) (existing course)
Sarah Archibald, PhD, MS, MA, CCEP

This eight-week, 2-credit online course will explore ethical and legal issues that are timely and germane to health professionals. This course is based on the premise that to act in an ethical

manner means to engage in conduct according to accepted principles, and to improve moral confidence and moral action we must prepare the next generation of health professionals with the ethical resources, tools, and skills. A case-based learning design will be utilized to engage students in ethical discussion, exploration, and analysis with the goal of determining ethical and legal action that is sound and logical. This course will prepare students to make ethical health care decisions in the future.

MHS 652: Communication and Leadership (3 credit hours) (existing course)
Donny Ard, MHA, PA-C

Students learn effective management and communication skills through case study analysis, reading, class discussion, and role playing. The course covers topics such as effective listening, setting expectations, delegation, coaching, performance, evaluations, conflict management, negotiation with senior management, and managing with integrity.

Table 3: Dual-Degree Clinical Dental Hygiene Leader (CDHL) Program Course Sequence

Semester and Course Number/Title	Credits
Summer I, Year I	
DHYG 611: Research and Technical Writing	3 Credits
MHS 600: Introduction to Library Resources and Scholarly Writing	1 Credit
MHS 602: Legal and Ethical Issues for Health, Human Services, and Clinical Professionals	2 Credits
Graduate Summer I Year I Credits	6 Credits
Summer, I Year I Total Credits	**6 Credits**
Fall I ,Year I	
DHYG 612: Communicative Health Literacy and Advocacy	1 Credit
Graduate Fall I Year I Credits	1 Credit
DHYG 311: Prevention and Control of Oral Diseases I	6 Credits
DHYG 312A: Head and Neck Anatomy	3 Credits
DHYG 312H: Oral Histology and Embryology	1.5 Credits
DHYG 312M: Microbiology	1.5 Credits
DHYG 314: Periodontics for the Dental Hygienist I	3 Credits
DHYG 316: Oral Radiology I	2 Credits
B.S. Professional Fall I Year I Credits	17 Credits
Fall I, Year I Total Credits	**18 Credits**
Spring I, Year I	
DHYG 613: Scientific Method and Writing	1 Credit
Graduate Spring I, Year I Credits	1 Credit
DHYG 321: Prevention and Control of Oral Diseases II	5 Credits
DHYG 323: Patients with Special Needs	2 Credits
DHYG 324: Methods and Materials in Dentistry	2 Credits

UNIVERSITY of MARYLAND SCHOOL OF DENTISTRY

CDHL Proposal

DHYG 325: General Pharmacology and Therapeutics	3 Credits
DHYG 326: Oral Radiology II	2 Credits
DHYG 327: Periodontics for the Dental Hygienist II	2 Credits
DHYG 328A: General and Oral Pathology	3 Credits
B.S. Professional Spring I Year I Credits	19 Credits
Spring I, Year I Total Credits	**20 Credits**

Summer II, Year II	
DHYG 621: Research Seminar	4 Credits
MHS 652: Communication and Leadership	3 Credits
Graduate Summer II Year II Credits	7 Credits
Summer II, Year II Total Credits	**7 Credits**
Fall II, Year II	
DHYG 622: Practicum and Capstone I	4 Credits
MHS 615: Biostatistics for the Health Professional	3 Credits
Fall II Year II Graduate Credits	7 Credits
DHYG 411: Advanced Clinical Practice I	5 Credits
DHYG 412: Innovative Dental Hygiene Practice	2 Credits
DHYG 417: Community Oral Health	3 Credits
DHYG 328B: Dental Anesthesia and Sedation	2 Credits
B.S. Professional Fall II Year II Credits	12 Credits
Fall II, Year II Total Credits	**19 Credits**
Spring II, Year II	
DHYG 623: Practicum and Capstone II	5 Credits
DHYG 624: Foundations of Education	3 Credits
Graduate Spring II Year II Credits	8 Credits
DHYG 421: Advanced Clinical Practice II	5 Credits
DHYG 424: Special Topics	1 Credit
B.S. Professional Spring II Year II Credits	6 Credits
Spring II, Year II Total Credits	**14 Credits**
BS and MS awarded Spring II, Year II	
SUMMARY	
UMB Professional BS Degree Credits Earned	**54 Credits**
UMB Graduate MS Degree Credits Earned	**30 Credits**
Total UMB Credits Earned for BS* and MS Degrees	**84 Credits**

5. Discuss how general education requirements will be met, if applicable.

Students complete general education requirements prior to entering this dual-degree program. Students are admitted having already completed a prior baccalaureate degree in another field, while also having completed general education and basic science requirements.

6. Identify any specialized accreditation or graduate certification requirements for this program and its students.

The American Dental Association's (ADA) Commission on Dental Accreditation (CODA) is the nationally recognized accrediting agency for dental and dental hygiene schools and programs. The authority to function as a nationally recognized accrediting agency is granted to CODA through its recognition by the U.S. Department of Education (DOE) as a specialty/programmatic accrediting body. The most recent CODA accreditation reaffirmation for UMSOD and the dental hygiene program occurred during the May 8-10, 2018 site visit.

The Division of Dental Hygiene is located in the UMSOD's Department of Advanced Oral Sciences and Therapeutics. The University of Maryland, Baltimore (UMB) which houses the University of Maryland School of Dentistry as well as other professional schools on the campus, is accredited by the Middle States Commission on Higher Education, the DOE-recognized regional accrediting body for colleges and schools. The most recent reaffirmation of Middle States accreditation occurred on June 23, 2016.

Table 4: BS Dental Hygiene Courses and MS Course Equivalency

Current BS Dental Hygiene Courses	Enhanced MS Courses Taken in Place of BS Course with Equivalent Content
DHYG 425: Dynamics of Health Care (2 credits)	MHS 602: Legal and Ethical Issues for Health, Human Services, and Clinical Professionals (2 credits)
DHYG 329: Oral Health Literacy (1 credit)	DHYG 612: Communicative Health Literacy and Advocacy (1 credit)
DHYG 427: Health Care Management (2 credits)	MHS 652: Communication and Leadership (3 credits)
DHYG 416: Principles of Scientific Evidence (2 credits)	MHS 615: Biostatistics for the Health Professional (3 credits)
HYG 413: Community Service-Learning I (2 credits)	DHYG 622: Practicum and Capstone I (4 credits)
DHYG 423: Community Service-Learning II (1 credit)	DHYG 623: Practicum and Capstone I (5 credits)
DHYG 414: Educational Program Development (2 credits)	DHYG 624: Foundations of Education (3 credits)

CODA's Standard 2-18 requires that dental hygiene programs teach and prepare students for all of the authorized clinical responsibilities required for initial dental hygiene licensure as defined

by the state's dental licensing board. The program is full-time and is comprised of dual bachelor's and master's degrees both awarded in Spring II, Year II. Students must fulfill all of the respective degree requirements to receive both degrees.

The master's capstone is designed as a supervised clinical dental hygiene leader experience that serves as both a scholarly demonstration of the knowledge and skills attained as a clinical dental hygiene leader as well as the community-based clinical and leadership practices acquired as part of the baccalaureate and graduate programs. The capstone functions as the culminating experience for the CDHL program and must be successfully defended with requisite presentation and completion of the capstone portfolio. The UMSOD will award both the bachelor's and the master's degrees upon the student's successful completion of respective program requirements. Requirements for both degrees must be successfully completed for dual receipt of both university degrees.

The curriculum of the dual-degree program enables students to sit for the National Board Dental Hygiene Exam (NBDHE) and the Commission on Dental Competency Assessment (CDCA) examinations to qualify for licensure as a registered dental hygienist (RDH). Students will take these exams in the final spring semester of the CDHL program. The NBDHE is conducted by the ADA's Joint Commission on National Dental Examinations. A minimum score of 75 percent is required to pass the NDDHE. A student in a dental hygiene program accredited by CODA is eligible for examination when the dental hygiene program director certifies the student is prepared in all NBDHE disciplines. This occurs in Spring 2, Year 1.

The CDCA Examination for dental hygienists consists of two exams taking place at two different times:

1. The Computer Simulated Clinical Examination (CSCE), a computer-based examination taken at a local Prometric Testing Center; and
2. The Patient Treatment Clinical Examination (PTCE), held at a clinical examination site such as UMSOD.

A score of 75 percent is required to pass each exam and both parts (clinical and computer-based) must be taken within 18 months. Students also complete the CDCA Local Anesthesia and Nitrous Oxide Examinations after completing DHYG 328B: Dental Anesthesia and Sedation, a course taken during the summer of the first year. A score of 75 percent or better is required to pass each of these exams. These additional examinations are a part of the certification process — in addition to specific didactic and clinical training requirements determined by the Maryland State Board of Dental Examiners — for dental hygienists permitted to administer local anesthesia and nitrous oxide as pain control methods upon graduation.

Notably, UMSOD undergraduate dental hygiene students have had a long history of highly successful pass rates on all didactic and clinical board examinations, including the past five years.

7. If contracting with another institution or non-collegiate organization, provide a copy of the written contract.

Not applicable.

8. Provide assurance and any appropriate evidence that the proposed program will provide students with clear, complete, and timely information on the curriculum, course and degree requirements, nature of faculty/student interaction, assumptions about technology competence and skills, technical equipment requirements, learning management system, availability of academic support services and financial aid resources, and costs and payment policies.

The UMSOD Division of Dental Hygiene maintains active webpages informing students of admissions, program, and degree requirements; course and curriculum information; expectations and requirements regarding use of computers and educational technology applications to be used in the program; and updated policies that are linked to the Office of Academic Affairs, Office of Admissions, and the Department of Advanced Oral Sciences and Therapeutics. Division of Dental Hygiene faculty members work closely with the UMSOD's web moderator team and have a process in place for timely updates of web and orientation materials.

A new student orientation program conducted online using Blackboard, the UMSOD's course management system, and in-person delivery formats will convey timely information to incoming students before they begin the CDHL program. The orientation program conveys support services, educational technology, tuition and fees, student financial aid, UMSOD dress code and uniform, technical standards, and resources to students prior to the start of classes.

The orientation program is modeled after existing new-student programs for our undergraduate dental hygiene students, but includes CDHL-specific program orientation information on curriculum, faculty and student communication and interaction, trainings on educational technology use, as well as mandatory UMSOD- and UMB-specific trainings on clinical technology and campus technology practices.

The Division of Dental Hygiene program director also serves as the chair for the Dental Hygiene Student Progression Committee and conveys issues of progression directly to students and monitors student progress in all programs offered in the division. The program director is also a trained web moderator and serves as chair of the Dental Hygiene Curriculum Committee.

9. Provide assurance and any appropriate evidence that advertising, recruiting, and admissions materials will clearly and accurately represent the proposed program and the services available.

The UMB Cross-Functional Services Consortium, consisting of the UMB bursar, UMB registrar, the assistant vice president for university student financial assistance and enrollment services, and the assistant director of student enterprise applications, provides support and guidance for

submitting new program materials encompassing student support services, including federal and state financial aid.

Upon program approval, the director of dental hygiene recruitment and admissions will begin advertising the new CDHL program on the UMSOD website; in print recruitment materials distributed to feeder institutions and academic advisers in USM institutions; and will advise prospective students about the start date for the dual-degree CDHL program. The director will adhere to UMB-approved mechanisms for recruitment and advertising, and comply with federal guidelines for program establishment enabling the awarding of financial aid.

H. ADEQUACY OF ARTICULATION

Many students enter into the current dental hygiene baccalaureate program already holding a baccalaureate degree in another discipline. (See Table 5 below.) A master's degree will give that baccalaureate the ability to become a dental hygienist at the graduate level. This graduate will fulfill the requirements to sit for the written and clinical boards and licensure. Importantly, it will also create a caregiver with advanced education beyond the clinical realm.

Table 5: Students with Prior Bachelor's Degrees Entering Current UMSOD Dental Hygiene BS Program

Year Entered Current Dental Hygiene Bachelor of Science Program	Percentage of Students with Baccalaureates Upon Entering
2014	9.5 percent or 2 out of 21 students
2015	14.3 percent or 3 out of 21 students
2016	12.5 percent or 2 out of 16 students
2017	25 percent or 4 out of 16 total students
2018	25 percent or 4 out of 16 total students

The UMSOD dental hygiene program has relationships with UMSON (located on the UMB campus) and UMCP, and recent polling of students at those entities who might be interested in graduate school have produced positive survey responses. (Refer to Appendix C).

More specifically, given that dental hygiene is rooted in public health, students with a bachelor of science in public health are excellent candidates for the CDHL program. Surveys targeting nursing students have also generated positive results. Combining a nursing education with a dental hygiene education and the skills of graduate level education creates a dual provider who can easily combine medicine and dentistry and serve as a catalyst in interprofessional collaboration.

The CDHL program's location of Shady Grove provides vast opportunities for state university partnerships. In addition to the UMSON and UMSOP programs at USG, the campus houses over 80 undergraduate and graduate programs from the following state universities: Bowie State University; Salisbury University; Towson University; University of Baltimore; University of

Maryland, Baltimore County; University of Maryland, College Park; University of Maryland Eastern Shore; and University of Maryland University College. The USG collaborative environment yields elevated options for students who have recently obtained a baccalaureate degree in another USG undergraduate program, such as biology, chemistry, or psychology (see Appendix H for specific prerequisite coursework), as well as providing a CDHL student pipeline.

I. ADEQUACY OF FACULTY RESOURCES

Our diverse faculty members focus on teaching, research, and service based on the philosophy, policies, strategic plan, and vision statement of UMSOD, UMB, and the USM. Faculty members who will be teaching in this program are listed in Table 6 below.

Table 6: Faculty Members Teaching in CDHL Program

Faculty Members	Classes	Employment Status
Sheryl Syme, RDH, MS **Program Director** Associate Professor Director of Dental Hygiene Curriculum Management Program in the Department of Advanced Oral Sciences and Therapeutics, School of Dentistry ***Graduate Faculty Member***	▪ Patients with Special Needs ▪ Foundations of Education ▪ Community Oral Health ▪ Special Topics ▪ Practicum and Capstone I and II	Full-time
Jacquelyn L. Fried, RDH, MS Dean's Faculty, School of Dentistry ***Graduate Faculty Member***	▪ Research and Technical Writing ▪ Scientific Method and Writing ▪ Research Seminar	Part-time
Deborah L. Cartee, RDH, MS Clinical Associate Professor and Junior Clinical Coordinator in the Dental Hygiene Program in the Department of Advanced Oral Sciences and Therapeutics, School of Dentistry ***Graduate Faculty Member***	▪ Prevention and Control of Oral Diseases I ▪ Head and Neck Anatomy ▪ Prevention and Control of Oral Diseases II ▪ Dental Anesthesia and Sedation	Full-time
Lisa Bress, RDH, MS Clinical Assistant Professor in the Department of Advanced Oral Sciences and Therapeutics, School of Dentistry ***Graduate Faculty Member***	▪ Oral Health Literacy and Communication ▪ Innovative Dental Hygiene Practice	Full-time

Sharon Varlotta, RDH, MS Clinical Assistant Professor in the Department of Advanced Oral Sciences and Therapeutics and School of Dentistry ***Graduate Faculty Member***	▪ Oral Histology and Embryology ▪ Methods and Materials in Dentistry ▪ Innovative Dental Hygiene Practice	Full-time
MaryAnn Schneiderman, RDH, MS Clinical Assistant Professor and Senior Clinic Coordinator in the Department of Advanced Oral Sciences and Therapeutics, School of Dentistry ***Graduate Faculty Member***	▪ Periodontics for the Dental Hygienist I ▪ Periodontics for the Dental Hygienist II ▪ Advanced Clinical Practice I ▪ Advanced Clinical Practice II	Part-time
Jacqueline Dailey, RDH, MS Assistant Professor in the Department of Oncology and Diagnostic Sciences, School of Dentistry ***Graduate Faculty Member***	▪ Oral Radiology I ▪ Oral Radiology II	Full-time
John Basile, DDS, DMSc Professor in the Department of Oncology and Diagnostic Sciences, School of Dentistry ***Graduate Faculty Member***	▪ General and Oral Pathology	Full-time
Glenn Minah, DDS, PhD Professor in the Department of Microbial Pathogenesis, School of Dentistry ***Graduate Faculty Member***	▪ Microbiology	Part-time
Richard L. Wynn, PhD Professor in the Department of Neural and Pain Sciences, School of Dentistry ***Graduate Faculty Member***	▪ General Pharmacology and Therapeutics	Part-time
Isabel May, PhD Director, Writing Center Senior Lecturer UMB Graduate School's Science Communication Program ***Graduate Faculty Member***	▪ Introduction to Library Resources and Scholarly Writing	Full-time
Laurence Magder, MPH, PhD Assistant Professor in Epidemiology and Preventive Medicine, School of Medicine Senior Lecturer **Graduate Faculty Member**	▪ Biostatistics for the Health Professional	Full-time

Sarah Archibald, PhD, MS, MA, CCEP Research Integrity Officer Graduate Studies Instruction and Academic Programs, Graduate School ***Graduate Faculty Member***	▪ Legal and Ethical Issues for Health, Human Services, and Clinical Professionals	Full-time
Donny Ard, MHA, PA-C Senior Lecturer Graduate School ***Graduate Faculty Member***	▪ Communication and Leadership	Full-time

J. ADEQUACY OF LIBRARY RESOURCES

The HS/HSL is one of the largest health sciences libraries in the United States, with a track record of user-centered innovative services and programs. Fifty-seven employees, including 27 faculty librarians, staff the library, including a librarian liaison assigned to UMSOD. The attractive and vibrant facility, which opened in 1998, serves as a hub for collaboration and learning with resources, programs, and tools that promote discovery, creativity, and innovation. With wireless connectivity throughout the building, the HS/HSL has 45 group study rooms; three computer classrooms; an Innovation Space, which includes 3D printers; a presentation and practice studio; gallery; and multiple technology-enhanced meeting spaces. Through HS/HSL's website, the UMB community has access to a full range of resources and services.

The HS/HSL supports the university's students, faculty members, and staff members in the schools of Dentistry, Medicine, Nursing, Pharmacy, and Social work; the Graduate School; the University of Maryland Medical Center; and other affiliated institutions. Research Connection, the library's suite of research services, is available for all programs on campus, and includes individual research consultations, a systematic review service, research impact assessment, reference assistance, and more. Faculty librarians have many years of instructional experience in the classroom, community, and the online environment. For over 30 years, the HS/HSL has provided liaison services, in which faculty librarians are assigned to work with specific user communities, such as UMSOD. These dedicated faculty librarians provide the following services to students:

1. Individualized research assistance for papers and projects;
2. An overview of the library's resources; and
3. Small-group or individual workshops on tools, such as RefWorks or specific databases.

A dedicated webpage for dental resources and oral health librarian support is available. In fiscal 2017, faculty librarians reached over 3,500 faculty members, staff members, and students through online and in-person instructional sessions offered through the curriculum and in library-sponsored workshops.

In that same year, the HS/HSL licensed 112 databases, 4,252 journals, 359,911 books (print), and 17,381 e-books. One hundred percent of the current journal subscriptions literature is available electronically. Through its interlibrary loan and document delivery service, library staff can acquire articles and other resources not available through the library's collections. These are secured through local, regional, and national networks, including the University System of Maryland and Affiliated Institutions (USMAI) library consortium, the National Library of Medicine's DOCLINE service, and the Online Computer Library Committee (OCLC), among others.

Students in this program will also have the opportunity to utilize the Priddy Library on the USG campus. The dedicated health and life sciences librarian will be their primary library contact on that campus. The Priddy Library is jointly administered by USG and the UMCP libraries as an off-site branch library. Students and faculty of the nine university partners that teach at the USG campus receive research, instruction, and curriculum support and services. UMCP is a member library of the USMAI library consortium, and therefore Priddy Library participates in consortium-wide resource sharing.

K. ADEQUACY OF PHYSICAL FACILITIES, INFRASTRUCTURE AND INSTRUCTIONAL EQUIPMENT

The physical facilities, infrastructure, and instructional equipment are adequate to support the program. The physical facilities, infrastructure, and instructional equipment that will support the program will be comprised of existing equipment already located at UMSOD's Baltimore location and brand-new equipment that is being purchased to outfit the facility on the Shady Grove campus. Furthermore, our facilities, infrastructure, and equipment will support the distance learning needs of the dual-degree program. All hands-on experiences will take place at the USG location in the new 15-unit simulation lab or the new 24-chair clinical space. A high-speed internet connection will be present between the two facilities to allow for access to all academic resources located at USMSOD's Baltimore location. There will be nine offices for faculty and a large telemedicine room for communication services between the two sites.

Students will use the same hardware and software systems that current UMSOD students use. Email will be through our Office 365 environment; library accounts and complete journal searching ability will be via PubMed. More specifically, our educational technology systems will be:

1. Blackboard, a learning management system;
2. QuestionMark, a secure assessment system, and
3. Mediasite, a didactic capture software.

Information technology staffing will be provided by the existing 22 staff members at UMSOD in Baltimore, new staff members located at the USG site, and existing USG staff.

L. ADEQUACY OF FINANCIAL RESOURCES WITH DOCUMENTATION

The CDHL program will be coordinated through the UMSOD and will be administered through a combination of the University of Maryland Graduate School and UMSOD. Program Director and faculty for each content area have been identified. Tuition will be administered through the UMSOD. Tuition and general funds from the USM will constitute the basis of cost to deliver the curriculum. Please note all building, facilities and infrastructure costs will be provided by the USM to Shady Grove.

M. ADEQUACY OF PROVISIONS FOR EVALUATION OF PROGRAM

Every ten years, UMB undergoes a reaffirmation of its accreditation with the Middle States Commission on Higher Education. The process is an opportunity to strengthen the university through an independent comprehensive evaluation. Under the established university holistic institutional assessment model, we will ensure that the CDHL program is:

1. Responsive and accountable to its stakeholders;
2. Advances the university's mission and vision; and
3. Utilizes the assessment data and information to evaluate the effectiveness of its programs, both at the macro and micro levels, and improves the effectiveness while meeting reporting obligations to stakeholders.

UMSOD has numerous checks and balances to ensure quality control and student outcome achievement. Procedures for evaluating courses, faculty, and student learning outcomes will follow well-developed procedures at UMSOD. At course completion, courses and individual faculty members will be evaluated by students using an anonymous web-based survey. Collected by the Dean's Office, such evaluations are reviewed immediately by the course director and program director, as well as annually by the department chair. Student grading is based on, and outlined within, each course syllabus. The Dental Hygiene Curriculum Committee conducts annual peer reviews of courses.

Furthermore, the established Dental Hygiene Community Liaison Committee will provide workforce development and economic growth insight. To measure the adequacy of preparation for employment, graduates and employers are queried annually. Other issues will be addressed by the program director, division chief, and department chair.

Every student is assigned a faculty advisor to facilitate student success. Program orientation will contain a series of web conferences that will include a description to available online library resources. Overall student progress will be monitored by the program director, who will work with the student and his or her assigned advisor for continuous progression oversight.

CODA, the specialty accrediting agency recognized by the U.S. Department of Education, works to maintain the highest professional and ethical standards in the nation's dental schools and programs. CODA employs a collaborative peer review accreditation process to evaluate the

quality of over 1,450 dental and dental-related education programs nationwide, including dental, advanced general dentistry, advanced specialty, clinical fellowship, and allied dental programs.

Every seven years, the accreditation process begins when a sponsoring institution submits an application to CODA. The institution then completes a comprehensive self-analysis and self-study report detailing its resources, curriculum, policies, and operational standards. CODA then undertakes a site visit, with its team members selected for their expertise in the program area. CODA site visitors conduct interviews with administrators, faculty members, staff members, and students to verify information in the self-study and ensure that the program meets minimum accreditation standards. The site visitors then write a detailed site-visit report based on their findings and share it with both the sponsoring institution and CODA administrators in Chicago.

CODA must ensure that the clinical portion of the program is fully accredited. Clinically, the program will be considered the bachelor of science portion of the CDHL. UMSOD will inform CODA of a program change with the addition of the CDHL and its Shady Grove location. A letter will state the program addition of students, faculty members, and location. CODA will need to visit the site to approve the location/facility. Upon accreditation, it will be part of the UMSOD Dental Hygiene program and be inclusive in the seven-year reaccreditation process.

N. CONSISTENCY WITH THE STATE'S MINORITY STUDENT ACHIEVEMENT GOALS

A key feature of UMB's mission and strategic planning involves respecting, valuing, and achieving diversity. The Strategic Plan states:

> Diversity represents a core value, defined as being "committed to a culture that is enriched by diversity, in the broadest sense, in its thoughts, actions, and leadership." UMB embraces and celebrates diversity, as well as cultural competence.

Reflecting this philosophy, the current dental hygiene program at UMSOD embraces student development of cultural competence. This same philosophy will provide the foundation for our proposed graduate program. CDHL students will provide clinical care to Marylanders of all backgrounds, resulting in a safety net for Montgomery County and neighboring communities. The patients seen will represent a rich fabric of diversity. Dental hygiene students learn about cultural diversity in both their clinical and didactic courses and, clearly, through patient care, yielding cultural competency. They also spend the preponderance of their required community service hours at sites where minorities and those with health inequities are treated. These vulnerable populations receive our same level of top quality, culturally competent care.

As outlined in the Maryland State Plan for Postsecondary Education (2017-2021),[4] Maryland also has a goal of expanding educational opportunities for minority and educationally disadvantaged students. The proposed program aims to address both UMB's and the state's cultural diversity goals. Historically, the dental hygiene program has long worked toward

achieving these goals, striving to enroll a diverse student body. The pipelines that have enabled us to reach out to these students will remain in place as we recruit for the CDHL program.

Over the past four academic years, our bachelor of science in dental hygiene program classes have been a diverse body. The entering class of 2017 was one-third non-Caucasian. Our baccalaureate program at UMB also offers a degree completion program that enables students who hold an associate degree in dental hygiene to obtain a bachelor's degree. The CDHL students will be enrolled in hybrid online sections of each bachelor's course, which will be run simultaneously with traditional sections held in Baltimore and overseen by the course director and/or section faculty leader.

The proposed program and its clinical facility are located in a culturally diverse metropolitan area of Montgomery County, providing easy access to enrollees of varying backgrounds. The College Park campus is relatively close geographically and will be a desirable pipeline for diverse students. The rest of Prince George's County (where UMCP is located) and metropolitan Washington, D.C. will also be pipelines to diversity.

Our program will have other attractions that make it amenable to an array of students from diverse communities. First, distance technology will be the platform for some course delivery. Distance learning provides educational opportunities for students who otherwise might not be able to participate in a traditional classroom environment. Internet-based degree programs embracing core values emphasizing social change and community engagement have been highly attractive to historically underrepresented groups.[5] For rural and isolated communities, distance learning can be the vehicle that conquers geography and space between teachers and students. Distance learning not only achieves access, but can also help ensure success, as the technology of distance learning meets the needs of various learners, addresses different learning styles, and provides for various instructional approaches. Essentially, with the proper use of its varied technology, distance learning can address the needs of all populations. Emphasizing interactive learning, distance technology embraces a shift from passive to active learning and from competition to collaboration. Furthermore, effective collaborative learning values diversity.[6, 7]

O. RELATIONSHIP TO LOW PRODUCTIVITY PROGRAMS IDENTIFIED BY THE COMMISSION

The proposed CDHL program is not directly related to an identified low-productivity program.

P. ADEQUACY OF DISTANCE EDUCATION PROGRAMS

UMSOD has designed the CDHL program utilizing a strategic hybrid approach of both face-to-face and online education, while advancing the design and development of student engaging courses. As a result, we look forward to continuing to:

1. Deliver improved student learning outcomes due (in part to) students earning their degrees faster, saving monies on tuition and fees, and obtaining opportunities to return or join the workforce sooner; and
2. Improve access and opportunities for a diverse student population by increasing the student enrollment of hygiene students and the output of hygienist leaders into our community workforce.[8]

The hybrid delivery model, incorporating both online and face-to-face learning, will strategically support the innovative CDHL program. In order to facilitate CDHL educational objectives and learning outcomes, UMSOD will deliver premier practices of distance education principles in compliance with the Council of Regional Accrediting Commissions (C-RAR).[9]

Mission and Purpose Alignment

As the state's public health, law, and human services university, the mission of UMB is to excel at professional and graduate education, research, patient care, and public service, and to educate leaders in health care delivery, biomedical science, global health, social work and the law. Also, UMB emphasizes interdisciplinary education in an atmosphere that explicitly values civility, diversity, collaboration, and accountability. In alignment and support of our parent school, UMB, the UMSOD strives toward preeminence through excellence and innovation with a targeted focus on education, among patient care, research, public service, and global engagement.

Online Education Curricula

In order to support the sequenced, rigorous CDHL curriculum, students will be exposed to synchronous, asynchronous, and face-to-face education modes. Through UMSOD's learning management system, Blackboard, course curricula for all modes of learning will be available. For example, after hands-on clinic sessions, students will have didactic material and homework assignments posted within Blackboard. Furthermore, a synchronous conferencing software, Blackboard Collaborate, will be used to engage learners in live activities such as presentations and live class sessions. Additionally, video cameras, webcams, and an interactive smart board are available (with support) to faculty members.

It is important to note that this is a unique, fast-paced program includes face-to-face clinic time at Shady Grove, hybrid courses, and online courses; as a result, the program will be clearly communicated as such to enable transparency and student clarity.

Academic Oversight and Evaluation of Online Learning

UMSOD will continue to ensure that the rigor and quality of instruction are at the same levels, and, in some cases enhanced, compared to face-to-face programs. Through the utilization of our current academic evaluation process, oversight by the program director, we will deploy best practices for distance education.

The historically successful dental hygiene baccalaureate curriculum review and evaluation process will continue to be employed, as well as additional distance education evaluation practices. To assure we are providing our students significant quality education, the following evaluation actions, as shown in Table 7, will be deployed for the proposed CDHL program.

Table 7: Evaluation Actions to Be Used in CDHL Program

Oversight Resource	Evaluation Action and Support
Division of Dental Hygiene Director, course directors, faculty, students, faculty in the Office of Instructional Evaluation, and administrators	Ongoing and open collection of feedback
Committee on Dental Hygiene Curriculum Management	Meetings on discussion, actions, and proposals related to courses being taught, areas of concern, coordination of instruction, ongoing faculty calibration, planning for subsequent semesters, long-range planning of curriculum direction in relationship to the dental hygiene program, its missions and those of the school and campus
Dental Hygiene Curriculum Management Committee's Subcommittee for Course Reviews	Review individual courses scheduled for specific review
Division of Dental Hygiene	Meetings offer faculty development educational workshops and seminars for updating course methodology and updating course content to meet student needs; curriculum matters continually are raised and discussed
UMSOD Faculty Council	Meetings on oversight of all policies, procedures, curricular and clinical business connected to faculty responsibilities to UMSOD
Office of Educational Technology	Conducts yearly surveys with students to assess their utilization of and opinions on the quality and effectiveness utilized by dental hygiene course director; shares the survey analyses with the Dental Hygiene Curriculum Committee
Division of Dental Hygiene Director	Administers surveys, analyzes data, and disseminates a variety of reports that address curricular issues; assists with long-range programmatic planning; and assesses alumni and employer opinions, patient satisfaction, student opinions, and student documentation. Receives and disseminates additional outcomes data such as student progression reports, program completion rates, National Board examination scores and Commission on Dental Competency Assessments success rates; outcomes measures are evaluated in relationship to the program's defined goals and competencies for new graduates

Furthermore, using the Specific Review Standards From the Quality Matters Higher Education Rubric, Sixth Edition,[10] the course directors, program director, and instructional designer will assess the course overview and introduction, learning objectives (competencies), student assessment and measurement, instructional materials, learning activities and learner interaction, course technology, learner support, and accessibility and usability for each course.

Moreover, as part of the curriculum management plan, dental hygiene courses are evaluated relative to the defined goals and competencies of the program. Individual courses are assessed compared to the course-specific competencies for new graduates and program goals, competency assessment measures, assessment of whether competencies are met, and corrective actions taken to address unmet competencies. A defined mechanism for coordinating instruction among the dental hygiene course directors is present and involves a three-step process:

1. Periodic in-depth peer to peer course presentations;
2. Peer-to-peer course review of content, delivery, and outcomes; and
3. Course director self-review of content, course quality and outcomes.

As a result of this three-step process for dental hygiene course reviews, conversations between course directors and faculty are facilitated, and course strengths, course revisions, course redundancies, and course outcomes are identified and discussed in relationship to the overall dental hygiene curriculum. Additionally, the thoroughness of this three-step process helps determine if all topics necessary to support program competencies are present.

Qualified and Supported Faculty

Our collective and collaborative team of faculty and staff have experience in distance education that encompasses experienced distance education faculty, dedicated instructional technology, multimedia, and instructional design support and training, and a premier faculty development program that includes development in these areas.

Moreover, from 2007 to 2013, dental hygiene faculty members annually engaged six students at our satellite location in Perryville, Md., and six students at our satellite location on the Eastern Shore, through the digital learning environment. Academic evaluations provided evidence that these baccalaureate dental hygiene students were able to meet similar student outcomes compared to face-to-face students in Baltimore.

Since then, our faculty members have only enhanced their distance education competences and plan to provide a combination of synchronous and asynchronous education, including, but not limited to, a virtual collaboration platform and a cloud-based online examination platform to engage students. Moreover, our robust faculty development program is inclusive of distance learning pedagogy best practices, as well as new educational technology proficiency and applicability.

Table 8: Distance Education Support	
UMSOD administrators, faculty members, and staff members will provide distance education student support by:	▪ Communicating the nature of online learning, specifically the applicability to the CDHL program, prior and throughout the student lifecycle.
	▪ Confirming enrolled students have reasonable and adequate access to the range of student services to support their learning.
	▪ Confirming accepted students have the background, knowledge, and technical skills needed to undertake the program.
	▪ Communicating the availability of the library's student services for access to research databases, online catalog of books and media, electronic interlibrary loan, librarians, and more.

Development and Sustainment

The UMSOD administration, faculty members, and staff members are committed to developing and sustaining the hybrid CDHL program. In addition to explicitly stating distance education as a priority in our strategic plan, we have assigned programmatic ownership and expectations aligned to a budget plan and technology plan. Furthermore, in order to continue to enhance educational objectives and learning outcomes through online and face-to-face opportunities, we have decided to keep the student cohort size small (six students) and do not foresee significant enrollment growth. In the future, parts of the innovative and student-centric CDHL program design will be taken into consideration for integration within the current bachelor of science program at UMSOD's Baltimore campus.

Student Support in Online Learning

The CDHL program hybrid delivery model combines the use of online and in-person courses. While some courses are fully online, some courses are both online and face-to-face, and some fully face-to-face, serving patients. Full transparency with students regarding online, hybrid, and in-person course expectations, requirements, and responsibilities is essential to delivery this hybrid delivery model successfully. In addition, a certain level of student technology experience, knowledge, and skill will support student success in online and hybrid courses. Moreover, whether students are taking an online, hybrid, or face-to-face course, they need consistent access to academic and technical support services.

Online Education Integrity

As reinforced and strengthened in our core values of accountability, civility, collaboration, diversity, excellence, knowledge, and leadership, institution integrity is of the utmost importance. To assure distance education integrity specifically for the CDHL program, administrators, faculty members, and staff members at UMSOD will continue to convey established policies, procedures, and practices, including, but not limited to:

- The UMB Policy on Faculty, Student, and Institutional Rights and Responsibilities for Academic Integrity;
- Educational technology security safeguards and procedures;
- Online learning academic integrity discussions during student orientation and throughout semesters; and
- The online course student agreement to further establish expectations and responsibilities.

Furthermore, this culture of integrity will be emphasized in the CDHL distance education program through CDHL students' eligibility for the Philips Oral Healthcare Linda E. DeVore Professional Integrity Award. The award is presented to a graduating student who displays dignity, civility, honesty, integrity, intellectual curiosity, and responsibility.

REFERENCES

[1]University of Maryland, Baltimore. UMB Strategic Plan, 2017-2021. Baltimore. 2017. Accessed September 28, 2018. http://www.umaryland.edu/about-umb/strategic-plan

[2]Montgomery County, Maryland, Department of Health and Human Services, Office of Planning and Epidemiology. Health in Montgomery County, 2008-2016: A Surveillance Report on Population Health. Rockville, Maryland. 2018. Accessed September 14, 2018. https://www.montgomerycountymd.gov/HHS/Resources/Files/Reports/PopHealthReportFINAL.pdf

[3]Institute on Aging. Read How IOA Views Aging in America. San Francisco. Accessed September 21, 2018. https://www.ioaging.org/aging-in-america

[4]Maryland Higher Education Commission. Maryland State Plan For Postsecondary Education, 2017-2021: Increasing Student Success With Less Debt. Baltimore. 2017. Accessed September 28, 2018. http://www.mhec.state.md.us/About/Documents/2017.2021%20Maryland%20State%20Plan%20for%20Higher%20Education.pdf

[5]Ibarra, Herminia. Provisional Selves: Experimenting with Image and Identity in Professional Adaptation. Administrative Science Quarterly, vol. 44, no. 4, 1999. Accessed September 28, 2018. www.jstor.org/stable/2667055.

[6]Palloff, Rena M. and Keith Pratt. Online Learning Communities Revisited. Paper presented at The 21st Annual Conference on Distance Teaching and Learning. The University of Wisconsin. March 2005.

[7]Brindley, Jane E. and Christine Walti, Lisa M. Blaschke. Creating Effective Collaborative Learning Groups in an Online Environment. The International Review of Research in Open and Distributed Learning. June 2009. Accessed September 28, 2018. http://www.irrodl.org/index.php/irrodl/article/view/675/1271

[8]Bailey, Allison and Nithya Vaduganathan, Tyce Henry, Renee Laverdiere, Lou Pugliese. Making Digital Learning Work: Success Strategies From Six Leading Universities and Community Colleges. The Boston Consulting Group and Arizona State University. Boston. 2018. Accessed September 7, 2018. https://edplus.asu.edu/sites/default/files/BCG-Making-Digital-Learning-Work-Apr-2018%20.pdf

[9] Council of Regional Accrediting Commissions. Interregional Guidelines for the Evaluation of Distance Education. 2011. Washington. Accessed June 12, 2018. http://www.nc-sara.org/files/docs/C-RAC%20Guidelines.pdf

[10]Quality Matters. Specific Review Standards from the Quality Matters Higher Education Rubric, Sixth Edition. 2008. Annapolis, Maryland. Accessed September 7, 2018. https://www.qualitymatters.org/sites/default/files/PDFs/StandardsfromtheQMHigherEducationRubric.pdf

APPENDIX C

1. EMAIL SENT BY DIVISION DIRECTOR

Email sent by Marion Manski, RDH, MS, then-director of the UMSOD Division of Dental Hygiene:

> On Tue, Mar 6, 2018 at 12:53 PM, Manski, Marion C <MManski@umaryland.edu> wrote:
>
> The vision of the University of Maryland, School of Dentistry is *Good oral health is integral to general health and quality of life. We will achieve pre-eminence through excellence and innovation in education, patient care, research, public service, and global engagement.*
>
> As a result, our purpose is *Advancing Oral Health. Improving Lives.*
>
> In support of our vision and purpose, the Dental Hygiene program educates future leaders in the profession by currently offering undergraduate baccalaureate programs in dental hygiene and accelerated programs toward a Master of Science degree. The proposed Clinical Master of Science in Dental Hygiene: Clinical Dental Hygiene Leader (CDHL) program is further rooted in our vision and purpose. As such, the CDHL program's relevance and timeliness is fundamental to current research demonstrating the link between oral and systemic health. As this body of research continues to grow, the importance of good oral health will grow with it. With strong leadership in oral health, systemic quality of life has hopes for improvement and the place for oral health services in forward thinking health policy and comprehensive care will grow. Quality of life speaks to freedom from pain whether it be physiological, psychosocial or behavioral. These three parameters of pain are extant in oral disease while prevention can reverse or eliminate them. By definition, the dental hygienist is a preventive therapist, as a result health promotion and disease prevention are inherent in the proposed program. Insight into how to plan programs to prevent and eliminate disease is a mainstay of the CDHL program. Other societal ills, such as missed work productivity and school days, low self-esteem and destructive oral habits are by-products of oral pain and poor oral appearance. With the creation of the innovative CDHL program, addressing and preventing many of these societal ills is possible. Graduate degreed oral health leaders can provide high-level care and assume leadership roles that shape comprehensive health care delivery and policy.
>
> The graduate CDHL program is designed for the student who has earned a baccalaureate degree in a field other than dental hygiene, including all pre-requisite coursework for the dental hygiene program. This option prepares graduates to provide patient care in addition to higher level preparedness to be future leaders and researchers in their profession. The Program also provides high quality oral health care services to residents of Maryland and the region, and provides consultative and other services to governmental and private agencies,

professional organizations and the community through the leadership and expertise of its faculty and contributions of its students.

Students will be eligible to sit for the National Board Dental Hygiene exam (NBDHE) and the Commission on Dental Competency Assessments (CDCA) clinical board to qualify for licensure as a Registered Dental Hygienist (RDH). Moreover, enabled with a clinical education and Master of Science degree, graduates will be able to integrate well into interprofessional collaboration and care in dentistry and medicine. They will also be prepared to be academicians, researchers and serve in public health initiatives.

Please assist us in providing student education and support in dental hygiene patient care, leadership, research, academia, public service, and community engagement by answering the three questions below.

1. Is there market and community value to professionally accountable graduate degreed dental hygiene oral health leaders? Please explain.

2. Do you foresee the dental hygiene oral health leadership role changing in the next 5 to 10 years? If so, how? What educational, collaboration, and training can University of Maryland, School of Dentistry provide to support the change?

3. Is there a need for oral health interprofessional healthcare education and training within healthcare industry and market? If so, would professionally accountable graduate degreed dental hygiene oral health leaders add value?

Thank you for your help!
Marion

2. RESPONSES TO EMAIL

A. Response from Jody Berinato, RDH, BS, Maryland Dental Hygienists' Association President:

1. Is there market and community value to professionally accountable graduate degreed dental hygiene oral health leaders? Please explain.

Yes, there is a market and community value. In Maryland and across the country, access to care remains a problem. Many residents are finding it hard to find a provider that can treat them. Having a dental hygiene oral health leader adds a peg to the access to care wheelhouse to help residents achieve oral health.

2. Do you foresee the dental hygiene oral health leadership role changing in the next 5 to 10 years? If so, how? What educational, collaboration, and training can University of Maryland, School of Dentistry provide to support the change?

The dental hygiene oral health leadership role can change into a leader who is able to go into non-traditional settings, like a nursing home, personal homes of those that aren't mobile, etc. to provide treatment without a dentist present. The University of Maryland, School of Dentistry can provide collaboration with the other professional schools in the University of Maryland system. Dental Hygiene oral health leaders will need to be able to work with nurses, doctors, social workers, and pharmacists in order to find those that need care. They will also need to work together to discuss appropriate treatment options that will best suit the needs of the individuals receiving care. Dental hygiene oral health leaders will also need to work with dentists in order to support the change in practice necessary to properly fit the needs of the underserved.

3. Is there a need for oral health interprofessional healthcare education and training within healthcare industry and market? If so, would professionally accountable graduate degreed dental hygiene oral health leaders add value?

There is a need for oral health interprofessional healthcare education. We spend so much time looking at the mouth and the medical community spends time at looking at all the other areas of the body. We need to work together to look at the whole picture to help our patients to achieve total body health. Having a provider like the dental hygiene oral health leaders could add a bridge the communication between medical and dental providers. It would help everyone better treat our patients.

B. Response from Vicki Pizanis, RDH, MS, EdD, Dental Hygiene Education and Practice Specialist, American Dental Hygienists' Association

4. Is there a market and community value to professionally accountable graduate degreed dental hygiene oral health leaders? Please explain

The community on the whole values well-trained individuals within their respective healthcare professions. Graduate programs in dental hygiene enable dental hygienists to pursue careers within education administration and research, as well as achieve personal growth and advancement within the clinical realm.

5. Do you foresee the dental hygiene oral health leadership role changing in the next 5 to 10 years? If so, how? What educational collaboration, and training can University of Maryland School of Dentistry provide to support change?

The healthcare system at present is evolving. Having graduates with additional skill sets beyond the basic principles of dental hygiene is crucial to advancing the profession for research, policy and leadership.

6. Is there a need for oral health interprofessional healthcare education and training within healthcare industry and market? If so, would professionally accountable graduate degreed dental hygiene oral health leaders add value?

The growing complexity of healthcare needs requires increasing reliance on a multidisciplinary team to address the needs of patients. Today there are currently 17 of master's level dental hygiene programs across the country.

3. SURVEY SENT TO BACCALAUREATE STUDENTS

Faculty from the University of Maryland, Baltimore, School of Dentistry are interested in exploring options to offer a Master of Science in Dental Hygiene: Clinical Dental Hygiene Leader (CDHL). The two year clinical graduate program is designed for a student who has already earned a baccalaureate degree in a field other than dental hygiene. The CDHL graduate program would offer hybrid (mix of face to face and online) courses and hands-on clinical practice at The Universities at Shady Grove campus with opportunities to expand to the Baltimore campus.

Building on foundational science knowledge, graduates will be prepared to provide patient care, as well as leadership and research skills in the dental hygiene profession. Moreover, through the leadership and expertise of School of Dentistry faculty and contributions of students, high quality oral health care services will be provided to the residents of Maryland and Mongomery [sic] County region, consultative and other services to governmental and private agencies, and professional organizations and community.

As a current baccalaureate degree student, we immensely value your input and opinion based on your current experiences, as well as future interests and goals.

I'd like to personally thank you in advance for taking a few minutes to complete the short survey available here: https://www.surveymonkey.com/r/NNSNHL7. Your responses will be impactful to our decision for future graduate programs.

Warm regards,
Marion C. Manski, RDH, MS
Director of Dental Hygiene

1. My age is:
a. 17-22
b. 23-28
c. 29-34
d. 35-40
e. 41-46
f. 47-52
g. 53+

2. Gender
a. Male
b. Female
c. Do not wish to answer

3. What baccalaureate degree program are you currently enrolled in?

4. A characteristic that I consider important in choosing a graduate program is affordability of the tuition.
a. Totally Disagree
b. Disagree Somewhat
c. Neither Agree or Disagree
d. Agree Somewhat
e. Totally Agree

5. A characteristic that I consider important in choosing a graduate program is the quality of the program and instruction.
f. Totally Disagree
g. Disagree Somewhat
h. Neither Agree or Disagree
i. Agree Somewhat
j. Totally Agree

6. A big motivator for enrolling in a Master of Science in Dental Hygiene: Clinical Dental Hygiene Leader (CDHL) program is to enhance the possibilities of employment advancement.
k. Totally Disagree
l. Disagree Somewhat
m. Neither Agree or Disagree
n. Agree Somewhat
o. Totally Agree

7. A big motivator for enrolling in a Master of Science in Dental Hygiene: Clinical Dental Hygiene Leader (CDHL) program is to complete a graduate degree.
p. Totally Disagree
q. Disagree Somewhat
r. Neither Agree or Disagree
s. Agree Somewhat
t. Totally Agree

8. A big motivator for enrolling in a Master of Science in Dental Hygiene: Clinical Dental Hygiene Leader (CDHL) program is to become an instructor at a university.
u. Totally Disagree
v. Disagree Somewhat
w. Neither Agree or Disagree
x. Agree Somewhat
y. Totally Agree

9. I would prefer a graduate program that offers hybrid (mix of face to face and online) courses and hands-on clinical practice.
z. Totally Disagree
aa. Disagree Somewhat
bb. Neither Agree or Disagree
cc. Agree Somewhat
dd. Totally Agree

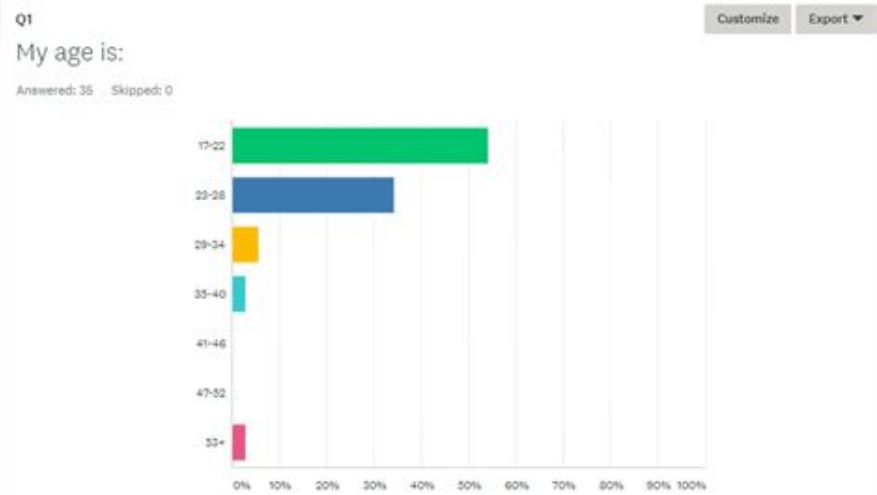
10. If a Master of Science in Dental Hygiene: Clinical Dental Hygiene Leader (CDHL) was offered at The Universities at Shady Grove campus through the University of Maryland, Baltimore, School of Dentistry, I would consider applying within the next three years.
ee. Totally Disagree
ff. Disagree Somewhat
gg. Neither Agree or Disagree
hh. Agree Somewhat
ii. Totally Agree

11. If a Master of Science in Dental Hygiene: Clinical Dental Hygiene Leader (CDHL) was offered at the Baltimore campus through the University of Maryland, Baltimore, School of Dentistry, I would consider applying within the next three years.
jj. Totally Disagree
kk. Disagree Somewhat
ll. Neither Agree or Disagree
mm. Agree Somewhat
nn. Totally Agree

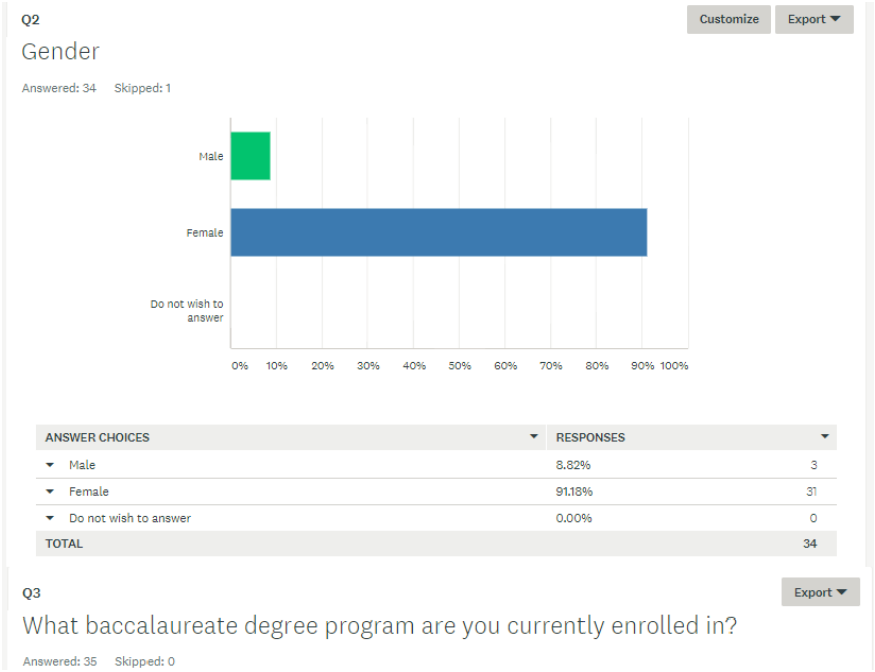
12. Do you have any other comments regarding the Master of Science in Dental Hygiene: Clinical Dental Hygiene Leader (CDHL) at the University of Maryland, Baltimore, School of Dentistry?

4. RESULTS OF SURVEY SENT TO BACCALAUREATE STUDENTS

Current baccalaureate students of UMSOD, UMSON, and UMCP were surveyed to gain feedback on their current experiences and future interests and goals to determine alignment with the proposed CDHL program.



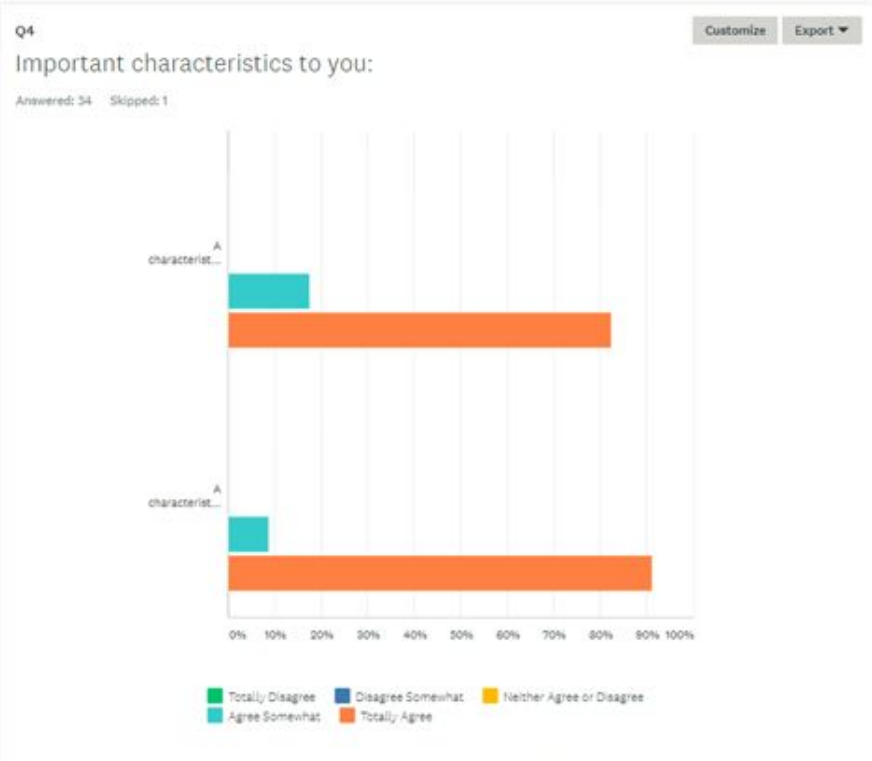
ANSWER CHOICES	RESPONSES	
17-22	54.29%	19
23-28	34.29%	12
29-34	5.71%	2
35-40	2.86%	1
41-46	0.00%	0
47-52	0.00%	0
53+	2.86%	1
TOTAL		35



UMSON RN-BSN	25	~71 percent
UMSOD Dental Hygiene	1	~3 percent
UMCP Exercise Science	1	~3 percent
UMCP Public Health Science	8	~22 percent

UNIVERSITY of MARYLAND
SCHOOL OF DENTISTRY

CDHL Proposal



46

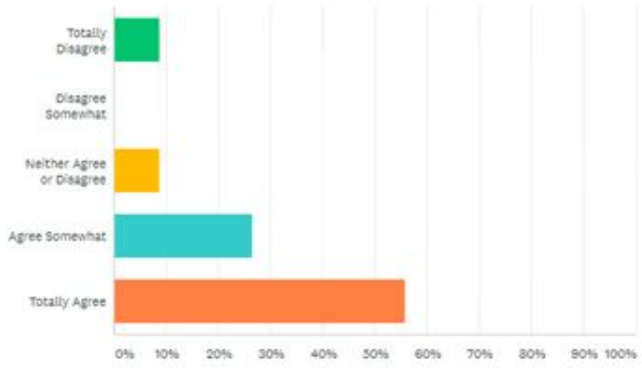
	TOTALLY DISAGREE	DISAGREE SOMEWHAT	NEITHER AGREE OR DISAGREE	AGREE SOMEWHAT	TOTALLY AGREE	TOTAL
A characteristic that I consider important in choosing a graduate program is affordability of the tuition.	0.00% 0	0.00% 0	0.00% 0	17.65% 6	82.35% 28	34
A characteristic that I consider important in choosing a graduate program is the quality of the program and instruction.	0.00% 0	0.00% 0	0.00% 0	8.82% 3	91.18% 31	34

Q5

Customize Export

I would prefer a graduate program that offers hybrid (mix of face to face and online) courses and hands-on clinical practice.

Answered: 34 Skipped: 1



ANSWER CHOICES	RESPONSES	
Totally Disagree	8.82%	3
Disagree Somewhat	0.00%	0
Neither Agree or Disagree	8.82%	3
Agree Somewhat	26.47%	9
Totally Agree	55.88%	19
TOTAL		34

UNIVERSITY of MARYLAND
SCHOOL OF DENTISTRY

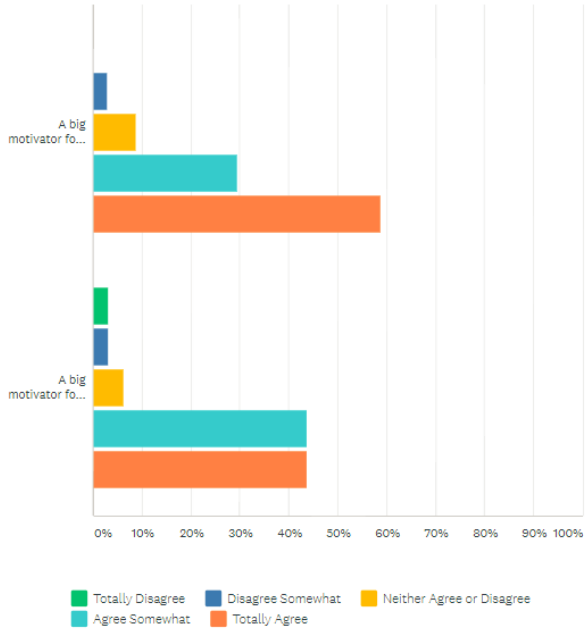
CDHL Proposal

Q6

Customize Export

Motivation:

Answered: 34 Skipped: 1



	TOTALLY DISAGREE	DISAGREE SOMEWHAT	NEITHER AGREE OR DISAGREE	AGREE SOMEWHAT	TOTALLY AGREE	TOTAL
A big motivator for enrolling in a Master of Science in Dental Hygiene: Clinical Dental Hygiene Leader (CDHL) program is to enhance the possibilities of employment advancement in clinic patient care, public health, academics, research, and/or administration.	0.00% 0	2.94% 1	8.82% 3	29.41% 10	58.82% 20	34
A big motivator for enrolling in a Master of Science in Dental Hygiene: Clinical Dental Hygiene Leader (CDHL) program is to complete a graduate degree.	3.13% 1	3.13% 1	6.25% 2	43.75% 14	43.75% 14	32

UNIVERSITY of MARYLAND
SCHOOL OF DENTISTRY

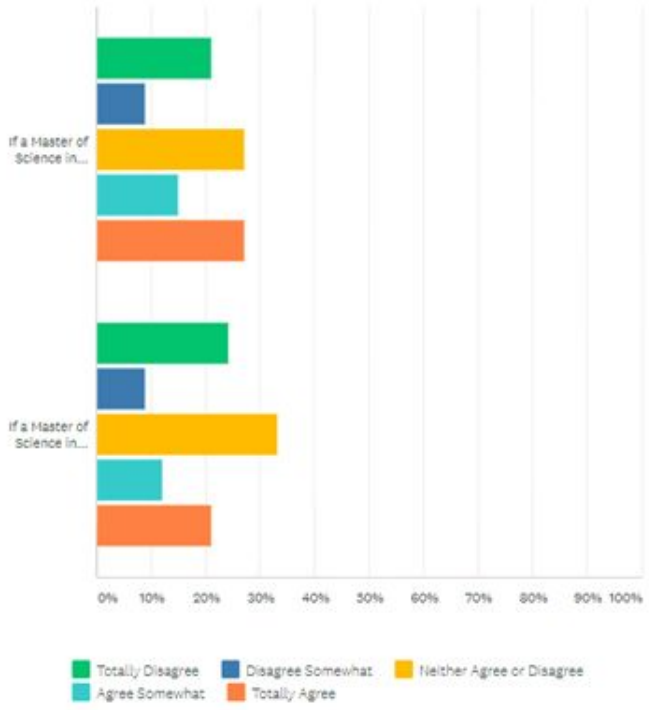
CDHL Proposal

Q7

Campus location:

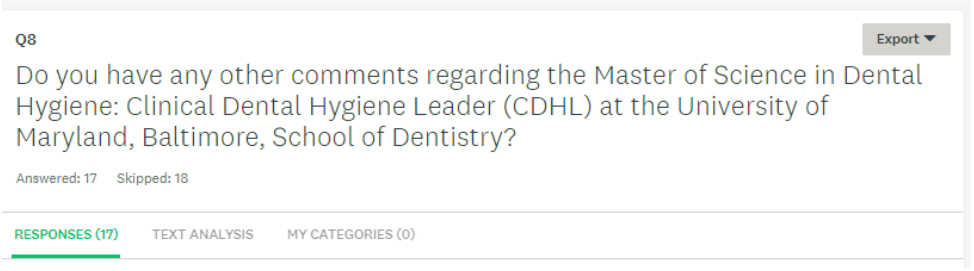
Answered: 33 Skipped: 2

Customize Export



	TOTALLY DISAGREE	DISAGREE SOMEWHAT	NEITHER AGREE OR DISAGREE	AGREE SOMEWHAT	TOTALLY AGREE	TOTAL
If a Master of Science in Dental Hygiene: Clinical Dental Hygiene Leader (CDHL) was offered at The Universities at Shady Grove campus through the University of Maryland, Baltimore, School of Dentistry, I would consider applying within the next three years.	21.21% 7	9.09% 3	27.27% 9	15.15% 5	27.27% 9	33

If a Master of Science in Dental Hygiene: Clinical Dental Hygiene Leader (CDHL) was offered at the Baltimore campus through the University of Maryland, Baltimore, School of Dentistry, I would consider applying within the next three years.	24.24% 8	9.09% 3	33.33% 11	12.12% 4	21.21% 7	33



1. None
2. Why do you need a master's degree to be a dental hygienist...?
3. No
4. Is there any way to apply this graduate degree with nursing?
5. I think having a new program here at USG is a great idea.
6. N/A
7. This is great idea and all effort to implement it should be pursue.
8. As a nursing student, I have no reason to switch gears and persue dentistry but that doesn't mean I don't think it could be a great opportunity for others
9. No
10. No
11. I think it's a good idea as long as the degree is recognized and there are clinical and job opportunities for the students graduating from that program. It would be a welcomed addition to the Shady Grove Campus; however, there's already a School of Dentistry on the Baltimore Campus, how would this program compete with the school in terms of tuition, affordability, recognition, job opportunities, clinical placements, need for another degree, etc. Just some food for thoughts. I'm a nursing student on the Shady Grove campus who is totally not interested in the field of dentistry, but I would be interested to see such program on my campus. My guess is that it would be similar to

the CNL degree offered by the school of nursing on the bmore campus? I wish you good luck and much success with this endeavor!

12. I am not particularly interested in dental hygiene, however, I am in favor of bridge programs. That's why I chose to do the survay. :)
13. Great idea
14. No
15. When will this program be implemented ?
16. I really want to enroll!
17. I was looking for a similar program to enter, it makes me happy to see one in Maryland. I look forward to applying. It's also great because I won't have to get another bachelor's degree to go into my interest of dental hygiene. I also hope this program is provided at USG.

5. RESULTS OF INDEED.COM SEARCH

I. INDEED.COM job search for dental hygienist leadership roles that require or prefer a graduate degree.

- Based on search conducted on March 19, 2018 using "dental hygiene" (master) in the Maryland region. Two mid-level positions:
    i. Instruction and teaching position
        1. Dental Hygiene Clinical Instructor at Howard Community College
            a. https://www.indeed.com/viewjob?jk=af2eb9b70e2ef75f&tk=1c8vjdp2favhsfaf&from=serp&vjs=3
    ii. Clinic management and coordination position
        1. Dental Hygiene Clinic Coordinator at Education Affiliates
            a. https://www.indeed.com/viewjob?jk=16599d09a15135bb&tk=1c8vjdp2favhsfaf&from=serp&vjs=3
- Based on search conducted on March 19, 2018 using "dental hygiene" (master) in the United States.
    i. Community health positions
        1. Lead Public Health Dental Hygienist at Staywell Health Care
            a. https://www.indeed.com/cmp/STAYWELL-HEALTH-CARE/jobs/Lead-Public-Health-Dental-Hygienist-a9b23372f8ee85f2?sjdu=QwrRXKrqZ3CNX5W-O9jEvYDvBjsnww5x486LElz6UQoK-Xr0BXPQ-89u3D6a25nOswWwRoYRBtCv7YXxA5hi4bS56KpK08TcJMl-YZkKKAw&tk=1c8vj6326avhschl&vjs=3
        2. Health Education Coordinator at County of El Dorado
            a. https://www.indeed.com/viewjob?jk=92c29bbc9bafc3da&tk=1c8va4csl51huc7n&from=serp&vjs=3
    ii. Corporate dentistry leadership positions
        1. Dental Hygienist at Peak Dental Services
            a. https://www.indeed.com/viewjob?jk=e58d29d7ec846b2d&q=masters+degree+%22dental+hygienist%22&tk=1c8va5vqo51hubdo&from=web&vjs=3
        2. Hygienist at Western Dental and Orthodontics
            a. https://www.indeed.com/viewjob?jk=cf7b30c5205ad752&tk=1c8vkbbdo40tjfk0&from=serp&vjs=3

iii. Instruction and teaching positions
    1. Program Director, Dental Hygiene at Laramie County Community College
        a. https://www.indeed.com/viewjob?jk=837f5f97b34d7dba&tk=1c8v9umns18h51df&from=serp&alid=3&advn=4664336725265156

UNIVERSITY of MARYLAND
SCHOOL OF DENTISTRY

CDHL Proposal

APPENDIX H

Screenshot from UMSOD's dental hygiene admissions webpage (http://www.dental.umaryland.edu/admissions/programs/dental-hygiene/bachelor-of-science-baccalaureate-program/prerequisite-courses/):

Prerequisite Courses

The following required courses may be completed at any accredited U.S. college or university. To be considered for admission, students should have completed the majority of the prerequisite courses, including a minimum of 16 (20 is highly recommended) of the science courses, by the end of December prior to the academic year for which they are applying. All courses must be completed by the end of the spring semester prior to fall entry into the Dental Hygiene Bachelor Of Science Program. Please note that students are required to earn at least a C grade in all pre-requisite courses. No grades lower than C will be accepted.

Courses must be from a U.S. regionally accredited university or college. The Dental Hygiene Program will accept on a case by case basis general credit by examination in the areas of non-science courses such as sociology, psychology, humanities, social sciences and English. The individual must contact the admissions advisor for the specific program of interest for individual advising and review of coursework. It is possible that up to 6-9 credits MAY be acceptable.

(The Committee on Dental Hygiene Recruitment and Admissions reserves the right to modify the prerequisites when additional courses are necessary to improve an applicant's preparation for entering the Dental Hygiene Program. Admission and curriculum requirements are subject to change without prior notice.)

(Specific courses shown on next page.)

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SCHOOL OF DENTISTRY

CDHL Proposal

Science Courses

*(*All Science Courses must be taken within 5 years of the year you wish to enroll into the program.)*

Anatomy / Physiology I & II*	8 credits
General Biology*	4 credits
Inorganic or General Chemistry*	4 credits
Microbiology*	4 credits
Organic Chemistry*	4 credits

Non-Science Courses

Basic Statistics	3 credits
Technical Writing	3 credits
English Composition	6 credits
Humanities *(This course can be taken in the categories of literature, philosophy, foreign languages, music and art appreciation, fine arts, math, particular education courses and history. Course must be academic, non-studio courses. Physical Education courses are not transferable.)*	3 credits
Introduction to Psychology	3 credits
Introduction to Sociology	3 credits
Principles of Nutrition*	3 credits
Public Speaking	3 credits
Human Growth & Development	3 credits
Social Sciences *(Social science electives can be taken in the categories of psychology and sociology (other than the required introductory course), anthropology, political science, economics, Cultural Studies, Woman's Studies, geography, business management, religion, information systems (not keyboarding courses) and education, Introduction to Computers (academic course) is often a General Education Requirement for college freshman and would be an acceptable 3 credit social science elective)*	3 credits

TOTAL OF 57 CREDITS OF REQUIRED COURSEWORK

UNIVERSITY of MARYLAND
SCHOOL OF DENTISTRY

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APPENDIX L

TABLE 9: PROGRAM RESOURCES					
Resource Categories	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
1. Reallocated Funds	$ -	$ -	$ -	$ -	$ -
2. Tuition and Fee Revenue (c +g below)	$ 92,696	$ 235,487	$ 287,837	$ 293,593	$ 299,465
a. Number of F/T Students	$ 4	$ 10	$ 12	$ 12	$ 12
b. Annual Tuition/Fee Rate	$ 23,174	$ 23,549	$ 23,986	$ 24,466	$ 24,955
c. Total F/T Revenue (a x b)	$ 92,696	$ 235,487	$ 287,837	$ 293,593	$ 299,465
d. Number of P/T Students	$ -	$ -	$ -	$ -	$ -
e. Credit Hour Rate	$ -	$ -	$ -	$ -	$ -
f. Annual Credit Hours Rates	$ -	$ -	$ -	$ -	$ -
g. Total P/T Revenue (d x e x f)	$ -	$ -	$ -	$ -	$ -
3. Grants, Contracts & Other External Sources	$ -	$ -	$ -	$ -	$ -
4. Other Sources	$ -	$ -	$ -	$ -	$ -
5. TOTAL (Add 1-4)	$ 92,696	$ 235,487	$ 287,837	$ 293,593	$ 299,465

UNIVERSITY of MARYLAND
SCHOOL OF DENTISTRY

CDHL Proposal

TABLE 10: PROGRAM EXPENDITURES:

Expenditure Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Faculty (b+c below)	$ 412,504	$ 424,880	$ 437,626	$ 450,755	$ 464,277
a. Number of FTE	4	4	4	4	4
b. Total Salary	$ 330,004	$ 339,904	$ 350,101	$ 360,604	$ 371,422
c. Total Benefits	$ 82,501	$ 84,976	$ 87,525	$ 90,151	$ 92,855
2. Admin Staff (b+c below)	$ 169,868	$ 174,964	$ 180,213	$ 138,807	$ 142,971
a. Number of FTE	2	2	2	1.5	1.5
b. Total Salary	$ 124,903	$ 128,650	$ 132,510	$ 102,064	$ 105,126
c. Total Benefits	$ 44,965	$ 46,314	$ 47,703	$ 36,743	$ 37,845
3. Support Staff (b+c below)	$ 76,535	$ 78,831	$ 81,196	$ 83,631	$ 86,140
a. Number of FTE	1	1	1	1	1
b. Total Salary	$ 56,275	$ 57,964	$ 59,703	$ 61,494	$ 63,339
c. Total Benefits	$ 20,259	$ 20,867	$ 21,493	$ 22,138	$ 22,802
4. Techical Support and Equipment	$ -	$ -	$ -	$ -	$ -
5 Library	$ -	$ -	$ -	$ -	$ -
6. New or Renovated Space	$ -	$ -	$ -	$ -	$ -
7. Other Expenses	$ 53,851	$ 55,193	$ 56,571	$ 57,983	$ 59,433
TOTAL (Add 1-7)	$ 712,758	$ 733,868	$ 755,605	$ 731,176	$ 752,822

UNIVERSITY SYSTEM of MARYLAND

BOARD OF REGENTS

SUMMARY OF ITEM FOR ACTION, INFORMATION, OR DISCUSSION

TOPIC: University of Maryland, Baltimore: Accelerated Bachelor of Science in Health Science/Master of Science in Health Science-Physician Assistant

COMMITTEE: Education Policy and Student Life

DATE OF COMMITTEE MEETING: Tuesday, November 6, 2018

SUMMARY: The University of Maryland, Baltimore (UMB) Graduate School is committed to fostering partnerships and leading a more integrated approach to Physician Assistant (PA) education in the State of Maryland. The UMB Graduate School has for several years had a collaborative PA program with Anne Arundel Community College (AACC). With the advent of the recent ARC-PA (Accreditation Review Commission on Education for the Physician Assistant) mandate that requires all PA Programs to award a master's degree by 2020, the UMB Graduate School is proposing a unique Accelerated Bachelor of Science in Health Science/Master of Science in Health Science-Physician Assistant that will provide a state-of-the-art 3+2 pathway for AACC students to complete a Physician Assistant Program with a bachelor's and a master's degree.

There is a compelling need in the state and region for this program as it will contribute to the growing demand for highly-qualified physician assistants. This is most notable in the employment projections that forecast the demand for PAs between 2016 and 2026 will increase by 37 percent. This projected need for trained PAs reflects a much faster than average growth compared to other occupations. Moreover, the Maryland State Data Center reports that the State's population, in addition to a growing aging population, is projected to increase about 1,000,000 residents from 5,988,400 in 2015 to 6,968,700 in 2045. The growth in the State's population will undoubtedly trigger the need for greater healthcare services. UMB is uniquely qualified and positioned to prepare and deliver the proposed Accelerated Bachelor of Science in Health Science/Master of Science in Health Science-Physician Assistant to train physician assistants for the healthcare workforce.

ALTERNATIVE(S): The Regents may not approve the program or may request further information.

FISCAL IMPACT: No additional funds are required. The programs can be supported by the projected tuition and fees revenue.

CHANCELLOR'S RECOMMENDATION: That the Education Policy and Student Life Committee recommend that the Board of Regents approve the proposal from University of Maryland, Baltimore to offer the Accelerated Bachelor of Science/Master of Science in Health Science

COMMITTEE RECOMMENDATION:		DATE: November 6, 2018
BOARD ACTION:		DATE:
SUBMITTED BY: Joann A. Boughman	301-445-1992	jboughman@usmd.edu

UNIVERSITY of MARYLAND GRADUATE SCHOOL

www.graduate.umaryland.edu

UNIVERSITY OF MARYLAND, BALTIMORE (UMB) GRADUATE SCHOOL
Proposal for Modification of the Master of Science in Health Science-Physician Assistant Concentration to include an
Accelerated Bachelor of Science in Health Science

Table of Contents

UNIVERSITY of MARYLAND GRADUATE SCHOOL

www.graduate.umaryland.edu

A. Centrality to institutional mission statement and planning priorities

Program description and centrality to the institutional mission statement

Physician Assistants (PAs) are health care professionals who practice medicine and work on inter-professional teams collaborating with physicians. Physician Assistants are educated in the medical model, trained as generalists in primary care; they work in clinics, hospitals, the federal government, and the military conducting physicals, evaluating patient's medical complaints, interpreting labs and studies, performing procedures and prescribing medications, they may specialize in any branch of medicine. PAs serve an essential role on a healthcare team, filling gaps in services that result from shortages of physicians and increased need for healthcare among Maryland's urban, rural and aging population. Effectively training and building a PA workforce is critical to Maryland's future supply of health care providers.

The University of Maryland Baltimore (UMB) Graduate School is committed to fostering partnerships and leading a more integrated approach to Physician Assistant education in the state of Maryland. The UMB Graduate School has a PA Program in collaboration with Anne Arundel Community College (AACC). Currently, there is only one other PA program in Maryland, a collaboration between Towson University and the Community College of Baltimore County (CCBC). However, Frostburg State University is provisionally accredited from the Accreditation Review Commission for PA Education (ARC-PA) to launch a new program.

The current Master of Science in Health Science-Physician Assistant (MSHS-PA) concentration consists of 30 UMB upper division credits taken over the course of two years in collaboration with the Anne Arundel Community College (AACC) Physician Assistant Department. AACC currently offers 86 credits for a total of 116 credits to earn the MSHS-PA degree. UMB intends to convert AAAC's 86 credits from lower division courses offered at the 100-200 level to upper division courses offered by UMB. Combined with UMB's current 30 credits, the program will meet a new mandate of the Accreditation Commission on Physician Assistant Education. The mandate requires that all Physician Assistant Programs award a master's degree by 2020 that is awarded by the sponsoring institution eligible to grant the graduate degree and deliver all PA courses at the high level rigor, this change is consistent with the University of Maryland Baltimore's mission and expertise.

To accomplish the task of educating the next generation of Physician Assistants, UMB will leverage the Graduate School's extensive human services expertise, and students will build on existing health professional competencies gained through prior education. UMB intends to continue collaboration with Anne Arundel Community College by developing a 3+2 accelerated pathway to Physician Assistant Program completion. Historically, students completed a BS degree from any regionally accredited institution and competed for enrollment in the PA program. We propose two new alternative pathways for students to apply to the PA program :

1. Students complete a BA/BS degree from any regionally accredited institution and completeall pre-requisite course work and an advanced certificate program taught at the 300 level from Anne Arundel Community College, meet the standards for acceptance and receive preferential conditional acceptance in the UMB PA program; or
2. Students complete the Pre-Med Associates Degree at AACC,all pre-requisiste courses and the advanced certificate offered at the 300 level from Anne Arundel Community College, meet the standards for acceptance, receive preferential conditional approval

and complete their Bachelors of Health Science during their first year of the Masters of Health Science while enrolled in the MSHS with a PA concentration through the University of Maryland Baltimore PA Program.

The MSHS- PA concentration relates to UMB's mission: "To improve the human condition and serve the public good of Maryland and society-at-large through education, research, clinical care, and service" by providing students with the necessary tools to serve and improve the health of our diverse society. The degree program directly relates to UMB's vision to "be a beacon to the world as an environment for learning and discovery that is rich in diversity and inclusion." Furthermore, the degree is a strategic priority of UMB's Diversity Advisory Council in achieving its goal of creating diversity, inclusion, and equity educational opportunities for students, faculty, and staff.

Centrality to the strategic plan

The proposed degree supports UMB's strategic goals through the fulfillment of the following strategic themes:

- The UMB theme of **Student Success** challenges academic units to "design contemporary teaching and learning environments that are accessible and affordable to prepare students to be exemplary professionals and leaders in society" (University of Maryland, Baltimore, n.d.). The MSHS-PA concentration degree is designed for completion within two academic years and the pathways to enter increases its accessibility to students by limiting costs, providing knowledge, skills and patient clinical experience in Maryland to encourage student's success. The University has recognized the important role the Graduate School plays in creating accessible education for individuals already engaged in their professions.
- The theme, **Inclusive Excellence**, encourages the campus to "foster an environment that recognizes and values each member of the UMB community, enabling members to function at their highest potential to achieve their personal and professional goals" (University of Maryland, Baltimore, n.d.). This degree not only provides students with the strategies to effectively engage with various inter-disciplinary learners and faculty, but it also equips students with the inter-professional competencies.
- The theme**, Partnership, and Collaboration** encourage institutions, schools and departments to collaborate internally and externally to provide impactful education, services and expertise to benefit Maryland and society. This degree program is a model for innovative collaboration with community college partners to develop robust pipelines to health professions across the state, while lowering cost and improving time to degree.

B. Critical and compelling regional or statewide need as identified in the State Plan

Alignment with the Maryland State Plan

There is a critical and compelling regional and statewide need for Physician Assistants that necessitates the creation of an inclusive healthcare environment and fosters a diverse

workforce. The Maryland State Plan for Postsecondary Education 2017-2021 outlines several goals for institutions of higher education.

This degree program addresses:

> **Goal 1: Access, Affordability-** by offering an affordable, accelerated Bachelor's and Master's degree program to be completed within five years. This collaboration between Anne Arundel Community College and the University of Maryland, Baltimore Graduate School to offer an accelerated pathway will encourage program completion and health workforce enhancement while lowering educational cost, resulting in a student with lower debt and a competent primary care workforce.
>
> **Goal 2: Success** – this degree program builds upon a legacy PA curriculum that has consistently produced ethical, competent and compassionate providers for the last 20 years. The curriculum imparts the knowledge and skills to attain the core competencies for new Physician Assistant graduates and interact with other healthcare providers and interdisciplinary faculty in a culturally responsive manner is learning the skills of health communication and literacy, cultural humility, and self- awareness and professionalism.
>
> **Goal 3: Innovation**- The University of Maryland System K-20 workgroup, convened in 2018, recommended the creation of a task force to address state-wide articulation agreements between and among programs to align pipeline programs to enhance diversity and completion while lowering costs. This innovative 3+2 accelerated Bachelor/ Master degree provides a model for future articulation agreements.

Alignment with National Trends

According to the Maryland State Data Center, the State's population is projected to increase from 5,988,400 people in 2015 to 6,968,700 people in 2045. This net increase of close to 1,000,000 residents, in addition to a growing aging population, will increase the demand for healthcare services. The growth of the population means more need for health care services generally, and members of the large baby boom generation will require more medical care as they age. An increase in the number of patients with chronic diseases, such as diabetes, will also increase health care demand and, in turn, drive the need for healthcare providers including physician assistants who often provide preventive care and treat the sick. Additionally, research indicates an increase in the number of chronic conditions diagnosed in a single patient, requiring more complex disease management – a needed service for which physician assistants are skilled. Furthermore, increases in incomes may improve access to health care services, and advances in medical technology will continue to increase the number and types of treatments available.

Physician assistants can provide many of the same services as physicians. PAs are expected to continue to have a growing role in providing health care services because they can be trained more quickly than physicians. Team-based health care provision models will continue to evolve and become more commonly used. Physician assistants will have growing roles in all areas of medicine as states expand advanced procedures and autonomy, and as insurance companies expand their coverage of physician assistant services.

UNIVERSITY of MARYLAND GRADUATE SCHOOL

www.graduate.umaryland.edu

Job Outlook

Employment of physician assistants is projected to grow 37 percent from 2016 to 2026, much faster than the average for all occupations.

Quick Facts: Physician Assistants	
2017 Median Pay	$104,860 per year $50.41 per hour
Typical Entry-Level Education	Master's degree
Work Experience in a Related Occupation	None
On-the-job Training	None
Number of Jobs, 2016	106,200
Job Outlook, 2016-26	37% (Much faster than average)
Employment Change, 2016-26	39,600

Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Physician Assistants, on the Internet at https://www.bls.gov/ooh/healthcare/physician-assistants.htm (visited *September 04, 2018*).

C. Quantifiable and reliable evidence and documentation of market supply and demand in the region and state. In 2016, the Maryland Office of Primary Care Access completed a statewide primary care needs assessment. The Maryland Statewide Needs Assessment is based on the integration of two health data tracking methods, the federal Agency for Healthcare Research and Quality (AHRQ) Prevention Quality Indicators (PQI) and the State Health Improvement Process (SHIP). The needs assessment determined that Baltimore City had the greatest need for providers and increased access to care due to the worst prevention quality indicators. The positive correlation between health care access and health status emphasizes a need for an increased number of providers including Physician Assistants in areas where healthcare access is limited to improve health outcomes. Thirteen Medically Underserved Population (MUPs) in Maryland cover more than 142,000 residents. Ten of Maryland's 24 jurisdictions have a MUP designation. Among these 10 counties, three have multiple MUP designations; Anne Arundel County with two, and Prince George's County with three. The current UMB/AACC collaborative PA program resides as the nexus of these counties.

The Maryland Occupational Projections for 2016-2026 Workforce Information and Performance report projects a 22.2 % increase in employment with anticipated need growing to 3,446 position and current occupancy as of 2016 at 2,850. An additional 626 positions are projected.

Maryland Department of Labor, Licensing and Regulations, Employment projections 2016-2026, retrieved on September 19, 2018 from https://www.dllr.state.md.us/lmi/iandoproj/maryland.shtml

The 2017 State Occupational Employment and Wage Estimates for Maryland provide additional evidence for the need for Physician Assistant Education.

Occupational code	Employed	Employment RSE	Employment per 1,000	Location Quotient	Mean hourly wage	Annual mean wage	Mean wage RSE
29-1071	3010	10.4%	1.130	1.48	49.82	103,150	2.8%

Primary Care Office, Office of Primary Care Access, Prevention and Health Promotion Administration, Maryland Department of Health and Mental Hygiene
http://phpa.dhmh.maryland.gov/OPCA/Pages/Home.aspx

E. Relevance to high-demand programs at Historically Black Institutions (HBIs)

Currently, there are no Physician Assistant academic programs offered through Bowie State University, Coppin State University, Morgan State University, and the University of Maryland Eastern Shore that resemble the proposed BS/MSHS PA Concentration. In 2016, the University of Maryland Eastern Shore lost the accreditation of their Physician Assistant program. Based on the current offerings of the Maryland HBIs, we do not expect any impact on the implementation or maintenance of high-demand programs at HBIs due to the current program in place and the demonstrated need for healthcare providers.

F. Relevance to the identity of Historically Black Institutions (HBIs)

HBIs do have a unique history and identity of educating racial minorities. HBIs are dedicated to educating graduates who can interact with other racial and ethnic groups upon graduation. Predominately White institutions also must educate students to interact with diverse individuals upon graduation. We do not believe that offering this program impacts the mission of HBIs.

G. Adequacy of curriculum design and delivery to related learning outcomes

To determine the knowledge, skills, behaviors and attitudes that best describe the essential functions of PAs in practice the faculty of the PA program referenced the work of the PA New Graduate Competency task force created by the Physician Assistant Education Association. This task force studied workforce trends and employer expectations of new PA graduates. They also performed a comprehensive literature review and examined the healthcare competency frameworks from across the healthcare professions. The curriculum listed below builds up on a successful 20 plus years of PA educaiton and Anne Arundel Community College and includes

additional course work to incorporate technology in the curriculum to include use of a telehealth, telemedicine, electronic health records and advanced imaging.

UMB is committed to providing the best teaching and learning possible and excellence in all its courses. Every effort is made to ensure that coherence, cohesiveness, and academic rigor between programs offered in traditional instructional formats and those offered on-line are equivalent. Courses are designed to result in program learning outcomes appropriate to the rigor and breadth of the course and all courses *assess* student achievement of defined learning outcomes through regular and formal assessment planning.

The learning outcomes for each course are the foundation of the course; the learning activities, assessments and content of the course are in alignment with the outcomes and provide a clear pathway for mastery of the outcomes.

Course Title	Course Description
MHS 465 **Foundations of Physician Assistant Practice** **Five credits**	Students practice using empathetic listening skills, medical terminology, and apply basic anatomy and physiology concepts while learning patient-centered interviewing techniques and physical examination skills. Students practice and perform physical exams using telemedicine platform and diagnostics and simulated patients in a laboratory setting. Students gain foundational knowledge of the Inter-professional competencies that guide team practice and the history of the Physician Assistant profession by covering professional issues in ethics, government, and law
MHS 470 Applied Medical Science Seven credits	Students review foundational anatomy, physiology, genetics, microbiology and immunology concepts are given a medical context. This course includes cadaver laboratory activity.
MHS 600 Introduction to Library Resources and Scholarly Writing One credit	Graduate learners develop skills in both accessing relevant online library resources and engaging in scholarly writing. The portions of the course focusing on library resources teach and strengthen lifelong research and information competency skills by introducing the student to the nature of research and the role of the library in the research process. The scholarly writing portion of the course will emphasize organization, effective conveyance of thoughts through written words, and writing for multiple types of audiences.

MHS 602 Legal and Ethical Issues for Health, Human Services and Clinical Professionals Two credits	Students explore ethical and legal issues that are timely and germane to health professionals. This course is based on the premise that to act in an ethical manner means to engage in conduct according to accepted principles, and to improve moral confidence and moral action we must prepare the next generation of health professionals with ethical resources, tools and skills. A case base learning design will be utilized to engage students in ethical discussion, exploration, analysis with the goal of determining ethical and legal action that is sound and logical. This course will prepare students to make ethical healthcare decision ins in the future.
MHS 512 Clinical Medicine 1 Eight Credits	Introduces the art of medicine and science of evidence-based decision making using an organ system approach. Prevention and diagnosis of various disease states are discussed; including healthy behavior, clinical presentation, differential diagnosis, laboratory findings, and treatment modalities. The course examines health across the adult lifespan including gerontology. The laboratory component focuses on developing students' skills to incorporate patient-centered care techniques and use of equipment encountered various healthcare settings.
MHS 514 Pediatric Medicine 1 Two Credits	Students are introduced to the most common diseases of the pediatric population with an emphasis on prevention, clinical presentation, differential diagnosis, evaluation and treatment modalities. This course examines illnesses specific to the newborn and adolescent.
MHS 515 Psychiatric Medicine Three Credits	Introduces students to an operational understanding of the DSM-5 Classification system of psychiatric illness. This course includes discussion of the most common psychiatric diagnoses,evaluation and management. Pharmacologic and non-pharmacologic treatment, referral and consultation of common psychiatric disorders encountered in primary care across the life span is explored.
MHS 520 Pathophysiologic approach to Pharmacotherapuetics I Three Credits	Part one of a two-part course presenting a pathophysiological approach to pharmacotherapeutics, provides the student with an understanding of drug action within the framework of human physiology, biochemistry and pathophysiology. In this course the therapeutic and adverse actions of drugs are understood in the framework

	of the drugs mechanism of action. Clinical vignettes are used to illustrate pathologic processes that integrate the actions of drugs from the level of an individual molecular target to the level of the human patient. In addition students will learn about drug delivery methods and the drug approval process.
MHS 615 Biostatistical Methods for Health Professionals Three Credits	We live in a time exploding with data. Everything from individual wearable technology to community and national profiles, yet few students are prepared with the quantitative skills to analyze and evaluate that data and draw conclusions. This course will present basic statistical methods to a broad range of medical or public health problems. The course will emphasize the use of these methods and the interpretation of results using bio-medical and health sciences applications, healing clinicians move beyond the data to decisions.
MHS 518 Clinical Medicine 2 Eight Credits	Apply skills of evidence- based decision making using an organ system approach. Prevention and diagnosis of various disease states are discussed; including healthy behavior, clinical presentation, differential diagnosis, laboratory findings, and treatment modalities. Develop clinical critical thinking and decision-making skills while interpreting patient histories, physical exams, laboratory and imaging interpretation and surgical sub- specialty exam and practice. Topics include.
MHS 522 Patient Evaluation One credit	Students will practice history, physical, and clinical diagnosis in the community throughout the semester. . Students must pass a practical examination to complete the course and advance into the clinical year.
MHS 519 Pediatric Medicine 2 Two credits	Integrate critical thinking related to diseases of the pediatric population with an emphasis on prevention, presentation, differential diagnosis and treatment modalities. Investigate diseases specific to the newborn through adolescence.
MHS 521 Emergency Medicine Four Credits	Students advance their knowledge of emergency, disaster and priority clinical assessment, diagnosis and management of patients from infancy to geriatric age. The student is trained to recognize potentially life-threatening illnesses and injuries commonly encountered in emergency medicine. Students use simulation to practice assessment, interdisciplinary teamwork and problem solving skills in a

	laboratory setting. Students practice and demonstrate core and advanced procedures. Imaging and laboratory indications and interpretation skills are emphasized.
MHS 523 Pathophysiologic Approach to Pharmacotherapuetics II Three Credits	Examine drug actions within the framework of human physiology, biochemistry and pathophysiology. Therapeutic and adverse actions of drugs are understood in the framework of the drug's mechanism of action. Utilize clinical vignettes to analyze pathologic processes that integrate the actions of drugs from the level of an individual molecular target to the level of the human patient.
MHS 551 Clerkship Bootcamp One Credit	Review program clinical policies, time management, and self-care practices in preparation for clinical year placement. Practice electrocardiogram, ultrasound and radiology interpretations skills. Apply interdisciplinary communications strategies. Health information technology tools such as CRISP and electronic medical records for medical coding and billing practice to improve patient safety and care.
MHS 630 Essentials of Chronic and Infectious Disease Epidemiology Three Credits	In the past 15 years, we have seen a rise in chronic disease impacted by behavior and policy, infectious disease outbreaks and new mechanisms of spread never seen before in the US. Clinicians must consider the biosocial impact of globalization and environmental change upon health and disease. In this course, students are presented with fundamental concepts of epidemiology to assist the new clinician in their efforts to critically evaluate the health and medical literature, participate in monitoring and surveillance of disease, and interpret data in their individual practice, community and nation to improve care in their practice and professional sphere.
MHS 671 Clerkship 1 Four Credits	Participate in supervised clinical experience designed to provide the student with an opportunity to obtain medical data, formulate and implement a medical diagnosis and treatment plan. The clinical experience will be in one the required specialties such as Internal Medicine. Engage in tutorial sessions and on-site evaluation by faculty to demonstrate clinical competence. Students must pass an examination to complete the course.

MHS 672 Clerkship 2 Four Credits	Participate in supervised clinical experience designed to provide the student with an opportunity to obtain medical data, formulate and implement a medical diagnosis and treatment plan. The clinical experience will be in one the required specialties such as Family Practice. Engage in tutorial sessions and on-site evaluation by faculty to demonstrate clinical competence. Students must pass an examination to complete the course.
MHS 673 Clerkship 3 Four Credits	Participate in supervised clinical experience designed to provide the student with an opportunity to obtain medical data, formulate and implement a medical diagnosis and treatment plan. The clinical experience will be in one the required specialties such as Emergency Medicine. Engage in tutorial sessions and on-site evaluation by faculty to demonstrate clinical competence. Students must pass an examination to complete the course.
MHS 652 Communication and Leadership Three Credits	Students learn effective management and communication skills through case study-analysis, reading, class discussion and role-playing. The course covers topics such as effective listening, setting expectations, delegation, coaching, performance, evaluations, conflict management, negotiation with senior management and managing with integrity.
MHS 633 Clinically Applied Social and Behavioral Theory Three Credits	This course will discuss the social determinants of health and will go beyond the individual risk factor approach to health and disease, applying multi-disciplinary models and social epidemiology to elucidate the economic, sociocultural, political, and behavioral context and processes underlying health care access and health outcomes. Using a problem based context will explore how nutrition, oral health, addiction and mental illness impact health and disease and explore how social and behavioral health theories can be applied in a clinical context.
MHS 674 Clerkship 4	Participate in supervised clinical experience designed to provide the student with an opportunity to obtain medical data, formulate and implement a medical diagnosis and treatment plan. The clinical experience will be in one the

Four Credits	required specialties such as Pediatric Medicine. Engage in tutorial sessions and on-site evaluation by faculty to demonstrate clinical competence. Students must pass an examination to complete the course.
MHS 675 Clerkship 5 Four Credits	Participate in supervised clinical experience designed to provide the student with an opportunity to obtain medical data, formulate and implement a medical diagnosis and treatment plan. The clinical experience will be in one the required specialties such as OB/GYN Medicine. Engage in tutorial sessions and on-site evaluation by faculty to demonstrate clinical competence. Students must pass an examination to complete the course.
MHS 676 Clerkship 6 Four Credits	Participate in supervised clinical experience designed to provide the student with an opportunity to obtain medical data, formulate and implement a medical diagnosis and treatment plan. The clinical experience will be in one the required specialties such as General Surgery Medicine. Engage in tutorial sessions and on-site evaluation by faculty to demonstrate clinical competence. Students must pass an examination to complete the course.
MHS 660 Applied Pharmacology 3 credits	By the end of this course, students will have an advanced knowledge in pharmacology used in the treatment of selected health conditions commonly encountered by healthcare providers. Students will apply principles of clinical pharmacology, therapeutics, pharmacokinetics, and drug metabolism learned in PHA 120 and PHA 123 as they focus on the pathophysiological approach to pharmacology. Course activities and resources will emphasize: the integration of pathophysiology and pharmacologic principles, mechanisms of action of drugs, side effects, adverse effects, drug interactions, and the pharmacologic application in clinical settings. Using case studies provided through electronic medical records, students will achieve competency in the decision-making processes used to safely and effectively prescribe and monitor Pharmacotherapuetics appropriate to specific patient needs through

	realistic, simulated, inter-professional interactions of healthcare providers.
MHS 608 Research Seminar 1 3 credits	This is a 3-credit seminar course designed to give students the basic information regarding health sciences research discoveries. It also provides students with the tools to approach translational research in their present and future work. The course covers the core competencies in clinical and translational research, and each session addresses a core thematic area. Students log-in once a week during the semester. Faculty members give a lecture, followed by a student-led presentation. The presentation is followed by a discussion in which all students are evaluated based on participation. Students are given a short essay assignment based on each lecture. The student presentations and short essays count toward the final grade. A research paper also is assigned.
MHS 677 Clerkship 7 Four Credits	Participate in supervised clinical experience designed to provide the student with an opportunity to obtain medical data, formulate and implement a medical diagnosis and treatment plan. The clinical experience will be in one the required specialties such as Psychiatric Medicine. Engage in tutorial sessions and on-site evaluation by faculty to demonstrate clinical competence. Students must pass an examination to complete the course.
MHS 678 Clerkship 7 Four Credits	Participate in supervised clinical experience designed to provide the student with an opportunity to obtain medical data, formulate and implement a medical diagnosis and treatment plan. The clinical experience will be in one the required specialties such as Internal Medicine- Subspecialty. Engage in tutorial sessions and on-site evaluation by faculty to demonstrate clinical competence. Students must pass an examination to complete the course.

MHS 622: Improving Quality of Care in Health Systems Three Credits	This 8-week, online course will explore health policy, finance and system issues that are timely and germane to health professionals. This course is based on the premise that to practice in today's complex healthcare environment, students must understand the economic and theoretical underpinnings of the health system. A case-based learning design will be utilized to engage students in discussion, exploration, analysis with the goal of improving the safety and quality of care provided in health systems. This course will prepare students to make informed health care decisions related to health finance, and patient safety in the future.
MHS 609 Research Seminar 2 Three Credits	This course is a continuation of the prior research seminar course. Students will be divided in small groups to work collaboratively, researching under the mentorship of a faculty member to discuss current clinical issues. Students will complete a literature search and propose a practice-based improvement plan. Final approval by a faculty mentor is required.
MHS 679 Clerkship 9 Four Credits	Participate in supervised clinical experience designed to provide the student with an opportunity to obtain medical data, formulate and implement a medical diagnosis and treatment plan. The clinical experience will be in one the required specialties such as Internal Medicine. Engage in tutorial sessions and on-site evaluation by faculty to demonstrate clinical competence. Students must pass a summative written and clinical examination to complete the course.
MHS 680 Issues and Trends Three Credits	Demonstrate knowledge of current professional issues and the effects of law, ethics, and government on the Health care system. Appraise research and discuss issues of preventive, precision and evidence- based medicine and the impact on the role of the physician assistant. Perform critical analysis of assigned readings.
MHS 700 Capstone Credits	The capstone is designed to be a supervised health science learning experience and a demonstration of the substantive application of the knowledge and skills that have been acquired in the courses taken as part of the M.S. in Health Science Program. The capstone functions as both the practice experience and the culminating experience for the program. The M.S. in Health Science capstone experience includes the following components: development of a capstone proposal; delivery of an oral presentation at UMB, and at the field placement site as appropriate; and preparation of a capstone portfolio.

Implementation and Management

UMB will be responsible for the educational and administrative needs of all students enrolled in the MSHS-PA concentration in accordance with UMB policies and procedures. UMB will ensure that all course offerings will be entered in the UMB student registration system. UMB will ensure that all course offerings appear correctly on student transcripts and student records; and will ensure that tuition fees are at the applicable rate.

Accordingly, students enrolled in the MSHS-PA concentration shall pay tuition and fees; receive grades and academic credit; and shall be subject to the rules, policies, practices and regulations (pertinent to students) of UMB when enrolled in any of UMB's courses. Appropriate faculty have been identified and additional guest lectures will be identified as needed.

Discuss how general education requirements will be met, if applicable.

See Appendix A Anne Arundel Community College Transfer Studies Associates Degree and Interprofesional Health Advanced Certificate. UMB will accept a total of 90 credits from AACC Transfer Studies Associates degree and 30 additional credits offered at the 300 level and award 30 credits 400-500 level coursework from the first three semesters of the PA program for a total or 120 credits to earn the Bachelor of Health Science Degree.

Identify any specialized accreditation or graduate certification requirements

University of Maryland Baltimore will seek transfer of sponsorship for the PA program from Anne Arundel Community College to assure ongoing compliance with the Accreditation Commission for Physician Assistant Education (ARC-PA)

If contracting with another institution, provide a copy of the contract

Appendix C: UMB MOU with AACC

H. Adequacy of articulation

Appendix C: UMB MOU with AACC

I. Adequacy of faculty resources

Faculty Member Name	Terminal Degree	Full-Time or Part Time	Courses Taught
Theresa Neumann, MS PA-C	Master of Science	Full-time	MHS 465 Foundations of Physician Assistant Practice MHS 512 Clinical Medicine MHS 522- Patient Evaluation MHS 671- Clerkship 1

Robert Cook MD	MD	Full-time	MHS 470 Applied Medical Science MHS 520 Pathophysiological approach to Pharmacotherapuetics I MHS 523 Pathophysiological approach to Pharmacotherapuetics II Clerkship 675-Clerkship 5 MHS 700- Capstone
Isabel May, PhD	PhD	Full-time Director of the Writing Center UMB and Senior Lecturer	MHS 600- Research and Scholarly Writing
Sarah Archibald, PhD	PhD	Full-time Director of the Center for Health and Human Protection and Senior Lecturer	MHS 602- Legal and Ethical Issues for Health, Human Services and Clinical Professionals
Tim Parker MS, PA-C	MS	Full-time	MHS 514 Pediatric Medicine 1 MHS 519 Pediatric Medicine 2 MHS 551 Clerkship Bootcamp MHS 672- Clerkship 2 MHS 676-Clerkship 6 MHS 676-Clerkship 7 MHS 677-Clerkship 8 MHS 678-Clerkship 9
Cecelia Tang, MD	MD	Part-Time	MHS 515 Psychiatric Medicine
Larry Magder, PhD Assistant Professor	PhD	Full-time	MHS 615 Biostatistical Methods for Health Professionals

Donny Ard, MHA, PA-C Senior Lecturer	MHA	Full-time	MHS 518 Clinical Medicine 2 MHS 622- Improving Quality of Care in Health Systems MHS 673-Clerkship 3 MHS 700- Capstone
*Cheri Hendrix DHEd, PA-C	DHEd,	Full-time	MHS 521 Emergency Medicine MHS 674-Clekrship 4 MHS 680- Issues and Trends
Flavius Lilly PhD, MPH Mary Jo Bondy	PhD DHEd, MHS, PA-C	Full-time	MHS 630 Essentials of Chronic and Infectious Disease Epidemiology MHS 652 Communication and Leadership MHS 608- Research Seminar 1 MHS 700- Capstone
Mirian Offenudu,	PhD SSW	Part-time	MHS 633- Clinically Applied Social and Behavioral Theory
Larisa Odessky PharmD	PharmD	Full-time	MHS 609- Research Seminar 2 MHS 660- Applied Pharmacology MHS 700- Capstone

Lead Faculty
*denotes program director

J. Adequacy of library resources

The University of Maryland, Baltimore's Health Sciences and Humans Services Library (HS/HSL) collection contains more than 30,000 electronic journals, 162 current print journals, approximately 170,000 books, and 6,000 electronic books. Students can access the electronic resources offered on the library web site by logging in with their University ID number. The library serves as the regional medical library for 10 southeastern states as part of the national Library of Medicines National network of Libraries of Medicine. In addition to the library services and collections, the building also houses computing services. Faculty librarians provide direct service to students. They use subject expertise to develop online resources and provide in-person consultations.

The HS/HSL is one of the largest health sciences libraries in the United States with a record of accomplishment of user-centered innovative services and programs. The library consists of 57 employees including 27 faculty librarians. The attractive and vibrant facility, which opened in 1998, serves as a hub for collaboration and learning with resources, programs and tools that promote discovery, creativity and innovation. With wireless connectivity throughout the building, the HS/HSL has 45 group study rooms, three computer classrooms, an Innovation Space which includes 3D printers; a presentation and practice studio, art gallery, and multiple technology-enhanced meeting spaces. Through the HS/HSL's web site (www.hshsl.umaryland.edu,) the UMB community has access to a full range of resources and services.

The HS/HSL supports the University's students, faculty, and staff members in the schools of dentistry, law, medicine, nursing, pharmacy, and social work; the Graduate School; the University of Maryland Medical Center; and other affiliated institutions. Research Connection, the library's suite of research services, is available for all programs on campus, and includes individual research consultations, a systematic review service, research impact assessment, reference assistance, and more. For over 30 years, the HS/HSL has provided liaison services, in which faculty librarians are assigned to work with specific user communities. Faculty librarians have many years of instructional experience in the classroom, in the community, and in the online environment. In FY16, faculty librarians reached 4,131 faculty, staff and students through online and in-person instructional sessions offered through the curriculum and in library-sponsored workshops.

In FY16, the HS/HSL licensed 116 databases, 4,524 journals, 18,018 e-books, and maintained a print collection of 360,104 volumes. One hundred percent of the current journal subscriptions is available electronically. Through its interlibrary loan and document delivery service, library staff can acquire articles and other resources not available through the library's collections. These are secured through local, regional, and national networks including the University System of Maryland and Affiliated Institutions, the National Library of Medicine's DOCLINE service, and OCLC, among others.

The HS/HSL is also home to the National Network of Libraries of Medicine/Southeastern Atlantic Region (NNLM/SEA), whose mission is to advance the progress of medicine and improve the public health by providing all U.S. health professionals with equal access to biomedical information and improve the public's access to information to enable them to make informed decisions about their health. With only eight regions in the U.S. designated as regional medical libraries under contract to the National Library of Medicine at the National Institutes of Health, the Southeastern/Atlantic Region serves 10 southeastern states, Puerto Rico, the U.S. Virgin Islands, and the District of Columbia. The HS/HSL has held this competitive and prestigious designation for over 30 years.

K. Adequacy of physical facilities, infrastructure and instructional equipment

UMB's 71-acre research and technology complex encompasses 67 buildings in West Baltimore near the Inner Harbor. Faculty have offices provided within their respective departments and the Graduate School has identified office space to house the program director and instructional technology personnel. UMB has adequate facilities, infrastructure and equipment to support any distance learning needs of the accelerated BS/MSHS-PA Program. Students will have full access to the computing facilities at UMB. Students will be provided with UMB e-mail and library accounts and will have complete journal searching ability via PubMed. UMB possesses computing facilities that includes a networked computing environment for support of a broad range of information technology functions, including basic research, clinical research, patient information and general office management.

Currently the PA program is physically located in Hanover Maryland at the Regional Higher Education Center, This site offers state of the art learning environment for students at the nexus of the Prince Georges, Anne Arundel, Montgomery and Baltimore Counties. Just a short distance from Baltimore this location allows for ease of travel to clinical sites and AACC and UMB main campuses to access laboratories and standardized patient and simulation educational and inter-professional opportunities.

L. Adequacy of financial resources with documentation

Enhancement funds from UMB fund balance have been approved to support the program, specifically to assist with developing an infrastructure to support accreditation, clinical assignments. In addition funds were requested to develop a longitudinal telehealth and telemedicine curriculum to be shared across the state and integrated into all PA training. No new general funds from UMB will be required for implementation of the proposed accelerated MSHS-PA. The degree will be coordinated and administered fully through the Graduate School including supporting the program director who is directly affiliated with the Graduate School. Tuition will be administered through the Graduate School and student tuition payment is in addition to that required of any individual professional school at UMB. As shown in Budget Table provided in Appendix C this certificate is expected to be self-supported.

M. Adequacy of provisions for evaluation of program

Students will have the opportunity to evaluate courses and faculty through a standard evaluation of every course. Formal assessment planning is already in place throughout UMB Schools, including the Graduate School. Our approach includes ensuring that student learning is in

alignment with course learning outcomes, alignment of mission at institutional and program levels, alignment of mission with learning outcomes, then program outcomes with the curriculum, flowing down to course outcomes and the assignments. Assessment activities emphasize analysis of results and feedback loops for continuous improvement and self-study. Additional evaluation includes tracking of student retention, grade distributions, and cost-effectiveness, with regular academic program reviews considering these factors.

Continuing accreditation requires annual reporting of program resources, budget, outcomes, and national certifying exam success and program faculty. In addition ongoing program review will be conducted by the three established committees run by faculty admissions, curriculum and progressions to assure ongoing assessment and adequacy of resources.

N. Consistency with the State's minority student achievement goals

A key feature of UMB's mission and strategic planning involves respecting, valuing and achieving diversity. The Strategic Plan states: diversity represents a core value, which is defined as being "committed to a culture that is enriched by diversity, in the broadest sense, in its thoughts, actions, and leadership" (University of Maryland, Baltimore, n.d.). The State also has a goal of expanding educational opportunities for minority and educationally disadvantaged students.

The proposed accelerated BS/MSHS-PA concentration degree aims to address both UMB's and the State's cultural diversity goals. First, the multimodal delivery of the courses in the program using face to face, clinical laboratory, community clerkships and distance learning technology will enhance student access to faculty and program mentoring, as it expands access and success for learners from diverse communities. For rural and isolated communities, multimodal learning can be the vehicle that conquers geography and space between teachers and students. The emergence of so-called "virtual universities" has had more success in attracting diverse populations compared to traditional colleges. Ibarra (1999) asserts that historically underrepresented groups are highly attracted to programs with internet-based degrees that embrace core values of social change and community engagement.

The second way the new BS/MSHS-PA concentration addresses diversity goals is that multimodal learning not only achieves "access," but can also help ensure "success," as the interactive nature of teaching with technology meets the needs of various learners and allows for student centric, individualized instruction. Essentially, with the proper use of its varied technology, multimodal learning can address the needs of all populations, creating an environment where students can thrive. In contrast with many universities that have a predominance of a preferred learning environment grounded in outmoded ideas about one-size fits all educational pipelines, the varied types of interactions proposed in this program embrace a shift from passive to active learning and from competition to collaboration. Furthermore, different learning styles and cultures can be accommodated more easily because effective collaborative learning values diversity (Palloff & Pratt, 2005; Brindley, Walti, & Blaschke, 2009).

Additionally, UMB realizes that it must not only embrace and celebrate diversity, but also provide opportunities to develop students and faculty who can promote cultural competence and intercultural leadership. The BS/MSHS-PA concentration uses a comprehensive approach to positively influence the climate for inter-professional collaboration and diversity, by modeling

inter-professional collaboration via a multidisciplinary, multicultural faculty working collaboratively.

O. Relationship to low productivity programs identified by the Commission

The proposed new BS/MSHS PA concentration program is not directly related to an identified low productivity program identified by the Maryland Higher Education Commission.

P. Distance education principles of good practice

Context of Online Education at UMB

As the State's public health, law, and human services University, the mission of UMB is to excel at professional and graduate education, research, patient care, and public service, and to educate leaders in health care delivery, biomedical science, global health, social work and the law. In addition, UMB emphasizes interdisciplinary education in an atmosphere that explicitly values civility, diversity, collaboration, and accountability. UMB expects to achieve its mission in education excellence and to be competitive; the Graduate School has designed and offered face to face and online degree programs that respond to the following changes occurring in higher education (Picciano, Seaman, & Allen, 2010):

- Education Pipeline. The education pipeline is now seeing inputs at every level with a highly diverse prospective student pool. Prospective students are typically working adults who demand multimodal educational opportunities. Results of the educational experience are becoming ever more outcomes-based.
- Changing Demographics. Data indicate a shift from the traditional-aged student (i.e., 18-22-year old, full-time resident) to older students studying part-time.
- Technology Shift. Online delivery is far outpacing traditional forms of delivery. From 2002 to 2008, online enrollments grew at an annual compound rate of 19% vs. 1.5% for all higher education. By the fall of 2008, 25% (4.6 million) of all students took at least one online course. There is a growing acceptance that online education is as good as or better than traditional face-to-face delivery models. It is estimated that by 2020, half of all learning may be online.
- Growth of Mobile Technologies. Mobile technologies and miniaturization are changing the computing environment and the educational delivery paradigm. Technologies like netbooks, e-Readers, iPhones and iPads have the potential to revolutionize the delivery space and to provide anywhere, anytime learning.
- Web 2.0 Revolution. Other technologies that are already figuring widely into the future of education are part of the Web 2.0 revolution. The use of a variety of technologies is disaggregating the educational experience into 'the cloud.' Many of the technologies for the future, like blogs, wikis, podcasts, video, social networking and social media, virtual worlds, mobile learning, and Personal Learning environments, will have profound effects on the future learning landscape.

Essentially, online education represents a strategy that can address the restrictions of college courses that are delivered onsite. Through online learning, institutions seek to expand knowledge beyond the walls of the campus and can reach millions of new learners who could never put their lives on hold to complete a certificate or degree program delivered largely or

solely on a college campus. Faculty members who teach in online programs also have the ability to respond to individual student learning needs and styles in ways that cannot be duplicated in the face-to-face classroom. Major determinants of successful online programs include 1) course design that incorporates best practices, 2) quality faculty who can engage students in the material, and 3) responsible academic oversight. All three of these determinants are present in this proposal.

Ensuring Effective Instruction

Based on Quality Matters standards, at UMB, we have deployed a rubric that outlines best practices for face to face and distance education - this rubric helps faculty and instructional designers develop the courses, assess the readiness of the course and ensure that the courses are instructionally and pedagogically sound. The best practices are grounded in research, a proven synthesis of strategies, activities, design techniques, and organizational items that have proven successful in higher education. The specific domains of this checklist are as follows:

- Course overview and introduction to the students
- Course organization and design
- Learning outcomes, objectives, learning activity and assessment alignment
- Instructional materials
- Learner communication, interaction, engagement and collaboration
- Assessment and evaluation (measurement)
- Course technology
- Learner support

The Learning Management Platform UMB utilizes and provides IT support for is the Blackboard Learning Management System for online course delivery. Blackboard has Collaborate conferencing software that will be used for our synchronous live activities, i.e., orientation, face-to-face class sessions and recurring webinars. Additionally, the Distance Learning Team has available to them the use of a video recorder to record lectures, webcams, and an interactive smart board. We will also use video and Camtasia software for screen lecture capture.

Instructional Design Team

The following individuals from the Instructional Design team have been assigned to direct the distance education strategy for the online coursework included in the MSHS:

Mary Jo Bondy, DHEd, PA-C | Assistant Dean, Academic Programs

Dr. Bondy, administratively oversees multiple academic programs, and the office for Academic Innovation and Distance Education (AIDE). Dr. Bondy also serves as the UMB representative to the University of Maryland System Academic Transformation Advisory Council. As a practicing clinician and accomplished health educator, Dr. Bondy is passionate about elevating health in underserved populations. Dr. Bondy is a recognized master teacher, education leader, and innovator. She has expertise in Physician Assistant education, online education policy, curricular design, and program assessment.

Kevin Engler, MA | Instructional and Curriculum Designer

Mr. Engler holds a Master of Arts degree in Instructional Design. Mr. Engler provides instructional design, audio-visual support, and faculty training in the use of instructional technologies. He is responsible for the overall pedagogy, planning, and designing of course content and assessments for distance education courses in the program. Mr. Engler is knowledgeable in adult learning theory, distance education pedagogical techniques, course development planning, and process management. Mr. Engler is trained and certified in the Quality Matters methodology and the ADDIE approach to course design. He has experience and background in writing instructional objectives that utilize Bloom's Taxonomy.

Erin Hagar, MA/MFA | Instructional and Curriculum Designer

Ms. Hagar taught Spanish at the college level and has worked in instructional and curriculum design for colleges and universities since 2000. She previously worked at Montgomery Community College and Johns Hopkins University, helping faculty incorporate new pedagogical practices and technologies into their face-to-face and online courses. Her areas of expertise include faculty development and training, online course design using the Quality Matters standards, and authentic activities and assessments. She is responsible for the overall pedagogy, planning and designing of course content and assessments for distance education courses in the program.

Sharon Gillooly MA | Senior Media Production Specialist

Ms. Gillooly leads media production for the AIDE team. Her focus is to produce videos that support academic instruction. After a long career in documentary television, she completed a master's Certificate in Online Instructional Development from Florida State University where her work focused on instructional design and emerging technologies. Ms. Gillooly is especially interested in the use of media to enhance learning.

Collectively, the distance learning team will provide the following services to ensure that best pedagogical practices are used to train faculty and to support the most effective presentation of course content:

- Written instructions accompanied by training videos will be developed to teach the faculty how to use the learning management system.
- A manual for the faculty regarding principles of good practice and the pedagogy of distance education.
- Provide timely support to the faculty in the use of the technology and trouble shoot any problems that might arise during instruction.
- Work with faculty to design and develop courses, monitor the delivery of the course, and assess and revise the course for future offerings.

Course development and curricular oversight will be accomplished in partnership with a program director, teaching faculty, and the instructional design team, who will ensure course materials follow best practices in online education and adult learning theory. Collectively, they will produce the following materials:

- Course-level outcomes and module level objectives
- Course storyboards that will serve as planning documents for new courses that outline objectives, discussion prompts and learning activities, and resources (e.g., articles, websites, online videos)

- Assignments and assessments that measure student performance and clear instructions for completing them
- Grading rubrics
- Course syllabus

Supporting Students in Distance Education

All the courses for the accelerated Bachelor/of health Science Master of Health Science PA concentration will have an online component, and the majority will be delivered face to face. We realize that the key to the success of the online courses is dependent on a) students knowing upfront the assumptions, requirements and responsibilities of taking an online course, 2) the ability of students to have the background, knowledge, and technical skills to undertake an online program; and 3) their having access to academic and technical support services to support their online activities. Accordingly, we will provide the following services to support the students in accessing distance learning technology:

- Communicate to students the nature of online learning, including their requirements, roles and responsibilities, and access to support services. We have also prepared a short questionnaire for students that will help them decide whether online learning is right for them. All our advertising, recruiting, and admissions materials shall clearly and accurately represent the program and the services available.
- Ensure that enrolled students shall have reasonable and adequate access to the range of student services to support their learning.
- Ensure that accepted students will have the background, knowledge, and technical skills needed to undertake the program.
- Make available the library's services to students so that they can have access to research databases, the online catalog of books and media, chat with or e-mail a Librarian, electronic interlibrary loan, and more.

Evaluation and Assessment of Online Courses

We will adhere to a quality improvement model for assuring the continuous quality of the online courses. The process will involve the following steps:

1. Assessment of course readiness as measured by our quality indicators of best practices (including assessment of faculty readiness)
2. Monitoring of course delivery as assessed by the instructional designers with use of our "course evaluation rubric"
3. Obtain feedback from the faculty, students and instructional designers.
4. Analysis of feedback as performed by the Distance Learning Committee.
5. Institute course revisions based on comments by the Distance Learning Committee.

Finally, to ensure the sustainability of the distance-learning program, the Academic Affairs Office at UMB affirms the following:

- UMB Policies for faculty evaluation includes appropriate consideration of teaching and scholarly activities related to programs offered through distance learning.
- Commitment to ongoing support, both financial and technical, and to a continuation of the program for a period enough to enable students to complete a certificate.

Q. References

Accreditation Review Commission on Education of Physician Assistants (2018) Accreditation Standards for Physician Assistant Education Fourth Edition

Bureau of Labor Statistics (2017). *Labor Force Statistics from the Current Population Survey*. Retrieved from https://www.bls.gov/cps/cpsaat05.htm

Colby, S. L. & Ortman, J. M. (2015). *Projections of the Size and Composition of the U.S. Population: 2014 to 2060*. Retrieved from https://census.gov/content/dam/Census/library/publications/2015/demo/p25-1143.pdf

Hart Research Associates, Falling Short? (2015). College *Learning and Career Success*. Retrieved from https://www.aacu.org/sites/default/files/files/LEAP/2015employerstudentsurvey.pdf

Hurtado, S., Milem, J. F., Clayton-Pedersen, A. R., & Allen, W. R. (1999). *Enacting diverse learning environments: Improving the climate for racial/ ethnic diversity in higher education* (Vol. 26). Washington, DC: The George Washington University, Graduate School of Education and Human Development.

Ibarra, H. (1999). Provisional selves: Experimenting with image and identity in professional adaptation. *Administrative science quarterly*, 44(4), 764-791.

Maryland Department of Labor, Licensing and Regulations, Employment projections 2016-2026, retrieved on September 19, 2018 from https://www.dllr.state.md.us/lmi/iandoproj/maryland.shtml

Milem, J. F., Chang, M. J., & Antonio, A. L. (2005). *Making diversity work on campus: A research-based perspective*. Washington, DC: Association of American Colleges and Universities.

National Association of Colleges and Employers (2018). *Job outlook 2018: The attributes employers want to see on new college graduates' resumes*. Retrieved from http://www.naceweb.org/career-development/trends-and-predictions/job-outlook-2016-attributes-employers-want-to-see-on-new-college-graduates-resumes/

Physician Assistant Education Association (2018) New Graduate Physician Assistant Competencies

Palloff, R., & Pratt, K. (2005). Online learning communities revisited. In 21st annual conference on Distance Teaching and Learning.

Picciano, A. G., Seaman, J., & Allen, I. E. (2010). Educational transformation through online learning: To be or not to be. *Journal of Asynchronous Learning Networks*, *14*(4), 17-35.

Primary Care Office, Office of Primary Care Access, Prevention and Health Promotion Administration, Maryland Department of Health and Mental Hygiene **http://phpa.dhmh.maryland.gov/OPCA/Pages/Home.aspx**

Salisbury, M & Goodman, K. (2009). Educational practices foster intercultural competence. *Diversity and Democracy*. 12(2). Retrieved from https://www.aacu.org/publications-research/periodicals/educational-practices-foster-intercultural-competence.

University of Maryland, Baltimore. (n.d). *Strategic Plan*. Retrieved from https://www.umaryland.edu/about-umb/strategic-plan/

University of Maryland, Baltimore. (n.d.). *Diversity Advisory Council: Statement on Cultural Competence*. Retrieved from http://www.umaryland.edu/diversity/about-us/

University of Maryland, Baltimore County. (n.d.). *Modern Languages, Linguistics and Intercultural Communications*. Retrieved from https://mlli.umbc.edu/mlli-overview/

Appendix A: Conversion of AAAC Lower-Division Courses to UMB Upper Division Courses

AAAC Course Title	AAAC Credit Hours	AAAC Course Level	UMB Course Title	UMB Credit Hours	UMB Course Level
Foundations of Physician Assistant Practice	5 credits	100	Foundations of Physician Assistant Practice Five credits	5 credits	400
Applied Medical Science	7 credits	100	Applied Medical Science	7 credits	400
Clinical Medicine 1	8 credits	100	Clinical Medicine 1	8 credits	500
Pediatric Medicine 1	2 credits	100	Pediatric Medicine 1	2 credits	500
Psychiatric Medicine	3 credits	100	Psychiatric Medicine	3 credits	500
Pathophysiologic approach to Pharmacotherapuetics I	3 credits	100	Pathophysiologic approach to Pharmacotherapuetics I	3 credits	500
Clinical Medicine 2	8 credits	100	Clinical Medicine 2	3 credits	500
Pediatric Medicine 2	2 credits	100	Pediatric Medicine 2	3 credits	500
Emergency Medicine	4 credits	100	Emergency Medicine	4 credits	500

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Pathophysiologic approach to Pharmacotherapuetics II	3 credits	100	Pathophysiologic approach to Pharmacotherapuetics II	3 credits	500
Patient Evaluation	1 credit	100	Patient Evaluation	1 credit	500
Clerkship Bootcamp	1 credit	200	Clerkship Bootcamp	1 credit	500
Clerkship 1	4 credit	200	Clerkship 1	4 credit	600
Clerkship 2	4 credit	200	Clerkship 2	4 credit	600
AAAC Course Title	AAAC Credit Hours	AAAC Course Level	UMB Course Title	UMB Credit Hours	UMB Course Level
Clerkship 4	4 credit	200	Clerkship 4	4 credit	600
Clerkship 5	4 credit	200	Clerkship 5	4 credit	600
Clerkship 6	4 credit	200	Clerkship 6	4 credit	600
Clerkship 7	4 credit	200	Clerkship 7	4 credit	600
Clerkship 8	4 credit	200	Clerkship 8	4 credit	600
Clerkship 9	4 credit	200	Clerkship 9	4 credit	600
Issues and Trends	3 credit	200	Issues and Trends	3 credit	600

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Appendix B. Sample Five-Year Plan of Study

Years 1- 2

AACC AA Transfer degree

https://catalog.aacc.edu/preview_degree_planner.php?catoid=23&poid=8249&print

After selective admission students who excel in all classes meeting a minimum cumulative GPA of 3.4 and earning a B or higher in all Science courses will be offered selective conditional acceptance to the BS/MS degree option and complete the 30 credits advanced certificate.

Year 3 – proposed curriculum for new certificate pending MHEC approval

Year 3: AACC Professional Certificate/Transition to BSHS degree		Credit Hours
Semester 5: Fall	IPH 240 Spanish for Medical Professionals	3
	HUS 275 Human Services Practicum	3
	with service learning/patient contact co-op component	
	IPH/MLT 310 Clinical Hematology and Microbiology	4
	IPH 340 Behavioral Health	3
	IPH 342 Patient-Centered Healthcare	3
	Total Credit Hours	*16*
Semester 6:	IPH/MLT 320 Principles of Diagnostic Procedures	2
	IPH 335 Introduction to Statistics and Clinical Research Methods	3
	IPH 350 Legal-Ethics for Healthcare Professionals	2
	IPH 360 Human Genetics as the Basis of Disease	3
	IPH 361 Foundations of Pharmacology and Pathophysiology	3
	IPH 362 Applied Anatomy through Imaging Modalities	3
	Total Credit Hours	*16*

Total credit hours for Professional Certificate in Health Sciences (Semesters 5-6) 32

Course Descriptions: Professional Certificate in Health Sciences

SPA 240 Spanish for Medical Professionals 3 credit hours

Addresses the translation/communication needs of medical professionals with little or no experience with Spanish. Develop communication proficiency and accuracy in the use of

the Spanish language in medical settings with Spanish speaking patients. Learn pertinent information about Hispanic cultures while participating in language tasks through listening, reading, writing, and conversation. Participants should be able to comprehend a medical history in Spanish by being able to elicit pertinent medical information in simple terms.

Prerequisites: BIO 223, BIO 234, HEA 150

HUS 275 Human Services Practicum 3 credit hours

This course must be taken in the same semester as IPH 342 Patient-Centered Healthcare. Earn credit for human services-related work. Develop specific learning objectives and explore healthcare professions career goals. Approved by the office of Education and Training for Addictions Services (OETAS).

Prerequisites: BIO 223, BIO 234, HEA 150 Corequisites: IPH 240, IPH 342

IPH/MLT 310 Clinical Hematology and Microbiology 4 credit hours

From a health practitioner's perspective, demonstrate understanding of the laboratory tests used to assess hemostatic, and hematopoietic pathogenic disease states and conditions. Identify white blood cell morphology in healthy states and blood dyscrasias. Demonstrate knowledge of appropriate microbiological tests used to identify the characteristics of isolation and identification of pathogenic bacteria. Develop familiarity with virology, parasitology, and mycology and their associated laboratory assays. This course prepares students seeking a graduate degree as a healthcare provider (physicians, physician assistants, pathology assistant, etc.) with a basic background of hematology and clinical microbiology laboratory tests. Lab fee $200.
Prerequisites: CHE 112, BIO 223, BIO 234

IPH 340 Behavioral Health 3 credit hours

Examine current research and principles and theories of human growth and development while emphasizing terminology, classification, etiology, assessment, and treatment modalities of major disorders. Distinguish between normal and abnormal behavioral patterns. Provides an overview of the development of thinking, language, personality, motor behavior, and social behavior throughout the life span.

Prerequisites: SOC 111, BIO 234

IPH 342 Patient-Centered Healthcare 3 credit hours

This course must be taken in the same semester as HUS 275 Human Services Practicum. Explore healthcare delivery from a patient-centered perspective. Learn to account for social, ethnic, and religious sensitivities in the development, evaluation, and implementation of therapeutic goals. Strategies for patient education, counseling, and preventive measures will be weighed with regard to the areas of diversity and healthcare delivery to these populations. Issues include the recognition of boundaries in personal relations within the workplace and balancing role fidelity with personal integrity and cultural humility. This course includes the completion of volunteer service/participation hours in community service at underserved medical clinics and treatment facilities under direction of faculty clinicians and licensed human services professionals.

Prerequisites: COM 111, SOC 111 Corequisites: HUS 275, IPH 240

IPH/MLT 320 Principles of Diagnostic Procedures 2 credit hours

From a health practitioner's perspective, demonstrate understanding of the principles of diagnostic procedures used to assess patient disease states and disorders. Areas to be covered include regulatory aspects of healthcare; phlebotomy, clinical laboratory procedures in the blood bank, hematology, chemistry, cytogenetics, microbiology, and molecular laboratories; electrocardiograms interpretation; and general health and/or trauma exams. This course prepares students seeking a graduate degree as a health care provider (physicians, physician assistants, pathology assistant, etc.) with a basic background of the diagnostic procedures utilized by health care providers.

Prerequisites: IPH/MLT 310

IPH 335 Introduction to Statistics and Clinical Research Methods 3 credit hours

Use meaningful data to explore concepts in probability and statistics including measures of central tendency and dispersion. Develop statistical literacy by studying graphical representations of data, discrete and continuous probability distributions, and sampling techniques and theory. Construct and interpret confidence intervals, find lines of best-fit, and perform hypothesis tests for means, proportions, and independence. Emphasis will be placed on the use, appropriateness, and understanding of common biostatistics methods and epidemiologic approaches employed by healthcare professions as a basis for clinical judgement. Empirical data regarding medicine and patient care, as well as those used in the surveillance and investigation of health-related states of events will be explored. Technology use is required throughout the course for statistical analyses.

Prerequisites: MAT 145

IPH 350 Legal-Ethics for Healthcare Professionals 2 credit hours

Learn the legal and ethical responsibilities of the healthcare worker, including laws, regulations, and industry standards. Explore the principles of moral, bioethical and health etiquette as they apply to current health care delivery, such as stem cell research, refusal of treatment, living wills and right to die issues. Study law related to death, dying and organ transplantation. Focus on the legal definition of death; competency; decision making regarding life-sustaining treatment; suicide; self-determination and procurement and allocation of organs.

Prerequisites: HUS 275, IPH 340, IPH 342

IPH 360 Human Genetics as the Basis of Disease 3 credit hours

Designed to provide a basic understanding of the concepts of molecular genetics and inheritance as the foundation of human genetics and disease states, this course prepares healthcare professions participants for later recognition, application, and workup of dysmorphology in the context of human motor and cognitive development. Learn effective methods to discover a patient's genetic predisposition and increased risk for disease development.

Prerequisites: BIO 223, BIO 234, HUS 275, IPH 340

IPH 361 Foundations of Pharmacology and Pathophysiology 3 credit hours

Healthcare professions students will learn principles of multisystem function and dysfunction at the cellular and molecular levels, specifically as they relate to homeostatic function. Attention will be given to physiologic changes that occur as a result of disease processes, the clinical manifestations indicative of altered health states, and the basis of drug therapies used to treat or affect these conditions. This course integrates anatomy, chemistry, microbiology, and physiology with introductory pharmacology, while focusing on their specific applications to clinical practice.

Prerequisites: BIO 223, BIO 234, IPH/MLT 310

IPH 362 Applied Anatomy through Imaging Modalities 3 credit hours

This course will broaden the healthcare student's knowledge of human anatomy through visual application using various imaging modalities. Body system functions, interactions, and locations of specific structures will be explored in depth by way of plain film, CT, MRI,

sonography, nuclear medicine, and angiography studies. Emphasis will be placed on anatomic structure location and organ system function as related to a patient's past and current medical history with physical examination findings as the basis in providing sound clinical decision making.

Prerequisites: BIO 223, BIO 234, IPH/MLT 310

Year 4

Enter the MSHS PA-Concentration courses, successfully complete all courses with a B or higher and earn a program GPA of 3.0 to be awarded a Bachelor of Science in Health Science and advance to the clinical year.

Year 5

Complete all MSHS-PA course work, Clerkship courses, earn a cumulative program GPA of 3.0 or higher successfully complete the capstone and summative exam to graduate with Master in Health Science –PA concentration.

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Appendix C: Budget

TABLE 2: PROGRAM EXPENDITURES:					
Expenditure Categories	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
1. Faculty (b + c below)	$1,574,400	$1,621,632	$1,758,964	$1,884,134	$1,959,499
a. Number of FTE	9.4	9.4	9.4	9.4	9.4
b. Total Salary	$1,230,000	$ 1,266,900	$ 1,393,590	$ 1,449,334	$ 1,507,307
c. Total Benefits	$344,400	$ 354,732	$ 365,374	$ 434,800	$ 452,192
2. Admin. Staff (b + c below)	$492,800	$507,584	$553,448	$575,586	$598,609
a. Number of FTE	6.5	6.5	6.5	6.5	6.5
b. Total Salary	$352,000	$ 362,560	$ 389,752	$ 405,342	$ 421,556
c. Total Benefits	$140,800	$ 145,024	$ 163,696	$ 170,244	$ 177,053
3. Support Staff (b + c below)	$350,000	$360,500	$393,074	$408,797	$425,149
a. Number of FTE	3	3	3	3	3
b. Total Salary	$250,000	$ 257,500	$ 276,813	$ 287,885	$ 299,400
c. Total Benefits	$100,000	$ 103,000	$ 116,261	$ 120,912	$ 125,748
4. Technical Support and Equipment	$150,000	$ 200,000	$ 250,000	$ 262,500	$ 275,625
5. Library	$50,000	$ 50,000	$ 52,000	$ 53,000	$ 54,000
6. New or Renovated Space	$250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000
7. Other Expenses	$250,000	$ 300,000	$ 350,000	$ 375,000	$ 400,000
TOTAL (Add 1 – 7)	$3,117,200	$3,289,716	$3,607,486	$3,809,016	$3,962,882

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TABLE 1: PROGRAM RESOURCES					
Resource Categories	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
1. Reallocated Funds	$548,250	$ -	$ -	$ -	$ -
2. Tuition/Fee Revenue (c + g below)	$2,318,950	$3,945,825	$ 3,953,520	$ 4,032,590	$ 4,113,242
a. Number of F/T Students	38	76	76	76	76
b. Annual Tuition/Fee Rate	$50,000	$ 51,000	$ 52,020	$ 53,060	$ 54,122
c. Total F/T Revenue (a x b)	$1,900,000	$3,876,000	$3,953,520	$4,032,590	$4,113,242
d. Number of P/T Students	35	35	0	0	0
e. Credit Hour Rate	$665	$665	$ -	$ -	$ -
f. Annual Credit Hour Rate	18	3	0	0	0
g. Total P/T Revenue (d x e x f)	$418,950	$69,825	$ -	$ -	$ -
3. Grants, Contracts & Other External Sources	$250,000	$ -	$ -	$ -	$ -
4. Other Sources	$ -	$ -	$ -	$ -	$ -
TOTAL (Add 1 – 4)	$3,117,200	$3,945,825	$ 3,953,520	$ 4,032,590	$ 4,113,242

[1] Whenever reallocated funds are included among the resources available to new programs, the following information must be provided in a footnote: origin(s) of reallocated funds, impact of the reallocation on the existing academic program(s), and manner in which the reallocation is consistent with the institution's strategic plan.

[2] This figure should be a realistic percentage of tuition and fees which will be used to support the new program. Factors such as indirect costs linked to new students and the impact of enrolling continuing students in the new program should be considered when determining the percentage.

[3] Whenever external funds are included among the resources, the following information must be provided in a footnote: source of the funding and alternative methods of funding the program after the cessation of external funding.

UNIVERSITY SYSTEM of MARYLAND

BOARD OF REGENTS

SUMMARY OF ITEM FOR ACTION, INFORMATION, OR DISCUSSION

TOPIC: Campus Safety Panel

COMMITTEE: Education Policy and Student Life

DATE OF COMMITTEE MEETING: Tuesday, November 6, 2018

SUMMARY: Campus safety is a daily concern for institutions of higher education across the nation. The Committee is being provided information on the many processes in place to keep USM institutions and community members safe. Dr. Joann Boughman will lead a panel including chiefs of police, Chief Edwin Lashley (SU) and Chief David Mitchell (UMCP); vice presidents for student affairs, Dr. Tom Bowling (Frostburg) and Dr. Michael Freeman (CSU); and USM Student Council president, Mr. Roy Prouty, who will offer insight into how safety and security issues are managed on our campuses.

ALTERNATIVE(S): This is an information item.

FISCAL IMPACT: This is an information item.

CHANCELLOR'S RECOMMENDATION: This is an information item.

COMMITTEE RECOMMENDATION: Information Only		DATE: November 6, 2018
BOARD ACTION:		DATE:
SUBMITTED BY: Joann A. Boughman	301-445-1992	jboughman@usmd.edu

UNIVERSITY SYSTEM of MARYLAND

BOARD OF REGENTS

SUMMARY OF ITEM FOR ACTION, INFORMATION, OR DISCUSSION

TOPIC: Opening Fall 2018 Enrollment and FY 2019 Estimated FTE Report

COMMITTEE: Education Policy and Student Life

DATE OF COMMITTEE MEETING: Tuesday, November 6, 2018

SUMMARY: This report provides an overview of preliminary fall 2018 undergraduate, graduate and first professional enrollment for USM and each campus. In addition, based on the credit hour enrollment of the fall 2018 students, a fiscal year 2019 FTE estimate is included. In total, USM enrollment increased (+903) for a preliminary total of 176,079 students. The total FY 2019 FTE estimate of 133,824 slightly higher (+1,191) than FY 2018 actual.

ALTERNATIVE(S): This is an information item.

FISCAL IMPACT: This is an information item.

CHANCELLOR'S RECOMMENDATION: This is an information item.

COMMITTEE RECOMMENDATION: Information Only		DATE: November 6, 2018
BOARD ACTION:		DATE:
SUBMITTED BY: Joann A. Boughman	301-445-1992	jboughman@usmd.edu
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FALL 2018 PRELIMINARY OPENING ENROLLMENT
AND
FY 2019 ESTIMATED FTE REPORT

Office of Institutional Research, Data & Analytics
Administration and Finance
University System of Maryland Office
November 2018

Fall 2018 Preliminary Opening Enrollment & FY 2019 FTE Estimate

Enrollment Report Background

The purpose of this annual report is to provide the Board of Regents the fall headcount enrollment attainment and full-time equivalent (FTE) enrollment estimate for the current fiscal year as requested in *the Board of Regents III-4.10 - Policy on Enrollment*. The data are compiled from mandatory Maryland Higher Education Commission (MHEC) preliminary enrollment and the University System of Maryland (USM) credit hour collections. Enrollment and FTE data are important for both fiscal and enrollment management decision making. Enrollment projections were submitted last spring, and this report represents the first opportunity to compare the accuracy of the institutional enrollment projections, one year out, to the actual enrollments. Similarly, campuses submit FTE estimates in the annual operating budget request. Again, this is the first opportunity to compare campus' estimated full-time equivalent enrollment, as submitted in the budget request, to the FTE enrollment achieved in the fall.

Enrollment highlights, followed by comparisons of preliminary enrollment to projected enrollment, and FTE estimate to budget estimate, are summarized. For further information, please contact Chad Muntz, Assistant Vice Chancellor of Institutional Research, Data & Analytics at the USM at cmuntz@usmd.edu (301-445-2737).

Enrollment Highlights and Trends

Preliminary fall 2018 headcount enrollment at the USM campuses was 176,079 students, an increase of +903 students over fall 2017. Excluding UMUC, USM's enrollment was essentially flat (+12 students) over fall 2017 (See Table A, Appendix Tables 1 & 5).

- The estimated FY 2019 FTE is 133,824, an increase of +1,191 over FY 2018. Excluding UMUC, USM's FTE was 97,162, an increase of +105 over FY 2018 (See Table B).

- Total enrollment at the USM's Historically Black Institutions (HBIs) decreased (-280) compared to last year. The total combined enrollment for the USM HBIs was 12,251, which was 1,670 less than the combined HBI peak enrollment reported in Fall 2011. The largest decreases since fall 2011 have occurred at Coppin (-1,075) and UMES (-1,316) (See Tables 1 & 4).

- Once again, the number of USM first-time, full-time undergraduate students set an enrollment record, reaching 14,921 in fall 2018, which was +788 over last fall. UMCP (+850), Towson (+255), UMBC (+18) and Coppin (+6) all increased (See Tables 1 & 5).

Institutional Enrollment High Points

- Bowie's fall 2018 enrollment set an historical high at 6,320 with three consecutive years with large first-time, full-time new undergraduate cohorts.

- UMCP's enrollment has increased yearly since fall 2012 (+3,953). UMCP's fall 2018 undergraduate population (30,762) and total headcount (41,200) are both historical high points.

- UMUC's preliminary fall 2018 total enrollment is 60,270 students and is also a high point.

- Towson's fall 2018 enrollment of 22,923 is a historical high point. The first-time, full-time new undergraduate cohort in fall 2018 was the largest ever at nearly 3,000 students.

Fall 2018 Preliminary Opening Enrollment & FY 2019 FTE Estimate

Fall 2018 Preliminary Enrollment VS Enrollment Projections

Each spring the USM submits to the Board of Regents a 10-year enrollment projection. Based on information provided by the universities, the enrollment projection includes the enrollment changes expected for the next ten fall semesters (beginning this year with fall 2018) at each USM institution. Table A compares the fall 2018 preliminary enrollment to the projections submitted by the institutions in spring 2018, as well as the fall 2017 actual enrollment.

Table A. The University System of Maryland
Fall 2018 Enrollment Compared to Enrollment Projections

				Change Over	
	Fall 2017 Actual	Fall 2018 Enrollment Projection	Fall 2018 Preliminary Enrollment	Fall 2018 Projection	Fall 2017 Actual
				Fall 18 Preliminary- Fall 18 Projection	Fall 18 Preliminary - Fall 17 Actual
BSU	6,148	6,198	6,320	122	172
CSU	2,893	2,919	2,738	-181	-155
FSU	5,396	5,451	5,294	-157	-102
SU	8,714	8,774	8,556	-218	-158
TU	22,705	22,750	22,923	173	218
UB	5,565	5,313	5,041	-272	-524
UMB	6,703	6,713	6,777	64	74
UMBC	13,662	13,942	13,767	-175	105
UMCP	40,521	40,695	41,200	505	679
UMES	3,490	3,492	3,193	-299	-297
UMUC	59,379	59,973	60,270	297	891
USM	175,176	176,220	176,079	-141	903

Source--MHEC S-7 Report

The largest campus enrollment variations between the fall 2017 preliminary enrollment and the enrollment projections occurred at UMCP (+505), UMES (-299), UMUC (+297), Salisbury (-218), and Coppin (-181). The total showed a small decrease compared to the projection with losses at UB, Coppin, UMES, and SU compared to last year. However, overall USM grew (+903) in fall 2018 compared to the fall 2017 headcount.

Fall 2018 Preliminary Opening Enrollment & FY 2019 FTE Estimate

FY 2019 Full-Time Equivalent (FTE) Student Estimate

Full-time equivalent (FTE) students are calculated from the actual credit hour enrollment of the students. The table below provides an estimated FY 2019 FTE for each USM institution calculated from the fall 2018 semester credit hour enrollment. The annualized FTE estimate uses a conservative methodology that calculates the proportion of spring to fall credit hours by level for each institution for recent fiscal years, as well as campus input about spring 2019 enrollment management plans. The USM estimate is then compared with each institution's submitted fall FY 2019 budget projections and FY 2018 actuals. Table B displays the FY 2018 actual FTE, the FY 2019 Budgeted FTE, and the current FY 2019 Estimate.

Table B. The University System of Maryland
FY 2019 USM FTE Estimate

				Change Over	
	FY 2018 Actual FTE	**FY 2019 Budgeted FTE**	**FY 2019 Annualized ESTIMATED FTE**	**FY 2019 Budget**	**FY 2018 Actual**
			Per Fall 2018 Credit Hour Enrollment	FY19 Estimate-FY19 Budget	FY 19 Estimate - FY 18 Actual
BSU	5,097	5,113	5,185	72	88
CSU	2,246	2,312	2,199	-113	-47
FSU	4,338	4,298	4,302	4	-36
SU	7,832	7,883	7,748	-135	-84
TU	18,780	18,830	19,050	220	270
UB	3,692	3,310	3,325	15	-367
UMB	6,884	6,879	6,879	0	-5
UMBC	11,223	11,448	11,390	-59	167
UMCP	33,671	34,250	34,108	-142	437
UMES	3,317	3,317	2,999	-318	-318
UMUC	35,553	38,273	36,639	-1,634	1,086
USM	132,633	135,913	133,824	-2,090	1,191

Estimated FTE updated from Fall 2018 actual credit hours of enrollment and USM/Campus estimates

FY 2019 Budgeted FTE from the Performance Measures/Performance Indicators (Annual Budget Submission to DBM)

Source--Credit Hours of Enrollment by Term/Level

Comparing the FY 2018 actuals (132,633) to the FY 2019 Budgeted FTE (135,913) shows that the System budgeted for minimal growth at our traditional campuses. The current FY 2019 estimate (133,824) is more than the FY 2019 Budgeted FTE due to UMUC's growth. UMUC is planning the most growth, but, prior to the fourth fall quarter data becoming available, the FTE was estimated to be slightly lower than the budget estimate. Overall, the combined USM FTE is essentially flat at the traditional campuses while growing at UMUC compared to FY 2018 Actual FTE.

Fall 2018 Preliminary Opening Enrollment & FY 2019 FTE Estimate

The FTE offers relative size comparisons between universities. For example, with the noted changes and shifts in enrollment at USM HBIs, the FY 2019 combined FTE at Coppin and UMES (5,198) is approximately the same FTE at Bowie (5,185). All three combine to produce 10,383 FTE in FY 2019, which is fewer FTE than UMBC. Another trend is the growth that has occurred over each of the past five years at UMUC (36,639) and UMCP (34,108). During the last five years, UMCP increased (+2,755 FTE) or roughly the size of UMES' fiscal year FTE, and UMUC's increase (+12,873) is larger than UMBC's fiscal year FTE. Together, UMUC and UMCP combine for over half (53%) of the FTE generated by the USM and over half the headcount (58%).

Summary

The USM enrolled over 176,000 students in fall 2018 and expects to generate nearly 134,000 FTE. Although there was some slight growth overall the combined enrollment at the USM's traditional campuses remains approximately the same size as it has for the past few years. Within USM, each institution has seen some change. Over the last five years, new first-time, full-time undergraduates have increased at UMCP, Bowie, UMBC, and TU to create the largest first-time, full-time cohorts in USM history, resulting in total institutional headcount increases. However, some USM institutions have struggled to grow first-time, full-time new undergraduates, leading to an overall headcount decrease. In conclusion, the fall 2018 preliminary headcount and the updated FY 2019 FTE estimate appear to be on track, with both reasonably aligning, in aggregate, with the enrollment projections and budget plans submitted by the campuses.

Fall 2018 Preliminary Opening Enrollment & FY 2019 FTE Estimate

Tables

TABLE 1
UNIVERSITY SYSTEM OF MARYLAND
CHANGES IN HEADCOUNT ENROLLMENT*
FALL 2017-2018

	Fall 2017/2018 Headcount Change		
	Fall 2018 Headcount	Δ N from 2017	% Change from 2017
Bowie State University	6,320	172	2.8%
Coppin State University	2,738	(155)	-5.4%
Frostburg State University	5,294	(102)	-1.9%
Salisbury University	8,556	(158)	-1.8%
Towson University	22,923	218	1.0%
University of Baltimore	5,041	(524)	-9.4%
University of Maryland, Baltimore	6,777	74	1.1%
University of Maryland, Baltimore County	13,767	105	0.8%
University of Maryland, College Park	41,200	679	1.7%
University of Maryland Eastern Shore	3,193	(297)	-8.5%
University of Maryland University College*	60,270	891	1.5%
USM Total	**176,079**	**903**	**0.5%**

Source: MHEC Preliminary Opening Fall Enrollment (2018) and EIS (2009-2017)

TABLE 1b
UNIVERSITY SYSTEM OF MARYLAND
CHANGES IN HEADCOUNT ENROLLMENT
EXCLUDING UMUC*
Fall 2017-2018

	Fall 2017/2018 Headcount Change		
	Fall 2018 Headcount	Δ N from 2017	% Change from 2017
Bowie State University	6,320	172	2.8%
Coppin State University	2,738	(155)	-5.4%
Frostburg State University	5,294	(102)	-1.9%
Salisbury University	8,556	(158)	-1.8%
Towson University	22,923	218	1.0%
University of Baltimore	5,041	(524)	-9.4%
University of Maryland, Baltimore	6,777	74	1.1%
University of Maryland, Baltimore County	13,767	105	0.8%
University of Maryland, College Park	41,200	679	1.7%
University of Maryland Eastern Shore	3,193	(297)	-8.5%
USM Total	**115,809**	**12**	**2.0%**

Source: MHEC Preliminary Opening Fall Enrollment (2018) and EIS (2009-2017)

*Beginning in FY 2015, all UMUC online courses are administered and counted as stateside. Beginning in FY 2016, upon approval by the Middle States Commission on Higher Education of a status change of the overseas locations, all UMUC courses, irrespective of geographic location and instructional modality, are reported as a single, worldwide figure for the institution as a whole. Beginning in FY 2017, all UMCP Freshmen Connection spring admits that attend the fall semester are included in the fall headcount.

TABLE 2
ENROLLMENT BY STUDENT LEVEL AND STATUS*
Fall 2009-2018

Student Level & Status	Fall 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Undergraduates										
Full-Time: N	75,518	76,950	78,693	79,384	79,654	82,667	83,179	85,092	86,361	86,254
%	50.8%	50.4%	50.5%	51.0%	52.0%	51.0%	50.6%	49.5%	49.3%	49.0%
Part-Time: N	30,186	31,633	32,562	32,290	31,446	37,628	39,656	45,306	46,881	48,623
%	20.3%	20.7%	20.9%	20.8%	20.5%	23.2%	24.1%	26.3%	26.8%	27.6%
Total: N	105,704	108,583	111,255	111,674	111,100	120,295	122,835	130,398	133,242	134,877
%	71.1%	71.2%	71.4%	71.8%	72.5%	74.3%	74.7%	75.8%	76.1%	76.6%
Graduate/First-Professional										
Full-Time: N	16,762	17,104	17,603	17,920	17,678	17,739	17,734	17,731	17,653	17,651
%	11.3%	11.2%	11.3%	11.5%	11.5%	11.0%	10.8%	10.3%	10.1%	10.0%
Part-Time: N	26,210	26,894	26,913	26,009	24,540	23,966	23,930	23,867	24,281	23,551
%	17.6%	17.6%	17.3%	16.7%	16.0%	14.8%	14.5%	13.9%	13.9%	13.4%
Total: N	42,972	43,998	44,516	43,929	42,218	41,705	41,664	41,598	41,934	41,202
%	28.9%	28.8%	28.6%	28.2%	27.5%	25.7%	25.3%	24.2%	23.9%	23.4%
All Students										
Total	**148,676**	**152,581**	**155,771**	**155,603**	**153,318**	**162,000**	**164,499**	**171,996**	**175,176**	**176,079**

Source: MHEC Preliminary Opening Fall Enrollment (2018) and EIS (2009-2017)

Note: Percentages are % of total headcount for each fall term.

*Beginning in FY 2015, all UMUC online courses are administered and counted as stateside. Beginning in FY 2016, upon approval by the Middle States Commission on Higher Education for a status change of the overseas locations, all UMUC courses, irrespective of geographic location and instructional modality, are reported as a single, worldwide figure for the institution as a whole. Beginning in FY 2017, all UMCP Freshmen Connection spring admits that attend the fall semester are included in the fall

TABLE 3
TRENDS IN ENROLLMENT OF FIRST-TIME FULL-TIME UNDERGRADUATES*
Fall 2009-2018

First-Time Full-Time Undergraduates

Institution	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	One-Year % Change	Five-Year % Change
BSU	706	671	573	477	625	594	559	958	1,075	898	-16.5%	43.7%
CSU	566	525	478	425	353	267	242	383	383	389	1.6%	10.2%
FSU	1,031	1,028	825	814	889	957	931	829	774	735	-5.0%	-17.3%
SU	1,279	1,253	1,246	1,230	1,241	1,144	1,186	1,328	1,326	1,285	-3.1%	3.5%
TU	2,398	2,428	2,536	2,463	2,747	2,711	2,708	2,750	2,735	2,990	9.3%	8.8%
UB	174	155	155	215	236	226	137	138	107	76	-29.0%	-67.8%
UMBC	1,524	1,499	1,416	1,547	1,653	1,616	1,543	1,518	1,759	1,777	1.0%	7.5%
UMCP	4,211	3,925	3,989	3,893	4,011	4,128	3,934	4,543	5,178	6,052	16.9%	50.9%
UMES	876	944	748	882	604	756	1,011	698	560	501	-10.5%	-17.1%
UMUC	150	150	158	157	87	175	149	192	131	218	66.4%	150.6%
USM	**12,915**	**12,578**	**12,124**	**12,103**	**12,446**	**12,574**	**12,400**	**13,337**	**14,028**	**14,921**	**6.4%**	**19.9%**
MD H.S. Grads**	67,532	68,659	67,579	68,046**	67,601**	65,968**	65,958**	64,586**	63,747**	62,010**		

Source: MHEC Preliminary Opening Fall Enrollment (2018) and EIS (2009-2017) Public and nonpublic high school graduates data -WICHE

**The 2012-2017 actual Maryland high school graduates is currently not available; WICHE estimates used.

*Beginning in FY 2015, all UMUC online courses are administered and counted as stateside. Beginning in FY 2016, upon approval by the Middle States Commission on Higher Education for a status change of the overseas locations, all UMUC courses, irrespective of geographic location and instructional modality, are reported as a single, worldwide figure for the institution as a whole. Beginning in FY 2017, all UMCP Freshmen Connection spring admits that attend the fall semester are included in the fall headcount.

TABLE 4
HISTORICALLY BLACK INSTITUTIONS
ENROLLMENT TRENDS*
Fall 2009-2018

Year	Undergraduate	Graduate	Total	% Change Total
Fall 2009	11,623	2,228	13,851	0.2%
Fall 2010	11,666	2,252	13,918	0.5%
Fall 2011	11,609	2,321	13,930	0.1%
Fall 2012	11,168	2,319	13,487	-3.2%
Fall 2013	10,808	2,356	13,164	-2.4%
Fall 2014	10,710	2,397	13,107	-0.4%
Fall 2015	10,725	2,278	13,003	-0.8%
Fall 2016	10,495	2,017	12,512	-3.8%
Fal l2017	10,555	1,976	12,531	0.2%
Fall 2018	10,267	1,984	12,251	-2.2%

Source: MHEC Preliminary Opening Fall Enrollment (2018) and EIS (2009-2017)

TABLE 5
ENROLLMENT TRENDS BY INSTITUTION*
2009-2018

Institution	Undergraduates		Graduates/First Prof.		Total Headcount	Annual % Change	% of USM
	Full-Time	Part-Time	Full-Time	Part-Time			
Bowie State University							
Fall 2009	3,710	690	401	816	5,617	2.4%	4%
Fall 2010	3,709	692	409	768	5,578	-0.7%	4%
Fall 2011	3,669	783	402	754	5,608	0.5%	4%
Fall 2012	3,493	790	396	742	5,421	-3.3%	3%
Fall 2013	3,521	837	453	750	5,561	2.6%	4%
Fall 2014	3,675	781	513	726	5,695	2.4%	4%
Fall 2015	3,533	782	474	641	5,430	-4.7%	3%
Fall 2016	3,939	772	412	546	5,669	4.4%	3%
Fall 2017	4,389	798	409	552	6,148	8.4%	4%
Fall 2018	4,421	887	463	549	6,320	2.8%	4%
Coppin State University							
Fall 2009	2,575	726	142	358	3,801	-6.2%	3%
Fall 2010	2,599	699	134	368	3,800	0.0%	2%
Fall 2011	2,368	927	155	363	3,813	0.3%	2%
Fall 2012	2,442	685	142	343	3,612	-5.3%	2%
Fall 2013	2,251	669	133	330	3,383	-6.3%	2%
Fall 2014	2,046	638	151	298	3,133	-7.4%	2%
Fall 2015	2,007	661	137	303	3,108	-0.8%	2%
Fall 2016	1,888	619	133	299	2,939	-5.4%	2%
Fall 2017	1,854	653	150	236	2,893	-1.6%	2%
Fall 2018	1,765	597	121	255	2,738	-5.4%	2%
Frostburg State University							
Fall 2009	4,439	316	243	387	5,385	3.3%	4%
Fall 2010	4,544	322	247	357	5,470	1.6%	4%
Fall 2011	4,372	359	234	464	5,429	-0.7%	3%
Fall 2012	4,253	378	264	526	5,421	-0.1%	3%
Fall 2013	4,192	511	216	554	5,473	1.0%	4%
Fall 2014	4,228	687	209	521	5,645	3.1%	3%
Fall 2015	4,176	785	238	557	5,756	2.0%	3%
Fall 2016	4,141	743	243	549	5,676	-1.4%	3%
Fall 2017	3,849	876	176	495	5,396	-4.9%	3%
Fall 2018	3,805	833	205	451	5,294	-1.9%	3%

TABLE 5
ENROLLMENT TRENDS BY INSTITUTION*
2009-2018

Institution	Undergraduates		Graduates/First Prof.		Total Headcount	Annual % Change	% of USM
	Full-Time	Part-Time	Full-Time	Part-Time			
Salisbury University							
Fall 2009	6,954	603	257	390	8,204	4.3%	6%
Fall 2010	7,103	603	272	419	8,397	2.4%	6%
Fall 2011	7,304	588	298	416	8,606	2.5%	6%
Fall 2012	7,323	646	288	400	8,657	0.6%	6%
Fall 2013	7,374	630	291	348	8,643	-0.2%	6%
Fall 2014	7,350	647	354	419	8,770	1.5%	5%
Fall 2015	7,148	701	403	419	8,671	-1.1%	5%
Fall 2016	7,250	611	489	398	8,748	0.9%	5%
Fall 2017	7,191	591	520	412	8,714	-0.4%	5%
Fall 2018	7,081	569	516	390	8,556	-1.8%	5%
Towson University							
Fall 2009	15,281	1,867	1,261	2,768	21,177	0.3%	14%
Fall 2010	15,560	1,969	1,285	3,026	21,840	3.1%	15%
Fall 2011	15,590	1,927	1,266	2,681	21,464	-1.7%	14%
Fall 2012	15,852	2,136	1,200	2,772	21,960	2.3%	14%
Fall 2013	16,588	2,191	1,198	2,522	22,499	2.5%	15%
Fall 2014	16,575	2,232	1,115	2,363	22,285	-1.0%	14%
Fall 2015	16,768	2,281	1,078	2,157	22,284	0.0%	14%
Fall 2016	16,893	2,305	1,081	2,064	22,343	0.3%	13%
Fall 2017	17,106	2,490	1,068	2,041	22,705	1.6%	13%
Fall 2018	17,350	2,468	1,035	2,070	22,923	1.0%	13%
University of Baltimore							
Fall 2009	1,768	1,236	1,519	1,742	6,265	7.2%	4%
Fall 2010	1,924	1,302	1,495	1,780	6,501	3.8%	4%
Fall 2011	1,944	1,313	1,456	1,693	6,406	-1.5%	4%
Fall 2012	2,012	1,414	1,446	1,686	6,558	2.4%	4%
Fall 2013	2,061	1,465	1,396	1,596	6,518	-0.6%	4%
Fall 2014	2,089	1,396	1,295	1,642	6,422	-1.5%	4%
Fall 2015	2,056	1,288	1,235	1,650	6,229	-3.0%	4%
Fall 2016	1,995	1,227	1,153	1,608	5,983	-3.9%	3%
Fall 2017	1,716	1,233	1,084	1,532	5,565	-7.0%	3%
Fall 2018	1,470	1,099	1,039	1,433	5,041	-9.4%	3%

TABLE 5
ENROLLMENT TRENDS BY INSTITUTION*
2009-2018

Institution	Undergraduates		Graduates/First Prof.		Total Headcount	Annual % Change	% of USM
	Full-Time	Part-Time	Full-Time	Part-Time			
University of Maryland, Baltimore							
Fall 2009	547	297	4,341	1,197	6,382	3.7%	4%
Fall 2010	533	239	4,439	1,138	6,349	-0.5%	4%
Fall 2011	509	222	4,518	1,144	6,393	0.7%	4%
Fall 2012	559	169	4,544	1,096	6,368	-0.4%	4%
Fall 2013	549	197	4,479	1,059	6,284	-1.3%	4%
Fall 2014	571	221	4,392	1,092	6,276	-0.1%	4%
Fall 2015	620	246	4,325	1,138	6,329	0.8%	4%
Fall 2016	704	201	4,463	1,114	6,482	2.4%	4%
Fall 2017	718	211	4,514	1,260	6,703	3.4%	4%
Fall 2018	702	207	4,500	1,368	6,777	1.1%	4%
University of Maryland Baltimore County							
Fall 2009	8,614	1,333	1,042	1,881	12,870	4.9%	9%
Fall 2010	8,830	1,380	1,140	1,538	12,888	0.1%	8%
Fall 2011	9,051	1,522	1,136	1,490	13,199	2.4%	8%
Fall 2012	9,371	1,582	1,134	1,550	13,637	3.3%	9%
Fall 2013	9,508	1,628	1,191	1,581	13,908	2.0%	9%
Fall 2014	9,653	1,726	1,189	1,411	13,979	0.5%	9%
Fall 2015	9,592	1,651	1,160	1,436	13,839	-1.0%	8%
Fall 2016	9,484	1,658	1,167	1,331	13,640	-1.4%	8%
Fall 2017	9,543	1,691	1,126	1,302	13,662	0.2%	8%
Fall 2018	9,623	1,637	1,205	1,302	13,767	0.8%	8%
University of Maryland, College Park							
Fall 2009	24,617	1,925	7,062	3,591	37,195	0.5%	25%
Fall 2010	24,841	2,081	7,095	3,624	37,641	1.2%	25%
Fall 2011	24,697	2,129	7,536	3,269	37,631	0.0%	24%
Fall 2012	24,486	2,052	7,788	2,921	37,247	-1.0%	24%
Fall 2013	24,522	2,136	7,677	2,937	37,272	0.1%	24%
Fall 2014	25,027	2,029	7,911	2,643	37,610	0.9%	23%
Fall 2015	25,410	2,033	8,091	2,606	38,140	1.4%	23%
Fall 2016	26,350	2,122	8,094	2,517	39,083	2.5%	23%
Fall 2017	27,708	2,160	8,107	2,546	40,521	3.7%	23%
Fall 2018	28,501	2,261	8,102	2,336	41,200	1.7%	23%

TABLE 5
ENROLLMENT TRENDS BY INSTITUTION*
2009-2018

Institution	Undergraduates		Graduates/First Prof.		Total Headcount	Annual % Change	% of USM
	Full-Time	Part-Time	Full-Time	Part-Time			
University of Maryland Eastern Shore							
Fall 2009	3,605	317	224	287	4,433	3.3%	3%
Fall 2010	3,658	309	302	271	4,540	2.4%	3%
Fall 2011	3,536	326	365	282	4,509	-0.7%	3%
Fall 2012	3,449	309	441	255	4,454	-1.2%	3%
Fall 2013	3,171	359	430	260	4,220	-5.3%	3%
Fall 2014	3,192	378	442	267	4,279	1.4%	3%
Fall 2015	3,291	451	485	238	4,465	4.3%	3%
Fall 2016	2,918	359	397	230	3,904	-12.6%	2%
Fall 2017	2,573	288	414	215	3,490	-10.6%	2%
Fall 2018	2,360	237	370	226	3,193	-8.5%	2%
University of Maryland University College - Stateside							
Fall 2009	3,408	20,876	270	12,793	37,347	9.3%	25%
Fall 2010	3,649	22,037	286	13,605	39,577	6.0%	26%
Fall 2011	5,653	22,466	237	14,357	42,713	7.9%	27%
Fall 2012	6,144	22,129	277	13,718	42,268	-1.0%	27%
Fall 2013	5,917	20,823	214	12,603	39,557	-6.4%	26%
Fall 2014	8,261	26,893	168	12,584	47,906	21.1%	30%
Fall 2015	8,578	28,777	108	12,785	50,248	4.9%	31%
Fall 2016	9,530	34,689	99	13,211	57,529	14.5%	33%
Fall 2017	9,714	35,890	85	13,690	59,379	3.2%	34%
Fall 2018	9,176	37,828	95	13,171	60,270	1.5%	34%
University System of Maryland - Totals (Stateside)							
Fall 2009	75,518	30,186	16,762	26,210	148,676	3.6%	100%
Fall 2010	76,950	31,633	17,104	26,894	152,581	2.6%	100%
Fall 2011	78,693	32,562	17,603	26,913	155,771	2.1%	100%
Fall 2012	79,384	32,290	17,920	26,009	155,603	-0.1%	100%
Fall 2013	79,654	31,446	17,678	24,540	153,318	-1.5%	100%
Fall 2014	82,667	37,628	17,739	23,966	162,000	5.7%	100%
Fall 2015	83,179	39,656	17,734	23,930	164,499	1.5%	100%
Fall 2016	85,092	45,306	17,731	23,867	171,996	4.6%	100%
Fall 2017	86,361	46,881	17,653	24,281	175,176	1.8%	100%
Fall 2018	86,254	48,623	17,651	23,551	176,079	0.5%	100%

UNIVERSITY SYSTEM of MARYLAND

BOARD OF REGENTS

SUMMARY OF ITEM FOR ACTION, INFORMATION, OR DISCUSSION

TOPIC: Inclusion and Diversity: The PROMISE Academy

COMMITTEE: Education Policy and Student Life

DATE OF COMMITTEE MEETING: Tuesday, November 6, 2018

SUMMARY: As the nation addresses a STEM achievement gap between underrepresented minority (URM) and non-URM undergraduate and graduate students, our universities and colleges struggle to recruit, retain, and promote URM STEM faculty who serve as role models and academic leaders for URM students to learn from, work with, and emulate.

Dr. Renetta Tull, UMBC Associate Vice Provost for Strategic Initiatives and USM Director of Graduate and Professional Pipeline Development and Special Assistant to the Senior Vice Chancellor for Academic Affairs, will share information on The PROMISE Academy - collaborative research, which brings together five USM institutions (Salisbury University; Towson University; University of Maryland Baltimore; University of Maryland, Baltimore County; and University of Maryland, College Park) with the goal of developing, implementing, studying, evaluating, and disseminating a state-level AGEP Alliance model to increase the number of historically-underrepresented minority tenure-track faculty in the biomedical sciences.

ALTERNATIVE(S): This is an information item.

FISCAL IMPACT: This is an information item.

CHANCELLOR'S RECOMMENDATION: This is an information item.

COMMITTEE RECOMMENDATION: Information Only		DATE: November 6, 2018
BOARD ACTION:		DATE:
SUBMITTED BY: Joann A. Boughman	301-445-1992	jboughman@usmd.edu

The PROMISE Academy has been Funded!

Effective: Oct. 1, 2018 (Initial application developed December 2016, revised after non-submission 2017. Submitted December 2017, negotiations summer 2018. Awarded August 2018.)

Sponsor: The National Science Foundation (NSF), HRD Division Of Human Resource Development, EHR Direct For Education and Human Resources

Co-funding: NSF AGEP, NSF ADVANCE, NSF INCLUDES

Focus: Faculty Diversity in the Biomedical Sciences

Official Title from NSF: *The AGEP Alliance State System Model to Transform the Hiring Practices and Career Success of Tenure Track Historically Underrepresented Minority Faculty in Biomedical Sciences*

Premise: Focus on postdoctoral fellows and pre-professoriate fellows, and their transition to tenure-track faculty positions.

Institutions: University of Maryland, Baltimore County; Salisbury University, University of Maryland, College Park; Towson University; and University of Maryland Baltimore

Official Abstract:

This collaborative research brings together five public universities with the goal of developing, implementing, studying, evaluating and disseminating a state level AGEP Alliance model to increase the number of historically underrepresented minority (URM) tenure-track faculty in the biomedical sciences. This AGEP Alliance model represents a state system approach to recruiting and training URM postdoctoral fellows and transitioning them into tenure-track faculty positions. In addition to providing professional development and mentoring for a group of 16 URM postdoctoral fellows and early career faculty, this AGEP Alliance also addresses institutional URM faculty hiring and advancement policies and practices. This AGEP Alliance model work is through partnerships between the University of Maryland Baltimore County, Salisbury University, Towson University,

the University of Maryland College Park (UMCP), and the University of Maryland at Baltimore.

This alliance was created in response to the NSF's Alliances for Graduate Education and the Professoriate (AGEP) program solicitation (NSF 16-552). The AGEP program seeks to advance knowledge about models to improve pathways to the professoriate and success of URM graduate students, postdoctoral fellows and faculty in specific STEM disciplines and/or STEM education research fields. AGEP Transformation Alliances develop, replicate or reproduce; implement and study, via integrated educational and social science research, models to transform the dissertator phase of doctoral education, postdoctoral training and/or faculty advancement, and the transitions within and across the pathway levels, of URMs in STEM and/or STEM education research careers. While this Alliance is primarily funded by the AGEP program, additional support has been provided by the NSF INCLUDES program, which focuses on catalyzing the STEM enterprise to collaboratively work for inclusive change. The ADVANCE program also provided support for this AGEP Alliance model work, and the ADVANCE program embraces three goals that are relevant to this Alliance model's development, implementation and testing: To develop systemic approaches to increase the participation and advancement of women in academic STEM careers; to develop innovative and sustainable ways to promote gender equity that involve both men and women in the STEM academic workforce; and to contribute to the research knowledge base on gender equity and the intersection of gender and other social identities in STEM academic careers.

As the nation addresses a STEM achievement gap between URM and non-URM undergraduate and graduate students, our universities and colleges struggle to recruit, retain and promote URM STEM faculty who serve as role models and academic leaders for URM students to learn from, work with and emulate. Recent NSF reports indicate that URM STEM associate and full professors occupy 8% of these senior faculty positions at all 4-year colleges and universities, and about 6% of these positions at the nation's most research-intensive institutions. This AGEP Alliance's state system approach is advancing a model to improve the success of

URM early career biomedical sciences faculty, which ultimately leads to improved academic mentorship for URM undergraduate students in STEM and innovative biological science research to benefit our nation's security, economic progress and prosperity.

The integrated research component, led by UMCP's KerryAnn O'Meara examines how the intersectionality of race, ethnicity and gender shape the experiences of candidates for assistant professorships, and the evaluation of those candidates by reviewers. Institutional faculty hiring practices, processes and procedures are also being studied to better understand how they advantage or disadvantage some candidates over others.

This AGEP Alliance state system model is engaging institutional leadership and external advisory boards, which will provide feedback to the team and suggest adjustments to model development, implementation and testing, as well as efforts for institutional transformation and sustainability. Staff at Westat will provide formative and summative evaluations. The dissemination plan includes article submissions to peer-reviewed social science, academic career diversity, and disciplinary education and research journals.

This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review criteria.

UNIVERSITY SYSTEM of MARYLAND

BOARD OF REGENTS

SUMMARY OF ITEM FOR ACTION, INFORMATION, OR DISCUSSION

TOPIC: Report on the Instructional Workload of the USM Faculty

COMMITTEE: Education Policy and Student Life

DATE OF COMMITTEE MEETING: Tuesday, November 6, 2018

SUMMARY: At this meeting, the Committee will review the annual report on the instructional workload of the USM faculty. As in the past, the report summarizes instructional workload, which includes teaching, research, and service activities at all USM degree-granting institutions with tenured or tenure-track faculty.

Overall, results showed remain stable but challenges in meeting the Board's workload goals remain. Key findings include:

- The USM Research institutions collectively met the expected instructional productivity standards (averaging 5.6 courses per faculty member),
- The USM Comprehensive institutions collectively fell below the target of 7.5 courses per faculty member,
- Credit hour production by Core faculty was similar compared to last year, but has decreased over the last five years,
- Student outcomes have improved with more degrees awarded and an improved 4-year graduation rate, and
- USM levels of grants and other research awards stood at nearly $1.37 billion, representing a significant rise over last year.

ALTERNATIVE(S): This is an information item.

FISCAL IMPACT: This is an information item.

CHANCELLOR'S RECOMMENDATION: This is an information item.

COMMITTEE RECOMMENDATION: Information Only		DATE: November 6, 2018
BOARD ACTION:		DATE:
SUBMITTED BY: Joann A. Boughman	301-445-1992	jboughman@usmd.edu
Ellen Herbst	301-445-1923	eherbst@usmd.edu

REPORT ON THE INSTRUCTIONAL WORKLOAD OF THE USM FACULTY

Academic Year 2017-2018

Submitted to the Board of Regents Committee on Education Policy and Student Life
November 6, 2018

Office of the Senior Vice Chancellor for Academic and Student Affairs
Office of the Vice Chancellor of Administration and Finance

REPORT ON THE INSTRUCTIONAL WORKLOAD OF THE USM FACULTY
Academic Year 2017-2018

SUMMARY

Key findings of this year's report include:

- As a group, tenured/tenure-track faculty at research institutions met their course unit expectations this year, with an average of 5.6 course units per faculty member. Tenured/tenure-track faculty at comprehensive institutions had a combined average of 7.0 course units per faculty member, which is below the Board of Regents' expectation of 7.5 course units (see Table 1).

- The average course units taught by tenured/tenure-track faculty exceeded workload expectations at two of the nine institutions in this report. Of the seven institutions that were below expectations, three of those did show improvement this year as compared to last year (see Table 1).

- As a group, core faculty at research institutions exceeded their average course unit expectations this year, with an average of 5.9 course units per faculty member. Core faculty at comprehensive institutions had a combined average of 7.2 course units per faculty member (see Table 2).

- The average course units taught by core faculty exceeded workload expectations at four of the nine institutions in this report. Of the five institutions that were below expectations, three of those did show improvement this year (see Table 2).

- Tenured/tenure-track faculty exceeded course unit expectations at five of the nine institutions after including instructional, research, and sabbatical exceptions. All but one institution exceeded the course unit expectations when all possible exceptions were included (see Table 3).

- The average credit hours produced per tenured/tenure-track and core faculty member varies considerably between institutions. In comparison to five years earlier, all institutions report fewer average credit hours per faculty (see Tables 4 and 5).

- Taken together, Tables 6 and 7 indicate that enrollment has increased overall in the past five years. In that same time frame, the proportion of credit hours taught by tenured/tenure-track faculty has decreased, but the proportion taught by full time non-tenure track faculty has increased.

- The number of bachelor's degrees awarded increased slightly this year. There were 38 more bachelor's degrees awarded in the most recent year, and over 800 more degrees awarded compared to five years earlier (see Table 8).

- Four-year graduation rates have improved this year to the best performance since this measure was first tracked (see Table 9a). Six-year graduation rates are the same as the previous year (see Table 9b).

- Faculty publication and scholarship continue at high levels with over 650 books and over 12,500 refereed articles published in the 2017-2018 academic year (see Table 10).

- Faculty secured over $1.37 billion in research funding, representing a 9.8% gain over last year's figure (see Table 11).

REPORT ON THE INSTRUCTIONAL WORKLOAD OF THE USM FACULTY
Academic Year 2017-2018

INTRODUCTION
An annual report has been provided to the University System of Maryland (USM) Board of Regents since 1994 that synthesizes and scores faculty workload activities, with a major emphasis on instructional activities. This report provides summary data on faculty activity at USM degree-granting institutions for the academic year 2017-2018.

Governing Policies
The workload of faculty is governed by a series of policies overseen by the USM Board of Regents. These policies are designed to ensure maximum accountability, while providing individual campuses high levels of flexibility to deploy faculty in the most effective and efficient way possible.

The primary USM Board of Regents policy governing faculty workload is:
II-1.25 POLICY ON FACULTY WORKLOAD AND RESPONSIBILITIES

Other policies that clarify specific issues or relate to the faculty workload include:
II-1.19 UNIVERSITY OF MARYLAND SYSTEM POLICY ON THE COMPREHENSIVE REVIEW OF TENURED FACULTY

II-1.05 POLICY ON THE EMPLOYMENT OF FULL-TIME, NON-TENURE TRACK INSTRUCTIONAL FACULTY IN THE UNIVERSITY SYSTEM OF MARYLAND.

Additionally, beginning in 2004-2005, as an initiative of the Board of Regents' Effectiveness & Efficiency workgroup, research and comprehensive universities were directed to reach a target of 5.5 and 7.5 course units per full-time faculty member respectively. These policies apply to all USM institutions with the following exceptions: UMB, UMUC, UB's School of Law, UB's Merrick School of Business, SU's Perdue School of Business, TU's College of Business & Economics, and any other departments and colleges for whom the target would violate accreditation standards.

Measures and Definitions
This report combines various faculty activities and different types of faculty employees into relatively broad categories. The metrics for these activities and the types of faculty are defined below.

Metrics of Activity

- Course Unit: A key metric used for measuring instructional activity is the course unit (CU). One course unit is defined as a standard three-credit lecture course. All other courses and instructional activity, including individual instruction (i.e., undergraduate research, dissertation research, etc.), are converted to course units using conversion factors defined in the USM policy. A course unit is recorded equally for courses of all types and enrollment levels.
- Credit Hours: Courses are measured in credit hours based on time in classroom (for example, three hours of class contact each week multiplied by the total students enrolled in a course). The sum of the credit hours from all classes taught by an individual faculty member is used as a supplemental metric of faculty instructional productivity.
- Course Exceptions: Faculty members are excused from specific teaching duties for a variety of reasons. These may include research, instruction-related assignments, administrative and service duties, sabbaticals, or illness. Exceptions are applied in various calculations to illustrate the work activities of faculty and to determine whether institutions are meeting their instructional workload goals.

Type of Faculty

- Tenured/Tenure-Track Faculty: This includes all persons (except department chairs) holding tenured and tenure-track positions who are classified as faculty. Tenured and tenure-track faculty are responsible for a large portion of the central faculty missions on campus including teaching, service and research.
- Core Faculty: Tenured/tenure-track faculty and full-time non-tenured instructional faculty are classified as an institution's core faculty. These faculty members are responsible for the main activities of teaching and managing the instructional activity of the institutions.
- Part-Time Faculty: This category includes emeritus, adjunct and affiliated faculty, all part-time faculty, and non-departmental administrators (deans, assistant deans, etc.) who taught during the academic year.
- Other Faculty: This category reflects all other faculty, including department chairs, non-tenure track research or public service faculty, and teaching assistants.

These categories vary from terminology used in the reporting process.

INSTRUCTIONAL PRODUCTIVITY

Instructional productivity in this report is expressed in terms of course units taught per faculty member (both with and without categories of exceptions) and in credit hours delivered. Additional student outcomes (e.g., graduation rates) are also presented as a measure of the effectiveness of the faculty's activities.

Course Unit Measures

Academic departments are expected to meet the standard instructional expectations set forth by the USM Board of Regents, in addition to their own institutional policies. This report addresses how well the institutions meet the expectations in terms of course units, each of which is the equivalent to teaching a 3-credit hour course.

Faculty members at research institutions (UMCP and UMBC) are expected to teach 5.5 course units on average each year. Faculty members at comprehensive institutions are expected to teach 7.5 course units on average each year. UMB and UMUC are not covered under the Board of Regents' policy, and productivity measures are not included for these institutions.

Course unit productivity requirements for the tenured/tenure-track faculty and core faculty groups are presented separately. Individual faculty members may be assigned alternate responsibilities in place of, and at times in addition to, their standard loads. These additional responsibilities may be instruction-related (such as unusually large advising loads or developing new curricula or modalities of instruction); departmental administrative duties; research-related, and/or service activities. Each responsibility is crucial to the success of the institution in creating a quality learning environment for students, in addition to fulfilling the institutional role in the State as a community resource. These responsibilities are recognized through assigned course exceptions that exempt individual faculty members from classroom teaching. The responsibilities do not alter the overall teaching expectations of a department or an institution; however, they will affect the distribution of the teaching assignments among faculty members within a department.

The following two tables (Tables 1 and 2) display the average course units taught per faculty member over the last five years. **(Note that in these tables and throughout this report the left-most column represents the most recent data.)** Table 1 displays the number of tenured/tenure-track FTEF (Full Time Equivalent Faculty) and the course units per FTEF. During the 2017-2018 academic year (AY), tenured/tenure-track faculty at the USM comprehensive institutions taught an average of 7.0 course units. Tenured/tenure-track faculty at the USM research institutions taught an average of 5.6 course units.

In 2017-2018, two of the nine USM institutions reported a level of instructional productivity for their tenured/tenure-track faculty members that met the Board of Regents' expectation. This level of performance by USM institutions is roughly equivalent to last year's performance.

Table 1

Trends in Average Course Units Taught by Tenured/Tenure-Track Faculty (AY 2013-2014 to 2017-2018)

	FTEF	Course Units per FTEF				
	2017-2018	2017-2018	2016-2017	2015-2016	2014-2015	2013-2014
BSU	142	7.2	7.0	7.3	7.2	7.6
CSU	138	7.8	7.9	7.8	7.5	7.8
FSU	185	7.1	7.1	7.3	7.4	7.5
SU	264	7.3	7.3	7.2	6.9	7.2
TU	486	6.5	6.6	6.6	6.5	6.7
UB	78	6.8	6.7	6.6	6.4	7.0
UMES	130	7.4	7.1	8.1	7.6	7.7
Comprehensive Overall	**1,424**	**7.0**	**7.0**	**7.1**	**7.0**	**7.2**
UMBC	334	6.4	6.3	6.6	7.1	6.9
UMCP	1,174	5.4	5.5	5.4	5.3	5.5
Research Overall	**1,509**	**5.6**	**5.7**	**5.7**	**5.7**	**5.8**

Source: USM Report on Faculty Teaching Workload

Note: USM Board of Regents standard instructional expectations are 7.5 course units for comprehensive institutions and 5.5 course units for research institutions.

Alternatively, when all core instructional faculty (tenured/tenure-track faculty and full-time non-tenure-track instructional faculty) are included, four of the nine institutions met expectations. Table 2 shows the average course units taught by core instructional faculty. In the 2017-2018 academic year, the total course units taught by core faculty averaged 7.2 at the comprehensive institutions and 5.9 at the research institutions.

Table 2

Trends in Average Course Units Taught by Core Faculty (AY 2013-2014 to 2017-2018)

	FTEF	Course Units per FTEF				
	2017-2018	2017-2018	2016-2017	2015-2016	2014-2015	2013-2014
BSU	190	7.5	7.6	8.0	7.3	7.8
CSU	145	9.3	9.3	9.0	8.1	8.5
FSU	224	7.2	7.1	7.2	7.4	7.3
SU	343	7.4	7.5	7.3	7.1	7.3
TU	765	7.0	7.0	7.1	7.1	7.2
UB	92	7.1	7.0	6.7	6.9	7.3
UMES	181	7.4	7.0	8.2	7.2	7.4
Comprehensive Overall	**1,939**	**7.2**	**7.2**	**7.3**	**7.1**	**7.4**
UMBC	470	6.6	6.5	7.0	7.2	7.2
UMCP	1,467	5.6	5.7	5.5	5.4	5.6
Research Overall	**1,937**	**5.9**	**5.9**	**5.9**	**5.8**	**6.0**

Source: USM Report on Faculty Teaching Workload

Note: USM Board of Regents standard instructional expectations are 7.5 course units for comprehensive institutions and 5.5 course units for research institutions.

Table 3 displays how the results differ for tenured/tenure-track faculty when course exceptions are included in the calculation of course units for an institution. After accounting for the work activities of research, non-course based instruction, and sabbatical to pursue scholarship, five of the nine institutions met the Board of Regents' expectations. After all exceptions are considered (including departmental administration and service work), eight of the nine institutions met the expectations.

Table 3

Average Course Units Taught by Tenured/Tenure-Track Faculty with Exceptions (AY 2017-2018)

	FTEF	Course Units with No Exceptions Included	Course Units with Research, Instruction, Sabbatical Exceptions Included	Course Units with All Exceptions Included
BSU	142	7.2	7.4	8.1
CSU	138	7.8	7.8	7.9
FSU	185	7.1	7.3	7.8
SU	264	7.3	7.8	8.0
TU	486	6.5	6.7	7.3
UB	78	6.8	7.0	7.6
UMES	130	7.4	8.9	9.4
Comprehensive Overall	**1,424**	**7.0**	**7.4**	**7.8**
UMBC	334	6.4	6.7	7.2
UMCP	1,174	5.4	6.0	6.7
Research Overall	**1,509**	**5.6**	**6.2**	**6.8**

Source: USM Report on Faculty Teaching Workload

Note: USM Board of Regents standard instructional expectations are 7.5 course units for comprehensive institutions and 5.5 course units for research institutions.

Credit Hour Measures

Course unit is the prescribed measure in the governing policy on faculty workload, but it is only one of several measures that can be used to consider the instructional activity and effectiveness of faculty. A second key measure is the production of credit hours. Credit hours are the sum of the course hours of all the students taking a class. For example, a 3-credit course with ten students produces thirty credit hours.

Average Credit Hour Generation Per Faculty

The reported credit hours include instructional, research, and sabbatical exceptions. Table 4 displays the average credit hours generated over the past five years by tenured/tenure-track faculty. Overall, there is a slight decrease in credit hours produced as compared to last year. Three institutions did report more credit hours in 2017-2018 as compared to 2016-2017. Table 5, which includes all core faculty, indicates that five of the nine institutions generated more credit hours in 2017-2018 as compared to 2016-2017. Notably, the average credit hours have declined for all institutions over the five-year period, and that trend occurs with both tenured/tenure-track faculty and with core faculty.

Table 4

Trends in Average Credit Hours Generated by Tenured/Tenure-Track Faculty

	2017-2018	2016-2017	2015-2016	2014-2015	2013-2014
BSU	388	463	454	402	547
CSU	296	308	316	316	299
FSU	405	401	472	480	505
SU	512	522	522	530	561
TU	399	396	402	423	406
UB	364	366	379	375	410
UMBC	326	350	359	346	383
UMCP	396	412	405	420	426
UMES	689	604	638	684	742

Source: USM Report on Faculty Teaching Workload

Table 5

Trends in Average Credit Hours Generated by All Core Faculty

	2017-2018	2016-2017	2015-2016	2014-2015	2013-2014
BSU	410	482	475	422	573
CSU	295	306	313	311	298
FSU	418	411	482	476	477
SU	529	518	537	528	565
TU	420	419	434	442	427
UB	384	377	380	402	407
UMBC	470	482	475	465	497
UMCP	509	525	517	521	524
UMES	671	585	637	615	701

Source: USM Report on Faculty Teaching Workload

Total Credit Hour Production

Reports of student enrollment and credit hour production can provide a general sense of whether teaching is keeping pace with enrollment. Overall, enrollment has increased (see Table 6). Specific institutions, however, have had a lower enrollment when comparing their enrollment in FY 2013 versus FY 2018. Credit hours have also increased overall, with five of the nine institutions reporting an increase in credit hours generated.

Table 6

Change in Fall Headcount Enrollment and Total Credit Hours (FY 2013 versus FY 2018)

	Enrollment	Total SCH
BSU	13.4%	16.9%
CSU	-19.9%	6.1%
FSU	-0.5%	-3.9%
SU	0.7%	3.2%
TU	3.4%	-2.2%
UB	-15.1%	-7.3%
UMBC	0.2%	0.5%
UMCP	8.8%	3.9%
UMES	-21.6%	-21.1%
Overall	**2.0%**	**0.9%**

Sources: USM Report on Faculty Teaching Workload and USM Institutional Research Information System (IRIS)

Table 7 illustrates the degree to which different types of faculty are responsible for the production of credit hours. Core faculty (including tenured/tenure-track and full time non-tenure track faculty) account for 64% of all credit hours generated. Of note, tenured/tenure-track faculty are producing fewer credit hours compared to five years ago, while full-time non-tenure track faculty are producing over 18% more. Specific institutions do differ from this trend.

Table 7

Percentage of Credit Hours Produced by Type of Faculty (FY 2018) and 5-Year Percent Change

	Tenured/ Tenure Track (T/TT)	Full Time Non-TT	Part-time	5-Year Change in % Taught by T/TT Faculty	5-Year Change in % Taught by Full Time Non-TT Faculty	5-Year Change in % Taught by Part-Time Faculty
BSU	35%	15%	44%	-8.7%	-7.8%	52.9%
CSU	56%	3%	35%	9.4%	-41.3%	3.2%
FSU	58%	15%	21%	-5.9%	18.9%	-5.0%
SU	54%	19%	22%	4.1%	9.5%	-1.0%
TU	38%	27%	33%	-4.1%	15.5%	-11.7%
UB	43%	10%	43%	13.0%	-22.8%	-20.4%
UMBC	29%	32%	33%	-7.7%	17.3%	-3.7%
UMCP	38%	25%	29%	-8.9%	35.5%	8.2%
UMES	52%	23%	21%	-5.6%	-19.1%	-44.3%
Overall	**40%**	**24%**	**30%**	**-4.9%**	**18.4%**	**-0.9%**

Source: USM Report on Faculty Teaching Workload

Note: Other faculty (including department chairs, non-tenure track research or public service faculty, and teaching assistants) account for 6% of the credit hours produced.

Student Outcomes

Course units and credit hours are measures of production efficiency within the system. Student outcomes, such as number of degrees awarded and graduation rates, are also useful indicators. An increase or decrease in the number of degree recipients reflects the institution's growth in enrollment, their level of success in retaining students to graduation, and the faculty's productivity.

The number of graduating students has risen in recent years and is at the highest level yet achieved by the USM. Table 8 displays the number of degree recipients at USM institutions for the last five years.

Table 8

Trends in the Undergraduate Degrees Awarded (FY 2014-2018)

	2018	2017	2016	2015	2014
BSU	781	713	832	801	741
CSU	399	421	464	416	478
FSU	1,027	1,060	964	1,032	1,011
SU	1,873	2,026	1,982	1,935	1,899
TU	4,609	4,628	4,428	4,422	4,291
UB	711	755	721	694	665
UMBC	2,578	2,572	2,521	2,432	2,250
UMCP	7,559	7,292	7,253	7,166	7,279
UMES	482	514	574	577	585
Overall	**20,019**	**19,981**	**19,739**	**19,475**	**19,199**

Source: USM Institutional Research Information System (IRIS)

The ability of students to rapidly and successfully matriculate is also dependent on the efficiency and productivity of the faculty, the quality of advising, and the appropriateness of course offerings. Effectiveness and Efficiency efforts implemented by the USM Board of Regents identified improving student time-to-degree as a major academic initiative.

Notably, in recent years, USM overall has seen progress in this area. Table 9a illustrates changes in the four-year graduation rates and Table 9b documents changes in the six-year graduation rates. Although graduation rates reflect only a part of the larger picture (and transfers are not included), they are a useful measure of efficiency of matriculation and speed to degree.

Table 9a

Four-Year Graduation Rate by Entering Year

	2014	2013	2012	2011	2010
BSU	17%	16%	16%	15%	13%
CSU	12%	12%	9%	9%	6%
FSU	27%	27%	29%	27%	23%
SU	49%	52%	50%	50%	49%
TU	47%	45%	46%	45%	44%
UB	18%	17%	15%	8%	12%
UMBC	42%	39%	40%	36%	34%
UMCP	65%	66%	66%	63%	65%
UMES	21%	21%	22%	20%	17%
All USM	**47%**	**46%**	**46%**	**44%**	**43%**

Source: USM Institutional Research Information System (IRIS)

Note: Percentages reflect graduation anywhere in USM for all First-time Full-time Freshmen

Table 9b

Six-Year Graduation Rate by Entering Year

	2012	2011	2010	2009	2008
BSU	46%	42%	41%	44%	37%
CSU	21%	23%	20%	19%	18%
FSU	57%	56%	55%	61%	55%
SU	71%	76%	74%	74%	72%
TU	75%	74%	72%	73%	70%
UB	41%	34%	36%	38%	48%
UMBC	68%	65%	66%	65%	66%
UMCP	86%	85%	86%	86%	85%
UMES	44%	42%	42%	37%	41%
All USM	**70%**	**70%**	**68%**	**69%**	**66%**

Source: USM Institutional Research Information System (IRIS)

Note: Percentages reflect graduation anywhere in USM for all First-time Full-time Freshmen

Instructional Faculty Workload at the University of Maryland, Baltimore

The Maryland General Assembly requires the USM to include information regarding the workload of the University of Maryland, Baltimore in the faculty workload report each year. UMB applies a different set of standards for judging faculty workload that are more appropriate for its professional schools. UMB reports that 96% of all core faculty met or exceeded the institution's standard faculty workload. When compared to previous years, this represents a consistent level of attainment in meeting the standard workload.

SCHOLARSHIP, RESEARCH AND SERVICE PRODUCTIVITY

Table 10 is a summary of the scholarship and service activity of the USM faculty from degree-granting institutions (including UMB). During the 2017-2018 academic year, USM faculty published 668 books and over 12,000 peer-reviewed articles. Faculty also participated in over 18,000 professional presentations and creative activities combined. The average USM faculty member spent almost eleven days in public service to businesses, government, schools, and non-profit organizations.

Table 10

Scholarship and Service of the USM Faculty (Academic Year 2017-2018)

	Number of Books Published	Number of Refereed Publications	Number of Non-Refereed Publications	Number of Creative Activities	Number of Professional Presentations	Days in Public Service per FTEF
Comprehensive						
BSU	7	43	42	85	126	10.0
CSU	1	94	59	35	56	14.2
FSU	12	121	89	278	199	8.1
SU	32	255	101	172	446	11.1
TU	66	859	259	936	730	13.0
UB	10	62	65	28	52	5.0
UMES	10	113	56	72	300	6.6
Research						
UMB	239	5,179	972	852	3,709	9.6
UMBC	36	577	195	241	1,436	6.5
UMCP	255	5,249	1,734	1,939	6,907	24.3
Overall	**668**	**12,552**	**3,572**	**4,638**	**13,961**	**10.8**

Source: USM Report on Faculty Teaching Workload

Note: Includes tenured/tenure track, department chairs, and full time non-tenure/non-tenure-track instructional and research faculty from all departments for the entire institution.

External Funding

Securing external funding for research and other activities is an important aspect of faculty work and is often seen as a proxy measure for research productivity. It is also used as a criterion for ranking institutions nationally, supports the creation and transfer of new technologies, contributes to the economic development of critical areas in Maryland, provides community services to underserved populations, feeds into the creation of new curriculum and course development and, most importantly, assures that students receive their instruction from faculty members who are recognized as being at the cutting edge of their disciplines. Although USM faculty are primarily responsible for their campus' external funding levels, not all external funding is attributable to tenured/tenure-track faculty. Staff and other research faculty also attract external dollars.

Table 11 records the level of external funding received by USM institutions, as reported by each institution's Office of Sponsored Programs. Throughout the 2017-2018 academic year, the USM was awarded over $1.37 billion in external awards. This represents a 9.8% change from the 2016-2017 academic year.

Table 11
Faculty Research Awards

	FY 2018	FY 2017	FY 2016	FY 2015	FY 2014
Comprehensive					
BSU	$10,025,960	$8,750,023	$7,988,546	$8,786,813	$7,532,576
CSU	$6,524,176	$7,765,864	$5,850,572	$6,815,776	$7,669,565
FSU	$2,041,543	$7,818,382	$3,279,980	$6,975,842	$3,578,720
SU	$5,141,941	$5,760,833	$4,584,488	$4,882,812	$5,019,735
TU	$12,953,604	$10,439,414	$16,789,859	$17,729,843	$14,447,113
UB	$13,387,065	$10,582,279	$7,729,907	$7,399,317	$6,095,525
UMES	$15,601,754	$19,728,418	$17,827,443	$21,224,282	$17,629,598
Research					
UMB	$664,599,070	$553,170,320	$494,477,177	$497,918,281	$500,912,032
UMBC	$77,180,308	$92,193,683	$76,215,884	$71,134,098	$74,026,763
UMCP	$538,013,239	$509,225,382	$554,177,223	$545,633,305	$479,069,009
UMCES	$26,833,197	$24,739,098	$24,815,908	$24,508,834	$23,783,962
Overall	**$1,372,301,857**	**$1,250,173,696**	**$1,213,736,987**	**$1,213,009,203**	**$1,139,764,598**

Source: Annual Extramural Awards Survey, "Total Less Other USM"

SUMMARY

This report provided summary data about the University System of Maryland for the 2017-2018 academic year. The data indicated that some USM institutions were able to improve their course units taught per faculty as compared to the 2016-2017 year. When no exceptions were considered, many comprehensive institutions remained below the Board of Regents' policy target. However, if allowed exceptions were considered, the majority of institutions did meet or exceed the expectations. This trend reflects the assignment of tenured/tenure-track faculty to a wide variety of responsibilities on campus.

Average credit hours generated by both tenured/tenure-track faculty and core faculty have decreased over the five-year span. Enrollment has increased and the proportion of credit hour production for tenured/tenure-track faculty has decreased. Institutions were more often relying non-tenure track full-time faculty to teach, and therefore the proportion of credit hours taught by full time non-tenure track faculty increased.

The outcomes of faculty instructional activity continued to be strong. The number of undergraduate and graduate degrees awarded continued to rise. Students continued to move efficiently through most USM institutions as indicated by improved four-year graduation rates. Non-instructional productivity (i.e., scholarship and service) remained at a very high level. Finally, external research funding rose to over $1.37 billion in the last year.

APPENDIX A: FACULTY PROFILE

USM Faculty Complement

This appendix provides an overview of the faculty complement at USM institutions included in this report. In 2017-2018, the USM had an instructional complement of 7,655 faculty. Table A-1 provides a detailed breakdown of these faculty by tenure status, and full or part time employment status.

Table A-1

USM Faculty Profile (Academic Year 2017-2018)

	Tenured/ Tenure Track	Full Time Non-Tenure Track Instructional	Part-time	All Faculty
BSU	126	87	231	444
CSU	112	9	125	246
FSU	208	41	141	390
SU	347	87	230	664
TU	596	308	807	1711
UB	153	35	233	421
UMCP	1397	431	803	2631
UMBC	403	147	291	841
UMES	149	60	98	307
Overall	**3,491**	**1,205**	**2,959**	**7,655**

Source: USM Institutional Research Office (MHEC EDS)

Tenured and Tenure-Track Faculty

The total number of tenured and tenure-track faculty remained essentially the same from 2016-2017 to 2017-2018. Table A-2 displays the number of tenured/tenure-track faculty at each institution and the 1-year and 5-year percent change in number of that category of faculty.

Table A-2

Tenured/Tenure Track Faculty

	2017-2018	2016-2017	2012-2013	1-Year Change in Tenured/Tenure Track	5-Year Change in Tenured/Tenure Track
BSU	126	137	158	-8.0%	-20.3%
CSU	112	120	135	-6.7%	-17.0%
FSU	208	219	212	-5.0%	-1.9%
SU	347	324	312	7.1%	11.2%
TU	596	593	594	0.5%	0.3%
UB	153	160	166	-4.4%	-7.8%
UMCP	1397	1382	1390	1.1%	0.5%
UMBC	403	396	375	1.8%	7.5%
UMES	149	161	153	-7.5%	-2.6%
Overall	**3,491**	**3,492**	**3,495**	**0.0%**	**-0.1%**

Source: USM Institutional Research Office (MHEC EDS)

Full-time Instructional Non-Tenure Track faculty

The total number of full-time instructional non-tenure track faculty increased dramatically in recent years. In the period from 2012-2013 through 2017-2018, the numbers increased by 239 or almost 25%. Table A-3 displays the number of full time instructional non-tenure track faculty at each institution and the 1-year and 5-year percent change in number of that category of faculty.

Table A-3

Full-Time Instructional Non-Tenure Track Faculty

	2017-2018	2016-2017	2012-2013	1-Year Change in Non Tenure Track	5-Year Change in Non Tenure Track
BSU	87	82	58	6.1%	50.0%
CSU	9	12	21	-25.0%	-57.1%
FSU	41	40	33	2.5%	24.2%
SU	87	86	91	1.2%	-4.4%
TU	308	309	254	-0.3%	21.3%
UB	35	35	31	0.0%	12.9%
UMCP	431	421	287	2.4%	50.2%
UMBC	147	142	127	3.5%	15.7%
UMES	60	58	64	3.4%	-6.3%
Overall	**1205**	**1185**	**966**	**1.7%**	**24.7%**

Source: USM Institutional Research Office (MHEC EDS)

Part-time Faculty

Finally, part-time faculty continue to play an important role in instruction at USM institutions. The number of part-time faculty increased (3.9%) from 2016-2017, which is similar to the five-year trend. Table A-4 displays the number of part-time faculty at each institution and the 1-year and 5-year percent change in number of that category of faculty.

Table A-4

Part-Time Non-Tenure Track Faculty

	2017-2018	2016-2017	2012-2013	1-Year Change in Part-Time	5-Year Change in Part-Time
BSU	231	222	192	4.1%	20.3%
CSU	125	135	152	-7.4%	-17.8%
FSU	141	128	133	10.2%	6.0%
SU	230	226	257	1.8%	-10.5%
TU	807	758	795	6.5%	1.5%
UB	233	223	206	4.5%	13.1%
UMBC	803	772	698	4.0%	15.0%
UMCP	291	278	280	4.7%	3.9%
UMES	98	107	128	-8.4%	-23.4%
Overall	**2,959**	**2,849**	**2,841**	**3.9%**	**4.2%**

Source: USM Institutional Research Office (MHEC EDS)