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**Board of Regents ~ Committee on Education Policy and Student Life and Safety****Thursday, January 30, 2025 ~ 9:30 a.m.****Zoom Details to be Provided to Committee****Public Listen-Only Access: 443-353-0686 – Conference ID: 158 014 316****Public Session Agenda****Action Items**

1. Academic Program Proposals
  - a. [Bowie State University: Bachelor of Science in Accounting](#)
  - b. [University of Maryland, Baltimore: Master of Science in Trauma Sciences](#)
  - c. [University of Maryland, College Park: Master of Science in Biostatistics](#)
  - d. [University of Maryland, College Park: Ph.D. in Biostatistics](#)

**Information Items**

2. [Report: Workload of the USM Faculty – Academic Year 2023-2024 \(Information\)](#)

**Action Item**

3. [Motion to Adjourn and Reconvene in Closed Session](#)



**TOPIC:** Bowie State University proposal to offer a Bachelor of Science (B.S.) in Accounting

**COMMITTEE:** Education Policy and Student Life and Safety

**DATE OF COMMITTEE MEETING:** January 30, 2025

**SUMMARY:** Bowie State University currently offers the Bachelor of Science in Business; among its areas of concentration is accounting. BSU seeks to modify its area of concentration to offer the Bachelor of Science in Accounting. The proposed program prepares students for successful careers in accounting and is more closely aligned with the requirements of the accounting profession. The B.S. designation signals to employers and other stakeholders the level of preparation that graduates from the program have attained. Students currently enrolled in the accounting area of concentration in the business program will transition into the standalone program without being required to take additional courses. All courses proposed in the accounting program already exist in Bowie State University's undergraduate catalog.

Industry projections indicate average job growth of about six per cent through 2013, with approximately 136,400 new openings for accounting professionals annually across the U.S. The Maryland Department of Labor anticipates job growth of nearly nine per cent through 2030. Graduates of the B.S. in Accounting program may also pursue careers in budgeting, cost estimation, financial analysis, financial management, and management analysis.

With its B.S. in Business Administration concentration in Accounting, Bowie already holds a share of the accounting students enrolled in the State's accounting programs. Accordingly, there will be little to no impact on the existing accounting programs offered at other Maryland institutions.

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

**FISCAL IMPACT:** No additional funds are required. The program can be supported by the projected tuition and fee revenue.

**CHANCELLOR'S RECOMMENDATION:** That the Education Policy and Student Life and Safety Committee recommend that the Board of Regents approve the Bowie State University proposal to offer a BS in Accounting.

COMMITTEE RECOMMENDATION:	DATE:
BOARD ACTION:	DATE:
SUBMITTED BY: Alison M. Wrynn 301-445-1992	awrynn@usmd.edu



**Aminta H. Breaux, Ph.D.**

*President*

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November 11, 2024

Jay A. Perman, MD  
Chancellor  
University System of Maryland  
3300 Metzgerott Road  
Adelphi, Maryland 20783-1690

RE: New Academic Program – Bachelor of Science in Accounting

Dear Chancellor Perman:

Please find enclosed our proposal to offer the Bachelor of Science (B.S.) in Accounting (HEGIS 050200/CIP 52.0301).

BSU currently offers the B.S. in Business with an area of concentration in accounting and seeks to modify the concentration to the Bachelor of Science in Accounting to serve students interested in a four-year business program that prepares students for the CPA exam, whether the students begin at BSU or transfer from a community college or another four-year institution. The proposed program will utilize cutting-edge teaching techniques and research blended with real-life experience to equip them with the professional and transferable skills needed for accounting careers in areas such as audit, tax, and consulting/advisory services in private and public sectors. The primary mission of our accounting program is to prepare graduates who contribute positively to the business and the overall community.

We respectfully request the Board's consideration of this proposal.

Sincerely,

Aminta H. Breaux, Ph.D.

Cc: Dr. Guy-Alain Amoussou, Provost and Vice President for Academic Affairs  
Dr. Alison Wrynn, Senior Vice Chancellor  
Dr. Candace Caraco, Associate Vice Chancellor  
Dr. Regina Tawah, Acting Dean, College of Business  
Dr. Jacqueline Cade, Director of Institutional and Academic Programming  
Ms. Gayle Fink, Office of Planning, Analysis and Accountability  
Ms. Brandy Wilson, Registrar

**UNIVERSITY SYSTEM OF MARYLAND INSTITUTION PROPOSAL FOR**

- New Instructional Program
- Substantial Expansion/Major Modification
- Cooperative Degree Program
- Within Existing Resources, or
- Requiring New Resources

**Bowie State University**  
Institution Submitting Proposal

**Accounting**  
Title of Proposed Program

**Bachelor of Science**  
Award to be Offered

**Fall 2025**  
Projected Implementation Date

**050200**  
Proposed HEGIS Code

**520301**  
Proposed CIP Code

**College of Business**  
Department in which program will be located

**Dr. Symon Manyara**  
Department Contact

**301-860-3632**  
Contact Phone Number

[smanyara@bowiestate.edu](mailto:smanyara@bowiestate.edu)  
Contact E-Mail Address

  
Signature of President or Designee

**11.18.24**  
Date



## Bachelor of Science in Accounting

### A. Centrality to Institutional Mission and Planning Priorities:

The proposed new Bachelor of Science in Accounting is consistent with the mission of Bowie State University (BSU), which calls for support for “students to reach their potential by providing innovative academic programs and transformational experiences as they prepare for careers, lifelong learning, and civic responsibility” and the Bowie State University combines theory and practice to create meaningful real-world solutions to the 21st century. This program change is providing clarity for students and constituents that Bowie State University already serves. Bowie state university anticipates serving students interested in a four-year business program that prepares students for the CPA exams, whether the students begin at BSU or transfer from a community college or another four-year institution. The migration of the Accounting concentration to a program also contributes to BSU’s FY 2019 – FY 2024 Racing to Excellence Strategic Plan, specifically Goal 1 Academic Excellence, Objective 1.1 High-demand, innovative academic programs. Objective 1.1 of Goal 1 highlights the need to modify existing academic programs to promote the ongoing growth and development of the university.

The primary mission of our accounting program is to use cutting-edge teaching techniques and research blended with real-life experience to educate accounting students, practitioners and develop outstanding professional leadership skills fit for a competitive global environment. Our previous success has translated into our graduates contributing positively to the business community of the Baltimore- Washington region and beyond. Most BSU accounting graduates work in the top 4, (PwC, KPMG, Deloitte, and Ernst & Young), regional, and many local CPA firms.

Bowie State University has offered accounting concentration since its inception and has received ongoing support from the University of Maryland system. The program is a minor modification of an existing program from a Business Administration concentration in Accounting to a Bachelor of Science in Accounting. We, therefore, expect that this transition from a concentration to a program will continue to receive support from BSU and the University System of Maryland. It is also important to emphasize that the current program already receives administrative, financial, and technical support from BSU and the University System of Maryland. This minor modification will not impact its current support. This proposed program will prepare students for successful accounting careers while containing costs. Students on successful completions will graduate with less debt compared other sister institutions in the Maryland Systems, consistent with the state plan goal of “students’ success with less debt.”

The change has become necessary to emphasize to employers and other stakeholders of BSU the conciseness Bachelor of Science in Accounting rather than Business Administration with a concentration in accounting. This emphasis is important to our students and stakeholders as they

have indicated that a Bachelor of Science in Accounting is more aligned to the program offering in accounting than a concentration. The proposed Accounting program will be supported by the current faculty of BSU and would require minimal additional out-of-year fiscal resources. The change will have no impact on students currently enrolled in the Bachelor of Business Administration with a concentration in Accounting. Those already enrolled in the concentration can complete their degrees without taking additional courses.

## **B. Critical and Compelling Regional and Statewide Need as Identified in the State Plan:**

The 2022 post-secondary education plan continues to center around three basic tenets: access, success, and innovation (2022 Maryland State Plan for Postsecondary Education at [2022 Maryland State Plan for Postsecondary Education](#)). The proposed program will provide valuable professional education in an accessible manner for individuals working in the region's government agencies, major accounting and financial firms, and medium-sized or even small firms that have significant auditing and accounting responsibilities. Classes will be available year-round in expanding access, with day, evening, and some online options.

A recent Kiplinger article noted that there is a CPA shortage, with three challenges largely contributing to the shortage of CPAs: “fewer graduates, an aging workforce, and an exodus of talent” (Cruz-Martinez, G., 9/21/2024, <https://www.kiplinger.com/taxes/the-cpa-shortage-problem>). Priority 5 under Goal 2: Student Success, challenges institutions to maintain their commitment to high-quality education in Maryland. The evaluation of the existing area of concentration in accounting, and the proposed conversion to a full major, demonstrates BSU's commitment to meeting student needs and market needs in its academic offerings. With the B.S. in Accounting degree, employers will recognize by the degree title that students have completed the educational requirements in the concepts of accounting that qualify them for CPA licensure examination in Maryland under [COMAR 09.24.05.03A](#). Students will continue to receive the same academic supports available to them across the university while engaging in internships and other opportunities to learn and engage with accounting professionals outside of the classroom.

Moreover, as an HBCU, Bowie's commitment to preparing socially disadvantaged and minority students as professionals with a global perspective supports Maryland's workforce by increasing diversity of the pool of qualified applicants. The growing regulation and complexity of taxation demand that accounting professionals are highly skilled and have sharp analytical skills. The impending retirements of the aging boomer population suggest that without efforts to strengthen the pipeline of CPA candidates, the number of licensed CPAs may decline significantly when they are desperately needed. BSU wants to attract all potential accounting students it can to support and further diversify the Maryland CPA population. The CPA Journal noted that inclusion is not only relevant, but “obligatory” in the profession (Rosenthal, J. and Shenkman, M., 10/29/2021, <https://www.cpajournal.com/2021/10/29/diversity-equity-and-inclusion-in-the-accounting-profession/>). Having staff that can identify with and relate to diverse clientele is not only good for business, but creates a work environment that helps employees feel like they belong and are cared about. Rosenthal and Shenkman further noted that an inclusive environment can not only help to retain staff, but also attract new personnel.

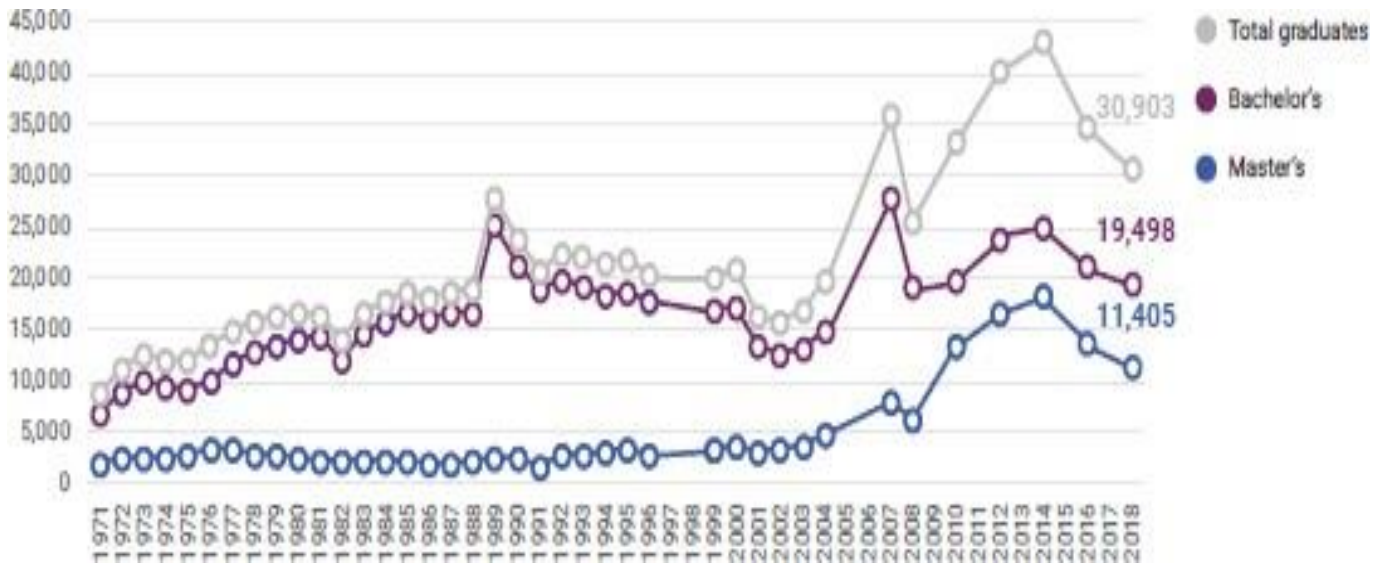
### **C. Quantifiable and Reliable Evidence and Documentation of Market Supply and Demand in the Region and State:**

The current BSU Accounting concentration graduates routinely secure employment in audit, tax, and advisory services in both the private and public sectors and populate regional and national companies as well as the Big 4 multi-national accounting firms. Recent data suggest that the demand for our graduates will increase over time. According to the Maryland Association of CPAs survey, “the outlook of the accounting students entering the profession is bright.... (MACPA, [Demand for accounting graduates hits all-time high | Maryland Association of CPAs \(MACPA\)](#)). It is critical that we produce enough CPAs to replace the retiring baby boomers and that the profession continues to meet the ever-changing needs of the US capital markets.... The results of the Trends report are consistent with the findings of the Bureau of Labor Statistics (BLS) 2014-2015 Occupational Outlook Handbook, which forecast employment of accountants and auditors will grow 13.1 percent from 2012-2022, representing additional 166,700 jobs. The Bureau of Labor Statistics (BLS) Handbook notes that many accountants become CPAs to enhance their job prospects, gain clients, and increase earnings. The 2024 Occupational Outlook handbook cites a need of 130,800 jobs each year, with projected growth of six percent from 2023 to 2033, again noting an exodus from the workforce to other occupations and retirement ([Accountants and Auditors : Occupational Outlook Handbook: : U.S. Bureau of Labor Statistics](#)). Research from AICPA indicates the salary differential of career CPAs over non-CPAs is more than \$1 million (<https://www.macpa.org/demand-for-accounting-graduates-hits-all-time-high/>). Given the projected increase in an already strong demand for accountants, we expect our graduates to continue to have ample employment opportunities upon graduation.

BSU has been teaching accounting since its founding. Given the predictions of robust job growth for accountants, we believe there is strong demand for an ACBSP – accredited, high-quality BS in Accounting program at the Bowie State University. We respectfully submit that we have the resources and expertise to administer such a program since the new program is a minor modification of the existing area of concentration. In recent years CPA results of Maryland Candidates have been lower than candidates in most other jurisdictions. It is reasonable to expect that the BS in Accounting program will help improve student performance on the CPA exam and help strengthen the accounting profession in Maryland.



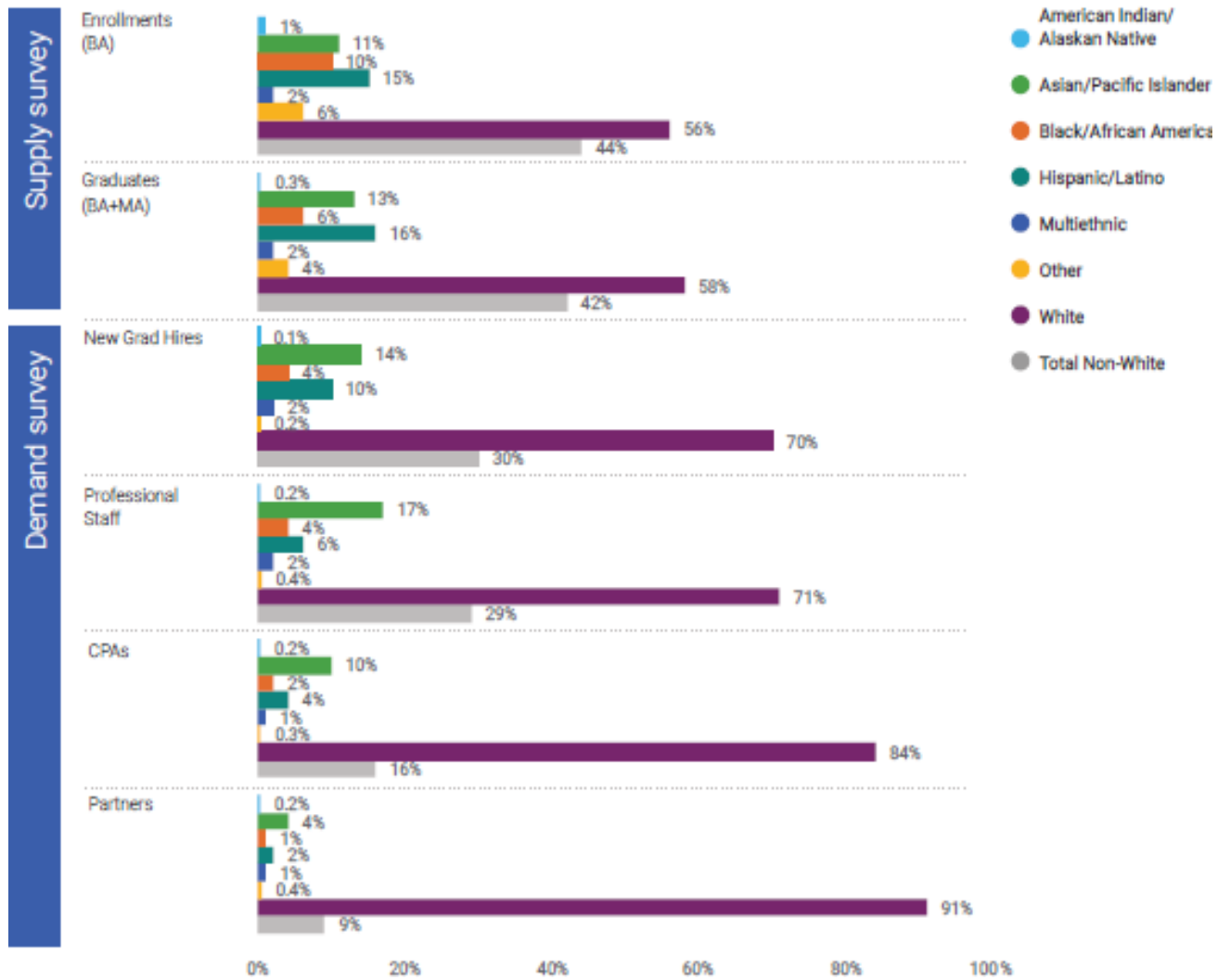
**Figure 1** displays the demand for new graduates in the accounting field from 1971 to 2018



Source – AICPA 2018 Accounting Industry Survey

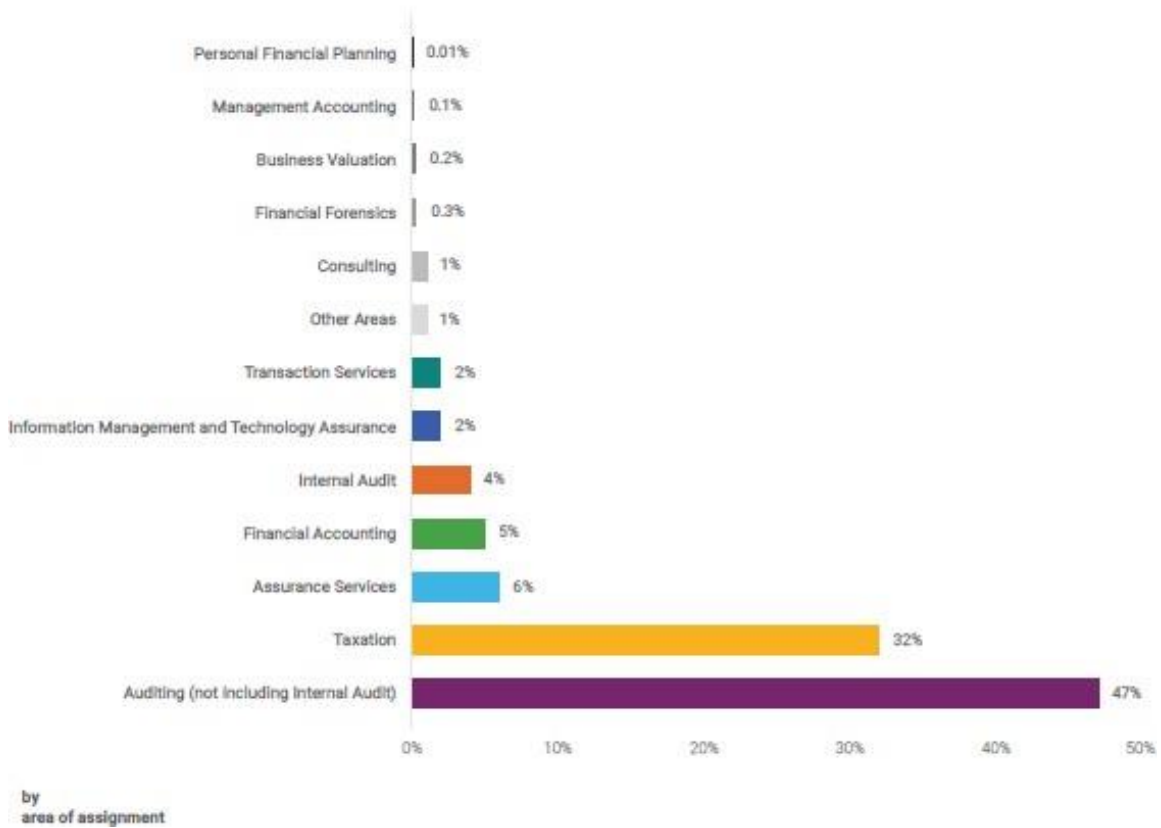
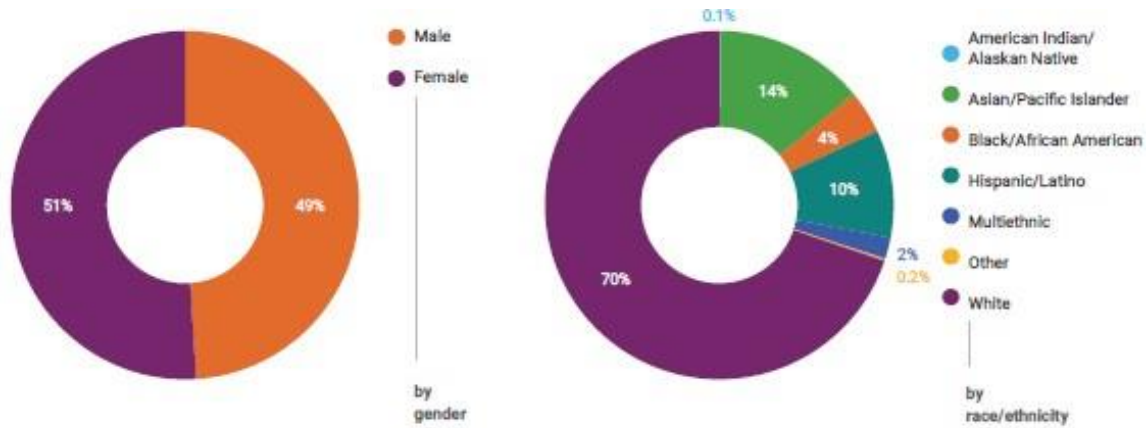


Figure 2 displays the 2018 diversity of the Certified Public Accountant (CPA) profession



Source – AICPA 2018 Accounting Industry Survey

**Figure 3** below highlights the demographics of accounting graduates as well as the career fields in which most accounting graduates pursue after graduation



Source – AICPA 2018 Accounting Industry Survey

#### **D. Reasonableness of Program Duplication**

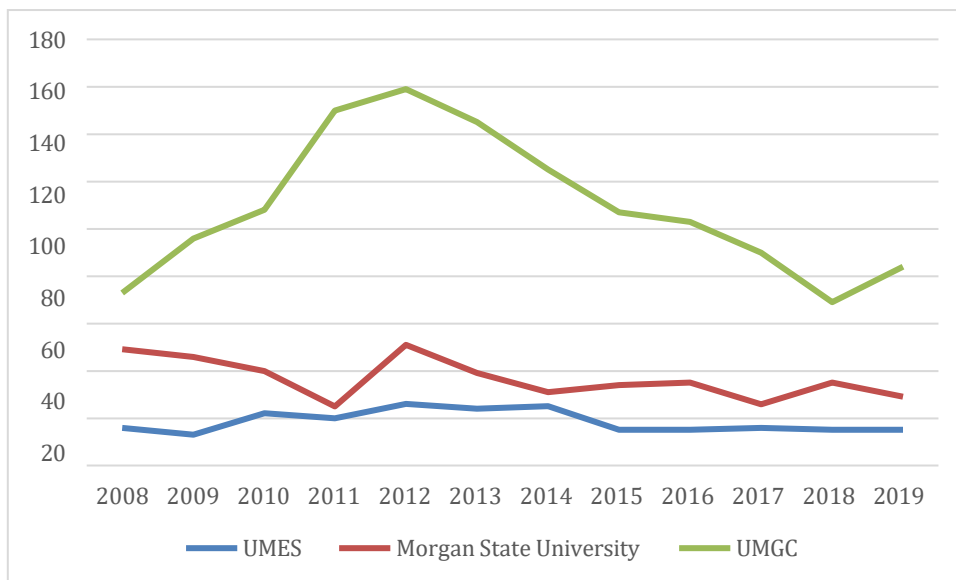
According to the state inventory, the institutions listed below currently offer undergraduate accounting degrees in Maryland. The transition of the Accounting concentration to a program at BSU will have very little impact and will not adversely affect other programs offered in the university of Maryland Systems. BSU already has a market share from the accounting concentration; as noted above, many local, regional, and national firms employ graduates from BSU. Also, the relatively large number of existing programs is not saturating the Maryland Markets for accountants, especially highly trained accountants preparing to pass the CPA exam.

<b>INSTITUTION</b>	<b>PROGRAM</b>	<b>DEGREE</b>
Coppin State University	Accounting	Bachelor's Degree
Frostburg State University	Accounting	Bachelor's Degree
Hood College	Accounting	Bachelor's Degree
Loyola University Maryland	Accounting	Bachelor's Degree
McDaniel College	Accounting	Bachelor's Degree
Morgan State University	Accounting	Bachelor's Degree
Mount St. Mary's University	Accounting	Bachelor's Degree
Mount St. Mary's University	Forensic Accounting	Bachelor's Degree
Salisbury University	Accounting	Bachelor's Degree
Stevenson University	Accounting	Bachelor's Degree
Townson University	Accounting	Bachelor's Degree
University of Maryland Eastern Shore	Accounting	Bachelor's Degree
University of Maryland College Park	Accounting	Bachelor's Degree
University of Maryland Global Campus	Accounting	Bachelor's Degree
Washington Adventist University	Accounting	Bachelor's Degree

#### **E. Relevance to High-demand Programs at Historically Black Institutions (HBIs)**

There is a high demand for trained accountants in the State of Maryland. Therefore, the State can employ high levels of accounting graduates. Most HBCUs in the State offer an accounting degree; however, the supply of accounting graduates does not exceed the State's demand. Figure 4 below displays the graduation trends with University of Maryland, Eastern Shore (UMES), Morgan State University and University of Maryland Global Campus (UMGC)

**Figure 4 - Trends in Degrees Awarded from selected Universities from 2008 to 2019**



University of Maryland Global Campus (UMGC) has been expanding its program at a rapid rate after its approval to offer its Bachelor of Accounting program. As Maryland's oldest and only HBCU in the DMV region, the transition of the accounting offering from concentration to major presents an opportunity for the program to thrive, as the state of Maryland still has an unmet need in the area of accounting.

**Discuss the program's potential impact on the implementation or maintenance of high-demand programs at HBI's.**

The proposed program continues Bowie State University's founding commitment to provide access and opportunity to diverse populations. Again, as the only Maryland HBCU in the region, accessible to Anne Arundel, Howard, and southern Maryland counties, the transition from concentration to major

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

Statistics about the CPA certification show that only 2% of blacks are CPAs. We believe our program will have very little impact on other HBCUs offering the program. BSU currently offers accounting as concentration in Business Administration program. It is expected that the inventory of students that choose BSU as their preferred place of study will continue and BSU being an HBCU will continue to increase its education of black accountants within the State of Maryland.

**G. Adequacy of Curriculum Design, Program Modality, and Related Learning Outcomes (as outlined in COMAR 13B.02.03.10):**

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

The Accounting faculty at BSU developed the curriculum using the current inventory of courses in the Bachelor of Business Administration concentration in Accounting. These courses have been vetted and approved through a stringent level of committee and departmental approvals, BSU Faculty Senate, and BSU provost's office. The design, program modality, and related learning outcomes have meant that the program has met the highest standards through these varying approval levels within BSU. It is important to note that no new courses are being added to the Bachelor of Science in Accounting change. The courses would continue to be offered in a face- to-face format.

Currently, the Business Administration Program has five (5) Accounting instructors with the highest levels of education and certification to teach the accounting courses. It is important to note that all five instructors have the Certified Public Accounting (CPA) certification and other relevant accounting certifications. Most Faculty listed are members of the American Institute of Certified Public Accountants (AICPA) and Maryland State Board of Accountancy, which mandates its members to have 40 hours of Continuing Professional Education (CPE) every year on relevant topics in accounting. Faculty are also engaged in research on topics in accounting. Currently, many Faculty in the College of Business are undergoing Quality Matters review of online and hybrid courses. The Quality Matters review emphasizes excellence within the online and hybrid course mode. It is expected that faculty after this training will attain the highest levels of excellence teaching within an online or hybrid teaching environment.

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

The accounting program curriculum is designed to meet the requirements of the AICPA, and includes the following program outcomes:

1. Apply GAAP to accounting principles to business transactions.
2. Process financial transactions throughout the accounting cycle.
3. Demonstrate competency in preparing the Statement of Cashflow
4. Apply cost accounting concepts in problem solving situations
5. Apply basic individual and business taxation concept
6. Demonstrate the ability to identify key issues, research relevant data, and propose for taxation issues encountered.

*Please see Appendix for course sequence for the Accounting program.*

3. Explain how the institution will:

- a) provide for assessment of student achievement of learning outcomes in the program
- b) document student achievement of learning outcomes in the program

The proposed program will follow the College of Business student learning outcomes assessment protocols that support ACBSP accreditation. The Accounting faculty compiles assessment results each semester and is managed by the Program Chair and the Assessment Coordinator. The data is required to be reported to the BSU’s Center for Academic Programs Assessment each year for review by internal peer evaluators. The full academic program review occurs every seven years per internal requirements and the University System of Maryland. Faculty members are evaluated annually according to the Faculty Handbook and BSU Policies and Procedures parameters. Student course evaluations are administered each semester by the Office of Planning, Analysis, and Accountability. Course evaluation results are shared with deans, department chairs, and faculty to inform course and instructional improvements.

Similar to all College of Business programs at Bowie State University, the Accounting program will undergo a bi-annual assessment of the learning outcomes to assess student achievement and implement the program interventions. ACBSP requires that assessment findings be publicly available on the programs website.

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

The courses below are currently being offered in the accounting concentration within the BS in Business Administration

**Business Core Requirements**

<b>Business Core Requirement</b> <i>(each course is 3 crh)</i>	<b>Course Description</b>
Introduction to Business MGMT 101	This is a survey course designed to acquaint students with the basic functional areas of business enterprises and covers terminology, functional issues facing managers, and the international aspects of business

Principles of Accounting I ACCT 211	This course provides students with basic knowledge, skills, and abilities to record business events in an accounting information system. This course demonstrates how financial statements are prepared and their uses in the business environment, particularly the service and merchandising industries. Topics will include identifying and recording transactions in the five basic accounts (assets, liabilities, owners' equity, revenue, and expense), posting transactions to the general ledger, adjusting journal entries, and completing the accounting cycle. Students will be introduced to current and long-term assets.
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Principles of Accounting II ACCT 212	This course focuses on accounting principles, conventions, and concepts underlying financial reporting. Emphasis is placed on the accumulation of financial data, the processes of organizing it for presentation, and its use by managers for decision-making.
Principles of Marketing MKG 231	Principles of Marketing is an introductory course, which provides a managerial approach to the study of marketing, including target market selection, product, promotion, pricing and distribution strategies appropriate for the marketing environment. Additional topics included in this course are consumer behavior, decision support systems, marketing channels and supply chain management and ethics in marketing
Principles of Management MGMT 241	This course is a study of the principles, processes, and practices of organizational management. This course examines the basic tasks of the modern manager, including planning, organizing, leading, controlling, staffing, and decision-making
Principles of Finance FINA 320	As is generally the case with introductory courses, the emphasis will be on the big picture – on the principles underlying financial decision making. While specific methods and applications will be studied, they will necessarily abstract from the complexities of real world problems. The student would thus be better served by focusing on the rationale underlying the specific applications, and in developing the analytical framework for resolving the myriad of specific problems confronting financial managers.



<p>Organizational Behavior MGMT 344</p>	<p>An examination of human behavior in organizations with emphasis on topics of importance to managers, such as group behavior, motivation, leadership, communications, conflict management, interpersonal relations and organizational development. Cases, readings and experiential exercises will be included.</p>
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<p>Business Law 1 BUAD 350</p>	<p>The Business Law I course provides a basic understanding of the principles of business law and their application to commercial activities relating to contract, agency, torts, property, sales, business organizations, commercial paper, and commercial transactions. Course Prerequisite PHIL 103 or PHIL 305 and MGMT 241. Junior standing or permission of Instructor. Learning</p>
<p>Information Systems for Management BUIS 360</p>	<p>This course is a survey of concepts, theory, and techniques of information systems for management. Emphasis is on the role of the information itself and on computer based information systems as aids to the control and operation of the organization. Case studies are used to illuminate the general manager's role in planning, specifying requirements, and controlling such systems</p>
<p>Money and Banking ECON 321</p>	<p>This course surveys the nature and function of money and credit in the economy with emphasis on the roles played by depository institutions, consumers and the Federal Reserve. It will also examine the structure of the financial market and the effects of regulation on the market and money supply.</p>
<p>Business and Economic Statistics ECON 351</p>	<p>This course introduces students to the Business and Economics applications of descriptive and inferential statistics. Such applications include measures of central tendencies and of dispersion, probability, sampling and sampling distributions, interval estimation, hypothesis testing, and regression.</p>

Professional Development and Ethics I MGT 356	This course is designed to help students develop a basic platform for professional development skills. Our foundation will consist of the following topics: Leadership, communication, professional ethics in business. You will engage in career and skills assessment, learning to build your personal brand, resume writing and the written portfolio that accompanies your brand, oral presentations, and the basic skills needed to engage the business world
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Professional Development and Ethics II MGT 358	This course is designed to help students develop a firm foundation of professional development skills including: leadership, communication, professional ethics in business. In this course, you will complete group assignments, participate in online discussions, case study analysis and complete self-assessments. These assignments will provide you with the necessary tools to succeed and emerge as a leader in the workforce.
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Business Strategy and Policy MGT 440	An examination of processes by which organizations, especially profit-seeking businesses scan their environment and adapt themselves. Issues to be examined include the planning function, development of goals and objectives, assessment of necessary organizational competencies, appropriate structure strategies, policies, and competitive posture
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Quantitative Method for Decision Making ECON 483	This course exposes students to a wide variety of problem descriptions and methods of analyses. The goal is to acquaint students with quantitative tools commonly used in business settings. This course is a study of the quantitative techniques applied in decision-making, with emphasis on application. Topics discussed include decision-making and decision analysis, linear programming, transportation and assignment problems, forecasting and time-series analysis, inventory concepts, Project management, Queuing theory and mathematical simulation.
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**Accounting Specialization Requirement**

*The courses below are currently being offered in the accounting concentration within the BS in Business Administration*

<p><b>Accounting Concentration</b></p> <p><i>(each course is 3 crh)</i></p>	<p><b>Course Description</b></p>
<p>Intermediate Accounting, I ACCT 311</p>	<p>This course is a comprehensive study of the current accounting theories supporting the generally accepted accounting principles. This course focuses on solving problems related to the classification and evaluation of all accounts associated with various types of accounting systems and their proper inclusion in the published financial statements. This course includes a review and understanding of all pronouncements, concepts, and principles relating to the accounting process.</p>
<p>Intermediate Accounting 2 ACCT 312</p>	<p>This course is a comprehensive study of the current accounting theories supporting the generally accepted accounting principles. The focus will be on problem solutions relating to the classification and evaluation of all accounts associated with the various types of accounting systems and their proper inclusion in the published financial statements, including a review and an understanding of all pronouncements, concepts, and principles relating to the accounting process.</p>
<p>Cost Accounting ACCT 313</p>	<p>Cost Accounting is the study of cost accounting concepts and practices as well as the managerial aspects in accounting for product and service costs, including: behavior of costs, and break-even point analysis, job order and process costing systems, activity- based costing systems, relevant costs and pricing decisions, variable and absorption costing and joint costs. The focus of the course is: how cost accounting helps managers make better decisions</p>

<p>Income Tax Accounting ACCT 315</p>	<p>This course is a study of the important provisions of the federal tax laws, using illustrations, selected problems, and the preparation of returns</p>
<p>Corporate and Partnership Tax Accounting ACCT 316</p>	<p>To provide students with a fundamental understanding of the body of Federal Tax Laws governing business entities: corporations, partnerships, estate and trusts. - To train students to research and interpret Tax provisions; to engage in Tax Planning; and to anticipate Tax related Outcomes/consequences due to the application of the law to Business transactions</p> <p>This course will focus on special tax provisions, unique to Corporations, Partnerships, Trusts and Estates.</p>
<p>Advanced Accounting 1 ACCT 411</p>	<p>To provide the student with an in-depth study of advanced accounting topics in preparation for an accounting career and preparation for the various professional examinations. Major topics covered include business combinations and mergers, with a special emphasis on both consolidation principles and consolidated financial statement considerations.</p>
<p>Advance Accounting 2 ACCT 412</p>	<p>These courses (Advanced I &amp; II) emphasize advanced accounting theory applied to specialized problems in partnerships, ventures, consignments, installment sales, insurance reports; the application of mathematics to accounting problems; home, office, and branch accounting; parent and subsidiary accounting; and foreign exchange.</p>
<p>Government and Institutional Accounting ACCT 413</p>	<p>This course emphasizes the concept and use of funds in accounting for nonprofit institutions. The basis of accounting for municipal and other governmental units, with emphasis on fund accounts, and the related budgetary and encumbrance procedures, also will be studied.</p>

Managerial Accounting ACCT 416	<p><b>Course prerequisites</b> The student must have successfully completed Principles of Accounting I and II or the equivalent and mastered the fundamental concepts of accounting prior to taking this course.</p>
Accounting Information System ACCT417	<p>This course covers small business accounting with the use of QuickBooks software. Topics include creating a chart of accounts, recording customer and vendor transactions, processing payroll, and printing financial reports. Setting up of a new company will be covered as well as exporting reports to Microsoft Excel. <b>Course prerequisites:</b> ACCT 311 (Intermediate Accounting) and BUIS 260 (Computer APPS for in Business).</p>
Auditing ACCT 418	<p>A study of Generally Accepted Accounting Principles and other standards. Topics covered include professional standards, professional ethics, audit planning, internal control, audit evidence, completing the audit, audit reports and standard for different assurance and non-assurance services</p>

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

Students in this program will satisfy general education requirements by taking 100-level and 200-level courses required of all Bowie State University students per the BSU catalog (see Bowie State website). See Sequence Chart in the **Appendix** for the degree requirements.

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

There are no specialized accreditation or graduate certification requirements for this program or its students. Student who seek to take the CPA licensure exam will have met the educational requirements of the exam upon successful completion of the program.

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

Not applicable, as BSU has no plans to contract with another institution or non-collegiate organization.

**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 BS in Accounting program will exist within the University's existing College of Business Business, accredited by the Accreditation Council of Business Schools and Programs (ACBSP) to offer baccalaureate and graduate degrees. ACBSP and Middle States regional accreditation require public disclosure regarding the curriculum, course and degree requirements, faculty/student interaction, 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 primary sources of this information is the University website, the College of Business website and the BSU undergraduate catalog, and Blackboard (when applicable).

**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 Bowie State University's administration and the Chair of the Department of Accounting, Finance & Economics ensure that advertising, recruiting, and admission materials will clearly and accurately represent the proposed program and the services available. Departments do not represent their programs in any manner other than what is approved by the BSU President and MHEC. If approved, this program will be represented to current and potential students precisely in accordance with program goals, courses, facilities, and services set out by this proposal and BSU administration directives pertaining to all programs. Current programs offered by the College of Business have always followed this exacting standard of accurate representation to students.

**H. Adequacy of Articulation**

**If applicable, discuss how the program supports articulation with programs at partner institutions. Provide all relevant articulation agreements.**

Bowie State University has entered into an agreement with Prince George's Community College for the AS. in Accounting. The executed agreement is attached.

**I. Adequacy of Faculty Resources (as outlined in COMAR 13B.02.03.11).**

**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 faculty member will teach in the proposed program.

**Table 1** Faculty Profiles for the Accounting Program Courses

<b>Faculty Member's Name</b>	<b>Appointment Type</b>	<b>Degree Title</b>	<b>Field</b>	<b>Academic Rank</b>	<b>Full - Time</b>	<b>Course(s) Faculty member will teach</b>
Dr. Enoch T. Osei	Tenure Track	Ph.D., CPA, CFE, ACCA	Accounting	Assistant Professor of Accounting	Full Time	4
Dr. Symon Manyara	Tenured	Ph.D. CPA, CGMA	Accounting	Associate Professor of Accounting	Full Time	4
Dr. Bernard McNeal	Tenured	DBA, CPA	Accounting	Associate Professor of Accounting	Full Time	4
Prof Samuel Duah	Tenured	CPA	Accounting	Assistant Professor of Accounting	Full Time	4
Dr. Satina Williams	Tenure Track	Ph.D., CPA	Accounting	Assistant Professor of Accounting	Full Time	4
Dr. Emmanuel Appiah	Non- Tenure track	DBA, CPA/ CFF, CGMA CFE	Accounting	Adjunct Faculty	Part Time	1



Faye Knight	Non- Tenure Track	MBA CPA	Accounting	Adjunct	Part time	2
George Nwabuku	Non Tenure Track	MBA, CPA	Accounting	Adjunct	Part Time	1

**Demonstrate how the institution will provide ongoing pedagogy training for faculty in evidenced-based best practices, including training in:**

BSU offers yearly Blackboard LMS training. Currently, many faculty in the College of Business are undergoing Quality Matters review of online and hybrid courses. Additionally, BSU's Center for Excellence in Teaching and Learning (CETL) offers the Faculty Institute prior to each Fall and Spring semester, which provides training in pedagogy, technology, and other topics related to faculty professional development.

**J. Adequacy of Library Resources** (as outlined in COMAR 13B.02.03.12).

**Describe the library resources available and/or the measures to be taken to ensure resources are adequate to support the proposed program.**

The Thurgood Marshall Library of Bowie State University supports the University's mission of teaching and learning with a collection of over 280,000 volumes (physical and electronic), over 700 academic subscription titles, an electronic portal (ResearchPort) to over 70 databases, as well as videos and DVD recordings, and experienced staff. The Library also promotes information literacy education by collaborating with the university faculty in utilizing current technology and teaching methods to enhance an instructional program that teaches library clientele how to access, evaluate, and utilize information.

As a member of the University System of Maryland and Affiliated Institutions (USMAI), Bowie State also has access to thirteen university libraries in the state of Maryland. A daily delivery between the participating libraries is provided to assist patrons in obtaining materials from other libraries in the system. Also, all registered patrons have access to interlibrary loan services, which is a resource-sharing system, for materials not available within the USMAI.

The Library's physical collection of books in the fields of philosophy, government, and economics are typical in scope and size for a university the size of Bowie State University. This collection is presently serviceable for this program's majors' instructional and research expectations. To ensure that this collection is more than sufficient for students' background

reading and research undertakings in all of this program's core and elective courses, the program's faculty are making requests for acquisitions of hundreds of additional volumes, and those requests will be fulfilled during the coming academic year.

The College of Business faculty works closely with the Library Interim Director to ensure adequate content instruction and research resources. The faculty have worked with the Library to ensure resources such as Lynda.com and ScienceDirect continue to be available for faculty and students. Also, the College of Business has a license through the University of Maryland College Park to access the Wharton Research Database systems for Data Analysis class projects and research. Through the Data Science and Analytics Initiative Advisory Board, corporations have provided data and real cases for faculty to utilize in their courses and through the capstone course.

**K. Adequacy of Physical Facilities, Infrastructure and Instructional Equipment (as outlined in COMAR 13B.02.03.13)**

BSU delivers a robust technological infrastructure with a new Data Analytics Research, Teaching, and Trading Lab (DARTT) located in the College of Business. The DARTT Lab is a new critical resource to students across disciplines to gain exposure to large data sets, software, and technology resources for innovative pedagogy and research. The interdisciplinary research lab is focused on solving large-scale data analytics problems that arise in different domains, including social networks, health care, science, retail, and business. It provides an invaluable tool for our students to gain real-world experience under the guidance of our skilled faculty community to enhance their data management, data analytics, financial trading, and research skills sets. The campus is also home to a Cray supercomputer called the Sphinx (housed in the Computer Science Building) awarded through a Department of Defense U.S. Army Research Office grant. The University also has several computer labs across campus. Each has up to 25 workstations containing standard application software and IBM SPSS Statistics version 23 that supports statistical data analysis and machine learning algorithms. The College of Business resides in a state-of-the-art building equipped with six new computer labs with 25 to 35 PCs designed for flexible, active learning environments ideal for independent and collaborative work. The University also houses four additional computer labs in the Thurgood Marshall library containing 27 to 35 PCs and one instructional lab.

All faculty (full-time, part-time, adjunct) and students at BSU have access to the University's Blackboard LMS along with a full-time staff of three who are available for technical issues and support.

**L. Adequacy of Financial Resources with Documentation (as outlined in COMAR 13B.02.03.14)**

## Resources - Tuition Revenue

	Year 1	Year 2	Year 3	Year 4	Year 5
1. Reallocated Funds	n/a	n/a	n/a	n/a	n/a
<b>2. Tuition and Fee Revenue(c+g) below</b>	<b>\$145,560</b>	<b>\$203,940</b>	<b>\$241,848</b>	<b>\$276,720</b>	<b>\$335,100</b>
(a) # number of full-time students	40	55	65	75	90
(b) Tuition/Fee Rate/per course+ Credit hr charges; assume 12 credit per semester	\$240	\$240	\$240	\$240	\$240
<b>(c) Annual Full time revenue (a*b)</b>	<b>\$115,200</b>	<b>\$158,400</b>	<b>\$187,200</b>	<b>\$216,000</b>	<b>\$259,200</b>
(d.)Part time students	10	15	18	20	25
(e) Credit hour rate	\$253	\$253	\$253	\$253	\$253

(f) annual credit hour (assuming 2 classes per semester)	12	12	12	12	12
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<b>(g) Total part time revenue (d*e*f)</b>	<b>\$30,360</b>	<b>\$45,540</b>	<b>\$54,648</b>	<b>\$60,720</b>	<b>\$75,900</b>
3 Grant, contracts and other external sources	0	0	0	0	0
4. Other Sources	0	0	0	0	0
<b>Total (add 1-4)</b>	<b>\$145,560</b>	<b>\$203,940</b>	<b>\$241,848</b>	<b>\$276,720</b>	<b>\$335,100</b>

<b>Expenditures</b>					
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
1. Total faculty (4 adjunct )	<b>\$16,000</b>	<b>\$16,000</b>	<b>\$16,000</b>	<b>\$16,000</b>	<b>\$16,000</b>
2. Additional academic support cost	0	0	0	0	0
3. Equipment	<b>\$4,000</b>	<b>\$4,000</b>	<b>\$4,000</b>	<b>\$4,000</b>	<b>\$4,000</b>
4. Library	0	0	0	0	0
5. Other Expenses - IT support Cost	0	0	0	0	0
<b>Total (1-5)</b>	<b>\$20,000</b>	<b>\$2000</b>	<b>\$20,000</b>	<b>\$20,000</b>	<b>\$20,000</b>

**M. Adequacy of Provisions for Evaluation of Program** (as outlined in COMAR 13B.02.03.15).

Each semester, this program’s courses and faculty will be evaluated using the BSU end-of-course evaluation survey. Course-embedded assignments and rubrics will be used to evaluate student learning outcomes (SLOs) relevant to a course following the Accounting student learning outcomes assessment plan.

The ongoing end-of-course evaluation survey will track students’ satisfaction with the accounting courses and faculty. These data will be aggregated for the Accounting program to assess its effectiveness. Student retention: Student enrollment numbers for the program will be monitored, and the retention rate will be calculated. Cost-effectiveness: enrollment numbers in various data analytics classes will be monitored, and revenue/cost will be calculated.

Assessments of student learning outcomes: Measured through implementation of the Accounting student learning outcomes (SLO) assessment plan.

**N. Consistency with the State’s Minority Student Achievement Goals** (as outlined in COMAR 13B.02.03.05).

As Maryland’s first Historically Black Institution, Bowie State University is committed to providing access to high quality higher education to African Americans and other under-represented minorities. The goals established in the University’s Racing to Excellence FY 2019 – FY 2024 Strategic Plan support student achievement and long-term viability of the institution and align with the goals in the 2017-2021 State Plan for Postsecondary Education: Student Success with Less Debt. Specifically, Bowie continues to support educational opportunity for Marylanders (Success, Strategy 4), engage in a continuous improvement process to ensure that institutional policies and practices support student success (Success, Strategy 5), provide alternative modalities, new programs and pedagogies and streamlined student and academic support services to facilitate timely degree completion (Success, Strategy 6) (Innovation, Strategy 9), integrate high impact practices into the student experience, including career advising and planning into internship experiences (Success, Strategy 7), partner with business, government and other institutions to support workforce development and graduate readiness (Innovation, Strategy 8), and expand support for grant participation and research (Innovation, Strategy 10). Bowie State faculty, staff, students and administrators are engaging in change management strategies and embracing experimentation so that the holistic needs of students can be better met (Innovation, Strategy 11).

Bowie State University has a long-standing core commitment to diversity; it values and celebrates diversity in all of its forms. The university community believes that its educational environment is enriched by the diversity of individuals, groups and cultures that come together in a spirit of learning. As the university aspires to even greater racial diversity, it fully embraces the global definition of diversity that acknowledges and recognizes differences and advances knowledge about race, gender, ethnicity, national origin, political persuasion, culture, sexual orientation, religion, age, and disability. The university creates positive interactions and cultural awareness among students, faculty, and staff by infusing global diversity awareness in the curriculum, expanding co-curricular programming that promotes diversity awareness, and maintains a campus climate that respects and values diversity.

**O. Relationship to Low Productivity Programs Identified by the Commission:**

This new program has no relationship with a low productivity program identified by the Commission.

**P. Adequacy of Distance Education Programs** (as outlined in COMAR 13B.02.03.22)

There are currently no plans to offer this program via distance education.

**Q. Relationship to Low Productivity Programs Identified by the Commission:**

This new program has no relationship with a low productivity program identified by the Commission.

**R. Adequacy of Distance Education Programs (as outlined in COMAR 13B.02.03.22)**

There are currently no plans to offer this program via distance education.



## APPENDIX

### Bachelor of Science in Accounting

#### *General Education and Institutional Requirements (46-47 Semester Hours)*

One course in each of two disciplines in arts and humanities (6 Semester Hours)

PHIL 305 - Ethics and Public Policy (Required for Accounting; 3 Credits)

\_\_\_\_ \_\_\_\_ - Arts and Humanities Elective (COMM 101 or 103 recommended) (3 Credits)

#### **Communications, Theatre, Art, Music and Modern Language Courses**

COMM 101 - Oral Communication (3 Credits)

COMM 103 - Public Speaking (3 Credits)

ENGL 211 - Literatures of the World (3 Credits)

ENGL 212 - The African American Literary Imagination (3 Credits)

ENGL 213 - Cinema of Africa and the African Diaspora (3 Credits)

THEA 100 - Acting (For Non Majors) (3 Credits)

THEA 105 - Introduction to Theatre (3 Credits)

THEA 110 - Pilates Fitness (3 Credits)

FREN 101 - First-Year French I (3 Credits)

FREN 102 - First-Year French II (3 Credits)

SPAN 101 - First-Year Spanish I (3 Credits)

SPAN 102 - First-Year Spanish II (3 Credits)

Two science courses, at least one of which shall be a laboratory course (7-8 Semester Hours)

\_\_\_\_ \_\_\_\_ Science Elective I (3/4 Credits)

\_\_\_\_ \_\_\_\_ Science Elective II (3/4 Credits)

#### **Biology, Chemistry, Physics, and Physical Science Courses**

BIOL 101 - Biological Science (4 Credits)

BIOL 203 - Oceanus (3 Credits)

CHEM 107 - General Chemistry I (4 Credits)

PHYS 271 - General Physics I (4 Credits)

PHYS 272 - General Physics II (4 Credits)

PHSC 100 - Physical Science (4 Credits)

PHSC 101 - Earth Science I (4 Credits)

One course in mathematics at or above the level of college algebra (3 Semester Hours)

#### **Math Courses**

MATH 125 - College Algebra (3 Credits)

MATH 127 - Introduction to Mathematical Ideas (3 Credits)

MATH 118 - Finite Mathematics (3 Credits)

MATH 125 - College Algebra (3 Credits)

MATH 141 - Precalculus I (3 Credits)

MATH 150 - Comprehensive Precalculus (4 Credits)

MATH 215 - Elements of Calculus (4 Credits)

Two courses in English composition (6 Semester Hours)

ENGL 101 - Expository Writing (3 Credits)

ENGL 102 - Argument and Research (3 Credits)

**One course in each of two disciplines in social and behavioral sciences (6 Semester Hours)**

HIST 114 - African American History to 1865 (3 Credits)

or

HIST 115 - African American History Since 1865 (3 Credits)

**Economics, History, Anthropology, Political Science Sociology, Psychology, Geography, Social Work or Interdisciplinary Social Science Courses (COB students require a minimum of a C to pass these courses.)**

ECON 211 - Prin of Macroeconomics (3 Credits)

ECON 212 - Prin of Microeconomics (3 Credits)

SOCI 101 - Introduction to Sociology (3 Credits)

SOCI 203 - Deviant Behavior (3 Credits)

CRJU 201 – Introduction to Law Enf & CRJ (3 Credits)

GOVT 130 - Introduction to Political Science (3 Credits)

GOVT 140 - Introduction to Comparative Politics 3 Credits

GOVT 231 - US National Government 3 Credits

GOVT 240 - Black Politics in the United States 3 Credits

GEOG 101 - Elements of Geography 3 Credits

CAAS 101 - Introduction to Child & Adolescent Development 3 Credits

CAAS 282 - Child Abuse and Family Violence 3 Credits

PSYC 101 - General Psychology 3 Credits

PSYC 200 - Introduction to Psychopathology 3 Credits

**Free General Education Electives (9 Semester Hours) COB students require a minimum of a C to pass these courses.**

ECON 211 - Prin of Macroeconomics 3 Credits

or

ECON 212 - Prin of Microeconomics 3 Credits and

FINA 222 - Personal Finance 3 Credits

DANL 280 - Fundamentals of Data Science and Analytics 3 Credits

**\*Students who satisfied Principles of Macro/Microeconomics are encouraged to take COMM 103, ENGL 211, 212, 213 or MATH 141, 215**

**One course in technology (3 Semester Hours)**

BUIS 260 - Database for Business 3 Credits

Note:

BUIS 260 is a technology requirement for Gen-ed and COB students require a minimum of a C to pass this course.

**Institutional Requirements (6 Semester Hours)**

HEED 102 - Life and Health 3 Credits or  
HEED 200 - Fundamentals of Sex Education 3 Credits or  
IDIS 210 - Women's Health Issues 3 Credits  
FRSE 101 - Freshman Seminar 3 Credits

**Note:**

Students are encouraged to take SUMMER courses and attend MINI-SEMESTER in order to have a manageable semester load. In keeping with COMAR, the College of Business reserves the right to specify suitable general education courses for all majors.

*Core School Requirements (48/51 semester hours)*

ACCT 211 - Principles of Accounting I 3 Credits  
ACCT 212 - Principles of Accounting II 3 Credits  
BUAD 350 - Business Law I 3 Credits  
BUIS 360 - Information Systems for Management 3 Credits \*\*\*\*  
ECON 321 - Money, Banking and Financial Markets 3 Credits  
ECON 351 - Bus/Econ Stat I 3 Credits  
ECON 483 - Quantitative Methods Dm 3 Credits  
ENGL 361 - Technical and Professional Writing 3 Credits  
FINA 320 - Principles of Finance 3 Credits  
MGMT 101 - Introduction to Business 3 Credits  
MGMT 241 - Principles of Management 3 Credits  
MGMT 344 - Organizational Behavior 3 Credits  
MGMT 356 - Professional Development I 2 Credits  
MGMT 358 - Professional Development II 1 Credits  
MGMT 440 - Business Strategy & Pol 3 Credits  
MGMT 480 - Production and Oper Mgmt 3 Credits  
MKTG 231 - Principles of Marketing 3 Credits

**Note:**

\*\*\*\*Accounting students must take BUAD 351 (Business Law II), instead of BUIS 360.

*Required Courses in Accounting (33 semester hours)*

ACCT 311 - Inter Accounting I 3 Credits  
ACCT 312 - Inter Accounting II 3 Credits  
ACCT 313 - Cost Accounting 3 Credits  
ACCT 315 - Income Tax Accounting 3 Credits  
ACCT 316 - Corp & Partnership Acct 3 Credits  
ACCT 411 - Advanced Accounting I 3 Credits  
ACCT 412 - Advanced Accounting II 3 Credits  
ACCT 413 - Gvt & Institutional Acct 3 Credits  
ACCT 416 - Managerial Accounting 3 Credits  
ACCT 417 - Accounting Systems 3 Credits

ACCT 418 - Auditing 3 Credits

**Sample Program Plan**

*Freshman Year*

**First Semester**

**Second Semester**

ENGL 101 - Expository Writing 3 Credits	MGMT 101 - Introduction to Business 3 Credits
FRSE 101 - Freshman Seminar 3 Credits	ENGL 102 - Argument and Research 3 Credits
HEED 102 - Life and Health 3 Credits	HIST 114 - African American History to 1865 3 Credits or HIST 115 - African American History Since 1865 3 Credits
MATH 125 - College Algebra 3 Credits	COMM 101 - Oral Communication 3 Credits
FINA 222 - Personal Finance 3 Credits	BIOL 203 - Oceanus 3 Credits
Total: 15	Total: 15

*Sophomore Year*

**First Semester**

**Second Semester**

MGMT 241 Principles of Management 3 Credits	ENGL 361 - Technical and Professional Writing 3 Credits
MKTG 231 -Principles of Marketing 3 Credits	PHSC 100 - Physical Science 4 Credits or PHSC 101 - Earth Science I 4 Credits
ACCT 211 - Principles of Accounting I 3 Credits	ACCT 212 - Principles of Accounting II 3 Credits
BUIS 260 - Database for Business 3 Credits	BUIS 360 - Information Systems for Management 3 Credits
PHIL 103 - Introduction to the Principles of Reasoning 3 Credits	ECON 211 - Prin of Macroeconomics 3 Credits

*Junior Year*

**First Semester**

**Second Semester**

ECON 212 - Prin of Microeconomics 3 Credits	FINA 320 - Principles of Finance 3 Credits
ECON 321 - Money, Banking and Financial Markets 3 Credits	BUAD 350 - Business Law I 3 Credits
MGMT 344 - Organizational Behavior 3 Credits	MGMT 480 - Production and Oper Mgmt 3 Credits

MGMT 356 - Professional Development I 2 Credits	ECON 483 - Quantitative Methods Dm 3 Credits
MGMT 358 - Professional Development II 1 Credits	ACCT 311 - Inter Accounting I 3 Credits
ECON 351 - Bus/Econ Stat I 3 Credits	
Total: 15	Total: 15

*Senior Year*

**First Semester**

**Second Semester**

ACCT 312 - Inter Accounting II 3 Credits	ACCT 313 - Cost Accounting 3 Credits
ACCT 411 - Advanced Accounting I 3 Credits	ACCT 412 - Advanced Accounting II 3 Credits
ACCT 315 - Income Tax Accounting 3 Credits	ACCT 316 - Corp & Partnership Acct 3 Credits
ACCT 413 - Gvt & Institutional Acct 3 Credits	ACCT 416 - Managerial Accounting 3 Credits
ACCT 417 - Accounting Systems 3 Credits	ACCT 418 - Auditing 3 Credits
Total: 15	Total: 15

**ACADEMIC PROGRAM ARTICULATION AGREEMENT BETWEEN  
Prince George's Community College and  
Bowie State University**

This Academic Program Articulation Agreement ("Agreement") is entered into by and between Prince George's Community College (the "Sending Institution") and Bowie State University, a constituent institution of the University System of Maryland, an agency and instrumentality of the State of Maryland, (the "Receiving Institution") (collectively, the "Institutions") to facilitate the transfer of academic credits from the following programs: Biology, A.S. (HEGIS: 4920.01, CIP Code: 26.0101), Business Administration, A.S. (HEGIS: 4970.01, CIP Code: 52.0101), Computer Science, A.S. (HEGIS: 4980.01, CIP Code: 11.0101), Criminal Justice, A.A. (HEGIS: 4930.09, CIP Code: 43.0100), Nursing, A.S. (HEGIS: 5208.01, CIP Code: 51.3801), Psychology, A.A. (HEGIS: 4930.10, CIP Code: 42.0101), Human Services, A.A.S. (HEGIS: 5216.02, CIP Code: 44.0000), Dance, A.A. (HEGIS: 4930.11, CIP Code: 50.0301), Visual Communication/Graphic Design, A.A.S. (HEGIS: 5012.16, CIP Code: 50.0402), Accounting Professional, A.A.S. (HEGIS: 5002.01, CIP Code: 52.0302), Art A.A (HEGIS; 4930.12, CIP Code: 50.0701), Cybersecurity, A.A.S. (HEGIS; 5101.02, CIP Code: 11.1003), Cloud Technologies, A.A.S. (HEGIS; 5101.08, CIP Code: 11.0902) Data Science and Analysis, A.A.S (HEGIS; 5101.07, CIP Code: 30.7001), Mass Communication, A.A. (HEGIS; 4930.02, CIP Code: 9.0102), Public Relations and Journalism AA (HEGIS; 4930.08, CIP Code: 9.9999) for the completion of the Biology, B.S., Business Administration, B.S., Computer Science, B.S., Criminal Justice, B.S., RN to Nursing, B.S., Psychology, B.S. or B.A., or Social Work B.S.

### **A. Qualifying Students**

This Agreement pertains to the transfer of "Qualifying Students" (*i.e.*, students who):

1. Have completed the program at Prince George's Community College.
2. Are enrolled in Prince George's Community College, in good standing.
3. Are accepted for admission to Bowie State University.
4. Students completing the articulated program(s) must maintain a 2.0 or better grade point average, with a grade of "C" or higher, to transfer to Bowie State University.
5. Should students choose to transfer before completing the associate's degree, they will be responsible for meeting Bowie State University's eligibility requirements.

### **B. Responsibilities of the Institutions**

The Institutions agree to implement the transfer of Qualifying Students in accordance with applicable law and the following requirements and protocols:

1. A Qualifying Student may transfer from Prince George's Community College to Bowie State University for the completion of certain programs as listed below.
2. Programs for which Bowie State University will accept credits for towards the completion of degrees include:

**Table 1: Programs Articulated**

<b>Prince George's Community College Degree Programs</b>	<b>Bowie State University Comparable Degree Programs</b>
Biology, A.S.	Biology, B.S.
Business Administration, A.S.	Business Administration, B.S.
Computer Science, A.S.	Computer Science, B.S.
Criminal Justice, A.A.	Criminal Justice, B.S.
Nursing, A.S.	RN to Nursing, B.S.
Psychology, A.A.	Psychology, B.S. or B.A.
Health Sciences, A.S.	Pending-Approved for full Articulation Transfer.
Human Services, A.A.S.	Social Work, B.S.
Dance A.A.	Dance, B.A.
Visual Communication/Graphic Design, A.A.S.	Visual Communication Digital and Media Arts B.S.
Visual Communication/Graphic Design, A.A.S.	Immersive Media, Entertainment and Gaming B.S.
Accounting Professional A.A.S.	Accounting B.S.
Art A.A.	Art B.A.
Cybersecurity, A.A.S.	Cybersecurity B.S.
Cloud Technology, A.A.S.	Pending-Approved for full Articulation Transfer.
Data Science and Analysis, A.A.S.	Pending-Approved for full Articulation Transfer.
Biology, A.S.	Bioinformatics B.S.
Mass Communication, A.A.	Communications Broadcast Journalism B.S.
Public Relations and Journalism, A.A.	Communications Broadcast Journalism B.S.
Public Relations and Journalism, A.A.	Communications Print Journalism B.S.

*\*Additional articulated programs may be added to this agreement based on mutual written agreement between Prince George's Community College and Bowie State University.*

3. Credits that Bowie State University will accept towards completion of each degree program are provided in Table 1: Biology, Business Administration, Computer Science, Criminal Justice, Nursing, Psychology, Social Work, Dance, Visual Comm Digital and Media, Immersive Media, Entertainment and Gaming, Accounting Professional, Art, Cybersecurity, Cloud Technology, Data Science and Analysis, Mass Communication, and Public Relations.



4. **Acceptance of Credits:** Based on the programs list (see Table 1), Bowie State University guarantees the transferability and applicability of all credits outlined in the Prince George's Community College programs included within this Agreement. A maximum of 60 credits hours from Prince George's Community College will be allowed to fulfill the 120 credit hours required for the baccalaureate completion. All courses and credits meeting general education requirements and program requirements at Prince George's Community College will transfer and apply to degree completion at Bowie State University. All other Courses and credits not specified will be reviewed on a course-by-course basis for equivalency. The maximum number of credits Bowie State University will accept towards degree requirements from non-direct classroom instruction (including CLEP, Co-op Education, AP, and other nationally recognized standardized examination scores) is 30. Non-Direct Classroom credits earned through any combination of approved examinations or college-level experiential learning may be applied towards completing a Bowie State University degree. Any applied credits of this type must be in addition to the minimum 45 credits taken at Bowie State University (see Undergraduate Transfer and Matriculation). The appropriate Program Chair(s) will determine credits satisfying major field requirements.

Students transferring to Bowie State University in or after Fall 2002 from another appropriately accredited institution of higher learning for a bachelor's degree must earn a minimum of 45 of their final 60 credits through course work at Bowie State University, excluding credits from experiential learning. Associations recognized by the United States Department of Education (USDE) and the Commission of Higher Education (CHEA) confer appropriate accreditation; these associations include but are not limited to regional accreditors.

5. **Scholarship Information:** 5. Scholarship Information: Prince George's Community College students who have completed an associate's degree in Biology, A.S., Business Administration, A.S., Computer Science, A.S., Criminal Justice, A.A., Nursing, A.S., Psychology, A.A., Human Services, A.A.S., Dance, A.A., Visual Communication/Graphic Design, A.A.S., Accounting Professional, A.A.S., Art A.A., Cybersecurity, A.A.S., Cloud Technologies, A.A.S., Data Science and Analysis, A.A.S., Mass Communication, A.A., Public Relations and Journalism, A.A. For the completion of the Biology, B.S., Business Administration, B.S., Computer Science, B.S., Criminal Justice, B.S., RN to Nursing, B.S., Psychology, B.S. or B.A., or Social Work B.S.
6. **Benefits to Students:** Bowie State University offers the following benefits for Prince George's Community College students who transfer under this Agreement:

*Bowie State University offers students an application fee waiver for those who apply online. Upon acceptance to Bowie State University, Prince George's Community College graduates from the articulated degree programs will meet one-on-one with Bowie State University academic and faculty advisors to review his/her curriculum plan and register for courses.*

7. **Promotion/Outreach:** Prince George's Community College and Bowie State University agree to publicize this Agreement via, but not limited to, marketing materials and information sessions. Prince George's Community College and Bowie State University agree to collaborate to schedule transfer day visits and advising sessions, including virtual options.
  
8. **Term/Monitor/Review:**
  - A) The initial term of this Agreement shall be two years from the date of the last signature, with three (3) automatic renewals of two years each.
  - B) Prince George's Community College and Bowie State University agree to monitor the performance of this Agreement biannually for the first year and biennially after that.
  - C) Bowie State University will establish a mechanism to provide data on the academic progress and number of transfer students enrolled due to this Agreement, including but not limited to, statistical data compiled from non-specific student information.
  - D) Prince George's Community College and Bowie State University agree to communicate program changes promptly to avoid disrupting student progression towards degree completion.
  
9. Bowie State University shall designate and provide Prince George's Community College with the contact information for a staff person who is responsible for the oversight of the transfer of Qualifying Students. Prince George's Community College shall designate, and shall provide Bowie State University, the contact information for a staff person who is responsible for overseeing the transfer of Qualifying Students.

	<b>Prince George's Community College</b>	<b>Bowie State University</b>
Name of staff person responsible for oversight	Dr. Kyle Turman	Ms. Jasmin Hurling Spears
Title of the staff person	Program Director for Transfer Services	Sr. Transfer Admissions Counselor & Transfer Partnership Coordinator
Email address	Turmankx@pgcc.edu	jhurlingspears@bowiestate.edu
Telephone Number	301-546-0829	301-860-4848

Should the staff person or position change, the Institution will promptly provide new contact information to the partner institution and inform the Maryland Higher Education Commission of the change.

Additional contact information:

	<b>Prince George's Community College</b>	<b>Bowie State University</b>
Dean or Program Coordinators		

Name of person	Dr. Clayton Railey	Dr. Jacqueline Cade
Title of person	Executive Vice President & Provost	Director of Institutional & Academic Programming
Email address	raileyc@pgcc.edu	jcade@bowiestate.edu
Telephone Number	301-546-0406	301-860-3110

10. Suppose the Qualifying Student uses federal Title 38 VA Education Benefits (GI Bill® Education Benefits). In that case, the Institutions shall adhere to all applicable U.S. Department of Veterans Affairs regulations, including the rules governing the awarding of prior credit, as regulated under Title 38, Code of Federal Regulations, Sections 21.4253(d)(3) and 21.4254(c)(4).
11. Each Institution shall adhere to all applicable transfer requirements set forth in the Annotated Code of Maryland and the Code of Maryland Regulations.
12. Each Institution shall advise students regarding transfer opportunities under this Agreement and notify students of financial aid opportunities and implications associated with the transfer.
13. If either Institution changes program requirements, the Institution will inform the partner institution immediately. The articulation agreement should be updated to reflect the changes and forwarded to the Maryland Higher Education Commission.

### **C. Term and Termination**

1. This Agreement shall be effective on the date it is signed by the appropriate and authorized representatives of each Institution.
2. Either Institution may, at its sole discretion, terminate this Agreement upon delivering 90 days' written notice to the other Institution and the Maryland Higher Education Commission for due cause. Termination of the Agreement will not affect any students currently enrolled at Prince George's Community College in the name of the major at the time of termination. They shall be able to transfer credits according to this Agreement.
3. Both Institutions agree to meet once every two years (s) to review the terms of this Agreement. An annual review will be required without signatures.

### **D. Amendment**

1. This Agreement constitutes the entire understanding and Agreement of the Institutions concerning their rights and obligations in carrying out the terms of the Agreement and supersedes any prior or contemporaneous agreements or contracts.
2. This Agreement may be modified only by a written amendment executed by both Institutions.

### **E. Governing Law**

This Agreement shall be governed by, and construed following, the laws of the State of Maryland.

### **F. Counterparts**

This Agreement may be executed in counterparts, each of which shall be deemed to be an original, but all of which, taken together, shall constitute the same Agreement.

### **G. Notice of Agreement**

1. Prince George's Community College agrees to provide a copy of this Agreement, with any amendments, to the Maryland Higher Education Commission.
2. The Institutions agree to provide copies of this Agreement to all relevant individuals and departments, including but not limited to students, academic department chairs participating in the transfer, offices of the president, registrar's offices, and financial aid offices.

### **H. No Third-Party Beneficiaries**

There are no third-party beneficiaries of this Agreement.

### **I. Representations and Warranties of the Parties**

Both Institutions represent and warrant that the following shall be true and correct as of the Effective Date of this Agreement and shall continue to be accurate and valid during the term of this Agreement:

1. The Institutions are and shall remain in compliance with all applicable federal, state, and local statutes, laws, ordinances, and regulations relating to this Agreement, as amended from time to time.
2. Each Institution has taken all actions necessary for the approval and execution of this Agreement.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized representatives.

**Prince George's Community College**

By:



\_\_\_\_\_  
Dr. Clayton Railey  
Executive Vice President & Provost

11/20/24

\_\_\_\_\_  
Date

**Bowie State University**

By:



\_\_\_\_\_  
Guy-Alain Amoussou, Ph.D.  
Provost

11/20/2024

\_\_\_\_\_  
Date

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**TOPIC:** University of Maryland, Baltimore proposal to offer an MS in Trauma Sciences

**COMMITTEE:** Education Policy and Student Life and Safety

**DATE OF COMMITTEE MEETING:** January 30, 2025

**SUMMARY:** UMB's proposed M.S. in Trauma Sciences is designed to enhance the education of healthcare professionals who care for injured patients and engage in or study trauma systems. Currently, many healthcare professionals in trauma, emergency medicine, and trauma critical care receive much of their training through on-the-job, "just-in-time" learning. The program also aims to provide non-physician professionals with access to educational resources that will strengthen their ability to contribute as essential members of the multidisciplinary teams required to deliver optimal trauma care. This program is a collaboration between the University of Maryland School of Graduate Studies and the R. Adams Cowley Shock Trauma Center and will be the first of its kind in the United States. This 30-credit online program is designed for individuals interested in working in healthcare: surgeons, anesthesiologists, nurses, operating room personnel, and allied healthcare workers. The degree provides students with the education and concrete training needed to engage with and respond to issues of critical illness, injury, and trauma.

The proposed degree responds to significant and increasing challenges in caring for patients with somatic traumatic injuries in health systems across the globe. An estimated seven million people die annually due to trauma-related causes, making traumatic injury one of the leading causes of death in the world today. Traumatic injuries associated with both unintentional and intentional mechanisms are a significant global public health problem for which there are a paucity of viable solutions. The objective of this degree is to enhance interprofessional and interdisciplinary trauma care through specialized education targeted at multiple types of health care providers. We aim to provide relevant trauma knowledge, leadership, and competencies through specialty education.

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

**FISCAL IMPACT:** No additional funds are required. The program can be supported by the projected tuition and fee revenue.

**CHANCELLOR'S RECOMMENDATION:** That the Education Policy and Student Life and Safety Committee recommend that the Board of Regents approve the University of Maryland, Baltimore proposal to offer an MS in Trauma Sciences.

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COMMITTEE RECOMMENDATION:

DATE:

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BOARD ACTION:

DATE:

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SUBMITTED BY: Alison M. Wrynn 301-445-1992

awrynn@usmd.edu

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January 15, 2025

Jay A. Perman, MD  
Chancellor  
University System of Maryland  
3300 Metzgerott Road  
Adelphi, MD 20783

Dear Chancellor Perman:

On behalf of the University of Maryland, Baltimore please find attached our proposal to establish a new Academic Program, *Master of Science in Trauma Sciences*, within the School of Graduate Studies. This proposed academic program is being simultaneously submitted for approval to the Maryland Higher Education Commission.

UMB's proposed M.S. in Trauma Sciences is designed to enhance the education of healthcare professionals who care for injured patients and engage in or study trauma systems. This program is a collaboration between the University of Maryland School of Graduate Studies and the R Adams Cowley Shock Trauma Center and will be the first of its kind in the United States. This 30-credit online program is designed for individuals interested in working in healthcare: surgeons, anesthesiologists, nurses, operating room personnel, and allied healthcare workers. The degree provides students with the education and concrete training needed to engage with and respond to issues of critical illness, injury, and trauma.

Currently, many healthcare professionals in trauma, emergency medicine, and trauma critical care receive much of their training through on-the-job, "just-in-time" learning. The program also aims to provide non-physician professionals with access to educational resources that will strengthen their ability to contribute as essential members of the multidisciplinary teams required to deliver optimal trauma care.

Should you require additional information, please contact Meghan Bruce Bojo, Executive Director of Academic Administration, at [mbojo@umaryland.edu](mailto:mbojo@umaryland.edu) or 410-706-2055.

Regards,



Dr. Roger J. Ward, JD, MSL, MPA  
Provost and Executive Vice President

**UNIVERSITY SYSTEM OF MARYLAND INSTITUTION PROPOSAL FOR**

- New Instructional Program
- Substantial Expansion/Major Modification
- Cooperative Degree Program
- Within Existing Resources, or
- Requiring New Resources

University of Maryland, Baltimore

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Institution Submitting Proposal

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Master of Science in Trauma Sciences  
Title of Proposed Program

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Master of Science in Trauma Sciences

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Fall 2026

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Award to be Offered

---

Projected Implementation Date

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51.9999

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Proposed HEGIS Code

---

Proposed CIP Code

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University of Maryland Baltimore School of  
Graduate Studies

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Meghan Bruce Bojo

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Department in which program will be  
located

---

Department Contact

---

410-706-2055

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[mbojo@umaryland.edu](mailto:mbojo@umaryland.edu)

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Contact Phone Number

---

Contact E-Mail Address

---



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January 15, 2025

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Signature of President or Designee

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Date



**A PROPOSAL FOR A NEW ACADEMIC PROGRAM at THE UNIVERSITY OF  
MARYLAND, BALTIMORE FOR A MASTER OF SCIENCE IN TRAUMA SCIENCES**

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**A. Centrality to Institutional Mission and Planning Priorities:**

**1. Provide a description of the program, including each area of concentration (if applicable), and how it relates to the institution's approved mission.**

The University of Maryland, Baltimore (UMB) School of Graduate Studies (SGS) submits this proposal to create a two-year Master of Trauma Sciences program. This program will be sponsored within the SGS and supported by the R Adams Cowley Shock Trauma Center (STC). This will be an online, 30-credit program, with one clinical elective course offered in-person. The proposed degree will train students in the clinical science and systems of care for the physically injured trauma patient. The audience includes national and international students who have a trauma-focused career, including but not limited to physicians, advanced care practitioners, nurses, emergency medical staff, medical trainees, and researchers.

The curriculum for the proposed M.S. in Trauma Sciences is informed by competencies and standards set forth by the R Adams Cowley Shock Trauma, the American College of Surgeons, the American Association for the Surgery of Trauma, the European Society for Trauma and Emergency Surgery, the International Association for Trauma and Surgical Critical Care, and the World Health Organization Global Emergency and Trauma Care Initiative. The R Adams Cowley Shock Trauma Center (STC) in Baltimore is a world recognized leader in the care of the injured patient and an ideal site for a master's degree in Trauma Sciences.

STC cares for over 7,000 injured patients every year and is deeply integrated with UMB's academic medical center, both through its central location on campus and its alignment with UMB's mission to serve the public good of Maryland and society as a whole. STC is the Primary Adult Resource Center (PARC) for trauma in Maryland, and serves severely injured and critically ill patients across the state of Maryland. There is a wealth of trauma knowledge at STC and extensive experience in didactic education offered to on-site Surgical Critical Care Fellows and Senior Residents in General Surgery.

Over 350 residents and 40 fellows from greater than 35 surgical training programs participate in rotations through STC per year, seeking to experience a wide variety of complex traumatic pathology. STC trains residents and fellows from the disciplines of general surgery, emergency medicine, anesthesia, internal medicine, neurology, pediatric critical care, and interventional radiology. Most residents, however, are from general surgery and emergency medicine programs at small, community hospitals and many intend to practice in rural or suburban settings. These physicians will serve as the frontline of trauma care in low-resource settings with limited personnel, requiring a strong foundation of knowledge to treat patients effectively and efficiently. The proposed master's program will extend training to other team members beyond current residents and fellows.

The seminal studies on shock and the care of multiple injured patients done at STC contributed to the development of the concept of the “Golden Hour” that has guided care of the physically injured trauma patient around the world for over 50 years. The course “Trauma: The First Hour” was created to provide standardized, consistent education for those rotating at STC. It consists of ten modules, and each reflects the immediate care of patients who present to a trauma center within the first hour of their arrival. Experts who work at STC filmed didactic lectures that are anywhere from five and 30 minutes about relevant topics. Each module has one to three didactic videos, a short quiz, resources from the trauma literature, and an evaluation. These are done asynchronously, but are mandatory for the rotation. Since implementing this course, residents have consistently evaluated it as one of the best parts of their rotation. Feedback has been consistently positive, highlighting that the course has raised and standardized the level of education provided. Given the positive response of this pilot and feedback, an infrastructure and team necessary to create online, asynchronous training in trauma care has already been established and will be built upon for the Master in Trauma Sciences.

Trauma care education has traditionally involved in-person training, lectures, and symposia. This proposed online academic program, the first of its kind, is intended to expand the reach of didactic education in the clinical science of trauma care and trauma systems. This new program will provide learners with training to provide better clinical care and systems management without the traditional barriers of time, distance, and scheduling limitations of in-person programs. In so doing, this program will enable UMB to improve care of injured patients throughout Maryland and beyond.

**2. Explain how the proposed program supports the institution’s strategic goals and provide evidence that affirms it is an institutional priority.**

UMB has a long history as an academic leader in trauma care and research and the development of trauma care systems. The M.S. in Trauma Sciences will continue this tradition of excellence and enhance the reach of UMB’s impact to a more geographically diverse audience. The proposed program will be the only program in the United States with an academic focus on the science of trauma and trauma systems of care extending from prevention and prehospital care to rehabilitation and reintegration. The graduates of this program will be uniquely prepared for advancing trauma care as well as assuming leadership positions in trauma systems.

This program directly aligns with two UMB strategic plan themes: Student Growth and Success and Global Engagement and Education. It provides education to enhance clinical care of trauma patients that is accessible to working professionals who would otherwise be limited by the bounds of geography and availability. Additionally, this program will be the only graduate program in the United States with a specific academic focus on research and scholarship on trauma systems and clinical care. The online learning platform provides a unique opportunity for health system leaders in countries with new or developing trauma programs to enhance their programs with evidence-based standards of care. This new program creates opportunities for academic collaboration across departments, schools, and campuses within the State of Maryland, as well as nationally and internationally.

**3. Provide a brief narrative of how the proposed program will be adequately funded for at least the first five years of program implementation.**

The proposed program will be well-resourced as there is an already existing faculty and strong foundation in education and training to support the proposed M.S. in Trauma Sciences. STC and the UMB SGS have the capacity to offer the proposed degree program within existing resources.

**4. Provide a description of the institution’s commitment to ongoing administrative, financial, and technical support of the proposed program and continuation of the program for a period sufficient to allow enrolled students to complete the program:**

The Dean of the UMB SGS has identified this program as a top priority and committed significant resources to startup costs and ongoing administrative support of this program. Two associate deans and the director of admissions are actively involved in the program planning and launch. SGS’s values and processes, including instructional expertise and student advising, will ensure a high-touch learning experience for students. Furthermore, a comprehensive set of support services are provided to aid students through the UMB Division of Student Affairs. UMB has also invested in technical assistance through its Center for Information Technology Services and the Faculty Center for Teaching and Learning, which both assist faculty and students to attain success as teachers and learners, respectively. If for some unforeseeable reason the university discontinues the M.S. in Trauma Sciences, then UMB is committed to a teach-out plan for all enrolled students so they may complete the program and earn their degree.

**B. Critical and Compelling Regional or Statewide Need as Identified in the State Plan:**

In his opening letter in the 2017-2021 Maryland State Plan, Secretary of Education Dr. James Felder outlines the strategic aims for higher education in Maryland as “*Access, Success, and Innovation*” as well as acknowledges the challenges associated with the increasing popularity of online learning. These three primary goals remained the same in the 2022 State Plan for Higher Education and were highlighted further, with importance stressed on equity of education and agility to respond to the changing needs of the workforce secondary to COVID 19. The online Masters in Trauma Sciences is a unique addition to secondary education and offers benefits to healthcare providers and administrators who seek further knowledge and skills to care for the injured patient, but have not since had an avenue to do so. SGS’s advanced online learning platform and STC’s experience with asynchronous training will, for the first time, permit high quality online learning in trauma care.

The master’s in Trauma Sciences is designed to meet all three of the goals as outlined by the 2022 State Plan for Higher Education.

GOAL 1: STUDENT ACCESS Ensure equitable access to affordable and high-quality postsecondary education for all Maryland residents.

The master's in Trauma Sciences is designed to be an accessible option for post-secondary students and working adults, from multiple health professions, and trauma science roles. As a state institution Maryland residents are afforded the opportunity to benefit from affordable instate tuition gaining access to nationally renowned faculty and state of the art education.

**GOAL 2: STUDENT SUCCESS** Promote and implement practices and policies that will ensure student success.

The master's in Trauma Sciences is designed in collaboration with learning and teaching scientists, subject matter experts and specifically uses learning theory and teaching strategies to optimize student success while adhering to universal design for learning best practices. Through a scaffolded curriculum inclusive of engaging multi-media, discussion, case based learning and recurrent retrieval exercises learners are supported throughout their learning journey to be successful in their knowledge acquisition and application in real world scenarios.

Priority 5 of the 2022 Maryland State Plan for Higher Education seeks to maintain the commitment of high quality post-secondary education in Maryland. The number one action item of this priority is to identify innovative fields of study. University of Maryland, Baltimore and the R. Cowley Shock Trauma Center are known for their innovation to foster excellence in patient care, education to train the next generation of clinical providers, administrators and researchers. By combining this wealth of experience with the expertise of the UMB School of Graduate Studies team, to provide a state-of-the-art trauma science curriculum which will be made accessible to students in Maryland and beyond we are aligned to this priority. This program and degree will be first of its kind in the nation therefore achieving the action item. In addition to Priority 5, Priority 7 seeks to enhance the ways post-secondary education is a platform for lifelong learning.

**GOAL 3: INNOVATION** Foster innovation in all aspects of Maryland higher education to improve access and student success.

The distance learning model allows greater access to the course material for Maryland residents as well as a larger global trauma care community. Ongoing professional education on the clinical aspects of trauma care traditionally required in person attendance at courses and conferences. Online asynchronous access to this material at the convenience of the learner provides flexibility for working professionals who do not have the time or geographic freedom to attend in-person coursework. Traditionally, formal education in trauma care has been accessible only to students training in high-volume trauma centers like STC. *This course of study represents an innovative reimagining of trauma care education and trauma systems science, breaking down those barriers and broadening access.*

The subject of trauma systems is expansive, covering all aspects of trauma prevention, care, and rehabilitation. The proposed program will be the first academic program in the

U.S. that formally explores the breadth of trauma systems of care. The proposed M.S. in Trauma Sciences uses the existing educational content and expertise in place at UMB to build an innovative distance learning program targeting professionals with the desire to improve their knowledge of the science of trauma care and trauma systems. The interprofessional coursework will cover cutting edge medical innovation as well as create an environment fostering innovation and collaboration with a potentially global reach.

The M.S. in Trauma Sciences program is developed in collaboration with teaching and learning scientists and subject matter experts, utilizing evidence-based learning theories and teaching strategies to optimize student success while adhering to universal design for learning best practices. Through a scaffolded curriculum inclusive of engaging multimedia, discussion boards, case-based learning and recurrent retrieval exercises, learners are supported throughout their learning journey to be successful in their knowledge acquisition and application in real world scenarios.

### **C. Quantifiable and Reliable Evidence and Documentation of Market Supply and Demand in the Region and State:**

Traumatic injury is a significant but often underappreciated cause of death and disease in the United States. According to data from the Centers for Disease Control and Prevention (CDC) from 2016 to 2018, unintentional injury ranks as the third leading cause of death in the U.S. By age group, unintentional injury is the leading cause of death for individuals aged 1 to 44. Additionally, suicide and homicide are among the top ten causes of mortality for this age group. These statistics, however, fail to capture the extensive morbidity associated with traumatic injuries.

The American College of Surgeons' National Trauma Data Bank (NTDB) collects data on injured patients from 747 hospitals nationwide, including 499 Level I or II trauma centers. The 2016 report recorded over 861,000 traumatic incidents, resulting in nearly 38,000 deaths. This data underscores the significant burden that trauma places on health systems across the United States. While research indicates that a systems-based approach to trauma care improves survival rates, there is currently no formal educational degree program in the United States that focuses on the science of trauma systems. A distance-learning, comprehensive program aimed at enhancing the understanding of trauma care could serve a large and unmet need among potential students.

Traumatic injury is recognized as a distinct disease process. The American College of Surgeons acknowledged this in 1922 with the establishment of the Committee on Trauma. The formalization of a systems-based approach, encompassing prevention, care, rehabilitation, and reintegration, was published in the *Guidelines for the Optimal Care of the Injured Patient* in 1976. This approach is now a cornerstone of surgical training and certification for general surgeons. In 1966, the Institute of Medicine's report, *Accidental Death and Disability: The Neglected Disease of a Modern Society*, highlighted trauma as a preventable illness. It emphasized the importance of interventions beyond hospital settings to reduce traumatic deaths. Building on this foundation, a Master's in Trauma

Sciences program would further educate healthcare administrators and practitioners about trauma as a preventable condition.

Currently, trauma education is largely conducted in person through courses offered by the American College of Surgeons, such as *Advanced Trauma Life Support (ATLS)*, *Advanced Trauma Operative Management (ATOM)*, *Advanced Surgical Skills for Exposure in Trauma (ASSET)*, and *Basic Endovascular Skills for Trauma (BEST)*. Additionally, continuing medical education is now a required component of the maintenance of certification process for surgeons and other healthcare providers. However, this training has historically been confined to surgical training programs or ATLS courses. A formal degree program would broaden access to this critical education, filling a significant gap in trauma training and systems science.

UMB's proposed M.S. in Trauma Sciences is designed to enhance the education of healthcare professionals who care for injured patients and engage in or study trauma systems. Currently, many healthcare professionals in trauma, emergency medicine, and trauma critical care receive much of their training through on-the-job, "just-in-time" learning. This degree program addresses the need for comprehensive academic instruction beyond the scope of the 2-day *Advanced Trauma Life Support (ATLS)* course, while not replacing the intensive training provided in Trauma Surgery and Surgical Critical Care Fellowships. The program also aims to provide non-physician professionals with access to educational resources that will strengthen their ability to contribute as essential members of the multidisciplinary teams required to deliver optimal trauma care.

A market analysis performed by EAB Market Insights (appendix c) evaluated demand for master's-level professionals in trauma care, trauma systems development, science, leadership, and administration. This revealed a steady increase in employer demand. From January 2018 to December 2020, demand grew at an average monthly rate of 2.12%. Between December 2021 and November 2024, employer demand remained relatively stable, with a modest growth rate of 0.11% per month. These trends suggest a moderate-to-high need for professionals with advanced training in trauma systems.

Graduates of this program can expect to enter a job market with steady employment opportunities. As the benefits of trauma systems are increasingly recognized across the United States and globally, the focus on systems-based care positions this course of study as highly applicable for professionals involved in the administration, development, and leadership of healthcare systems worldwide.

Based on enrollment from the two other M.S. in Trauma Sciences in the world, we anticipate enrollment for the proposed M.S. in Trauma Sciences will comprise of:

- Clinicians and healthcare administrators interested in increasing their knowledge of and skills in the care of trauma patients and developing improved trauma systems to furnish this care. This includes Trauma Medical Directors in community trauma centers who wish to further their trauma knowledge to advance their institution

- Social scientists, governmental leaders, and others working in healthcare policies, systems, and practices who are interested in furthering their understanding of systems of trauma care.
- Military personnel interested in gaining further knowledge on care for the injured and trauma system development. STC has established and strong relationships with our military colleagues, particularly at Walter Reed Hospital.
- Current students from the UMB interested in further trauma related education or trauma leadership positions such as nurses, physician assistants, physicians, social workers, and pharmacists
- International students – given that Trauma Surgery and Surgical Critical Care Fellowships are not routinely offered outside of the United States and Canada, there is a great thirst for trauma knowledge globally, as noted by a Global Trauma Community survey published in the Journal of the American College of Surgeons in 2020

To be eligible to enroll in the M.S. in Trauma Sciences, individuals must have completed a Bachelors' Degree, with a strong interest in and demonstrated experience of care of the physically injured trauma patient. Graduates with a M.S. in Trauma Sciences will be qualified to pursue employment in the following settings:

- Designated trauma centers
- State and city level health administration
- Non-Governmental Organizations (NGOs) focused on injury prevention, violence interruption, trauma care systems development, or other trauma care specialties
- Other NGOs providing clinical care for injured patients
- Research and academic institutions
- Multi-lateral agencies (such as World Health Organization)
- Governmental agencies (including the Department of Defense, Health and Human Services, Centers for Disease Control, and/or their local Ministry of Health)
- Disaster relief organizations

Given the increasing interest in trauma science and care, demand for trained staff in these areas is expected to remain high. The proposed M.S. in Trauma Sciences will build upon participants' clinical, administrative, and/or research skills and provide courses in clinical care, managerial skills, and healthcare delivery systems needed to integrate care across the spectrum of trauma systems.

#### **D. Reasonableness of Program Duplication**

There are currently no master's degree programs in Trauma Sciences in the United States, making this the first of its kind. Globally, the only other two related master's degrees taught in English are located in the United Kingdom (Barts Centre for Trauma Sciences/Queen Mary of London) and Australia (University of Newcastle). The proposed



degree is designed to apply and advance Trauma Sciences to improve clinical care outcomes of Trauma care delivery.

This degree is different from the History of Medicine, Science and Technology degree where the emphasis is on advancing the scholarship of the history of medicine, disease and the health sciences, and their relation to society. The JHU Department seeks to bring historical perspectives to bear on multiple contemporary health issues. The Bioinformatics MS degree at JHU, is a combination of computer sciences and life sciences, harnessing big data to gain insights to drive innovation. The bioinformatics field reaches beyond individual specialties and disciplines. The MS Demography degree focuses on analysis methods designed to define denominators to calculate health outcome measures. This work is critical to allow for data collection, analysis and reporting accuracy. However, it is not similar to the proposed degree. Last is the Salisbury University degree in Health and Human Performance, designed to advance knowledge and application of applied physiology to improve sports performance through strength training, conditioning, wellness and fitness this degree is not similar to the proposed degree.

**E. Relevance to High-demand Programs at Historically Black Institutions (HBIs)**

The proposed M.S. in Trauma Sciences does not have relevance to HBIs.

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

The proposed M.S. in Trauma Sciences does not have direct relevance to the identity of HBIs in Maryland. Any student who has attended a regionally accredited institution and completed a baccalaureate degree, including those from HBIs, and meets the admissions requirements is eligible to apply to the program.

**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 M.S. in Trauma Sciences was proposed by SGS and University of Maryland School of Medicine faculty and approved by the faculty shared-governance body, the Graduate Council, in recognition of the compelling need for accessible education and training in trauma sciences. STC and, by extension, UMB, are world recognized leaders in the provision of trauma surgery and surgical critical care for injured patients.

The faculty realized that the bulk of the coursework required to offer a M.S. in Trauma Sciences already exists at UMB and that there is considerable expertise to create a world-class educational experience for students. The faculty overseeing the program are listed with their credentials in Section I, subsection 1: Adequacy of Faculty Resources.

**2. Describe educational objectives and learning outcomes appropriate to the rigor,**

**breadth, and (modality) of the program.**

**Summative assessment strategy related to each program outcome**

- **Evaluate Clinical Management Strategies**  
**Assessment Strategy: Case-Based Assessment, Simulation**  
After reviewing didactics and primary sources from trauma literature, students will use real or simulated trauma cases to make recommendations for clinical management and analyze and evaluate clinical management strategies for common injuries.
  
- **Synthesize Team-Based Multidisciplinary Approaches to the Trauma Patient**  
**Assessment Strategy: Interprofessional Simulation Exercise**  
Conduct a simulated team-based scenario where students from various specialties collaborate to manage a trauma case. Student performance will be assessed based on their ability to integrate knowledge from their respective fields and contribute to effective teamwork in trauma care.
  
- **Design a Research Project and Contribute to the Trauma Literature**  
**Assessment Strategy: Thesis Defense in Front of Committee**  
Students will design a research project on any subject within the category of trauma. They will then defend their work and write a manuscript for a peer-reviewed journal.
  
- **Design a Public Health Initiative**  
**Assessment Strategy: Presentation/Research paper**  
Students will discuss an idea for and devise strategies to implement a public health initiative, reflecting the epidemiology of trauma and highlighting its preventability.  
  
The initiatives can be applicable to the students' background or practice setting in rural, urban, domestic, international or low- or high-resource settings. The project will be evaluated based on the thoroughness and feasibility of their design.
  
- **Design a Trauma System**  
**Assessment Strategy: Research Paper/Project**  
Students will develop a comprehensive proposal for a trauma system within a designated community. This will include appraising current models of care, triage protocols, and prehospital integration, focusing on public health approaches. The project will be evaluated based on the thoroughness and feasibility of their design.
  
- **Implement Critical Care Protocols**  
**Assessment Strategy: Practical Skills Assessment**  
Through structured stations or simulations, students will demonstrate their ability to implement critical care protocols as they pertain to injured trauma patients.

Assessment criteria will include patient management skills such as ventilator management, monitoring techniques, and addressing infectious diseases.

- **Facilitate Rehabilitation and Recovery**

- **Assessment Strategy: Comprehensive Care Plan**

- Students will create a comprehensive rehabilitation plan for a fictional patient with specific injuries. The plan should address physical, psychological, and community reintegration needs, evaluated on its comprehensiveness, practicality, and evidence-based approaches.

- **Analyze Policy and Legislative Frameworks**

- **Assessment Strategy: Policy Analysis Brief**

- Students will write a policy analysis brief that critically examines a specific public health law affecting trauma systems. The assessment will focus on the depth of analysis, understanding of legal implications, and the use of research methods in developing advocacy recommendations.

A more detailed objective list is in Appendix B.

### **3. Explain how the institution will provide for assessment of student achievement of learning outcomes in the program and document student achievement of learning outcomes in the program.**

Faculty will assess student achievement and mastery of learning outcomes in these courses using a variety of assessments including meaningful and substantive contributions to online course discussions, satisfactory completion of assignments including but not limited to scores on multiple choice question quizzes and examinations, case-based questions, and the second-year written thesis which will be an original research project in the field of trauma.

Students will also have the opportunity to evaluate courses and faculty through a standard evaluation of every course. Evaluation will occur at the mid-course and end of course, anonymous responses will be collected and utilized to inform ongoing programmatic review and continuous improvement. Formal assessment planning is already in place throughout UMB Schools. Our approach to curriculum development, utilizes a backward design process. We begin with defining the discipline specific competency framework, which has informed the aforementioned program level outcomes. The program level outcomes then inform the summative assessments. From there based on the learning domain (knowledge, skill or attitude) we have defined course level outcomes, each mapped to programmatic outcomes. The course level outcomes inform our instructional objectives, formative and summative assessment methods and learning strategies as well as content. Assessment activities emphasize analysis of results and feedback loops for continuous improvement. Additional evaluation includes tracking of student retention, grade distributions, and cost-effectiveness; regular academic program reviews consider these factors.

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

Students must complete all the following core courses (15-credits, online). The 2<sup>nd</sup> year Masters in Trauma Sciences curriculum will be 15 credits.

During the 1<sup>st</sup> year, all students will be required to take a Research seminar (3 credits) and prepare a thesis (6 credits taken over two courses) during the second year. A student will have 9 credits to choose from a variety of electives. A specialization is available to the student if they choose 6 credits from one area of study (clinical, research or global health). Specializing, however, is not a requirement of the Masters.

<b>Year 1</b>	<b>Course</b>	<b>Credits</b>
<b>Fall A</b>	<b>A Global View of Trauma (TRMA 601)</b>	<b>3</b>
<b>Fall B</b>	<b>The Art of Resuscitation (TRMA 602)</b>	<b>3</b>
<b>Spring A</b>	<b>Clinical Trauma from Head to Toe (TRMA 603)</b>	<b>3</b>
<b>Spring B</b>	<b>Advanced Trauma Systems (TRMA 604)</b>	<b>3</b>
<b>Summer</b>	<b>Research seminar (TRMA 605)</b>	<b>3</b>
<b>Year 2</b>		
<b>Fall A</b>	<b>Elective 1</b>	<b>3</b>
<b>Fall B</b>	<b>Intro to Thesis (TRMA 606)</b>	<b>3</b>
<b>Spring A</b>	<b>Elective 2</b>	<b>3</b>
<b>Spring A</b>	<b>Elective 3</b>	<b>3</b>
<b>Spring B</b>	<b>Thesis (TRMA 710)</b>	<b>3</b>
<b>Total Credits</b>		<b>30</b>

**CORE COURSES (Students take all five courses, 15 credits)**

**Global View of Trauma: The Disease and Epidemiology, 3 credits (TRMA 601)**

This course provides an overview of trauma care, spanning from originations of trauma care to its current global impact with introduction to the WHO Emergency Trauma and Acute Care Program. Trauma is introduced as a preventable disease and this course delves deeply into the creation of trauma systems globally. We will explore trauma systems spanning from one of the most advanced in the world at the Maryland Shock Trauma Center to trauma care in low resource settings without systematic care. Trauma care is tailored to the community in which it serves, thus trauma care can look differently across the globe. We will explore established trauma systems and trauma communities across all continents, so the learner can grasp the diversity yet similarity of trauma care globally. This course will emphasize the leadership qualities needed within the field of

trauma and describe trauma care as a multidisciplinary team sport – including nurses, pharmacists, social workers, physicians and emergency medical providers.

**The Art of Resuscitation, 3 credits (TRMA 602)**

This course is a comprehensive, multidisciplinary examination of how to care for the critically injured patient. Taught by world experts in the field, this course will begin by evaluating an unstable patient in the prehospital setting to the trauma bay, including discussions surrounding resuscitative thoracotomies and REBOA (resuscitative endovascular balloon occlusion of the aorta). We will discuss the history of blood resuscitation and the current best evidence-based practices, including the use of thromboelastography. The evolving field of damage control resuscitation and resuscitation endpoints will be explored. This course will have faculty from the field of trauma anesthesia who will discuss airway management in the unstable patient, medications for induction and sedation and hemodynamic monitoring. Point of Care Ultrasound (POCUS) will be taught by experts in the field, the learner will gain an appreciation for the utilization of ultrasound techniques in the unstable patient. The role of imaging and interventional radiology will be taught by trauma radiologists. This course will also explore advanced resuscitation efforts such as extracorporeal membrane oxygenation (ECMO) and therapeutic hypothermia in trauma.

**Clinical Trauma from Head to Toe, 3 credits (TRMA 603)**

This course provides in-depth knowledge on principles and strategies of clinical trauma care, organized anatomically. This course will be taught by clinical experts discussing the initial management of specific injury patterns, operative techniques and most recent clinical evidence of both penetrating and blunt trauma. This course will also discuss the clinical management of special trauma populations such as pediatrics, geriatrics and the pregnant woman. Though this course will mostly be taught by Shock Trauma Center surgery faculty, this course also places special emphasis on the multi-disciplinary collaboration of trauma care, with some modules being taught by orthopedic surgeons, vascular surgeons, cardiothoracic surgeons, oral maxillofacial surgeons, neurosurgeons and anesthesiologists.

**Advanced Trauma Systems, 3 credits (TRMA 604)**

Seeing trauma as a preventable illness, this course will delve deeply into injury prevention with special focus on violence prevention programs and road traffic injuries. The details of how to maintain an efficient and effective trauma system will be discussed in this course, including verification systems, trauma registries, education and performance improvement. This course will introduce military trauma systems and delve into disaster response systems and mass casualty events, then leading to discussions on humanitarian assistance globally. This course will discuss end of life care within trauma victims, including palliative care, trauma survivorship and organ donation.

**Research Seminar, 3 credits (TRMA 605)**

This is a required course for all Masters in Trauma Sciences students. Participants in this course will be introduced to scholarly writing and research methodologies. The aim of

this course is to provide a strong foundation for all students prior to developing their Master's Thesis.

### **THESIS (6 credits over two courses)**

#### **Intro to Thesis, 3 credits (TRMA 606)**

A thesis is a requirement of each student to graduate from the program. This course will introduce the student to the requirements of the thesis, help develop a thesis based on the interest of the student and pair each student with a thesis mentor.

#### **Thesis, 3 credits (TRMA 710)**

This course will be dedicated for the student to complete their thesis prior to graduation.

### **ELECTIVES (Students select three courses, 9 credits)**

#### *Clinical Courses*

#### **Advanced Surgical Management in Trauma, 3 credits (TRMA 701)**

This course provides in-depth knowledge on the operative principles of trauma care. Modules will be taught by Shock Trauma faculty with operative expertise in trauma care. The course will go over advanced surgical exposure of the abdomen, retroperitoneum, chest and vascular exposures. In addition to didactics to go over anatomy and surgical exposure, this course will include operative videos during live cases. This course will also include videos from cadaver lab, where operative exposure will be thoroughly explained while a student can watch the dissection and operative management.

#### **Critical Care in Trauma, 3 credits (TRMA 702)**

Trauma care has improved over the past 20 years, largely from improvements in trauma systems, assessments, triage, resuscitation and emergency care. Key to this improvement is the growth of critical care for the injured patient. Care of the polytrauma patient does not end in the operating room or the resuscitation bay. The patient presenting to the intensive care unit following initial resuscitation and damage control surgery may be far from stable with ongoing hemorrhage, resuscitation needs and injuries still requiring definitive repair. A trauma care provider should understand the totality of care in the intensive care unit, including respiratory, cardiovascular, metabolic and immunologic consequences of the injured patient. This course will provide the foundation of critical care management for the injured patient.

#### **Clinical Clerkship, 3 credits (TRMA 703)**

To augment lessons learned throughout the Masters in Trauma curriculum, a two-week clinical rotation can be created based on the student's interests. This clinical elective can be based in trauma care, surgical critical care, trauma anesthesia, emergency medical services, extracorporeal membrane oxygenation (ECMO), critical care resuscitation unit (CCRU) or emergency general surgery. Given the vast backgrounds of the students, this clerkship can be tailored to a student's level of training and expertise.

## *Research Courses*

### **Science Communication Principles, 3 credits (MHS 603)**

This course provides an overview of the key principles of inclusive science communication and explores common approaches to communicate science to various audiences, with a particular focus on writing. Students will review principles of effective science communication, both through analyzing existing forms of science communication and through applying these principles in their own writing. Students will be composing several writing and communication assignments throughout the course on a topic of their choice. The goal is to practice science communication principles in their own writing, culminating in a small portfolio of their revised work produced in this class. Frequent instructor feedback will give students numerous opportunities to practice communication skills.

### **Introduction to Research Ethics, 3 credits (ETHC 637)**

This course will acquaint students with basic concepts in research ethics, will examine the ethical and philosophical issues raised by involving human subjects in research, review concepts of risks and benefits, vulnerability, privacy and confidentiality, undue inducement, exploitation, equipoise, and therapeutic misconception. By the end of the course, students will be able to analyze research protocols and assess the ethical appropriateness of such protocols.

### **Biostatistics for the Health Professional, 3 credits (PREV 621, MHS 615)**

This course is designed to introduce the students to a broad range of methods commonly used in biomedical and public health research, and to provide some hands-on data analysis experience. Topics to be covered include the role of statistics in science, properties of distributions, exploratory data analysis, inference about means, proportions and survival distributions, and introduction to multivariable methods.

## *Global Health Courses*

### **Perspectives on Global Health, 3 credits (MHS 605)**

The course provides an overview of the field of global health. It introduces students to the history, challenges, theories, and diverse perspectives that make up global health. The course overviews emerging global health priorities, policies, interventions, ethics and understanding the future of the field. In addition, particular attention is given to developing analytical tools to analyze global and local health phenomena, complementing them with a social justice-oriented lens. Learners will develop skills in analysis, leadership, teamwork and communication in a global context.

### **Global Surgery and Humanitarian Emergencies, 3 credits (TRMA 704)**

Global surgery refers to the provision of surgical care on a worldwide scale, encompassing a broad range of surgical services such as emergency surgery, trauma care, obstetrical care, and essential surgical procedures. Global surgery addresses the disparities in access to safe and timely surgical care that exist between high-income countries and low- and middle-income countries. It aims to improve surgical infrastructure, increase the availability of surgical services, and enhance the overall quality of surgical care in resource-limited

settings. Surgery is an essential component of healthcare, and addressing surgical disparities is crucial for achieving global health equity.

Global surgery is essential for addressing public health emergencies and providing timely responses to disasters. In times of crisis, the availability of surgical services becomes critical for saving lives, preventing disabilities, and restoring the health of affected populations. By strengthening surgical systems globally, countries can better prepare for and respond to emergencies, ultimately saving more lives and reducing the impact of disasters. In this course, we will delve deeply into the field of global surgery, as well as begin to understand the complexity and intricacies of providing surgical care in low resource settings. We will explore this complex field by understanding that one's access to healthcare and surgery may rely heavily on one's political context and social situation. We will utilize case studies to explore current complex humanitarian emergencies and different countries' access to surgical care.

**Global Health Management and Leadership, 3 credits (GLBH 652)**

This course explores key strategy, management, and leadership practices in global health programs and examines the essential components of best practice global health improvement programs. It is designed to train leaders in the application, testing, and refinement of current frameworks in health care delivery. This course will provide an in-depth review of leadership functions to equip students with the knowledge and skills to understand, organize, and manage complex global health delivery organizations. Students will study the theory and practice of health care delivery, various roles within the health system, and how global health delivery organization's function. Students will apply their learning in case-based situations and deploy procedures and processes to effectively improve health outcomes.

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

Not Applicable.

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

There are no specialized accreditation or graduate certification requirements for the proposed M.S. in Trauma Sciences.

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

There are no plans for contracting with another institution or non-collegiate organization at this time.

**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 School of Graduate Studies maintains up-to-date information of its degree programs on the program explorer website ([Programs](#)). The website will have information on the curriculum, course descriptions, degree requirements, and cost of education. The website has links to information about programs, learning management system, support services, and financial aid.

**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 School of Graduate Studies at UMB affirms that all advertising, recruiting and admissions materials will accurately represent the M.S. in Trauma Sciences, as do all materials produced by UMB’s School of Graduate Studies for programs it offers.

**H. Adequacy of Articulation**

Not applicable

**I. Adequacy of Faculty Resources**

**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 faculty member will teach in the proposed program.**

The following table summarizes information about the faculty who will be responsible for designing and instructing coursework in the M.S. in Trauma Sciences program:

<b>Name</b>	<b>Terminal Degree and Discipline</b>	<b>Rank and FT/PT Status</b>	<b>Course</b>
Thomas Scalea	MD, Medicine	FT, Professor	TRMA 601, TRMA 602, TRMA 603, TRMA 701
Shailvi Gupta	MD MPH, Medicine	FT, Associate Professor	TRMA 601, TRMA 602, TRMA 603, TRMA 605, TRMA 606, TRMA 701, TRMA 704, TRMA 710
Susan Brundage	MD MPH, Medicine	FT, Professor	TRMA 601, TRMA 604, TRMA 606, TRMA 710

Marcelo Ribeiro	MD, Medicine	FT, Professor	TRMA 601, TRMA 603, TRMA 606, TRMA 701, TRMA 704, TRMA 710
Jaclyn Clark	MD, Medicine	FT, Assistant Professor	TRMA 602, TRMA 603, TRMA 606, TRMA 701, TRMA 703, TRMA 710
David Efron	MD, Medicine	FT, Professor	TRMA 604, TRMA 701
John Maddox	MD, Medicine	PT, Assistant Professor	TRMA 604
Deborah Stein	MD MPH, Medicine	FT, Professor	TRMA 602, TRMA 603, TRMA 605, TRMA 606, TRMA 710
Sharon Henry	MD, Medicine	FT, Professor	TRMA 603
Elizabeth Powell	MD, Medicine	FT, Associate Professor	TRMA 602, TRMA 702
Eric Ley	MD, Medicine	FT, Professor	TRMA 702
Samuel Tisherman	MD, Medicine	FT, Professor	TRMA 602, TRMA 702
Rishi Kundi	MD, Medicine	FT, Associate Professor	TRMA 603, TRMA 701
Rosemary Kozar	MD, Medicine	FT, Professor	TRMA 605, TRMA 606, TRMA 702, TRMA 710
Sarah Murthi	MD, Medicine	FT, Professor	TRMA 602
Daniel Haase	MD, Medicine	FT, Associate Professor	TRMA 601, TRMA 602, TRMA 702
Mira Ghneim	MD, Medicine	FT, Assistant Professor	TRMA 605, TRMA 701
Carlos Guzman	MD, Global Health	FT, Associate Professor	MHS 605, GLBH 652
Isabell C. May	PhD, Science Communication	FT, Associate Professor	MHS 603
Henry Silverman	MD, Medicine	FT, Professor	ETHC 637
Laurence Magder	PhD, Epidemiology and Public Health	FT, Professor	PREV 621/MHS 615

**3. Demonstrate how the institution will provide ongoing pedagogy training for faculty in evidenced-based best practices, including training in:**

UMB has a robust process for training faculty and ensuring effective instruction. Based on Quality Matters standards, UMB developed a rubric which details the best practices for distance education; this rubric helps faculty and instructional designers create the courses; assesses the readiness of the course and ensures that the online courses are instructionally and pedagogically sound. The best practices are a synthesis of strategies, activities, design techniques, and organizational items that have been 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 Objectives (competencies)
- Instructional Materials
- Learner Communication, Interaction 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. Within Blackboard, online conferencing platforms such as Zoom will be available for our synchronous live activities. Additionally, the Faculty Center for Teaching and Learning (FCTL) which houses expert Instructional and Educational Media Specialists, who can provide guidance on uses of video cameras to record lectures, integrate webcams, and an interactive smart board. We also use the Camtasia software for screen lecture capture.

## **J. Adequacy of Library Resources**

The University of Maryland Health Sciences and Human Services Library (HSHSL) serves as a hub for collaboration and learning on the UMB campus and is one of the largest health sciences libraries in the United States both physically and by collection size. Opened in 1998, the HSHSL building is fully equipped with Wi-Fi and has seating for over 900 users including 41 group study rooms, three computer classrooms, an Innovation Space that includes 3D printers, a presentation and production studio, art gallery, and technology-enhanced meeting and collaboration spaces. The HSHSL website ([www.hshsl.umaryland.edu](http://www.hshsl.umaryland.edu)) provides access to a range of resources and services.

The library provides access to 108 databases, 4,737 e-journals, 17,669 e-books, and maintains a collection of 144,416 print books and 7,586 archival print journals. Through the library's interlibrary loan and document delivery services, faculty, staff, and students may acquire articles and other resources not available through the library's collections. The HSHSL also provides access to the UMB Digital Archive, an open access university repository hosting university created research including white papers, research posters, and more.

The HSHSL has a history of innovative and user-centered services. With a team of 26 faculty librarians and 28 library staff, the HSHSL serves UMB's 6,900 students and over

8,000 faculty and staff members in the schools of dentistry, medicine, nursing, pharmacy, social work, and graduate studies. The library also provides access and services to the University of Maryland Medical Center (UMMC) and other affiliated institutions. The library's [suite of research services](#) is available for all programs on campus, and includes research and publication strategy consultations, systematic review and expert literature searching services, research impact assessment, public access policy compliance review, and other research services as requested. The library's Center for Data and Bioinformatics Services offers consultations and workshops on data access, management, and sharing, as well as support for bioinformatics research, including information on high throughput sequence analysis, DNA, RNA, protein data resources, and research computing.

The HSHSL is home to the National Network of Libraries of Medicine (NNLM) Region 1, an outreach program of the National Library of Medicine, whose mission is to advance the progress of medicine and improve public health and access to health information. The HSHSL has held this competitive and prestigious grant funded designation for over 35 years. In 2021, the HSHSL was also selected to host the NNLM Network Web Services Office (NWSO), which develops and maintains web services for all seven NNLM Regions and other NNLM centers. Through its outreach programming the NNLM Region 1 and the HSHSL regularly reach over 3,000 community members and unaffiliated groups through free workshops, exhibits, and presentations on topics including health literacy, data management, and citizen science.

#### **K. Adequacy of Physical Facilities, Infrastructure, and Instructional Equipment**

UMB's 65-acre research and technology complex encompasses 57 buildings in west Baltimore near the Inner Harbor. Faculty have offices provided within their respective departments. UMB has adequate facilities, infrastructure, and equipment to support any learning needs of the master's program. Students will have full access to the computing facilities and student services 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. A cloud-based secure research environment has also recently been deployed to ensure compliance with requirements such as HIPAA.

#### **L. Adequacy of Financial Resources with Documentation**

No new general funds will be required for implementation of the proposed MS which will be coordinated and administered fully through the School of Graduate Studies. A budget is included in Appendix A.

#### **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. 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 curriculum, flowing down to course outcomes and assignments. Assessment activities emphasize analysis of results and feedback loops for continuous improvement. Additional evaluation includes tracking of student retention, grade distributions, and cost-effectiveness; regular academic program reviews consider these factors.

#### **N. Consistency with the State’s Minority Student Achievement Goals**

UMB is strongly committed to cultural diversity and the recruitment and retention of underrepresented minority students. Recruitment efforts for the M.S. in Trauma will include specific outreach to Historically Black Institutions.

#### **O. Relationship to Low Productivity Programs Identified by the Commission**

The proposed master’s program is not directly related to an identified low productivity program identified by the Maryland Higher Education Commission.

#### **P. Adequacy of Distance Education Programs**

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. UMB expects to achieve its mission in education excellence and to be competitive; the School of Graduate Studies has designed and offered online degree programs that respond to the following changes occurring in higher education (Allen, 2010).

1. Education Pipeline. The education pipeline includes a highly diverse prospective applicant pool. Prospective students are typically working adults who pursue part-time and non-residential educational opportunities, but who wish to remain in their regional geographic area, while pursuing advanced education. According to the National Center for Education Statistics, National Postsecondary Graduate Student Aid Study (NCES, NPSAS: GR; 2017), between the period of 2008 and 2017, there was a slight increase (3%) in the number of graduate students reporting full-time (FT) enrollment at a single institution. We suspect this may be partially influenced by availability of new online educational programs, where one can work, be considered enrolled FT, yet negotiate academic studies as one’s lifestyle permits.
2. Changing Demographics. Data indicate a shift from the traditional student (the 18-22-year-old, full-time resident) to older students studying part-time. In 2015-2016, the National Center for education Statistics (NCES, 2017) reported that 37.58% of graduate students were married and the average graduate student was 32 years old ( $SD= 9.66$ ).

Nearly 9% of single/unmarried/divorced graduate students reported dependents, and nearly 60% of graduate students were female.

3. **Technology Shift.** Educational research suggests that online education achieves the same as, or better student learning outcomes, than traditional face-to-face delivery models (Tallent-Runnels, et al., 2006; Means et al., 2009). Online delivery is far outpacing traditional forms of educational delivery. Between 2002 to 2008, online enrollments grew at an annual rate of 19% vs. 1.5% versus all of Higher Education. By the fall of 2008, 25% (4.6 million) of all students took at least one online course. In 2019, the top five highest reported college enrollments nationally four were online universities, offering at least some graduate programs (NCES).
4. **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 revolutionized the delivery space and to provide anywhere, anytime learning.
5. **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.

Online education represents a strategy that can address the restrictions of traditional onsite college courses, opening up accessibility for variety of learners, for a variety of reasons and expanding access to global education opportunities and expertise, beyond the walls of the campus. Major determinants of successful online programs include 1) course design that incorporates best practices (e.g. course alignment, integration of technology and content), 2) quality faculty who can engage students in the material (e.g. provide feedback and relevant expertise), and 3) provide responsible academic oversight. All three of these determinants are present in this proposal.

#### *Instructional Design Team*

The Faculty Center for Teaching and Learning's (FCTL) mission is to advance evidence-based teaching, learning and evaluation practice throughout the University community. As a central resource for all UMB schools, the center provides support and resources for faculty to enhance their teaching and improve student learning outcomes. The center offers consultations, instructional design, professional development, pedagogical training, coaching and media production services. The following individuals from the FCTL will support the distance education strategy for the proposed program. Additional staff from the FCTL will support these programs as needed.

**Sol Roberts-Lieb, EdD | Director, Faculty Center for Teaching and Learning**

Dr. Robert-Lieb's educational background includes a doctorate in educational policy and organizational leadership from the University of Illinois at Urbana-Champaign with a specialization in differentiated instruction and organized change, a Master's in technology impact and assessment from the University of Illinois at Springfield with a concentration in liberal and integrative studies, and a Bachelor's in chemistry from Illinois College. He presents his work internationally and is active in the International Association of Medical Science Education (IAMSE) and the Professional and Organizational Development Network (POD), a national association of directors of Centers for Teaching and Learning.

**Becky Mendez, MA, MEd | Manager, Academic Innovation**

Ms. Menendez is the manager for the instructional design team with a master's degree in elementary education, teaching English as a Second Language, and educational technology. She brings a deep understanding of educational practice and design in higher and postsecondary education, particularly with English language learners, and has supported online course design for the International Baccalaureate, the Community College of Baltimore County, and Penn State University. Becky is a trained Quality Matters peer reviewer, providing feedback and guidance to institutions on improving the quality of their online courses.

**Chardai Stokes, MS | Academic Innovation Analyst**

Ms. Stokes is an academic innovation analyst who joined the Faculty Center for Teaching and Learning in 2022. She has worked in higher education since earning her undergraduate degree in 2014. She holds a bachelor's degree in women's studies from the University of Maryland, College Park, and a master's degree in learning design and technology from University of Maryland Global Campus.

She worked at Baltimore City Community College for eight years in roles within the student affairs and the academic affairs divisions. Chardai also brings educational technology and student success experience from her position at 2U, which partnered with Simmons University.

**Sharon Gillooly | Senior Media Production Specialist**

Ms. Gillooly leads media production for the FCTL team. Her main 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 instructional design team will provide the following services to ensure that best pedagogical practices are used to train and support the most effective presentation of their course content.

- Guided tutorials on the online course development process, with open questions and answer sessions.

- Written instructions accompanied by training videos to guide faculty on 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 troubleshoot any problems that might arise during the course of instruction.
- Work with faculty to design and develop courses, monitor the delivery of the course, and assess and revise the course for future offerings.

### *Supporting Students in Distance Education*

Most of the courses for the M.S. in Trauma Sciences will be online, and one elective course will be offered in-person. We realize that the key to the success of the online courses is dependent on 1) 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. All of 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 Services to students so that they can have access to research databases, 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. Obtainment of feedback from the faculty and students and instructional designers.
4. 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 sufficient to enable students to complete their credential.

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## Appendix A

### MS in Trauma Sciences Budget Tables

<b>TABLE 1: PROGRAM RESOURCES</b>					
<b>Resource Categories</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
1. Reallocated Funds	\$ 0	\$ 0	\$0	\$0	\$0
2. Tuition/Fee Revenue (c + g below)	\$ 92,280	\$ 254,139	\$ 364,831	\$ 528,813	\$ 759,140
a. Number of F/T Students	0	8	12	16	24
b. Annual Tuition/Fee Rate	\$ 13,842	\$ 14,119	\$ 14,401	\$ 14,689	\$ 14,983
c. Total F/T Revenue (a x b)	\$0	\$ 112,951	\$ 172,815	\$ 235,028	\$ 359,593
d. Number of P/T Students	10	15	20	30	40
e. Credit Hour Rate	\$ 769	\$ 784	\$ 800	\$ 816	\$ 832
f. Annual Credit Hour Rate	12	12	12	12	12
g. Total P/T Revenue (d x e x f)	\$ 92,280	\$ 141,188	\$ 192,016	\$ 293,785	\$ 399,547
3. Grants, Contracts & Other External Sources	0	0	0	0	0
4. Other Sources	\$ 262,728	\$ 62,435	\$ 21,058	\$ 0	\$ 0
<b>TOTAL (Add 1 – 4)</b>	<b>\$355,008</b>	<b>\$ 316,574</b>	<b>\$ 385,889</b>	<b>\$ 528,813</b>	<b>\$ 759,140</b>

### MS Trauma Sciences Budget Narrative

#### Reallocated Funds:

The SGS does not have plans to reallocate funds for this proposal.

#### Tuition and Fee Revenue:

This program is the first of its kind in Maryland and in the United States. Due to its novelty and leveraging the reputation of the R. Cowley Shock Trauma Center and the planned marketing campaign we have projected modest enrollments of a mix of full and part-time students. Two other programs are offered internationally, one in the UK the other in Australia. Their

enrollments exceed 200 per year. Tuition and fees are calculated based on our current tuition and fee projections assuming a 2 % increase year over year.

**Grants and Contracts**

No grants or contracts have been included in this proposal. Although the potential for grant and contract funding may exist given the expertise and specialty, we are not relying on this funding to support the program.

**Other Resources**

Year one through three includes other resources with a sharp drop off in year two once enrollments and tuition and fees are generating support for the program. The source of other resources includes dedicated funds from Shock Trauma to establish the program.

**Total Year**

The Master of Trauma Sciences Program is designed to be a self-supporting program based on revenue generation from tuition and fees. The SGS intends to invest in the development and support of the program to be established and then reinvest tuition funds into this program to sustain the growth and ongoing maintenance of this program.

<b>Expenditure Categories</b>					
1. Faculty (b+c below)	\$154,560	\$159,197	\$218,630	\$225,189	\$231,945
a. Number of FTE	0.3	0.3	0.4	0.4	0.4
b. Total Salary	\$120,000	\$123,600	\$169,744	\$174,836	\$180,081
c. Total Benefits	\$34,560	\$35,597	\$48,886	\$50,353	\$51,863
2. Admin Staff (b+c below)	\$65,688	\$90,212	\$116,147	\$119,632	\$123,221
a. Number of FTE	0.3	0.4	0.5	0.5	0.5
b. Total Salary	\$51,000	\$70,040	\$90,177	\$92,882	\$95,668
c. Total Benefits	\$14,688	\$20,172	\$25,971	\$26,750	\$27,552
3. Support Staff (b + c below)	\$25,760	\$33,166	\$34,161	\$35,186	\$36,241
a. Number of FTE	0.4	0.5	0.5	0.5	0.5
b. Total Salary	\$20,000	\$25,750	\$26,523	\$27,318	\$28,138
c. Total Benefits	\$5,760	\$7,416	\$7,638	\$7,868	\$8,104
4. Technical Support and Equipment	\$84,000	\$0	\$0	\$0	\$0
5. Library	\$0	\$0	\$0	\$0	\$0
6. New or Renovated Space	\$0	\$0	\$0	\$0	\$0
7. Other Expenses	\$25,000	\$34,000	\$16,950	\$17,423	\$17,919
<b>TOTAL (Add 1-7)</b>	<b>\$355,008</b>	<b>\$316,574</b>	<b>\$385,889</b>	<b>\$397,429</b>	<b>\$409,326</b>

## **Table 2 Budget Narrative**

### **Faculty:**

The program will utilize existing School of Medicine clinical and research faculty from the R Cowley Shock Trauma Center to create and deliver educational content and appoint a lead faculty member as program director to provide administrative oversight of the program. Clinical teaching is a recognized responsibility of School of Medicine faculty. The financial compensation listed in the table represents faculty FTE effort and benefits anticipated to support the students and provide program leadership. Effort increases steadily over the course of the five years.

### **Administrative Staff:**

Due to the nature of clinical faculty schedules, and complexity of advising for this program, administrative support will be critical for the success of this program, as students are recruited into the program and continue in their matriculation. In the table effort steadily increases to a .5 FTE. The financial compensation integrates salary, benefits and anticipated COLA along with increasing efforts into the calculation.

### **Technical Support and Equipment:**

This budget line item represents the significant support anticipated for development of innovative curricular content and the support needed from the Faculty Center for Teaching and Learning (FCTL). The support includes instructional design, instructional technology and multi-media production. It is listed as a one-time front-loaded expense, and then will be maintained through existing operational budget support for the FCTL.

### **Library Resource:**

The SGS intends to leverage current resources available from the Health Science and Human Service Library on campus and already funds a library liaison for the school. No additional funding is anticipated to support this program.

### **New Renovated Space:**

The MS of Trauma Sciences does not require new renovated space as it is an online program, with a single potential in-person clinical elective. Current infrastructure will support the new program, and additional space is not required.

### **Other expenses:**

The funding amounts included in this category include advertising and marketing as well as travel of faculty to promote the program and local, and regional conference. This line item steadily decreases as we anticipate that the initial investment costs for creating content will be higher than what is needed to maintain marketing.

## Appendix B

### Detailed Objectives

By the completion of the proposed M.S. in Trauma Sciences and consistent with the topics outlined by the American College of Surgeons, World Health Organization, and Royal College of Surgeons of England, students will be able to:

### Trauma Clinical Care

Understand clinical aspects of the acutely injured patient, and

- Describe the approach to the initial assessment and stabilization of the injured patient
  1. Assessment and triage
  2. Airway Management
  3. Breathing Management
  4. Circulation
  5. Principles of hemostasis
  6. Blood product transfusion
- Describe the pathophysiology of coagulopathy of trauma and the approaches to correction and patient stabilization
- Understand diagnostic imaging modalities and their appropriate utilization
  1. Bedside ultrasound imaging
  2. Flat plate X-ray imaging
  3. CT imaging
- Describe the pathophysiology of injury to the major body systems.
  1. Head Injuries
  2. Neck Injuries
  3. Chest Injuries
  4. Abdominal Injuries
  5. Pelvic Injuries
  6. Burns and Wounds
  7. Orthopedic injuries
  8. Neurosurgical Injuries
    - a. TBI
    - b. Spinal cord injury
  9. Diagnosis and monitoring
  10. Analgesia, sedation, and anesthesia
- Describe the pathophysiology and approach to treatment for special trauma populations
  1. Pediatric issues
  2. Obstetric issues
  3. Geriatric issues
- Critically assess and compare different team approaches to care with regard to specialties and their roles
  1. Emergency Medicine
  2. Surgery
  3. Critically appraise and understand the approach to trauma care in resource limited environments

- Describe treatment alternate approaches to stabilization and treatment in resource poor environments
- Understand the role of Critical care in the treatment of the injured patient
- Understand Critical care of the injured patient with regard to:
  - a) TBI
  - b) Spinal Cord Injury
  - c) Basics of ventilator management
  - d) Advanced ventilator management
  - e) Infectious Disease Considerations in Critical Care
- Understand the role of Rehabilitation services in the acute care and recovery of injured patients
  - a) Speech Pathology
  - b) Occupational Therapy
  - c) Physical Therapy
  - d) Physiatry
  - e) Capabilities
  - f) Facilities
  - g) Durable Medical Equipment
  - h) Prosthetics
- Understand the concept of Survivorship and the challenges of Reintegration into normal life
  - a) Psychiatric illness
  - b) Community Support
  - c) Disability issues
    1. Mobility
    2. Access issues
    3. Long term care
  - d) Survivorship issues from violence, disaster, and armed conflict
  - e) Models from resource poor environment

### **Trauma Systems**

- Understand trauma systems of care, and
  - a) Critically appraise different system models to trauma care
  - b) Understand the role of triage and trauma protocols
  - c) Analyze different prehospital models and how they fit into the trauma system
  - d) Understand the role of clinical guidelines in prehospital care
  - e) Critically appraise different models of prehospital care and transport modalities
- Understand a public health approach to injury prevention, and
  - a) Develop a working understanding of injury epidemiology
  - b) Analyze different methods of injury and violence prevention
- Understand Trauma System Composition
- Understand Trauma System Management
- Critically appraise Public Health Law
- Understand Legislative Issues affecting trauma systems
- Compare and analyze different economic models of Trauma Care

- Care in low resource settings
  - a) Austere Environment Trauma Care
  - b) Humanitarian Trauma Care
- Disaster response / Mass Casualty
- Education
  - a) Role of system
  - b) All phases of patient care
  - c) Community outreach

### **Trauma Systems Leadership**

- Develop an understanding of Systems leadership skills with attention to:
  - a) Just Culture
  - b) Communication
  - c) Media communication
  - d) Multidisciplinary Collaboration
- Understand Strategic planning and analysis techniques
- Demonstrate Executive Communication Skills
- Understand the conduct and role of translational research
- Develop an understanding of basic research statistics
- Demonstrate the conduct of Process Improvement and Quality Assurance
- Understand the role of accreditation in process improvement
- Understand Data Registry formation and data usage
- Develop and understanding of Public Health Research Methods
- Understand the process of Guideline development



## Appendix C



An evaluation of employer demand in the United States, Canada, Europe, and South America for graduates from the proposed Hybrid Master of Science in Trauma Sciences and of student demand for similar programs in the United States.

Analysis Includes (Data included for all analyzed regions unless otherwise indicated):

- Job Posting Trends
- Top US and Canadian Occupations
- Top Titles
- Top Skills
- Top Employers
- Top Industries
- US and Canadian Education and Experience Levels
- US Degree Completion Trends

This analysis considered demand in areas defined as:

- The United States (US)
- Canada
- Europe: Austria, Belgium, Croatia, Czechia, Denmark, Germany, Italy, Ireland, Luxembourg, Netherlands, Spain, Sweden, Switzerland, United Kingdom
- South America: Argentina, Brazil, Chile

## Market Concentration and Growing Competition in the United States May Challenge Program Launch Despite Modest and Stable Employer Demand in the American and Canadian Labor Markets

### *United States and Canada Labor Market Outlook*

**In the United States, a moderate-to-high number of job postings suggests program graduates will enter a modest labor market.**

Between December 2023 and November 2024, employers advertised a moderate number of job postings (100,083). From December 2021 to November 2024, relevant employer demand remained fairly consistent (an average monthly growth of 0.11%) but due to some fluctuations in trends, ultimately declined by a net of 694 job postings. Overall, program graduates can expect to enter a job market with a modest number of employment opportunities, despite historical declines.

**Relevant professionals will likely enter a limited, though growing, labor market in Canada.** Over the past year, employers in Canada posted a low-to-moderate number of job postings (965). However, between December 2021 and November 2024, relevant employer demand grew by 4.35% on average monthly, outpacing demand for all master's-level professionals (0.56% on average monthly). Note, relevant employer demand growth translates to an actual average growth of one job posting per month, suggesting a low rate of job growth for relevant professionals. A low number of job postings paired with slight growth indicates program graduates will enter a limited job market.

### *United States Competitive Landscape Outlook*

**In the United States, growing competition and market concentration may challenge program launch, despite growing student demand.**

Between the 2018-2019 and 2022-2023 academic years, growth in the number of institutions reporting completions outpaced student demand growth (an average annual 7.08% vs. 6.70%, respectively). In the 2022-2023 academic year, the top 20% of institutions held 69.00% of the market, indicating market concentration. Growing competition and market concentration may pose obstacles to program launch, despite some growth in student demand.

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### *Market Pulsecheck Options for Next Steps*

Following this analysis, the requesting partner can:

- Contact your Strategic Leader to schedule a call with the EAB research team to review the report.
- Choose to discontinue the research, if the leadership is able to make a decision based on this analysis and other institutional research.
- Continue the analysis. A final report of the continued research will address credential design and curricular recommendations as well as the prospective student experience.

## Historical Labor Market Trends Indicate Limited Employer Demand for Trauma Sciences Professionals in Europe and South America

### *Global Labor Market Outlook*

#### **Low and declining employer demand suggests limited need for trauma sciences professionals in Europe and South America.**

Between December 2023 and November 2024, employers advertised a low number of relevant job postings in the analyzed European and South American countries (170,908 and 7,481 job postings, respectively). Over the same period, European and South American employer demand declined (3.13% and 1.87% on average monthly, respectively). Taken together, these trends indicate relevant professionals likely will enter competitive job markets.

### *Research Limitations*

Global labor market data specific to education levels is not available. Growth in demand is specific to professionals with a particular skillset at any education level.

Due to the absence of competitive landscape data for Europe and South America and a lack of sufficient data in the Canadian market, this report only analyzes United States student demand trends for programs related to trauma sciences.

Due to the self-reported nature of the NCES, some comparable and competitor programs may report completions for trauma sciences programs under different CIP codes not included in this analysis. Institutions may also report completions for programs unrelated to trauma sciences under any of the CIP codes analyzed in this report. Further, additional online programs may exist that are not captured in NCES data, as not all institutions offering a distance-delivery program report it as such. Additionally, if an institution offers multiple modalities, completions data will not distinguish between the number of online completions and face-to-face completions.



# United States and Canada Labor Market Analysis

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1

# Labor Market Intelligence

## Analysis of Job Postings for Master's-Level Trauma Sciences Professionals in the United States

Employer demand trends suggest a moderate-to-high need for master’s-level trauma sciences professionals. Between December 2023 and November 2024, employers advertised a moderate number of relevant job postings (100,083). From December 2021 to November 2024, relevant employer demand remained relatively consistent but ultimately experienced a net decline of 694 job postings. Note, relevant employer demand growth (0.11% on average monthly), translated to an actual average monthly decline of 19 job postings. Despite a small decline overall, a moderate and relatively stable number of job postings suggests a decent job market for program graduates.

**0.11%**

### Average Monthly Demand Growth

December 2021 - November 2024, United States Data

- Average monthly decline of 19 job postings.
- During the same period, demand for all master’s-level professionals declined 0.58%.

**20,998 postings**

### Average Monthly Demand

December 2021 - November 2024, United States Data

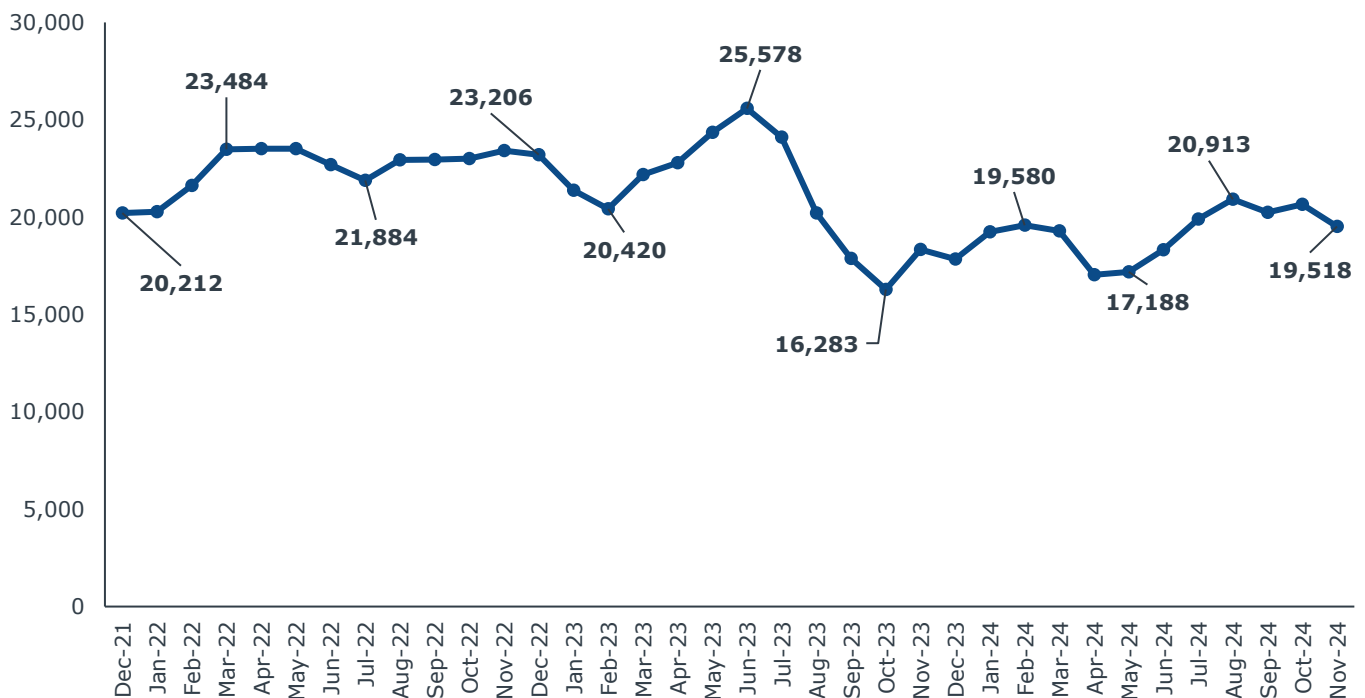
**100,083 postings**

### Relevant Jobs Posted in the Past Year

December 2023 - November 2024, United States Data

### Job Postings for Master's-Level Trauma Sciences Professionals

December 2021 - November 2024, United States Data



Source: EAB analysis. Lightcast.

## Analysis of Job Postings for Master's-Level Trauma Sciences Professionals in Canada

Employer demand trends suggest a limited labor market for master’s-level trauma sciences professionals in Canada. Between December 2023 and November 2024, employers advertised a low-to-moderate number of relevant job postings (965). From December 2021 to November 2023, relevant employer demand grew by 4.53% on average monthly, outpacing employer demand for all master’s-level professionals (0.56%). Note, relevant employer demand spiked in July 2022 and subsequently fell until January 2023, after which demand experienced comparatively small fluctuations. Ultimately, the total number of postings experienced a net increase overall between December 2021 and November 2024 (i.e., from 93 to 144 postings). Program graduates should expect to enter a limited, albeit overall growing, labor market.

**4.53%**

### Average Monthly Demand Growth

December 2021 - November 2024, Canada Data

- Average monthly growth of one job posting.
- During the same period, demand for all master’s-level professionals grew 0.56%.

**187 postings**

### Average Monthly Demand

December 2021 - November 2024, Canada Data

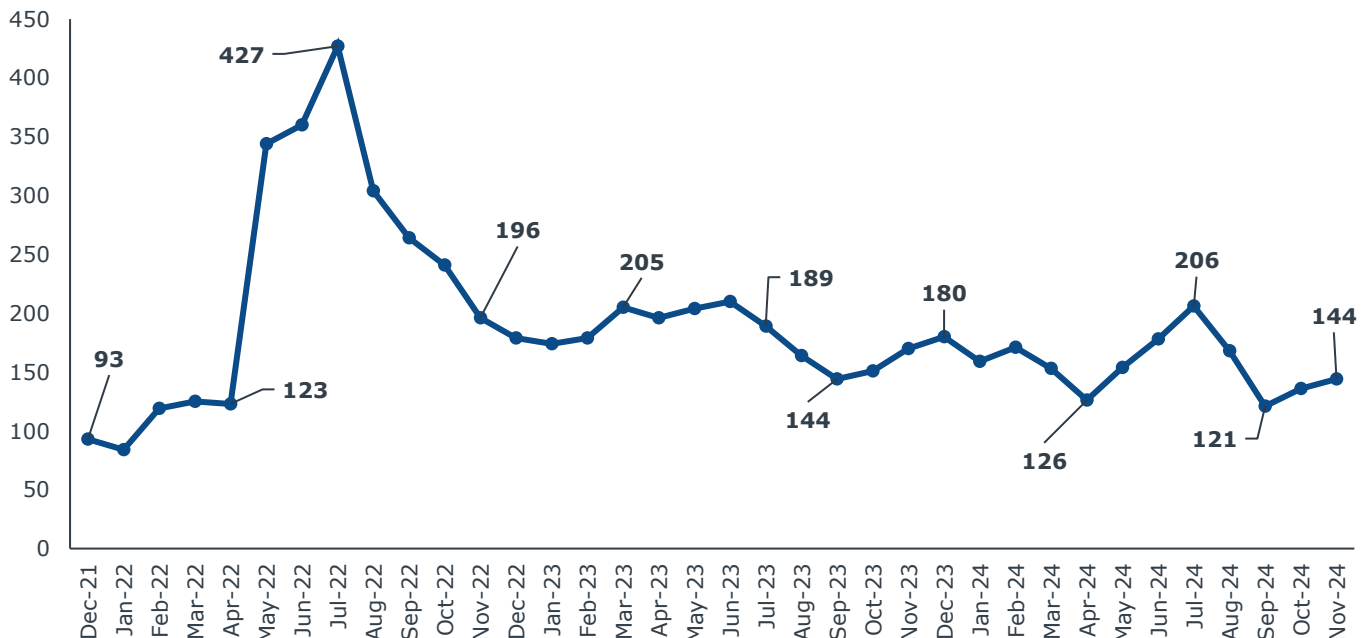
**965 postings**

### Relevant Jobs Posted in the Past Year

December 2023 - November 2024, Canada Data

## Job Postings for Master's-Level Trauma Sciences Professionals

December 2021 - November 2024, Canada Data



Source: EAB analysis. Lightcast.

## Analysis of Job Postings and Future Employment for Trauma Sciences Professionals in the United States

Employment in all five top relevant occupations is projected to grow faster than average across the next decade, indicating growing opportunities for relevant professionals in the coming years. Note, employment for Nurse Practitioners is expected to grow more than six times faster than all occupational growth. Examples of relevant titles within the Registered Nurses occupation include Emergency Department Registered Nurses, Emergency Room Registered Nurses, and ICU Registered Nurses.

These occupations represent the most common occupations appearing in job postings for postings for professionals with skills related to trauma sciences. Administrators should note, the projections for occupational categories such as 'registered nurses' are not necessarily for jobs specifically seeking trauma science professionals. Instead, projections provide insight into expected growth for occupational categories where graduates with trauma science skills may find employment. Further, projected employment data considers all jobs within an occupation at all degree levels.

### Top Occupations Across Job Postings for Master's-Level Trauma Sciences Professionals

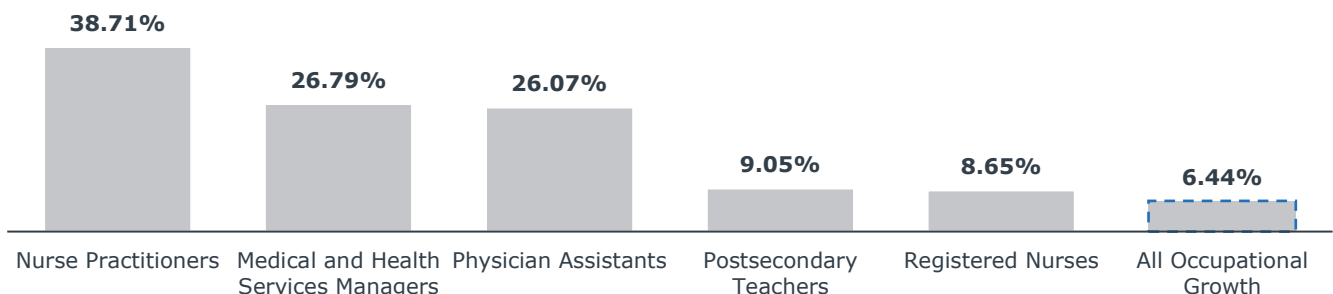
December 2023 - November 2024, United States Data

n = 100,083 job postings

Occupation	Percent of Relevant Job Postings within Occupation	Number of Relevant Job Postings within Occupation
Registered Nurses	41.81%	41,848
Nurse Practitioners	28.69%	28,717
Physician Assistants	6.78%	6,789
Medical and Health Services Managers	6.02%	6,025
Postsecondary Teachers	1.41%	1,411
Health Technologists and Technicians, All Other	0.91%	906
Medical Assistants	0.77%	775
Managers, All Other	0.75%	752
Respiratory Therapists	0.70%	705
Emergency Management Directors	0.61%	613

### Projected Employment in Top Occupations<sup>1</sup>

2024 - 2034, United States Data



1) Top occupations refer to the occupations in which employers most often seek relevant professionals.

Source: EAB analysis. Lightcast.

## Analysis of Job Postings and Future Employment for Trauma Sciences Professionals in **Canada**

Over the next 10 years, employment in all top five relevant occupations is projected to grow faster than all occupational growth, signaling increasing opportunities for relevant professionals in Canada. Employment for Managers in Health Care is expected to grow more than twice as fast as average. Relevant titles within this occupation include Emergency Managers and Directors of Critical Care. Within the University Professors and Lecturers occupation, relevant titles include Medical Outreach Specialists, Paramedic Instructors, and Directors of Respiratory Therapy.

While these occupations represent the most common occupations appearing in job postings for master's-level trauma sciences professionals, the projected employment data considers all jobs within an occupation at all degree levels.

### Top Occupations Across Job Postings for Master's-Level Trauma Sciences Professionals

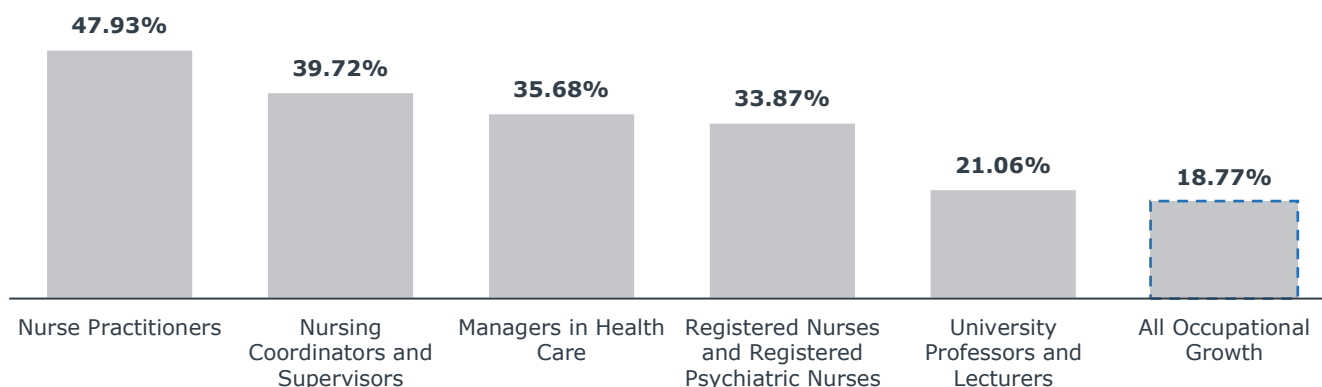
December 2023 - November 2024, Canada Data

n = 965 job postings

Occupation	Percent of Relevant Job Postings within Occupation	Number of Relevant Job Postings within Occupation
Registered Nurses and Registered Psychiatric Nurses	32.44%	313
Managers in Health Care	19.90%	192
Nurse Practitioners	14.09%	136
Nursing Coordinators and Supervisors	3.52%	34
University Professors and Lecturers	3.21%	31
Administrative Officers	2.90%	28
Specialists in Clinical and Laboratory Medicine	2.18%	21
General Office Support Workers	1.87%	18
Other Managers in Public Administration	1.87%	18
College and Other Vocational Instructors	1.87%	18

### Projected Employment in Top Occupations<sup>1</sup>

2021 - 2031, Canada Data



1) Top occupations refer to the occupations in which employers most often seek relevant professionals.

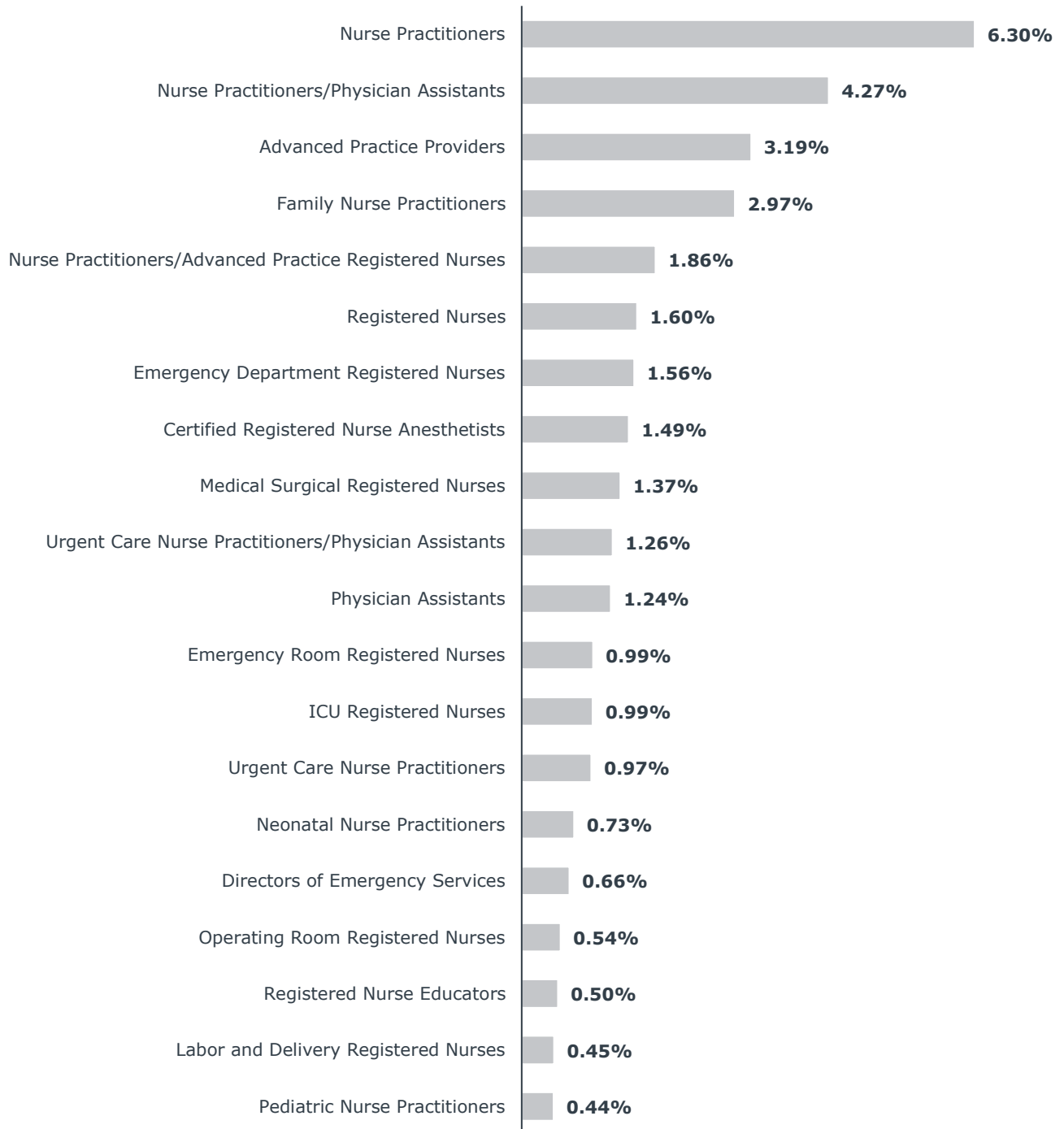
Source: EAB analysis. Lightcast.



## Top Titles in Job Postings for Master's-Level Trauma Sciences Professionals

December 2023 - November 2024, United States Data

n = 100,083 job postings



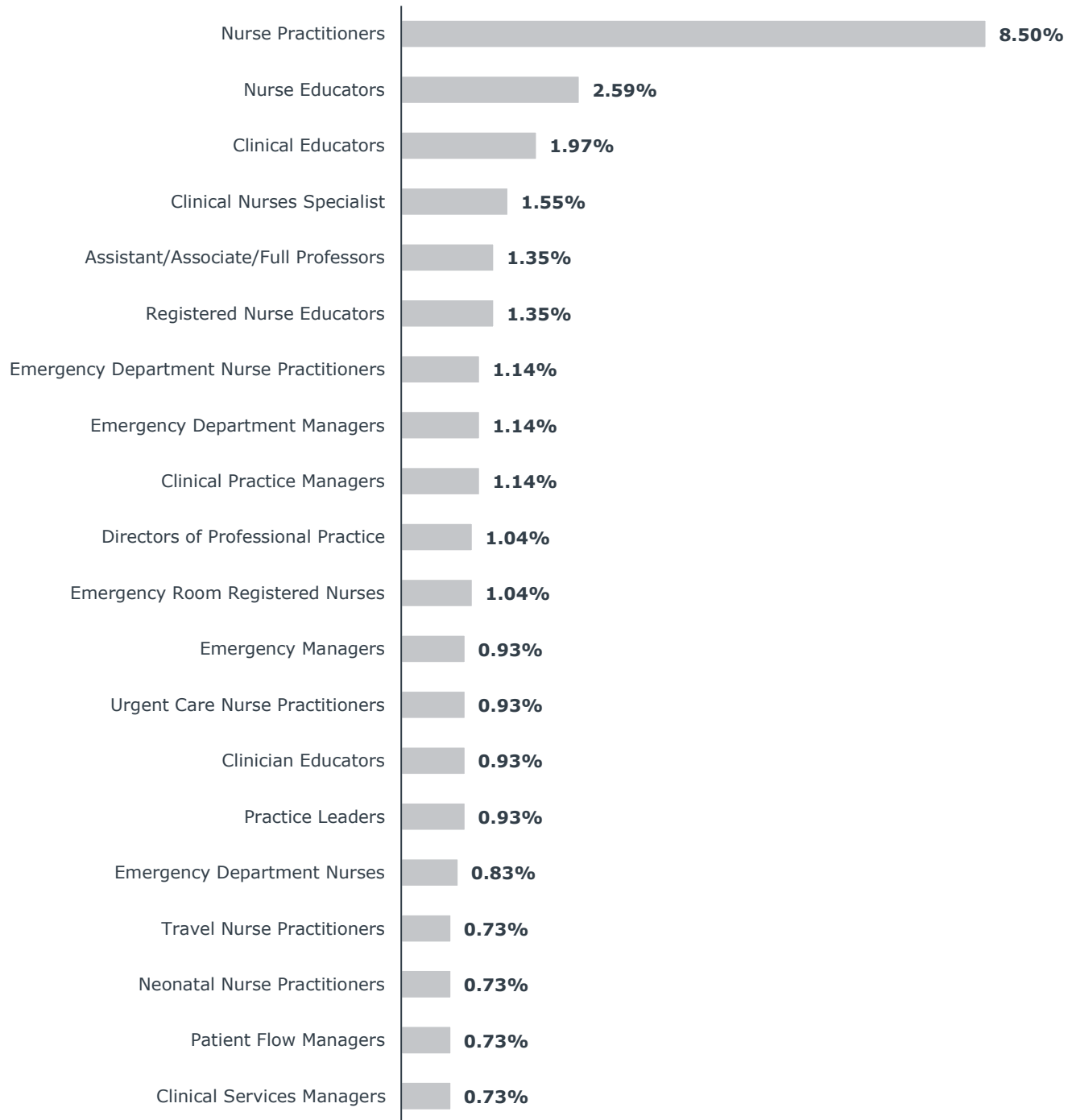
Source: EAB analysis. Lightcast.

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## Top Titles in Job Postings for Master's-Level Trauma Sciences Professionals

December 2023 - November 2024, Canada Data

n = 965 job postings



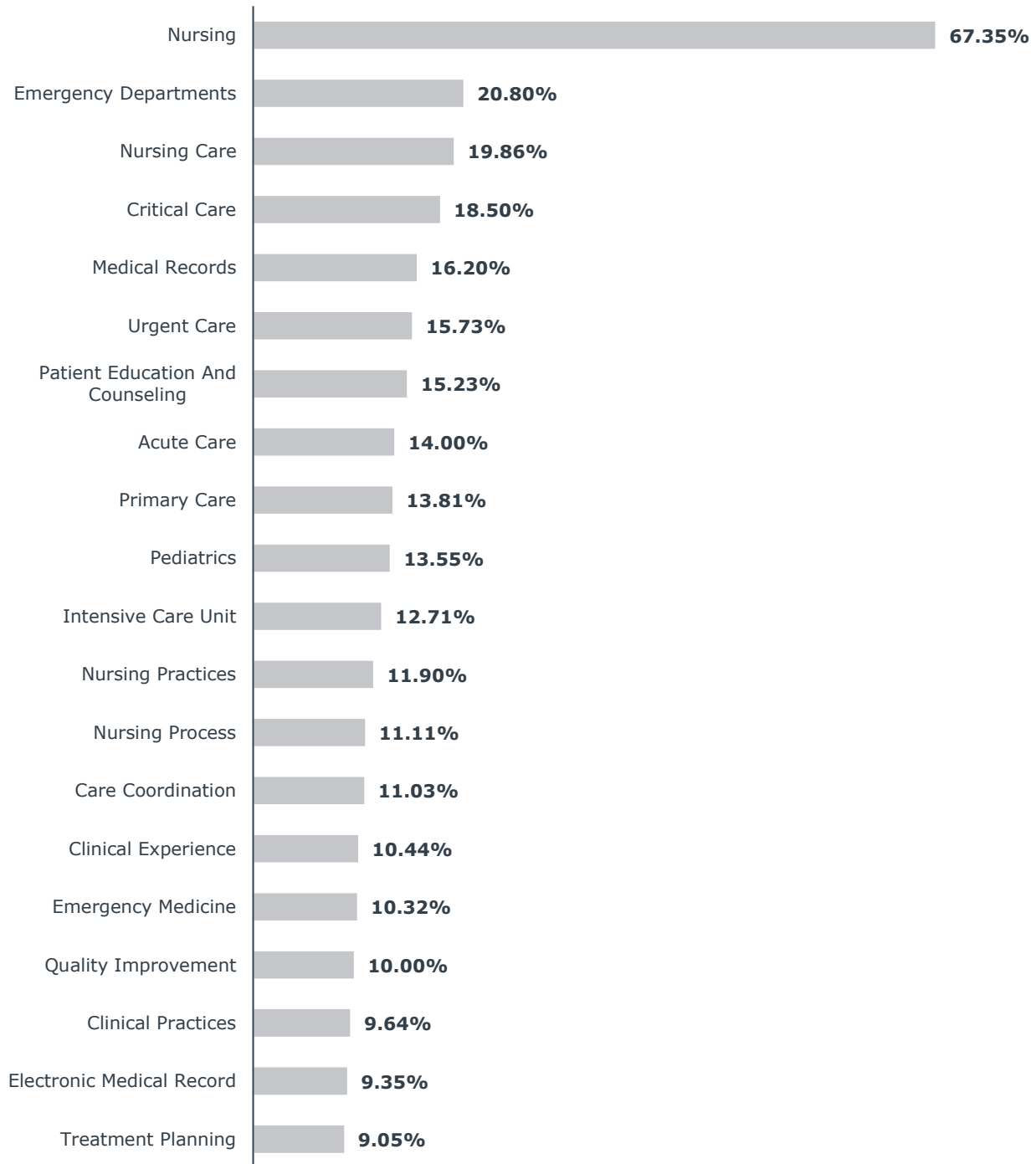
Source: EAB analysis. Lightcast.

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## Top Skills in Job Postings for Master's-Level Trauma Sciences Professionals

December 2023 - November 2024, United States Data

n = 100,083 job postings



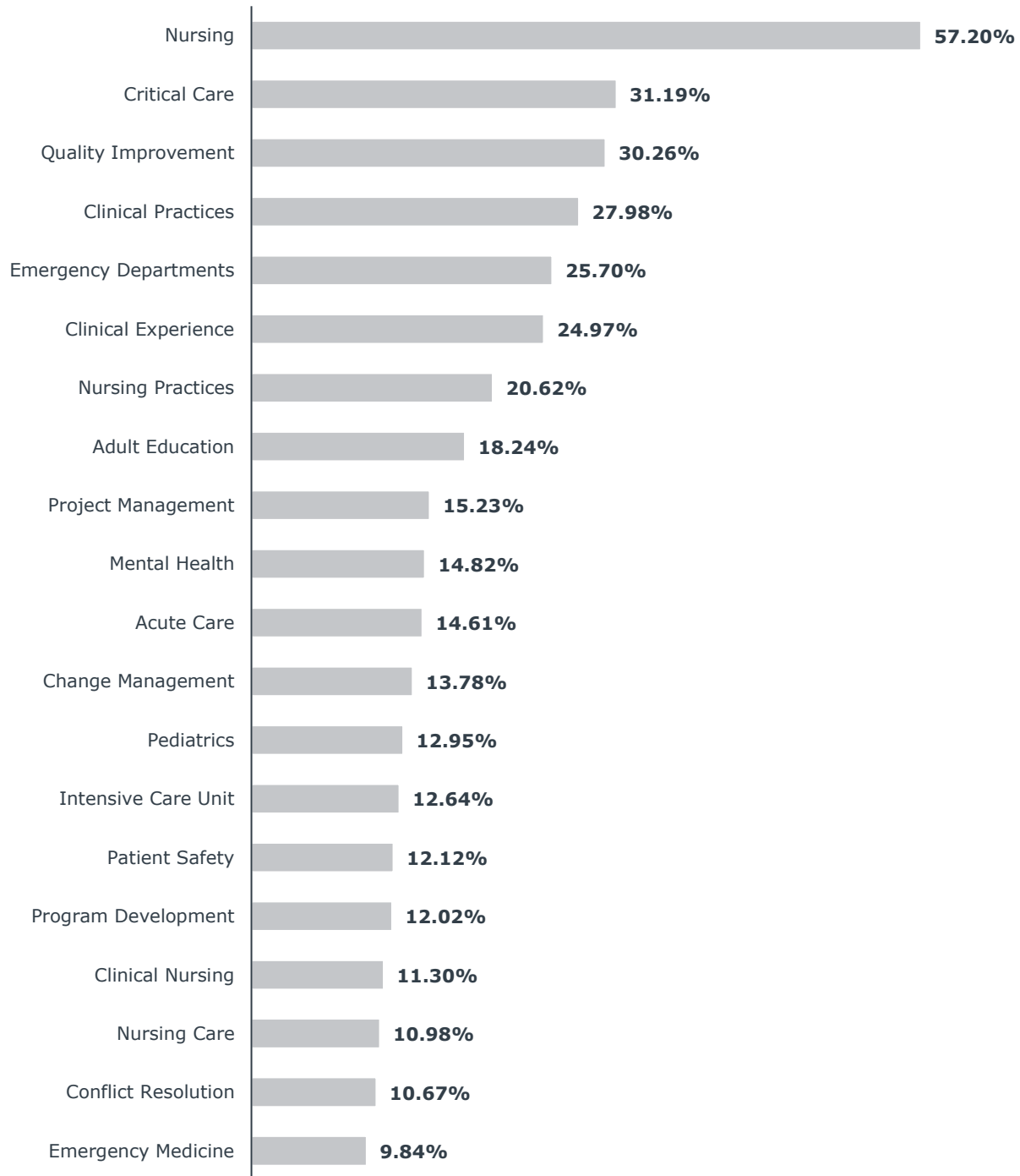
Source: EAB analysis. Lightcast.

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## Top Skills in Job Postings for Master's-Level Trauma Sciences Professionals

December 2023 - November 2024, Canada Data

n = 965 job postings

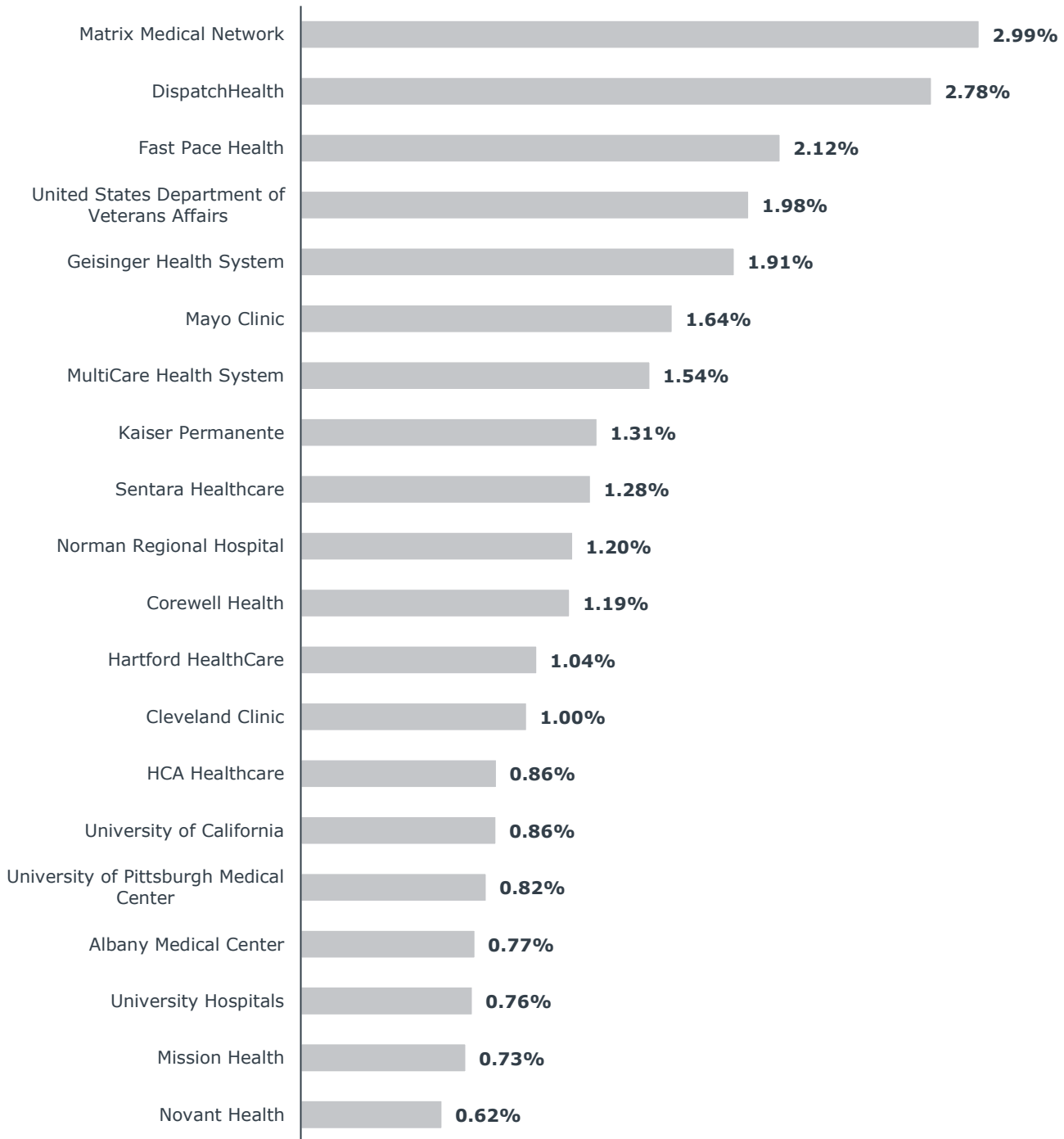


Source: EAB analysis. Lightcast.

## Top Employers in Job Postings for Master's-Level Trauma Sciences Professionals

December 2023 - November 2024, United States Data

n = 100,083 job postings



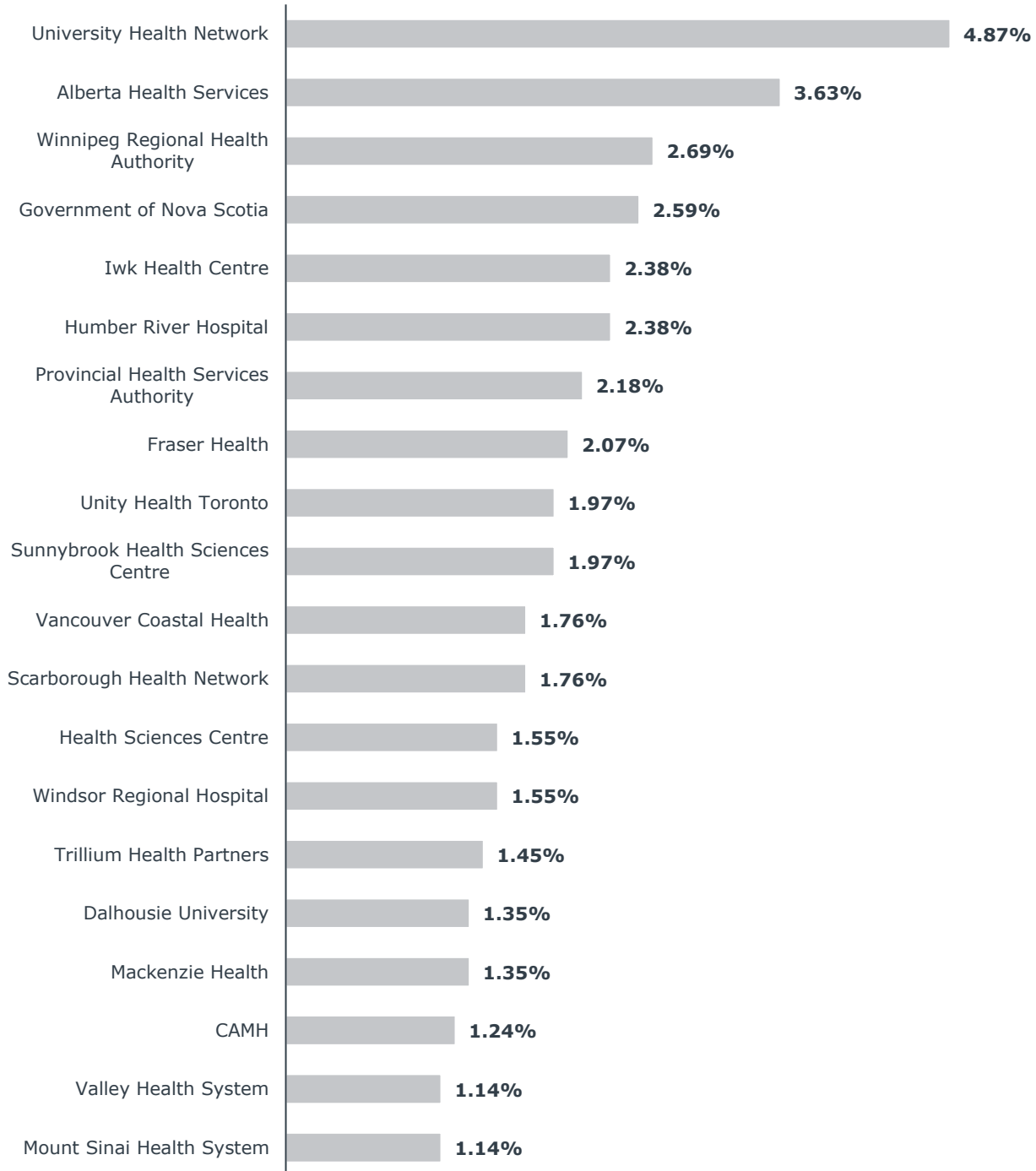
Source: EAB analysis. Lightcast.

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## Top Employers in Job Postings for Master's-Level Trauma Sciences Professionals

December 2023 - November 2024, Canada Data

n = 965 job postings

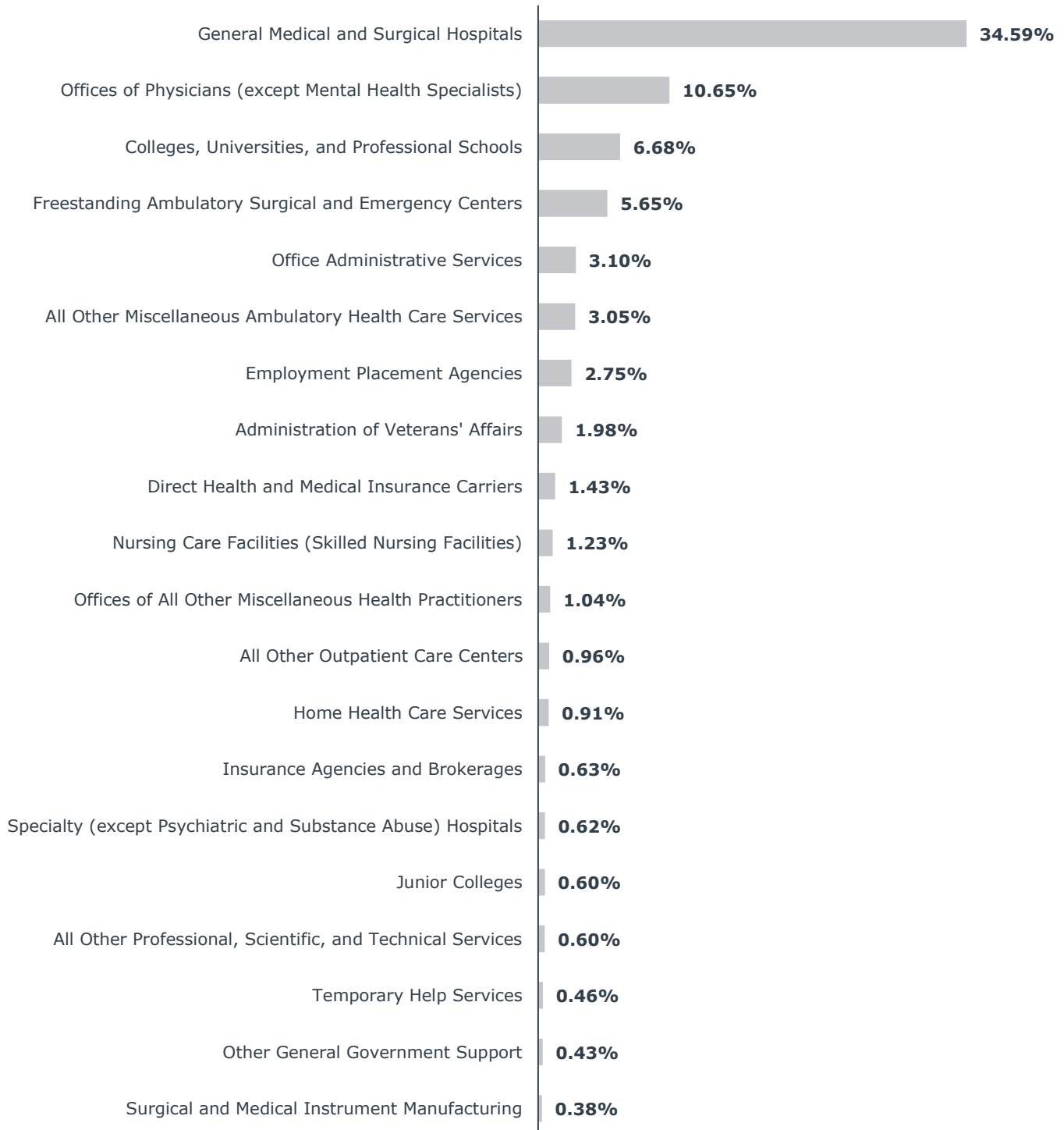


Source: EAB analysis. Lightcast.

## Job Postings Across Industries for Master's-Level Trauma Sciences Professionals

December 2023 - November 2024, United States Data

n = 100,083 job postings

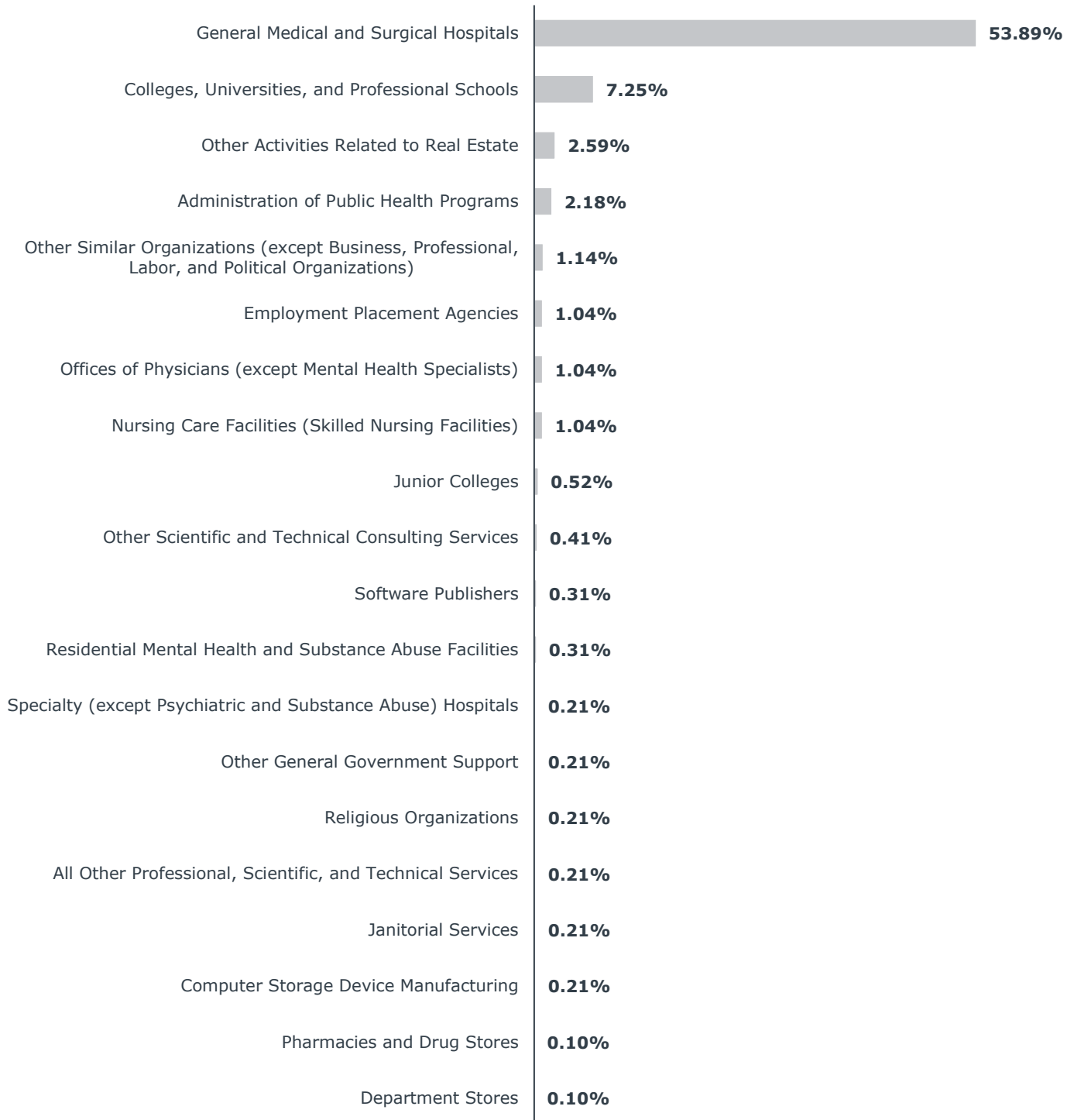


Source: EAB analysis. Lightcast.

## Job Postings Across Industries for Master's-Level Trauma Sciences Professionals

December 2023 - November 2024, Canada Data

n = 965 job postings



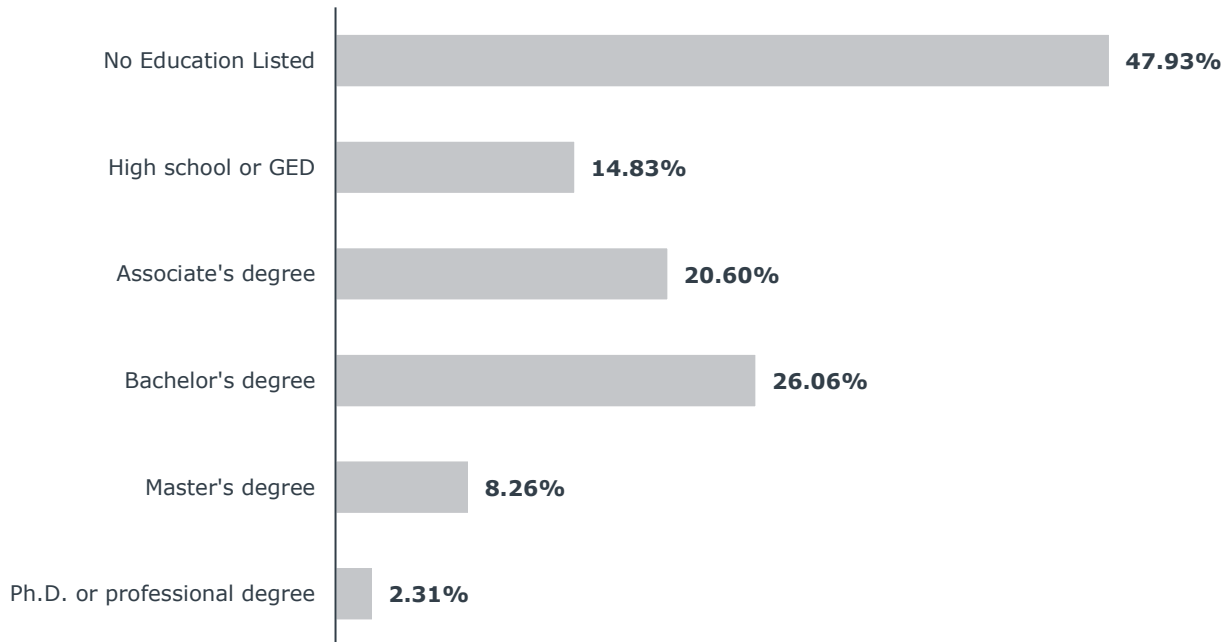
Source: EAB analysis. Lightcast.



## Education Levels Requested of Trauma Sciences Applicants<sup>1</sup>

December 2023 - November 2024, United States Data

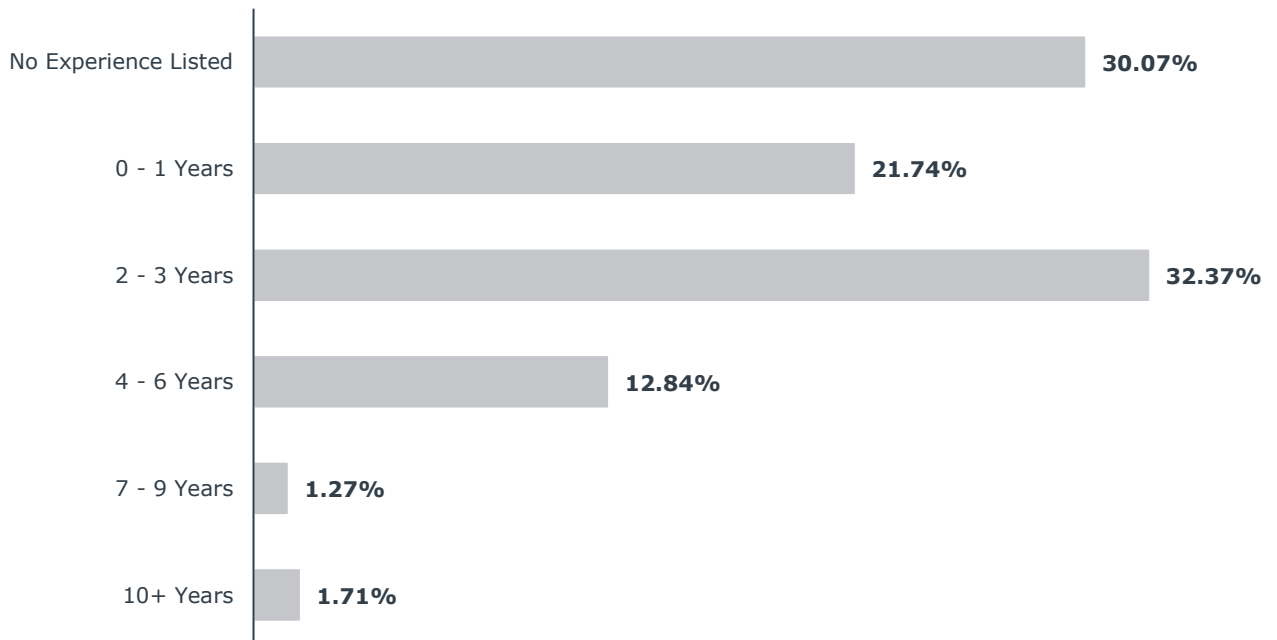
n = 1,211,228 job postings



## Experience Levels Requested of Master's-Level Trauma Sciences Applicants

December 2023 - November 2024, United States Data

n = 100,083 job postings



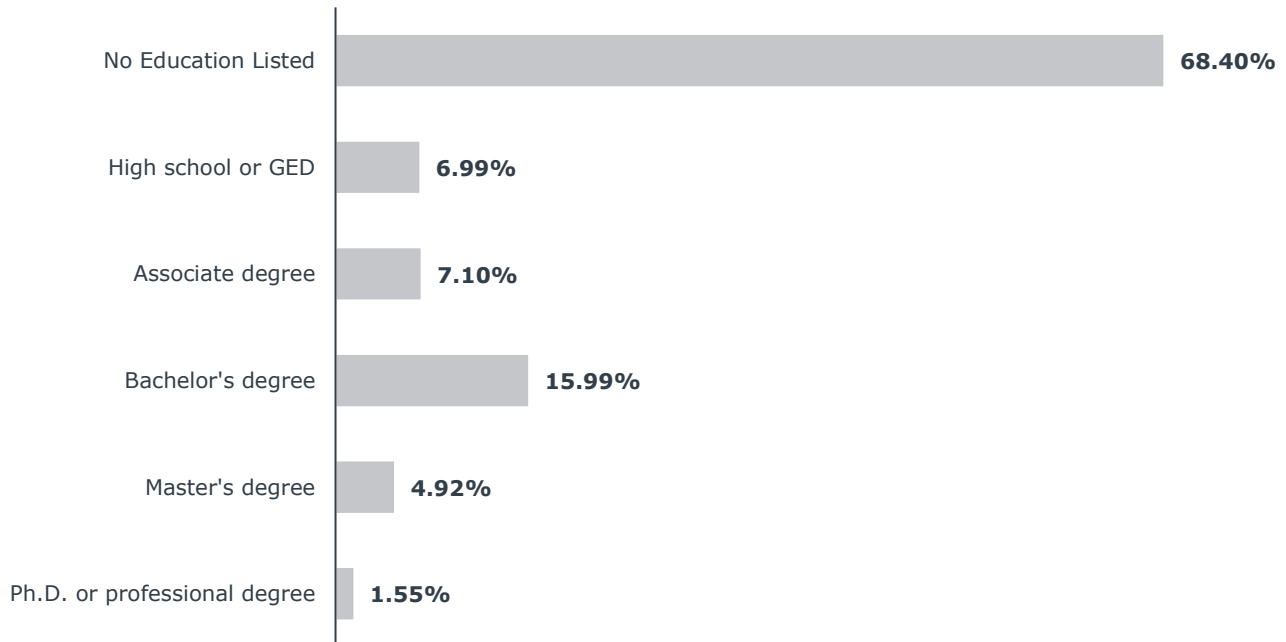
1) The n-value reflects the number of job postings requesting any degree level trauma sciences applicants rather than the number of postings requesting only those at the focus degree level.

Source: EAB analysis. Lightcast.

## Education Levels Requested of Trauma Sciences Applicants<sup>1</sup>

December 2023 – November 2024, Canada Data

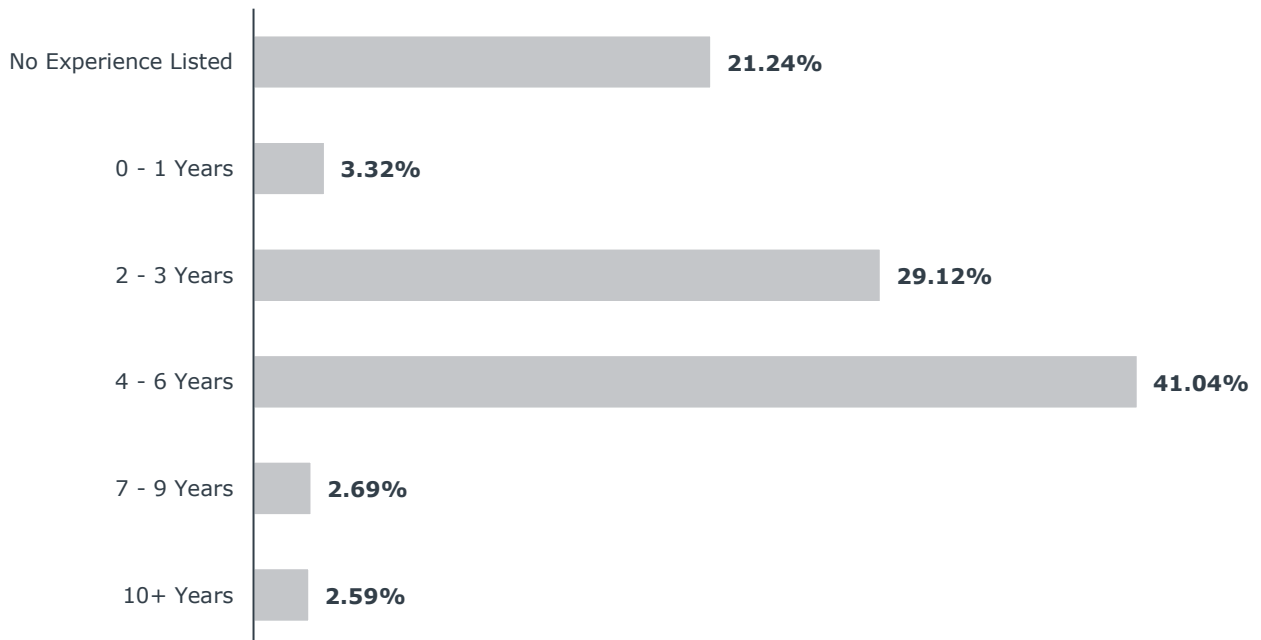
n = 19,598 job postings



## Experience Levels Requested of Master's-Level Trauma Sciences Applicants

December 2023 – November 2024, Canada Data

n = 965 job postings



1) The n-value reflects the number of job postings requesting any degree level trauma sciences applicants rather than the number of postings requesting only those at the focus degree level.



**TOPIC:** University of Maryland, College Park proposal to offer a Master of Science (M.S.) in Biostatistics

**COMMITTEE:** Education Policy and Student Life and Safety

**DATE OF COMMITTEE MEETING:** January 30, 2025

**SUMMARY:** The Department of Epidemiology and Biostatistics within the university’s School of Public Health proposes to establish a Master of Science in Biostatistics. Biostatistics focuses on the analytical methods for collecting, analyzing, and interpreting scientific data collected in public health and medical research. This program addresses the growing demand for biostatisticians that has resulted from the massive increase of health data and the need for experts who can analyze this data to inform public health decisions. The department already offers a Master of Public Health (M.P.H.) in Biostatistics; however, the proposed M.S. will focus on advanced biostatistical methodologies and public health data science for specialized careers and doctoral preparation, while the existing M.P.H. in Biostatistics will continue to emphasize broader public health applications with a foundation in biostatistical training.

The M.S. program will focus on mastering advanced biostatistical methods, public health data science, conducting and evaluating research, using statistical software for data management, and effectively communicating and reporting statistical results for academic and professional audiences. This program will also provide students who are not able to finish the proposed Biostatistics Ph.D. program with an opportunity to earn a graduate degree in biostatistics. The program requires a total of 43 credits, including 25 credits of core courses, 12 credits of electives, and 6 credits for the master’s thesis.

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

**FISCAL IMPACT:** No additional funds are required. The program can be supported by the projected tuition and fee revenue.

**CHANCELLOR’S RECOMMENDATION:** That the Education Policy and Student Life and Safety Committee recommend that the Board of Regents approve the University of Maryland, College Park proposal to offer an MS in Biostatistics.

COMMITTEE RECOMMENDATION:	DATE:
BOARD ACTION:	DATE:
SUBMITTED BY: Alison M. Wrynn 301-445-1992	awrynn@usmd.edu



UNIVERSITY OF  
MARYLAND

OFFICE OF THE PRESIDENT

November 14, 2024

Chancellor Jay A. Perman  
University System of Maryland  
3300 Metzgerott Road  
Adelphi, MD 20783

Dear Chancellor Perman:

I am writing to request approval for a new Master of Science program in Biostatistics. The proposal for the new program is attached. I am also submitting this proposal to the Maryland Higher Education Commission for approval.

The proposal was endorsed by the appropriate faculty and administrative committees. I also endorse this proposal and am pleased to submit it for your approval.

Sincerely,

A handwritten signature in cursive script that reads "Darryll J. Pines".

Darryll J. Pines  
President  
Glenn L. Martin Professor of Aerospace Engineering

DJP/mdc

cc: Candace Caraco, Associate Vice Chancellor  
Jennifer King Rice, Senior Vice President and Provost  
Boris Lushniak, Dean, School of Public Health

1101 Thomas V. Miller, Jr. Administration Building  
College Park, Maryland 20742  
301.405.5803 TEL  
301.314.9560 FAX

**UNIVERSITY SYSTEM OF MARYLAND INSTITUTION PROPOSAL FOR**

- New Instructional Program
- Substantial Expansion/Major Modification
- Cooperative Degree Program
- Within Existing Resources, or
- Requiring New Resources

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University of Maryland, College Park  
Institution Submitting Proposal

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**Biostatistics**  
Title of Proposed Program

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**Master of Science**  
Award to be Offered

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**Fall 2025**  
Projected Implementation Date

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**041902**  
Proposed HEGIS Code

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**26.1102**  
Proposed CIP Code

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**Epidemiology and Biostatistics**  
Department in which program will be located

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**Amir Sapkota**  
Department Contact

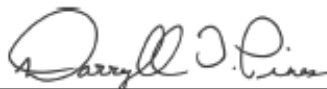
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**301-405-8716**  
Contact Phone Number

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**amirsap@umd.edu**  
Contact E-Mail Address

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Signature of President or Designee

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**11-14-2024**  
Date

## **A. Centrality to the University's Mission and Planning Priorities**

*Description.* The University of Maryland, College Park (UMD) proposes a Master of Science (MS) in Biostatistics. Biostatistics, one of the core disciplines in public health, teaches students analytical methods for collecting, analyzing, and interpreting scientific data collected in public health and medical research. This new master's program will address critical needs in public health, biomedical research, and policy analysis through advanced statistical training. This program will be offered by the Department of Epidemiology and Biostatistics (EPIB) in the School of Public Health and will prepare students for leadership roles as biostatisticians, researchers, and educators. The department already offers a Master of Public Health (MPH) in Biostatistics; however, the proposed MS will focus on advanced biostatistical methodologies and public health data science for specialized careers and doctoral preparation, while the existing MPH in Biostatistics will continue to emphasize broader public health applications with a foundation in biostatistical training. The proposed MS program addresses the growing demand for biostatisticians resulting from the massive increase of health data and the need for experts who can analyze this data to inform public health decisions and will also provide students who are unable to finish its counterpart Biostatistics Ph.D. program (proposed separately but concurrently with this proposal) with an opportunity to earn a graduate degree in biostatistics.

*Relation to Strategic Goals.* The MS in Biostatistics strongly aligns with UMD's [mission](#), which seeks to achieve "excellence in teaching, research, and public service within a supportive, respectful and inclusive environment" and to address "the most pressing global challenges" through scholarship and research. The biostatistics program aims to produce experts capable of innovative research that will enhance public health and scientific discovery, advancing UMD's mission to foster impactful research and cultivate a workforce equipped to support Maryland's diverse communities.

*Funding.* Graduate level coursework in Biostatistics is already offered at the university. As mentioned above, the Department of Epidemiology and Biostatistics offers an MPH concentration in Biostatistics and offers biostatistics courses to graduate students in other programs. The size of the program will be small at approximately five to eight students. Consequently, the department currently has the resources to offer the program.

*Institutional Commitment.* The instructional and administrative infrastructure already exists for this program as the department offers the MPH concentration in Biostatistics and a PhD in Epidemiology. As mentioned above, this proposal will accompany a proposal for a doctoral program in Biostatistics. Most top tier Schools of Public Health have a doctoral program in biostatistics, and the lack of a doctoral program in this area negatively impacts the department's ability to attract top-tier faculty, secure large federal training grants, and improve its national ranking. This was reflected in the final report from the external reviewers that was part of the 2023 departmental self-study. If the PhD program is approved, it will be important for the doctoral students who are not able to finish their PhD to have an opportunity to still earn a master's degree if they have completed the required number of credits. Because of the

availability capacity of the department to offer the program, and the need to have a master's program available for the PhD students, UMD strongly supports this proposal.

## **B. Critical and Compelling Regional or Statewide Need as Identified in the State Plan**

*Need.* Nationally, the growing volume of complex health-related data generated by advances in technology has created a demand for highly trained biostatisticians. Biostatisticians often serve a critical role for other scientists in providing data analyses of medical and public health data. The state of Maryland in particular has a need for highly skilled biostatisticians that is increasing due to its status as a national hub for health research, with agencies like NIH, FDA, and CDC branches based locally.

*State Plan.* The proposed program aligns broadly with the 2022 [Maryland State Plan for Postsecondary Education](#), specifically Priority 5, "Maintain the commitment to high-quality postsecondary education in Maryland," in particular, the Action Item to "Identify innovative fields of study." The program will foster a culture of innovation by integrating emerging methodologies in statistical analysis and applying them to real-world public health issues. Students will gain skills in innovative fields such as machine learning, big data analytics, and computational biology, which are increasingly essential in biostatistics.

## **C. Quantifiable and Reliable Evidence and Documentation of Market Supply and Demand in the Region and State**

Biostatisticians are among the fastest growing jobs according to the [US Bureau of Labor Statistics](#). During the next decade, an average of 10,600 biostatistician openings are projected annually. These rapid rates of job growth, which are significantly faster than average for all occupations, are due to retiring of a large proportion of current biostatisticians as well as changes in the public health work force after the COVID-19 pandemic. These national trends<sup>1</sup> highlight the urgency needed to train biostatisticians to work at state and local governmental public health agencies. The current workforce shrinkage "has the potential to jeopardize the safety, security, and economic prosperity of the US" (p.346).<sup>2</sup>

## **D. Reasonableness of Program Duplication**

Johns Hopkins University is the only institution in the state offering an MS program in Biostatistics. As mentioned above, there is an increasing need for biostatisticians and the proposed program can help alleviate this workforce shortage. The proposed biostatistics programs will maintain close relationships with nearby federal institutions (NIH, FDA, USDA, CDC's National Center for Health Statistics) as well as UMD's newly established Institute for Health Computing. Senior investigators from these organizations will be invited to share their real-world experience with the students as a guest lecturer. In return, the guest lecturer will have an opportunity to recruit highly talented students to work with them as a part of the student's internship requirement or their MS thesis project. We anticipate enrolling five to

eight students in this program at steady state, and therefore do not think this modest enrollment size will have an adverse impact on the Hopkins program.

#### **E. Relevance to High-demand Programs at Historically Black Institutions (HBIs)**

As indicated above, only Johns Hopkins has a master's program in Biostatistics. Consequently, we do not believe that this will have an impact on a Historically Black Institution.

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

We do not anticipate any negative impacts on the special identities of the HBIs in the state of Maryland. As mentioned above, there are no similar programs at Historically Black Institutions. UMD's School of Public Health has an established department in Epidemiology and Biostatistics and Master of Public Health concentration in Biostatistics. Consequently, we do not believe this program will negatively impact the identity of a Historically Black Institution.

#### **G. Adequacy of Curriculum Design, Program Modality, and Related Learning Outcomes**

*Curricular Development.* The proposed program aims to fill a critical gap identified through an external review of the Epidemiology and Biostatistics department, which noted the need for advanced training in this core public health discipline. The curriculum emphasizes applied statistics in public health and medicine, including courses in data science and health data analytics, and offers interdisciplinary electives, ensuring graduates are well-prepared to tackle complex public health challenges.

*Faculty Oversight.* The MS in Biostatistics program will be led by the Department of Epidemiology and Biostatistics within the School of Public Health. Appendix A includes a list of faculty who will be teaching in the program.

*Educational Objectives and Learning Outcomes.* The primary educational objective of the program is to train the next generation of scholars in biostatistics and health data science with enhanced public health data analysis skills necessary for future careers in academia, industry, government and other health related professional organizations, and to prepare students for future enrollment in top ranked Biostatistics PhD programs. The learning outcomes for the program are as follows:

1. Understand the foundations of biostatistical methods.
2. Critically review scientific literature and evaluate appropriateness of the statistical methods and applications.
3. Conduct advanced statistical inferences that are appropriate to specific study designs and data structures.
4. Gain methodology research experience or collaborative experience in applied biostatistics.



5. Use statistical analytical software to perform advanced statistical procedures and demonstrate skills in public health data management.
6. Effectively communicate results of statistical analyses to lay and professional audiences.
7. Prepare written reports of statistical analyses for journal publication, grant applications, and review by regulatory agencies.

*Institutional assessment and documentation of learning outcomes.* Please see Appendix B for information about assessing the program's learning outcomes.

*Course requirements.* The 43-credit curriculum includes 25 credits of core coursework, 12 credits of electives, and a 6-credit thesis.

<b>Core Courses (25 credits)</b>		
Course Number	Course Title	Credits
EPIB650	Biostatistics I	3
EPIB651	Applied Regression Analysis	3
EPIB652	Categorical Data Analysis	3
EPIB653	Applied Survival Data Analysis	3
EPIB655	Longitudinal Data Analysis	3
EPIB667	Applied Machine Learning with Python	3
EPIB697	Public Health Data Management	3
EPIB610	Foundations of Epidemiology	3
SPHL601	Core Concepts in Public Health	1
<b>Elective Courses (12 credits from the choices below)</b>		
EPIB611	Intermediate Epidemiology	3
EPIB612	Epidemiologic Study Design	3
EPIB633	Health Survey Design and Analysis	3
EPIB635	Applied Multilevel Modeling in Health Research	3
EPIB654	Clinical Trials: Design and Analysis	3
EPIB656	Applied Bayesian Data Analysis	3
EPIB657	Spatial Statistics for Public Health Data	3
EPIB660	Analysis of National Health Survey Data	3
EPIB661	Applied Multivariate Data Analysis	3
EPIB664	Missing Data Analysis	3
EPIB680	Linear Model	3
EPIB681	Causal Inference	3
EPIB682	Statistical Learning for Health Data Analysis	3
EPIB683	High-throughput Data Analysis	3
EPIB684	Electronic Health Record Data Analysis	3

EPIB695	Introduction to R for Health Data Analysis	3
<b>Dissertation Credits (6 credits)</b>		
EPIB799	Master's Thesis Research	

A list of courses and descriptions is included in Appendix C

*General Education.* Not applicable for our graduate programs.

*Accreditation or Certification Requirements.* No accreditation or licensure is required for this program.

*Other Institutions or Organizations.* The offering unit is not planning to contract with another institution or non-collegiate organization for this program.

*Student Support.* The department already has the administrative infrastructure to provide student support as it already supports a doctoral program in epidemiology and an MPH with a concentration in Biostatistics. [we could use another sentence here about student support for master's students.]

*Marketing and Admissions Information.* Students will see admission criteria, financial aid resources, and costs on both the School of Public Health website and find additional information on the Graduate School website.

#### **H. Adequacy of Articulation**

Not applicable for this graduate program.

#### **I. Adequacy of Faculty Resources**

*Program faculty.* Appendix A contains a list of faculty members who will teach in the program. The Department of Epidemiology and Biostatistics has experienced faculty with extensive expertise in statistical methodology, public health, and epidemiology. These faculty members will support both instructional and dissertation advising needs.

*Faculty training.* Faculty teaching in the program will use the university's learning management system along with its extensive electronic resources. They will have access to instructional development opportunities available across the College Park campus, including those offered as part of the Teaching and Learning Transformation Center, many of which are delivered in a virtual environment. Instructors will work with the learning design specialists on campus to incorporate best practices when teaching in the online environment.

#### **J. Adequacy of Library Resources**

The University of Maryland Libraries assessment concluded that the Libraries are able to meet, with current resources, the curricular and research needs of the program.

### **K. Adequacy of Physical Facilities, Infrastructure, and Instructional Resources**

All physical facilities, infrastructure, and instructional equipment are already in place. The program will benefit from UMD's existing advanced research labs, data analysis centers, and public health facilities. These resources will enable students to gain hands-on experience with data analysis, computation, and research projects within the state-of-the-art facilities of the School of Public Health.

### **L. Adequacy of Financial Resources**

Tables 1 and 2 contain the details of resources and expenditures.

#### *Table 1 Resources:*

The program will be supported through the reallocation of resources. The coursework, instruction, facilities and administrative support are already in place in the department as much of the coursework is already offered for existing programs and there is capacity to include the additional MS students.

1. Line 1 shows the reallocated resources, essentially the existing capacity afforded by the department's current activities.
2. Graduate students will be paying tuition by the credit. Tuition revenue for this program is projected based on modest student enrollments and assumes a steady increase in the per-credit rate projected over five years.
3. No external sources of funding are assumed.
4. No other sources of funding are assumed.

#### *Table 2 Expenditures:*

1. Faculty salaries are based on cost per course. We assume an annual increase of 3% in salaries with a corresponding 33% benefits rate.
2. Administrative responsibilities (.1 FTE) will be provided by current departmental administrative staff.
3. Other expenditures include annual library support and operational expenses.

### **M. Adequacy of Program Evaluation**

Formal program review is carried out according to the University of Maryland's policy for Periodic Review of Academic Units, which includes a review of the academic programs offered by, and the research and administration of, the academic unit (<http://www.president.umd.edu/policies/2014-i-600a.html>). Program Review is also monitored following the guidelines of the campus-wide cycle of Learning Outcomes Assessment

([https://irpa.umd.edu/Assessment/loa\\_overview.html](https://irpa.umd.edu/Assessment/loa_overview.html)). Faculty within the department are reviewed according to the University's Policy on Periodic Evaluation of Faculty Performance (<http://www.president.umd.edu/policies/2014-ii-120a.html>). Since 2005, the University has used an online course feedback survey instrument for students that standardizes course feedback across campus. The course survey has standard, university-wide questions and allows for supplemental, specialized questions from the academic unit offering the course.

**N. Consistency with Minority Student Achievement goals**

Because Schools of Public Health traditionally focus upon the application of research, many first generation and/or diverse students gravitate toward fields in which there exists a strong expectation that their careers will broadly impact population health both locally and abroad. This is evidenced by School of Public Health's rich tradition of retaining and graduating a diverse undergraduate student body. Currently, 27% of School of Public Health students are Black and 17% are Hispanic, both significantly exceeding the University averages and directly contributing to the diversity goals defined within the University of Maryland and School of Public Health strategic plans.

The MS in Biostatistics will prioritize inclusive recruitment and support for minority students, in line with Maryland's goals of equity and access in higher education. Additionally, UMD will leverage its existing undergraduate Public Health Science (PHSC) program, which has one of the most diverse student populations on campus, to encourage current undergraduates from diverse backgrounds to consider the MS in Biostatistics program as a pathway to advanced careers in public health data science.

**O. Relationship to Low Productivity Programs Identified by the Commission**

N/A

**P. Adequacy of Distance Education Programs**

While primarily on-campus, the program will offer select online courses, providing flexibility for students balancing professional commitments. The online components will adhere to quality standards, ensuring an engaging and rigorous learning experience for all participants.

**Table 1: Resource Table**

Resources Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Reallocated Funds	104756	106906	109119	109415	109721
2. Tuition/Fee Revenue (c+g below)	55100	72871	75057	77309	79628
a. #FT Students	3	4	4	4	4
b. Annual Tuition/Fee Rate	15649	16119	16602	17100	17613
c. Annual FT Revenue (a x b)	46948	64475	66409	68401	70453

d. # PT Students	1	1	1	1	1
e. Credit Hour Rate	510	525	541	557	573
f. Annual Credit Hours	16	16	16	16	16
g. Total Part Time Revenue (d x e x f)	8152	8397	8648	8908	9175
3. Grants, Contracts, & Other External Sources	0	0	0	0	0
4. Other Sources	0	0	0	0	0
<b>TOTAL (Add 1 - 4)</b>	<b>159856</b>	<b>179777</b>	<b>184177</b>	<b>186725</b>	<b>189349</b>

**Table 2: Expenditure Table**

Expenditure Categories	Year 1	Year 2	Year 3	Year 4	Year 5
<b>1. Faculty (b+c below)</b>	<b>39900</b>	<b>54796</b>	<b>56440</b>	<b>58133</b>	<b>59877</b>
a. #FTE	0.3	0.4	0.4	0.4	0.4
b. Total Salary	30000	41200	42436	43709	45020
c. Total Benefits	9900	13596	14004	14424	14857
<b>2. Admin. Staff (b+c below)</b>	<b>9310</b>	<b>9589</b>	<b>9877</b>	<b>10173</b>	<b>10478</b>
a. #FTE	0.1	0.1	0.1	0.1	0.1
b. Total Salary	7000	7210	7426	7649	7879
c. Total Benefits	2310	2379	2451	2524	2600
<b>3. Total Support Staff (b+c below)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
a. #FTE	0	0	0	0	0
b. Total Salary	0	0	0	0	0
c. Total Benefits	0	0	0	0	0
<b>4. Graduate Assistants (b+c)</b>	<b>95446</b>	<b>97316</b>	<b>99242</b>	<b>99242</b>	<b>99242</b>
a. #FTE	2.0	2.0	2.0	2.0	2.0
b. Stipend	46862	48268	49716	49716	49716
c. Tuition Remission	33120	33120	33120	33120	33120
d. Benefits	15464	15928	16406	16406	16406
<b>5. Equipment</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>6. Library</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>
<b>7. New or Renovated Space</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>8. Other Expenses: Operational Expenses</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>
<b>TOTAL (Add 1 - 8)</b>	<b>154656</b>	<b>171702</b>	<b>175559</b>	<b>177549</b>	<b>179598</b>

**Appendix A: Faculty Information- MS in Biostatistics**

The following faculty members are projected to teach in the program. All faculty are full-time unless otherwise indicated.

Name	Highest Degree Earned, Program, and Institution	University of Maryland, College Park Title (indicate if part-time)	Courses

Xin He	PhD, Statistics, University of Missouri	Associate Professor and Associate Chair	EPIB650, EPIB651, EPIB653, EPIB655
Mei-Ling Ting Lee	PhD, Mathematics/Statistics, University of Pittsburgh	Professor	EPIB651, EPIB653, EPIB654, EPIB788
Yan Li	PhD, Survey Methodology, University of Maryland	Professor	EPIB650, EPIB660
Menglu Liang	PhD, Biostatistics, Pennsylvania State University	Assistant Clinical Professor	EPIB650, EPIB651, EPIB697
Huang Lin	PhD, Biostatistics, University of Pittsburgh	Assistant Professor	EPIB650
Tianzhou Ma	PhD, Biostatistics, University of Pittsburgh	Assistant Professor	EPIB652, EPIB661, EPIB664
Jamie L. Trevitt	PhD, Public Health, Johns Hopkins University	Assistant Clinical Professor and Director of Graduate Studies	
Cher Dallal	PhD, Epidemiology, University of Pittsburgh	Associate Professor	EPIB611
Typhanye Vielka Dyer	PhD, Public Health, University of California Los Angeles	Associate Professor	EPIB788
Hongjie Liu	PhD, Epidemiology, University of California Los Angeles	Professor	EPIB612, EPIB740, EPIB788
Quynh Nguyen	PhD, Epidemiology, University of North Carolina	Associate Professor	EPIB633
Thu Nguyen	ScD, Social Epidemiology, Harvard University	Associate Professor	EPIB637, EPIB622
Amir Sapkota	PhD, Environmental Health Sciences, Johns Hopkins University	Professor and Chair	EPIB788
Edmond Shenassa	ScD, Epidemiology and Maternal and Child Health, Harvard University	Professor	EPIB610, EPIB612
Shuo Chen	PhD, Biostatistics, Emory University	Professor (UMB Affiliated)	
Chixiang Chen	PhD, Biostatistics, Pennsylvania State University	Assistant Professor (UMB Affiliated)	
Yulei He	PhD, Biostatistics, University of Michigan	Adjunct faculty (NCHS/CDC Branch Chief)	EPIB56, EPIB664

## Appendix B: Plan for Assessing Learning Outcomes: MS in Biostatistics

### Assessment 1: Satisfactory Completion of Coursework

Students must meet minimum requirements for “satisfactory progress” each year in the master’s program to be allowed to continue. Students must maintain a 3.0 GPA throughout their program (See Graduate School policy on Academic Standing). All graduate students must register for at least 1 credit hour each semester until graduation. Students should register for the number of credits that will, in the judgment of the graduate program faculty, accurately

reflect their involvement in graduate study (Graduate School Requirements). Students must receive at least a “B-” in individual MPH program cognate courses for satisfactory progress. If a student receives a “C+” or lower in a Biostatistics MS program course, the student must repeat the course and receive a satisfactory grade (at least a B-). If the student does not receive a satisfactory grade the second time, they will not be allowed to continue in the program.

All MS in Biostatistics students are required to complete a thesis and enroll in EPIB799 for 6 credit hours. All required coursework must be completed before enrolling in EPIB799. Electives may be taken concurrently with completion of the Thesis. If the thesis is not completed during the registered time period, students must be registered for at least 1-credit of the thesis (EPIB799) each semester until the work is completed and defended.

### **Assessment 2: Thesis Proposal**

The student must select a thesis topic in consultation with his/her faculty advisor and prepare a written proposal that details what is to be accomplished and how it will be done. Students should begin to develop their thesis proposal the semester before they plan on defending their final thesis.

A Thesis Examining Committee of three Graduate Faculty members (at least two committee members must be EPIB Biostatistics faculty) must approve the thesis proposal. One of these three must be the student's faculty advisor, who chairs the committee. When the proposal is ready for review, the student will schedule a meeting with the Thesis Examining Committee. The student must submit a copy of their proposal to the examining committee at least 10 working days in advance of the meeting. He/she must also post an abstract of the study and information about the meeting time, place and date 10 working days before the meeting on the departmental listserv. At the proposal meeting, the document may be approved as is, approved with certain changes, or rejected. In the latter two cases, the student will revise the proposal and submit the proposal to the chair of the committee. If needed, a second formal in-person meeting may be required. NOTE: Students are limited to two formal proposal meetings.

Once the proposal is approved, committee members will provide written approval in the form of signatures on the SPH Proposal Approval Form. The thesis advisor forwards this form to the EPIB Director of Graduate Studies, who will sign the form and place it in the student's file. If the research thesis involves human subjects, university human subjects approval must be obtained only after the proposal has been approved by the Thesis Examining Committee and before data collection can begin.

After the project proposal has been approved (and Human Subjects approval obtained if required), the student may begin work on the project and enroll in EPIB799. It is expected the project will be conducted according to what was approved by the Thesis Examining Committee.

Before making any substantive changes to that proposal, approval from the examining committee is required. The student must consult with their faculty advisor to determine which changes are substantive and require committee approval.

### **Assessment 3: Oral Thesis Defense**

The final step in completing a Master's thesis is to successfully pass an oral defense conducted by the Thesis Examining Committee, ideally the same committee that approved the thesis proposal. This committee must first be approved by the Graduate School, using the form NOMINATION OF THESIS OR DISSERTATION COMMITTEE. Once they have approved the Thesis Examining Committee, the Graduate School will issue and send to the Department the "Report of Examining Committee" form. The oral defense meeting must be scheduled at least 10 working days in advance of the meeting with examining committee members. Again, 10 working days prior to the meeting, the student must give each member of the examining committee and the Director of Graduate Studies a finished copy of the thesis manuscript to review.

There are three possible outcomes at the oral defense: the thesis can be accepted as is, can be rejected, or can be accepted on the condition that certain changes are made within a specified time frame. Students must obtain final approval of their Thesis to complete the degree. When final approval is granted, the Thesis Examining Committee will sign and submit the "Report of Examining Committee" form to the Graduate School. After passing the oral defense, the student must submit an electronic copy of his/her thesis to the Graduate School (submit online at [www.gradschool.umd.edu/etd/](http://www.gradschool.umd.edu/etd/)) and one hard copy to the EPIB Director of Graduate Studies.

## **Appendix C: Course Descriptions**

### **Core Courses**

#### **EPIB610 Foundations of Epidemiology (3 Credits)**

Introduction to the discipline of epidemiology and its applications to health issues and practices. Basic epidemiologic concepts and methods will be covered.

#### **EPIB650 Biostatistics I (3 Credits)**

Basic statistical concepts and procedures for Public Health. Focuses on applications, hands-on-experience, and interpretations of statistical findings.

#### **EPIB651 Applied Regression Analysis (3 Credits)**

An introduction to important statistical methods used in public health research, including



nonparametric hypothesis testing, ANOVA, simple and multiple linear regression, logistic regression, and categorical data analysis.

**EPIB652 Categorical Data Analysis (3 Credits)**

Methods for analysis of categorical data as applied to public health research, including contingency tables, logistic regression, multcategory logic models, loglinear models, and models for matched-pairs.

**EPIB653 Applied Survival Data Analysis (3 Credits)**

Overview of statistical methods for analyzing censored survival data, including the Kaplan-Meier estimator, the log-rank test, Cox PH model.

**EPIB655 Longitudinal Data Analysis (3 Credits)**

Statistical models for drawing scientific inferences from longitudinal data, longitudinal study design, repeated measures and random effects to account for experimental designs that involve correlated responses, handling of missing data.

**EPIB667 Applied Machine Learning with Python**

This graduate-level course in machine learning focuses on modern techniques for analyzing complex and massive public health data sets. Emphasis is placed on applications, computational methods, and the theoretical foundations of machine learning. Topics covered include unsupervised learning, supervised learning, and deep neural networks, among others.

**EPIB697 Public Health Data Management (3 Credits)**

This course is designed to provide students with the expertise needed to effectively manage research data using SAS as the statistical programming language.

**SPHL601 Core Concepts in Public Health (1 Credit)**

Introduces students to the history, functions, systems, policies, and models of public health practice in the United States and globally. The course offers seminars, interactive activities, and assessments aimed at establishing a baseline understanding of public health necessary for higher level and integrative learning in subsequent public health courses.

**Elective Courses**

**EPIB611 Intermediate Epidemiology**

Analysis of epidemiologic methods as applied to epidemiologic research, analysis of bias, confounding, effect modification issues, overview of design, implementation, and analysis of epidemiologic studies.

**EPIB612 Epidemiologic Study Design**

Application of epidemiologic study designs, analytic methods used for analysis of cohort, case-control, cross-sectional, and clinical trials research.

### **EPIB633 Health Survey Design and Analysis**

An overview of types of survey research designs, questionnaire design, measurement issues, and techniques for recruiting and interacting with participants. Students will discuss and implement a variety of health survey analysis techniques, including how to utilize SAS statistical software to estimate descriptive statistics and implement regression models, while accounting for complex survey designs.

### **EPIB635 Applied Multilevel Modeling in Health Research**

Multilevel modeling is a popular analytic technique in health research that collects data from participants at hierarchic levels, e.g., residents nested in neighborhoods, and patients in hospitals. The course covers topics in multilevel modeling including two- and three-level multilevel linear modeling, logistic regression model, modeling with ordered and nominal outcomes, as well as strategies for model building. This course focuses on the application of multilevel modeling, rather than mathematics.

### **EPIB654 Clinical Trials: Design and Analysis**

This course provides an introduction to the clinical trials design and data analysis. Topics covered include: history/background and process for clinical trial, key concepts for good statistics practice (GSP)/good clinical practice (GCP), regulatory requirement for pharmaceutical/clinical development, basic considerations for clinical trials, designs for clinical trials, classification of clinical trials, power analysis for sample size calculation for different designs, statistical analysis for efficacy evaluation, statistical analysis for safety assessment, implementation of a clinical protocol, statistical analysis plan, data safety monitoring, adaptive design methods in clinical trials (general concepts, group sequential design, dose finding design, and phase I/II or phase II/III design) and controversial issues in clinical trials.

### **EPIB656 Applied Bayesian Data Analysis**

The theory and practical application of Bayesian statistical methods in the field of public health and related areas. A variety of models will be discussed including linear regression, multilevel model, generalized linear model, generalized linear mixed model.

### **EPIB657 Spatial Statistics for Public Health Data**

Overview three main areas of spatial statistics: point patterns, geostatistical data, and lattice (areal) data. Application of spatial statistical models including CSR, k-function, krigging, semivariogram, CAR, SAR, GWR, spatial GLM, and multilevel model to public health and environmental data analysis.

### **EPIB660 Analysis of National Health Survey Data**

Provides background on how features such as stratification, clustering, and unequal sample selection probabilities can invalidate the assumptions underlying traditional statistical techniques, those implicitly assuming a simple random sampling with replacement design. Application using the SURVEY family of SAS/STAT procedures (Version 9.4 or later).

### **EPIB661 Applied Multivariate Data Analysis**

Multivariate analysis targets data with simultaneous measurements on many variables and studies the relationship between these variables. This course introduces important multivariate analysis methods used in public health research. Topics include multivariate regression analysis, multivariate analysis of variance (MANOVA), principal component analysis (PCA), factor analysis, discriminant analysis (classification), clustering analysis, canonical correlation analysis (CCA) and correspondence analysis (CA).

### **EPIB664 Missing Data Analysis**

Missing data is a common problem in almost all scientific fields. Students will learn the different patterns and mechanisms of missing data, common procedures to handle missingness including weighting procedure, imputation-based procedure and model-based procedure. Useful and popular imputation methods and tools will be introduced. Numerous real data examples will be included to help students understand and solve the real world problem with missing data for different study designs.

### **EPIB680 Linear Model (3 Credits)**

This course covers the theory of linear models, including multivariate normal distribution, least squares estimation, Gauss-Markov theorem, generalized least squares, distribution theory, and model selection. More advanced topics in this course include generalized linear models, linear mixed effects models, and generalized linear mixed effects models.

### **EPIB681 Causal Inference**

This course provides a rigorous statistical overview of causal inference at the graduate level. Students will learn to define causal effects, understand the assumptions necessary for data and model analysis, and implement popular statistical methods such as matching, instrumental variables, and inverse probability of treatment weighting. There will also be opportunities to apply these methods to example data in R.

### **EPIB682 Statistical Learning for Health Data Analysis**

This course will introduce students to important statistical learning methods used in health data analysis. Topics covered will include regularization, dimension reduction, classification, clustering and neural network based methods. For each topic, emphasis will be placed on its application, the computational algorithm and the theory behind. Students will learn how to perform analyses using statistical learning methods and understand the results. Real healthcare data examples and programming codes will be provided for their applications

### **EPIB683 High-throughput Data Analysis**

High-throughput data refer to large-scale datasets generated using advanced technologies that allow the simultaneous measurement of thousands to millions of features, which are common in public health and biomedical research nowadays. Examples of high-throughput data include genetic, transcriptomic, microbiome and imaging data. These data are usually featured by their high-dimensionality and complexity. This course introduces important statistical and machine learning methods used to analyze high-throughput data. The first half of the course focuses on

the methods, topics covered include dimension reduction, variable selection, classification, clustering, Bayesian hierarchical modeling, graphical modeling, meta-analysis and data integration methods. The second half of the course focuses on the application of these methods in real high-throughput data examples.

#### **EPIB684 Electronic Health Record Data Analysis**

This course will teach students how to use health data (e.g., electronic health records [EHR], discharge and service records, administrative claims) for epidemiologic and health services research. Students will learn about how each type of health data is generated, strengths and limitations of various health data sources, and coding nomenclature (e.g., ICD-10 CM diagnosis and procedure codes). Students will be given access to deidentified health data and asked to perform statistical analysis to answer research questions. Students will also learn about current hot topics in health data, including common data models, risk prediction and AI, and data linkage.

#### **EPIB695 Introduction to R for Health Data Analysis**

A hands-on introduction to the statistical package R for health data management and analysis. The first part of the course focuses on basic and essential data manipulation and visualization using R. The second part emphasizes the use of R in statistical analyses, including summarization, correlation, chi-squared test, t-tests, ANOVA, simple and multiple regression.

#### **Thesis Course**

#### **EPIB799 Master's Thesis Research**

Research for MS thesis under the guidance of faculty advisor.

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**TOPIC:** University of Maryland, College Park, proposal for a Ph.D. in Biostatistics

**COMMITTEE:** Education Policy and Student Life and Safety

**DATE OF COMMITTEE MEETING:** January 30, 2025

**SUMMARY:** The Department of Epidemiology and Biostatistics within the university's School of Public Health proposes to establish a Ph.D. in Biostatistics. Biostatistics focuses on the analytical methods for collecting, analyzing, and interpreting scientific data collected in public health and medical research. Knowledge of biostatistics is foundational for students in public health disciplines, and all top-tier Schools of Public Health have a doctoral program in biostatistics. A Ph.D. program in biostatistics will increase the department's ability to attract high-caliber faculty, secure large federal training grants, and maintain national rankings.

This program emphasizes biostatistical methodologies and their application in public health, equipping students with skills to analyze big health data, apply machine learning, and develop applied biostatistical methods for medical and epidemiological studies. The Ph.D. in Biostatistics is designed for students with a strong quantitative background and an interest in public health and biomedical research. The program aims to produce future scholars and leaders in public health and biomedical data science, addressing a workforce shortage in these fields.

The program offers two pathways depending on the student's prior qualifications. For students entering the program with a relevant master's degree, the program requires 48 total credits: 36 course credits and 12 dissertation credits. For students without a relevant master's degree, the program requires 60 total credits: 48 course credits and 12 dissertation credits.

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

**FISCAL IMPACT:** No additional funds are required. The program can be supported by the projected tuition and fee revenue.

**CHANCELLOR'S RECOMMENDATION:** That the Education Policy and Student Life and Safety Committee recommend that the Board of Regents approve the proposal for the University of Maryland, College Park to offer a Ph.D. in Biostatistics.

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COMMITTEE RECOMMENDATION:

DATE:

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BOARD ACTION:

DATE:

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SUBMITTED BY: Alison M. Wrynn 301-445-1992

awrynn@usmd.edu

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UNIVERSITY OF  
MARYLAND

OFFICE OF THE PRESIDENT

November 14, 2024

Chancellor Jay A. Perman  
University System of Maryland  
3300 Metzert Road  
Adelphi, MD 20783

Dear Chancellor Perman:

I am writing to request approval for a new Ph.D. program in Biostatistics. The proposal for the new program is attached. I am also submitting this proposal to the Maryland Higher Education Commission for approval.

The proposal was endorsed by the appropriate faculty and administrative committees. I also endorse this proposal and am pleased to submit it for your approval.

Sincerely,

A handwritten signature in black ink that reads "Darryll J. Pines".

Darryll J. Pines  
President  
Glenn L. Martin Professor of Aerospace Engineering

DJP/mdc

cc: Candace Caraco, Associate Vice Chancellor  
Jennifer King Rice, Senior Vice President and Provost  
Boris Lushniak, Dean, School of Public Health

1101 Thomas V. Miller, Jr. Administration Building  
College Park, Maryland 20742  
301.405.5803 TEL  
301.314.9560 FAX

UNIVERSITY SYSTEM OF MARYLAND INSTITUTION PROPOSAL FOR

- New Instructional Program
- Substantial Expansion/Major Modification
- Cooperative Degree Program
- Within Existing Resources, or
- Requiring New Resources

University of Maryland, College Park  
Institution Submitting Proposal

Biostatistics  
Title of Proposed Program

Ph.D.  
Award to be Offered

Fall 2025  
Projected Implementation Date

041901  
Proposed HEGIS Code

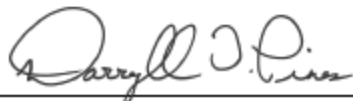
26.1102  
Proposed CIP Code

Epidemiology and Biostatistics  
Department in which program will be located

Amir Sapkota  
Department Contact

301-405-8716  
Contact Phone Number

amirsap@umd.edu  
Contact E-Mail Address



Signature of President or Designee

11-14-2024  
Date

## **A. Centrality to the University's Mission and Planning Priorities**

*Description.* The University of Maryland, College Park (UMD) proposes a Doctor of Philosophy (PhD) in Biostatistics. Biostatistics, one of the core disciplines in public health, teaches students analytical methods for collecting, analyzing, and interpreting scientific data collected in public health and medical research. This new doctoral program will address critical needs in public health, biomedical research, and policy analysis through advanced statistical training. This program will be offered by the Department of Epidemiology and Biostatistics in the School of Public Health and will prepare students for leadership roles as biostatisticians, researchers, and educators. The program will emphasize research excellence, innovation in statistical methodologies, and interdisciplinary collaboration, equipping graduates to address complex health challenges locally and globally.

*Relation to Strategic Goals.* The PhD in Biostatistics strongly aligns with UMD's [mission](#), which seeks to achieve "excellence in teaching, research, and public service within a supportive, respectful and inclusive environment" and to address "the most pressing global challenges" through scholarship and research. The biostatistics program aims to produce experts capable of innovative research that will enhance public health and scientific discovery, advancing UMD's mission to foster impactful research and cultivate a workforce equipped to support Maryland's diverse communities. Biostatistics is also a foundational area of public health training. As such, there is a growing need for academics to train the next generation of public health professionals and scholars.

*Funding.* Graduate level coursework in Biostatistics is already offered at the university. The Department of Epidemiology and Biostatistics offers a Master of Public Health (MPH) concentration in Biostatistics and offers biostatistics courses to graduate students in other programs. The size of the program will be small at approximately 5 students. Consequently, the department currently has the resources to offer the program.

*Institutional Commitment.* The instructional and administrative infrastructure already exists for this program as the department offers the MPH concentration in Biostatistics and a PhD in Epidemiology. Most top tier Schools of Public Health have a doctoral program in biostatistics, and the lack of a doctoral program in this area negatively impacts the department's ability to attract top-tier faculty, secure large federal training grants, and improve its national ranking. External reviewers invited for the 2023 departmental self-study strongly recommended that the department establish a doctoral program in biostatistics to remain competitive with peer schools of public health. Because of the available capacity of the department and the need to strengthen the department, UMD strongly supports this proposal.

## **B. Critical and Compelling Regional or Statewide Need as Identified in the State Plan**

*Need.* Nationally, the growing volume of complex health-related data generated by advances in technology has created a demand for highly trained biostatisticians. Biostatisticians often serve a critical role for other scientists in providing data analyses of medical and public health data.



The state of Maryland in particular has a need for highly skilled biostatisticians that is increasing due to its status as a national hub for health research, with agencies like NIH, FDA, and CDC branches based locally.

*State Plan.* The proposed program aligns broadly with the 2022 [Maryland State Plan for Postsecondary Education](#), specifically Priority 5, “Maintain the commitment to high-quality postsecondary education in Maryland,” in particular, the Action Item to “Identify innovative fields of study.” The program will foster a culture of innovation by integrating emerging methodologies in statistical analysis and applying them to real-world public health issues. Students will gain skills in innovative fields such as machine learning, big data analytics, and computational biology, which are increasingly essential in biostatistics.

### **C. Quantifiable and Reliable Evidence and Documentation of Market Supply and Demand in the Region and State**

Biostatisticians are among the fastest growing jobs according to the [US Bureau of Labor Statistics](#). During the next decade, an average of 10,600 biostatistician openings are projected annually. These rapid rates of job growth, which are significantly faster than average for all occupations, are due to retiring of a large proportion of current biostatisticians as well as changes in the public health work force after COVID-19 pandemic. These national trends<sup>1</sup> highlight the urgency needed to train biostatisticians to work at state and local governmental public health agencies. The current workforce shrinkage “has the potential to jeopardize the safety, security, and economic prosperity of the US” (p.346).<sup>2</sup>

### **D. Reasonableness of Program Duplication**

Johns Hopkins University (JHU) is the only institution in the state offering a doctoral program in Biostatistics. Due to the unique nature of PhD programs, each program often differs significantly, largely influenced by the specific research expertise and interests of its faculty. Much of the doctoral work is conducted in close collaboration with a faculty mentor, allowing students to engage deeply in their chosen research area. As such, the proposed PhD in Biostatistics will differ from JHU’s significantly larger biostatistics program by focusing on topics such as electronic health records, national surveys, social media, imaging genetic, multi-omics and microbiome research in addition to the classical Biostatistics research in survival and longitudinal data. Our program will maintain close relationships with nearby federal institutions (NIH, FDA, USDA, CDC’s National Center for Health Statistics), as well as UMD’s newly established Institute for Health Computing. We anticipate enrolling five students in this program at steady state and therefore do not think this will have adverse impact on the Hopkins program given the need for experts in biostatistics.

### **E. Relevance to High-demand Programs at Historically Black Institutions (HBIs)**

As indicated above, only Johns Hopkins has a doctoral program in Biostatistics. Consequently, we do not believe that this will have an impact on a Historically Black Institution.

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

We do not anticipate any negative impacts on the special identities of the HBIs in the state of Maryland. As mentioned above, there are no similar programs at Historically Black Institutions. UMD's School of Public Health has an established department in Epidemiology and Biostatistics and Master of Public Health concentration in Biostatistics. Consequently, we do not believe this program will negatively impact the identity of a Historically Black Institution.

## **G. Adequacy of Curriculum Design, Program Modality, and Related Learning Outcomes**

*Curricular Development.* The proposed program aims to fill a critical gap identified through an external review of the Epidemiology and Biostatistics department, which noted the need for advanced training in this core public health discipline. The curriculum emphasizes applied statistics in public health and medicine, including courses in data science and health data analytics, and offers interdisciplinary electives, ensuring graduates are well-prepared to tackle complex public health challenges.

*Faculty Oversight.* The PhD in Biostatistics program will be led by the Department of Epidemiology and Biostatistics within the School of Public Health. Appendix A includes a list of faculty that will be teaching in the program.

*Educational Objectives and Learning Outcomes.* The primary educational objective of the program is to train the next generation of scholars in biostatistics and health data science with enhanced public health data analysis skills necessary for future careers in academia, industry, government and other health related professional organizations. The learning outcomes for the program are as follows:

1. Understand theoretical foundations of biostatistical methods.
2. Critically review scientific literature and evaluate appropriateness of the statistical methods and applications.
3. Conduct advanced statistical inferences that are appropriate to specific study designs and data structures.
4. Develop novel statistical methodology applicable to public health and biomedical research.
5. Demonstrate skills in public health data management.
6. Effectively communicate results of statistical analyses to lay and professional audiences.
7. Develop methodological manuscripts for publication in peer-reviewed statistical or biostatistical journals.
8. Prepare written reports of statistical analyses for journal publication, grant applications, and review by regulatory agencies.

*Institutional assessment and documentation of learning outcomes.* Please see Appendix B for information about assessing the program’s learning outcomes.

*Course requirements.* Some students will be entering the program already having earned a relevant master’s degree, such as an MPH with biostatistics concentration or an MS in Biostatistics. Some students, however, will enter the program not having that advanced training. Consequently, the program offers two pathways depending on the student’s prior qualifications:

- For students with a relevant master's degree (such as an MS or MPH in Biostatistics), the program requires 48 total credits, including 12 dissertation credits.
- For students without a relevant master's degree, the program requires 60 total credits, including 12 dissertation credits.

Below are the curricular requirements for both pathways:

For those entering with a relevant master’s degree:

<b>Core Courses (24 credits)</b>		
Course Number	Course Title	Credits
EPIB652	Categorical Data Analysis	3
EPIB653	Applied Survival Data Analysis	3
EPIB655	Longitudinal Data Analysis	3
EPIB680	Linear Model	3
EPIB610	Foundations of Epidemiology	3
SPHL600	Foundations of Public Health	3
STAT700	Mathematical Statistics I	3
STAT701	Mathematical Statistics II	3
<b>Elective Courses (12 credits from the choices below)</b>		
EPIB611	Intermediate Epidemiology	3
EPIB612	Epidemiologic Study Design	3
EPIB633	Health Survey Design and Analysis	3
EPIB635	Applied Multilevel Modeling in Health Research	3
EPIB654	Clinical Trials: Design and Analysis	3
EPIB656	Applied Bayesian Data Analysis	3
EPIB657	Spatial Statistics for Public Health Data	3
EPIB660	Analysis of National Health Survey Data	3
EPIB661	Applied Multivariate Data Analysis	3
EPIB664	Missing Data Analysis	3
EPIB667	Applied Machine Learning with Python	3
EPIB681	Causal Inference	3

EPIB682	Statistical Learning for Health Data Analysis	3
EPIB683	High-throughput Data Analysis	3
EPIB684	Electronic Health Record Data Analysis	3
EPIB695	Introduction to R for Health Data Analysis	3
<b>Dissertation Credits (12 credits)</b>		
EPIB899	Doctoral Dissertation Research	

For those entering without a relevant master's degree:

<b>Core Courses (33 credits)</b>		
Course Number	Course Title	Credits
EPIB650	Biostatistics I	3
EPIB651	Applied Regression Analysis	3
EPIB652	Categorical Data Analysis	3
EPIB653	Applied Survival Data Analysis	3
EPIB655	Longitudinal Data Analysis	3
EPIB680	Linear Model	3
EPIB697	Public Health Data Management	3
EPIB610	Foundations of Epidemiology	3
SPHL600	Foundations of Public Health	3
STAT700	Mathematical Statistics I	3
STAT701	Mathematical Statistics II	3
<b>Elective Courses (15 credits from the choices below)</b>		
EPIB611	Intermediate Epidemiology	3
EPIB612	Epidemiologic Study Design	3
EPIB633	Health Survey Design and Analysis	3
EPIB635	Applied Multilevel Modeling in Health Research	3
EPIB654	Clinical Trials: Design and Analysis	3
EPIB656	Applied Bayesian Data Analysis	3
EPIB657	Spatial Statistics for Public Health Data	3
EPIB660	Analysis of National Health Survey Data	3
EPIB661	Applied Multivariate Data Analysis	3
EPIB664	Missing Data Analysis	3
EPIB667	Applied Machine Learning with Python	3
EPIB681	Causal Inference	3
EPIB682	Statistical Learning for Health Data Analysis	3
EPIB683	High-throughput Data Analysis	3
EPIB684	Electronic Health Record Data Analysis	3
EPIB695	Introduction to R for Health Data Analysis	3
<b>Dissertation Credits (12 credits)</b>		
EPIB899	Doctoral Dissertation Research	

A list of courses and descriptions is included in Appendix C

*General Education.* Not applicable for our graduate programs.

*Accreditation or Certification Requirements.* No accreditation or licensure is required for this program.

*Other Institutions or Organizations.* The offering unit is not planning to contract with another institution or non-collegiate organization for this program.

*Student Support.* The department already has the administrative infrastructure to provide student support as it already supports a doctoral program in epidemiology. Doctoral students within the department are officially assigned faculty advisors by the Director of Graduate Studies, based on matching research interest, and faculty's willingness to admit, mentor, and support a student for the duration of their doctoral studies. As such, advisors play a critical role in advising and supporting students in supplementing the curriculum through mentored research experiences.

*Marketing and Admissions Information.* Students will see admission criteria, financial aid resources, and costs on both the School of Public Health website and find additional information on the Graduate School website.

#### **H. Adequacy of Articulation**

Not applicable for this graduate program.

#### **I. Adequacy of Faculty Resources**

*Program faculty.* Appendix A contains a list of faculty members who will teach in the program. The Department of Epidemiology and Biostatistics has experienced faculty with extensive expertise in statistical methodology, public health, and epidemiology. These faculty members will support both instructional and dissertation advising needs.

*Faculty training.* Faculty teaching in the program will use the university's learning management system along with its extensive electronic resources. They will have access to instructional development opportunities available across the College Park campus, including those offered as part of the Teaching and Learning Transformation Center, many of which are delivered in a virtual environment. Instructors will work with the learning design specialists on campus to incorporate best practices when teaching in the online environment.

#### **J. Adequacy of Library Resources**

The University of Maryland Libraries assessment concluded that the Libraries are able to meet, with current resources, the curricular and research needs of the program.

### **K. Adequacy of Physical Facilities, Infrastructure, and Instructional Resources**

All physical facilities, infrastructure, and instructional equipment are already in place. The program will benefit from UMD's existing advanced research labs, data analysis centers, and public health facilities. These resources will enable students to gain hands-on experience with data analysis, computation, and research projects within the state-of-the-art facilities of the School of Public Health.

### **L. Adequacy of Financial Resources**

Tables 1 and 2 contain the details of resources and expenditures.

#### *Table 1 Resources:*

The program will be supported through the reallocation of resources. The coursework, instruction, facilities and administrative support are already in place in the department as much of the coursework is already offered for existing programs and there is capacity to include the additional PhD students.

1. Line 1 shows the reallocated resources, essentially the existing capacity afforded by the department's current activities.
2. Graduate students will be paying tuition by the credit. Tuition revenue for this program is projected based on modest student enrollments and assumes a steady increase in the per-credit rate projected over five years.
3. No external sources of funding are assumed.
4. No other sources of funding are assumed.

#### *Table 2 Expenditures:*

1. Faculty salaries are based on cost per course. We assume an annual increase of 3% in salaries with a corresponding 33% benefits rate.
2. Administrative responsibilities (.1 FTE) will be provided by current departmental administrative staff.
3. Graduate assistant support for 2 FTE includes stipends, tuition remission and benefits with annual increase projected over five years.
4. Other expenditures include annual library support and operational expenses.

### **M. Adequacy of Program Evaluation**

Formal program review is carried out according to the University of Maryland's policy for Periodic Review of Academic Units, which includes a review of the academic programs offered by, and the research and administration of, the academic unit

(<http://www.president.umd.edu/policies/2014-i-600a.html>). Program Review is also monitored following the guidelines of the campus-wide cycle of Learning Outcomes Assessment ([https://irpa.umd.edu/Assessment/loa\\_overview.html](https://irpa.umd.edu/Assessment/loa_overview.html)). Faculty within the department are reviewed according to the University's Policy on Periodic Evaluation of Faculty Performance (<http://www.president.umd.edu/policies/2014-ii-120a.html>). Since 2005, the University has used an online course feedback survey instrument for students that standardizes course feedback across campus. The course survey has standard, university-wide questions and allows for supplemental, specialized questions from the academic unit offering the course.

#### **N. Consistency with Minority Student Achievement goals**

Because Schools of Public Health traditionally focus upon the application of research, many first generation and/or diverse students gravitate toward this field, in which there exists a strong expectation that their careers will broadly impact population health both locally and abroad. This is evidenced by School of Public Health's rich tradition of retaining and graduating a diverse undergraduate student body. Currently, 27% of SPH students are Black and 17% are Hispanic, both significantly exceeding the University averages and directly contributing to the diversity goals defined within the University of Maryland and School of Public Health strategic plans.

The PhD in Biostatistics will prioritize inclusive recruitment and support for minority students, in line with Maryland's goals of equity and access in higher education.

#### **O. Relationship to Low Productivity Programs Identified by the Commission**

N/A

#### **P. Adequacy of Distance Education Programs**

While primarily on-campus, the program will offer select online courses, providing flexibility for students balancing professional commitments. The online components will adhere to quality standards, ensuring an engaging and rigorous learning experience for all participants.

**Table 1: Resource Table**

Resources Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Reallocated Funds	104756	106906	109119	109415	109721
2. Tuition/Fee Revenue (c+g below)	55100	72871	75057	77309	79628
a. #FT Students	3	4	4	4	4
b. Annual Tuition/Fee Rate	15649	16119	16602	17100	17613
c. Annual FT Revenue (a x b)	46948	64475	66409	68401	70453
d. # PT Students	1	1	1	1	1
e. Credit Hour Rate	510	525	541	557	573
f. Annual Credit Hours	16	16	16	16	16
g. Total Part Time Revenue (d x e x f)	8152	8397	8648	8908	9175
3. Grants, Contracts, & Other External Sources	0	0	0	0	0

4. Other Sources	0	0	0	0	0
<b>TOTAL (Add 1 - 4)</b>	<b>159856</b>	<b>179777</b>	<b>184177</b>	<b>186725</b>	<b>189349</b>

**Table 2: Expenditure Table**

Expenditure Categories	Year 1	Year 2	Year 3	Year 4	Year 5
<b>1. Faculty (b+c below)</b>	<b>39900</b>	<b>54796</b>	<b>56440</b>	<b>58133</b>	<b>59877</b>
a. #FTE	0.3	0.4	0.4	0.4	0.4
b. Total Salary	30000	41200	42436	43709	45020
c. Total Benefits	9900	13596	14004	14424	14857
<b>2. Admin. Staff (b+c below)</b>	<b>9310</b>	<b>9589</b>	<b>9877</b>	<b>10173</b>	<b>10478</b>
a. #FTE	0.1	0.1	0.1	0.1	0.1
b. Total Salary	7000	7210	7426	7649	7879
c. Total Benefits	2310	2379	2451	2524	2600
<b>3. Total Support Staff (b+c below)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
a. #FTE	0	0	0	0	0
b. Total Salary	0	0	0	0	0
c. Total Benefits	0	0	0	0	0
<b>4. Graduate Assistants (b+c)</b>	<b>95446</b>	<b>97316</b>	<b>99242</b>	<b>99242</b>	<b>99242</b>
a. #FTE	2.0	2.0	2.0	2.0	2.0
b. Stipend	46862	48268	49716	49716	49716
c. Tuition Remission	33120	33120	33120	33120	33120
d. Benefits	15464	15928	16406	16406	16406
<b>5. Equipment</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>6. Library</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>
<b>7. New or Renovated Space</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>8. Other Expenses: Operational Expenses</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>
<b>TOTAL (Add 1 - 8)</b>	<b>154656</b>	<b>171702</b>	<b>175559</b>	<b>177549</b>	<b>179598</b>

**Appendix A: Faculty Information- PhD in Biostatistics**

The following faculty members are projected to teach in the program. All faculty are full-time unless otherwise indicated.

Name	Highest Degree Earned, Program, and Institution	University of Maryland, College Park Title (indicate if part-time)	Courses
Xin He	PhD, Statistics, University of Missouri	Associate Professor and Associate Chair	EPIB650, EPIB651, EPIB653, EPIB655
Mei-Ling Ting Lee	PhD, Mathematics/Statistics, University of Pittsburgh	Professor	EPIB651, EPIB653, EPIB654, EPIB788



Yan Li	PhD, Survey Methodology, University of Maryland	Professor	EPIB650, EPIB660
Menglu Liang	PhD, Biostatistics, Pennsylvania State University	Assistant Clinical Professor	EPIB650, EPIB651, EPIB697
Huang Lin	PhD, Biostatistics, University of Pittsburgh	Assistant Professor	EPIB650
Tianzhou Ma	PhD, Biostatistics, University of Pittsburgh	Assistant Professor	EPIB652, EPIB661, EPIB664
Jamie L. Trevitt	PhD, Public Health, Johns Hopkins University	Assistant Clinical Professor and Director of Graduate Studies	
Cher Dallal	PhD, Epidemiology, University of Pittsburgh	Associate Professor	EPIB611
Typhanye Vielka Dyer	PhD, Public Health, University of California Los Angeles	Associate Professor	EPIB788
Hongjie Liu	PhD, Epidemiology, University of California Los Angeles	Professor	EPIB612, EPIB740, EPIB788
Quynh Nguyen	PhD, Epidemiology, University of North Carolina	Associate Professor	EPIB633
Thu Nguyen	ScD, Social Epidemiology, Harvard University	Associate Professor	EPIB637, EPIB622
Amir Sapkota	PhD, Environmental Health Sciences, Johns Hopkins University	Professor and Chair	EPIB788
Edmond Shenassa	ScD, Epidemiology and Maternal and Child Health, Harvard University	Professor	EPIB610, EPIB612
Shuo Chen	PhD, Biostatistics, Emory University	Professor (UMB Affiliated)	
Chixiang Chen	PhD, Biostatistics, Pennsylvania State University	Assistant Professor (UMB Affiliated)	
Yulei He	PhD, Biostatistics, University of Michigan	Adjunct faculty (NCHS/CDC Branch Chief)	EPIB56, EPIB664

## Appendix B: Plan for Assessing Learning Outcomes: PhD in Biostatistics

### Annual Progress Review Meeting

Annually and prior to May 1st, each student will be required to meet with their advisor and, if desired, the Biostatistics faculty, to report on their progress over the past year and to receive guidance for the upcoming academic year. Students must provide:

1. A completed Student Degree Progress Report, detailing their mastery of learning outcomes.
2. An unofficial transcript, submitted to faculty members at least five working days before the annual progress meeting.

During the meeting, the student presents a brief oral summary of the written assessment. Faculty and student will discuss strengths and weaknesses and collaboratively develop a plan to address any identified weaknesses. At the conclusion, faculty will evaluate the student's accomplishments to determine if they are making satisfactory progress towards the degree. If progress is unsatisfactory, the advisor will issue specific improvement guidelines, asking the student to prepare a timeline to return to satisfactory progress. Consecutive years of unsatisfactory progress may lead to termination. The Director of Graduate Studies must review the Progress to Degree Report, with copies provided to the student and kept on file by the department.

## **Program Milestones**

### **Program of Study (Milestone 1)**

The Program of Study is a formal plan that integrates courses, research, and experiences essential to scholarship. Approval of the Program of Study constitutes Milestone 1 in the Ph.D. program, listing the courses and research experiences required for the Ph.D. degree. Coursework and research plans are approved in a single committee meeting.

### **Comprehensive Exam (Milestone 2)**

Completion of the Comprehensive Exam is a significant milestone, assessing the student's readiness for creative, independent research in biostatistics. Rather than retesting course content, the exam evaluates the ability to integrate learning outcomes and research skills. Students may take the Comprehensive Exam after completing all core courses and at least 70% of electives in their Program of Study, with advisor approval. Students entering with a Master's in Biostatistics may request to take the exam earlier, pending advisor approval. Success in the Comprehensive Exam qualifies the student to begin dissertation work.

### **Dissertation Proposal Defense/Advance to Candidacy (Milestone 3)**

Following the Comprehensive Exam, the student prepares and defends their dissertation proposal. The dissertation must represent original research that extends knowledge in the field and align with the Program of Study. Upon faculty approval of the proposal, the student will formally defend it before their committee, advancing to candidacy upon success.

### **Dissertation Defense (Milestone 4)**

Ph.D. candidates collaborate closely with their advisor to finalize their dissertation. The dissertation defense, an open meeting, primarily involves the oral examination of the dissertation by the committee, who may question the candidate on any aspect of their degree.

The oral defense meeting must be scheduled at least 10 working days in advance of the meeting with examining committee members. Again, 10 working days prior to the meeting, the

student must give each member of the examining committee and the Director of Graduate Studies a finished copy of the thesis manuscript to review.

There are three possible outcomes at the oral defense: the thesis can be accepted as is, can be rejected, or can be accepted on the condition that certain changes are made within a specified time frame. Students must obtain final approval of their Thesis to complete the degree. When final approval is granted, the Thesis Examining Committee will sign and submit the "Report of Examining Committee" form to the Graduate School. After passing the oral defense, the student must submit an electronic copy of his/her thesis to the Graduate School (submit online at [www.gradschool.umd.edu/etd/](http://www.gradschool.umd.edu/etd/)) and one hard copy to the EPIB Director of Graduate Studies.

## **Appendix C: Course Descriptions**

### **Core Courses**

(\* Notes courses waived if student enters with relevant master's degree.)

#### **EPIB610 Foundations of Epidemiology (3 Credits)**

Introduction to the discipline of epidemiology and its applications to health issues and practices. Basic epidemiologic concepts and methods will be covered.

#### **\*EPIB650 Biostatistics I (3 Credits)**

Basic statistical concepts and procedures for Public Health. Focuses on applications, hands-on-experience, and interpretations of statistical findings.

#### **\*EPIB651 Applied Regression Analysis (3 Credits)**

An introduction to important statistical methods used in public health research, including nonparametric hypothesis testing, ANOVA, simple and multiple linear regression, logistic regression, and categorical data analysis.

#### **EPIB652 Categorical Data Analysis (3 Credits)**

Methods for analysis of categorical data as applied to public health research, including contingency tables, logistic regression, multcategory logic models, loglinear models, and models for matched-pairs.

#### **EPIB653 Applied Survival Data Analysis (3 Credits)**

Overview of statistical methods for analyzing censored survival data, including the Kaplan-Meier estimator, the log-rank test, Cox PH model.

#### **EPIB655 Longitudinal Data Analysis (3 Credits)**

Statistical models for drawing scientific inferences from longitudinal data, longitudinal study

design, repeated measures and random effects to account for experimental designs that involve correlated responses, handling of missing data.

### **EPIB680 Linear Model (3 Credits)**

This course covers the theory of linear models, including multivariate normal distribution, least squares estimation, Gauss-Markov theorem, generalized least squares, distribution theory, and model selection. More advanced topics in this course include generalized linear models, linear mixed effects models, and generalized linear mixed effects models.

### **\*EPIB697 Public Health Data Management (3 Credits)**

This course is designed to provide students with the expertise needed to effectively manage research data using SAS as the statistical programming language.

### **SPHL600 Foundations of Public Health (3 Credits)**

An overview of the goals, functions, and methods of public health. After an introduction to the core concepts and tools used in public health research and practice, applications of these methodologies are considered in the context of current controversies/problems in public health. Students work together to develop strategies for prevention and control that taken into consideration different points of view, outside research, and impacts on individuals and communities.

### **STAT700 Mathematical Statistics I (3 Credits)**

Sampling distributions including noncentral chi-squared, t, F. Exponential families, completeness. Sufficiency, factorization, likelihood ratio. Decision theory, Bayesian methods, minimax principle. Point estimation. Lehmann-Scheffe and Cramer-Rao theorems. Set estimation.

### **STAT701 Mathematical Statistics II (3 Credits)**

Testing hypotheses: parametric methods. Neyman-Pearson lemma. Uniformly most powerful tests. Unbiased tests. Locally optimal tests. Large sample theory, asymptotically best procedures. Nonparametric methods, Wilcoxon, Fisher-Yates, median tests. Linear models, analysis of variance, regression and correlation. Sequential analysis.

## **Elective Courses**

### **EPIB611 Intermediate Epidemiology**

Analysis of epidemiologic methods as applied to epidemiologic research, analysis of bias, confounding, effect modification issues, overview of design, implementation, and analysis of epidemiologic studies.

### **EPIB612 Epidemiologic Study Design**

Application of epidemiologic study designs, analytic methods used for analysis of cohort, case-control, cross-sectional, and clinical trials research.

### **EPIB633 Health Survey Design and Analysis**

An overview of types of survey research designs, questionnaire design, measurement issues, and techniques for recruiting and interacting with participants. Students will discuss and implement a variety of health survey analysis techniques, including how to utilize SAS statistical software to estimate descriptive statistics and implement regression models, while accounting for complex survey designs.

### **EPIB635 Applied Multilevel Modeling in Health Research**

Multilevel modeling is a popular analytic technique in health research that collects data from participants at hierarchic levels, e.g., residents nested in neighborhoods, and patients in hospitals. The course covers topics in multilevel modeling including two- and three-level multilevel linear modeling, logistic regression model, modeling with ordered and nominal outcomes, as well as strategies for model building. This course focuses on the application of multilevel modeling, rather than mathematics.

### **EPIB654 Clinical Trials: Design and Analysis**

This course provides an introduction to the clinical trials design and data analysis. Topics covered include: history/background and process for clinical trial, key concepts for good statistics practice (GSP)/good clinical practice (GCP), regulatory requirement for pharmaceutical/clinical development, basic considerations for clinical trials, designs for clinical trials, classification of clinical trials, power analysis for sample size calculation for different designs, statistical analysis for efficacy evaluation, statistical analysis for safety assessment, implementation of a clinical protocol, statistical analysis plan, data safety monitoring, adaptive design methods in clinical trials (general concepts, group sequential design, dose finding design, and phase I/II or phase II/III design) and controversial issues in clinical trials.

### **EPIB656 Applied Bayesian Data Analysis**

The theory and practical application of Bayesian statistical methods in the field of public health and related areas. A variety of models will be discussed including linear regression, multilevel model, generalized linear model, generalized linear mixed model.

### **EPIB657 Spatial Statistics for Public Health Data**

Overview three main areas of spatial statistics: point patterns, geostatistical data, and lattice (areal) data. Application of spatial statistical models including CSR, k-function, krigging, semivariogram, CAR, SAR, GWR, spatial GLM, and multilevel model to public health and environmental data analysis.

### **EPIB660 Analysis of National Health Survey Data**

Provides background on how features such as stratification, clustering, and unequal sample selection probabilities can invalidate the assumptions underlying traditional statistical techniques, those implicitly assuming a simple random sampling with replacement design. Application using the SURVEY family of SAS/STAT procedures (Version 9.4 or later).

### **EPIB661 Applied Multivariate Data Analysis**

Multivariate analysis targets data with simultaneous measurements on many variables and studies the relationship between these variables. This course introduces important multivariate analysis methods used in public health research. Topics include multivariate regression analysis, multivariate analysis of variance (MANOVA), principal component analysis (PCA), factor analysis, discriminant analysis (classification), clustering analysis, canonical correlation analysis (CCA) and correspondence analysis (CA).

### **EPIB664 Missing Data Analysis**

Missing data is a common problem in almost all scientific fields. Students will learn the different patterns and mechanisms of missing data, common procedures to handle missingness including weighting procedure, imputation-based procedure and model-based procedure. Useful and popular imputation methods and tools will be introduced. Numerous real data examples will be included to help students understand and solve the real world problem with missing data for different study designs.

### **EPIB667 Applied Machine Learning with Python**

This graduate-level course in machine learning focuses on modern techniques for analyzing complex and massive public health data sets. Emphasis is placed on applications, computational methods, and the theoretical foundations of machine learning. Topics covered include unsupervised learning, supervised learning, and deep neural networks, among others.

### **EPIB681 Causal Inference**

This course provides a rigorous statistical overview of causal inference at the graduate level. Students will learn to define causal effects, understand the assumptions necessary for data and model analysis, and implement popular statistical methods such as matching, instrumental variables, and inverse probability of treatment weighting. There will also be opportunities to apply these methods to example data in R.

### **EPIB682 Statistical Learning for Health Data Analysis**

This course will introduce students to important statistical learning methods used in health data analysis. Topics covered will include regularization, dimension reduction, classification, clustering and neural network based methods. For each topic, emphasis will be placed on its application, the computational algorithm and the theory behind. Students will learn how to perform analyses using statistical learning methods and understand the results. Real healthcare data examples and programming codes will be provided for their applications.

### **EPIB683 High-throughput Data Analysis**

High-throughput data refer to large-scale datasets generated using advanced technologies that allow the simultaneous measurement of thousands to millions of features, which are common in public health and biomedical research nowadays. Examples of high-throughput data include genetic, transcriptomic, microbiome and imaging data. These data are usually featured by their high-dimensionality and complexity. This course introduces important statistical and machine learning methods used to analyze high-throughput data. The first half of the course focuses on

the methods, topics covered include dimension reduction, variable selection, classification, clustering, Bayesian hierarchical modeling, graphical modeling, meta-analysis and data integration methods. The second half of the course focuses on the application of these methods in real high-throughput data examples.

#### **EPIB684 Electronic Health Record Data Analysis**

This course will teach students how to use health data (e.g., electronic health records [EHR], discharge and service records, administrative claims) for epidemiologic and health services research. Students will learn about how each type of health data is generated, strengths and limitations of various health data sources, and coding nomenclature (e.g., ICD-10 CM diagnosis and procedure codes). Students will be given access to deidentified health data and asked to perform statistical analysis to answer research questions. Students will also learn about current hot topics in health data, including common data models, risk prediction and AI, and data linkage.

#### **EPIB695 Introduction to R for Health Data Analysis**

A hands-on introduction to the statistical package R for health data management and analysis. The first part of the course focuses on basic and essential data manipulation and visualization using R. The second part emphasizes the use of R in statistical analyses, including summarization, correlation, chi-squared test, t-tests, ANOVA, simple and multiple regression.

#### **Dissertation Course**

#### **EPIB899 Doctoral Dissertation Research**

Research for doctoral dissertation in epidemiology or biostatistics under the guidance of a faculty advisor.

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**TOPIC:** Report on the Instructional Workload of the USM Faculty - (AY 2023-2024)

**COMMITTEE:** Committee on Education Policy and Student Life and Safety

**DATE OF COMMITTEE MEETING:** Thursday, January 30, 2025

**SUMMARY:** At this meeting, the Committee will review the annual report on the workload of the USM faculty.

As in the past, the report summarizes faculty workload, which includes teaching, research, and service activities at all USM degree-granting institutions with tenured or tenure-track faculty. Key findings include:

- The total credit hours produced in 2023-2024 mirrored total student headcount enrollment.
- When disaggregated by level of the courses taught (lower- and upper-division, undergraduate and graduate), total credit hours produced appropriately aligned with the unique mission of the USM institutions.
- Full-time tenured/tenure track and full-time, non-tenure track instructional faculty accounted for 70.44% of all credit hours produced (up slightly from five years ago).
- Further, over the five years since 2019-20, credit hours produced by part-time faculty dropped slightly from 29.82% to 28.28%.
- Full-time tenured/tenure-track faculty carried the appropriate instructional load at the upper-division undergraduate and graduate levels as compared to all other faculty types.
- Average student credit hour production for core instructional faculty shows a slight downward trend over the past 5 years.
- The number of bachelor's degrees awarded increased slightly. Across the institutions reported here, 26,586 degrees were awarded – up from last year's total of 26,552.
- Four-year and six-year undergraduate graduation rates decreased slightly (down 1% for each) in 2023-24.
- Faculty publication and scholarship continued at high levels and at appropriate levels according to faculty type.
- Faculty secured over \$1.6 billion in research funding in the 2022-2023 academic year, representing a 14.2% increase over the previous year.

**ALTERNATIVE(S):** This is an information item.

**FISCAL IMPACT:** This is an information item.

**CHANCELLOR'S RECOMMENDATION:** This is an information item.

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COMMITTEE RECOMMENDATION: Information Only

DATE: January 30, 2025

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BOARD ACTION:

DATE:

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SUBMITTED BY: Alison Wrynn 301-445-1992

[awrynn@usmd.edu](mailto:awrynn@usmd.edu)



OFFICE OF THE CHANCELLOR

December 10, 2024

The Honorable Guy Guzzone  
Chair, Senate Budget & Taxation Committee  
3 West Miller Senate Office Building  
Annapolis, MD 21401

The Honorable Ben Barnes  
Chair, House Appropriations Committee  
121 House Office Building  
Annapolis, MD 21401

RE: Fiscal 2024 Joint Chairmen's Report – Report on Faculty Workload (R75T0001), Page 212

Dear Chair Guzzone and Chair Barnes:

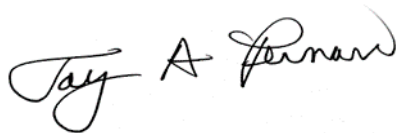
Language in R75T0001 on page 212 of the Fiscal 2024 Joint Chairmen's Report requires that the University System of Maryland Office to report on instructional faculty workload:

The committees request that the University System of Maryland (USM), Morgan State University (MSU), and St. Mary's College of Maryland (SMCM) continue to provide annual instructional workload reports for tenured/tenure-track faculty. By focusing on these faculty, the committees gain a sense of the teaching activities for the regular core faculty. However, there are other types of instructional faculty at institutions such as full- and part-time nontenured/nontenure-track faculty, including adjunct faculty, instructors, and lecturers. Focusing on only tenured/tenure-track faculty provides an incomplete picture of how students are taught. Therefore, the report should also include the instructional workload when all types of faculty are considered. Additional information may be included at the institution's discretion. Furthermore, the USM report should include the percent of faculty meeting or exceeding teaching standards for tenured/tenure-track faculty for the University of Maryland, Baltimore Campus.

Attached is the AY 2023-2024 Report of the Workload of the USM Faculty, the 6<sup>th</sup> year of our transition to the University System of Maryland's new workload reporting format under the Board of Regents' June 2019 policy amendment aimed at improving reporting accuracy and coverage, better aligning with current practice, and incentivizing policy goals around student success.

I am happy to address any questions you may have regarding this response.

Sincerely,



Jay A. Perman  
Chancellor

Enclosure

cc: Sarah Albert, DLS; Sara J. Baker, DLS; Ryan Wilkens, DBM; Alison Wrynn, USM; Ellen Herbst, USM; Susan Lawrence, USM; Sophia Kasdan, USM; Kelsey Beckett, USM

# **REPORT ON THE INSTRUCTIONAL WORKLOAD OF THE USM FACULTY**

ACADEMIC YEAR 2023-2024



**UNIVERSITY SYSTEM**  
*of* **MARYLAND**

**As requested on Page 212 of the FY25 Joint Chairmen's Report**

**Submitted by: Office of the Senior Vice Chancellor for Academic and Student Affairs**  
**Data Support from: Office of Institutional Research, Data, and Analytics**

## KEY FINDINGS

- The total credit hours produced in 2023-2024 mirrored total student headcount enrollment (see Table 3).
- When disaggregated by level of the courses taught (lower- and upper-division, undergraduate and graduate), total credit hours produced appropriately aligned with the unique mission of the USM institutions (see Table 4).
- Full-time tenured/tenure track and full-time, non-tenure track instructional faculty accounted for 70.44% of all credit hours produced (up slightly from five years ago) (see Table 5).
- Further, over the five years since 2019-20, credit hours produced by part-time faculty dropped slightly from 29.82% to 28.28% (see Table 5).
- Full-time tenured/tenure-track faculty carried the appropriate instructional load at the upper-division undergraduate and graduate levels as compared to all other faculty types (see Table 6).
- Average student credit hour production for core instructional faculty shows a slight downward trend over the past 5 years (See Table 7).
- The number of bachelor's degrees awarded increased slightly. Across the institutions reported here, 26,586 degrees were awarded – up from last year's total of 26,552 (see Table 8).
- Four-year and six-year undergraduate graduation rates decreased slightly (down 1% for each) in 2023-24 (see Tables 9 and 10).
- Faculty publication and scholarship continued at high levels (see Table 11) and at appropriate levels according to faculty type (Table 12).
- Faculty secured over \$1.6 billion in research funding in the 2022-2023 academic year, representing a 14.2% increase over the previous year (Table 13).

## INTRODUCTION

Since 1994 the University System of Maryland (USM) Board of Regents has provided an annual report to the General Assembly that synthesizes faculty workload, with a major emphasis on instructional activities. This report provides summary data on faculty activity at USM degree-granting institutions for the academic year 2023-2024.

### Background

The USM policies governing faculty workload 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.<sup>1</sup>

The main purpose of this policy is to promote optimal performance by the USM institutions in meeting the needs and expectations of its students and other stakeholders and to provide mechanisms that will ensure public accountability for that performance, particularly as it relates to faculty work. However, since this policy was initially developed in 1994, the nature of faculty work related to instruction has evolved to include much more than just classroom teaching. As a result, the “course unit” metric reported previously was requiring an increasing number of exemptions and workarounds to establish equivalencies with the various academic innovations our institutions are embracing. This

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<sup>1</sup> 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 and II-1.05 POLICY ON THE EMPLOYMENT OF FULL-TIME, NON-TENURE TRACK INSTRUCTIONAL FACULTY IN THE UNIVERSITY SYSTEM OF MARYLAND.

policy, therefore, was amended in June 2019 to improve reporting accuracy and coverage, align with current practice, and incentivize policy goals around student success by eliminating the course unit metric and rely, instead, on credit hours to measure teaching productivity.

This year's report continues the transition between reports generated under the earlier policy and reports that will reflect the format of the new policy. UMCES and UMB, to the extent possible, have been added back this year, having previously been exempted from the reports.

As described, below, we have also made some definitional shifts in this report over the last 4 years:

- Numbers of faculty provided are based on *headcounts* instead of *full-time equivalents* (FTEs).
- Data for department chairs and non-departmental administrators who are also full-time faculty are included in the full-time faculty categories instead of being included as part of "other faculty."
- Data for full-time research faculty and teaching/graduate assistants are disaggregated into their own categories instead of being included as part of the previous "other faculty" category.
- Previously exempted departments/colleges for Salisbury University, Towson University, and University of Baltimore have been added back into calculations across years for consistency and comparison purposes.

While these definitional shifts will make some longitudinal comparisons a little more difficult over the next 5 years, we believe these changes are providing a clearer picture of how faculty are being deployed across teaching, research, and service in the analyses. The addition of student credit hour data disaggregated by course level should also help make clearer how faculty are being deployed across undergraduate and graduate programs. In addition, these changes put the definitions being used for purposes of this report into better alignment with COMAR and MHEC data definitions for various submissions, including the Employee Data System (EDS) report.

## Definitions

For analysis purposes, this report combines various faculty activities and different faculty types into relatively broad categories. The metrics for these activities and the types of faculty are defined below:

*Student Credit Hours (SCH):* Student credit hours are calculated as the number of students in the course at enrollment freeze (EIS) multiplied by the number of course credit hours, as measured in accordance with COMAR 13B.02.02.16(D). For example, a 3-credit course with ten students produces thirty student credit hours. Similarly, for a variable credit course where 10 students are enrolled at 2 credits and 10 other students are enrolled at 3 credits, the student credit hours generated would be 50 credits.

*Academic Year:* All data reported are for fall and spring terms only.

*Faculty Types:* Numbers of faculty included here represent headcounts and are disaggregated by their employment classification, as described below:

*Full-time Tenured/Tenure-Track Faculty:* This includes all persons, including department chairs and non-departmental administrators, holding tenured and tenure-track positions who are classified as faculty and had at least 1 instructional credit hour in the reporting year.

*Full-time Non-Tenure Track Instructional Faculty:* These are all full-time instructional faculty who are not on the tenure track with at least 1 instructional credit hour in the reporting year. Full-time visiting instructional faculty are also reported here.

*Full-time Non-Tenure Track Research Faculty:* This includes all full-time research faculty who are not on the tenure track with at least 1 instructional credit hour in the reporting year. Full-time visiting research faculty are also reported here.

*Teaching/Graduate Assistant:* These are graduate students with at least 1 instructional credit hour in the reporting year as part of their university employment.

*Part-Time Instructional Staff:* This category includes emeritus, adjunct and affiliated faculty, staff who teach, and all other part-time faculty with at least 1 instructional credit hour in the reporting year. Teaching/graduate assistants are not reported here.

*Course Levels:* Per the USM's Policy for the Numbering of Academic Courses III-6.10, course levels are defined here as follows:

*Lower Division:* Undergraduate credit hours for 000-099 non-degree courses and 100 and 200 level courses.

*Upper Division:* Undergraduate credit hours for undergraduate courses 300 level courses and higher.

*Graduate I:* Graduate credit hours for post-baccalaureate certificate, master's and professional practice doctoral level courses

*Graduate II:* Graduate credit hours for post-master's and research/scholarship doctoral level courses.

*Graduate III:* Graduate credit hours for master's and doctoral research supervision courses (798, 799, 898, 899).

## USM FACULTY PROFILE

In 2023-2024, the USM had a total instructional complement of 18,146 faculty by headcount across all institutions. Table 1 provides a detailed breakdown of these faculty by tenure status and full- or part-time employment status for the institutions represented in this year's report.

**Table 1. USM Faculty Profile (Academic Year 2023-2024)**

	FT Tenured/ Tenure Track	Full Time Non- Tenure Track Instructional	FT Non-TT Research	Teaching/ Graduate Assistants	Other PT Instructional Staff	All Faculty
BSU	219	36	0	0	424	679
CSU	80	37	10	0	140	267
FSU	187	28	0	7	146	368
SU	325	82	0	22	244	673
TU	604	323	0	23	920	1870
UBalt	128.00	26.00	0.00	4.00	229.00	387.00
UMB	405	1153	357	44.5	1880	3839.5
UMBC	374	177	15	34	674	1274
UMCP	1,409	616	123	376	1,521	4,045
UMCES	45	0	11	0	0	56
UMES	173	43	7	54	92	369
UMGC	0	159	0	0	4159	4318
<b>Overall</b>	<b>3,949</b>	<b>2,680</b>	<b>523</b>	<b>565</b>	<b>10,429</b>	<b>18,146</b>

Source: USM Report on Faculty Teaching Workload

## MEASURES OF FACUTLY CONTRIBUTIONS TO STUDENT SUCCESS

Because student success is the central focus of our degree-granting institutions, the primary measure of instructional productivity in this report is expressed in terms of credit hours produced. Additional student outcomes with respect to enrollments and graduation rates are also presented here as a measure of the faculty's contributions to student success.

## Student Credit Hour Measures

Production of student credit hours (SCH) is the prescribed measure in the revised policy on faculty workload for evaluating instructional activity and deployment of faculty. SCH are calculated as the number of students in the course at enrollment freeze (EIS) multiplied by the number of course credit hours, as measured in accordance with COMAR 13B.02.02.16(D) and further defined above.

### Total SCH Production by Institution

The total SCH production by institution over the last 5 academic years is reported in Table 2, below. These SCH totals include all faculty types and instructional levels. The number and percent of 1-year change and the 5-year change are also reported. There was an increase in total SCH produced over last year and a 5-year decrease.

	2019-20	2020-21	2021-22	2022-23	2023-24	1-yr change (2023-24 vs. 2022-23)		5-yr change (2023-24 vs. 2019-20)	
						#	%	#	%
BSU	131,900	131,945	129,263	153,674	148,275	-5,399	-3.51%	16,375	12.41%
CSU	65,674	65,192	46,168	56,451	51,385	-5,066	11.30%	-14,289	-21.76%
FSU	117,702	107,662	97,271	87,453	87,760	-9,511	-9.78%	-29,942	-25.44%
SU	227,458	212,474	194,907	187,811	181,590	-13,317	-6.83%	-45,868	-20.17%
TU	551,865	526,026	495,785	476,421	472,736	-23,050	-4.65%	-79,130	-14.34%
UBalt	78,698	73,396	64,500	59,853	57,891	-6,609	-10.25%	-20,808	-26.44%
UMBC	320,027	314,074	313,637	324,572	324,974	11,337	3.61%	4,947	1.55%
UMCP	962,924	969,969	964,737	956,580	971,210	6,473	0.67%	8,286	0.86%
UMCES					1,195	NA		NA	
UMES	75,792	67,229	61,739	65,402	73,311	11,573	18.74%	-2,481	-3.27%
UMGC	771,941	802,652	764,406	779,238	846,691	82,285	10.76%	74,750	9.68%
<b>Total</b>	<b>3,303,980</b>	<b>3,270,619</b>	<b>3,165,367</b>	<b>3,147,455</b>	<b>3,217,017</b>	<b>69,562</b>	<b>2.21%</b>	<b>-86,963</b>	<b>-2.63%</b>

Note: does not include UMB

Source: USM Report on Faculty Teaching Workload

Table 3, below, illustrates whether the total SCH produced by the institution is keeping pace with total enrollment. Over the last year, there was an increase in USM fall headcount enrollment (1.18%) and an increase in overall USM SCH production (2.21%). Over 5 years, enrollments are down overall (-4.79%) and total SCH generated has also decreased (-2.63%), though these are smaller decreases than reflected in last year's report.

	1-yr change (2023-24 vs. 2022-23)		5-yr change (2023-24 vs. 2019-20)	
	Enrollment	Total SCH	Enrollment	Total SCH
BSU	1.59%	-3.51%	4.23%	12.41%
CSU	0.00%	11.30%	-27.38%	-21.76%
FSU	-8.41%	-9.78%	-24.48%	-25.44%
SU	-7.12%	-6.83%	-19.34%	-20.17%
TU	-6.37%	-4.65%	-14.00%	-14.34%
UBalt	-16.39%	-10.25%	-44.28%	-26.44%
UMBC	3.74%	3.61%	3.56%	1.55%
UMCP	-1.11%	0.67%	0.72%	0.86%
UMES	19.13%	18.74%	-18.62%	-3.27%
UMGC	8.61%	10.76%	1.19%	9.68%
<b>Total</b>	<b>1.18%</b>	<b>2.21%</b>	<b>-4.79%</b>	<b>-2.63%</b>

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

Beginning in 2019-20, USM institutions began also providing a breakdown of SCH disaggregated by the program and degree level of the courses taught. Table 4 provides the 2023-24 SCH data by course level. Variations illustrate the unique missions of each of the USM institutions.

**Table 4. 2023-2024 SCH Production by Course Level**

	BSU	CSU	FSU	SU	TU	UBalt	UMBC	UMCES	UMCP	UMES	UMGC	USM
Lower-Division	86,765	28,498	39,074	101,019	241,012	9,258	153,215	-	422,744	46,640	404,564	1,532,789
Upper-Division	45,793	19,043	38,310	72,165	193,324	17,136	122,102	-	407,859	13,967	340,465	1,270,163
Graduate I	7,775	3,844	9,521	7,825	34,352	30,643	38,501	-	89,258	10,250	100,303	332,272
Graduate II	7,244	-	548	581	3,004	543	4,134	790	30,867	1,850	1,086	50,647
Graduate III	698	-	307	-	1,044	311	7,022	405	20,482	604	273	31,146
<b>Total</b>	<b>148,275</b>	<b>51,385</b>	<b>87,760</b>	<b>181,590</b>	<b>472,736</b>	<b>57,891</b>	<b>324,974</b>	<b>1,195</b>	<b>971,210</b>	<b>73,311</b>	<b>846,691</b>	<b>3,217,017</b>

Source: USM Report on Faculty Teaching Workload  
 Note that total does not include UMB

### Student Credit Hour Production by Faculty Type

Table 5, below, illustrates the degree to which different types of faculty are responsible for the production of SCH. This table includes data from UMGC, where part-time faculty account for over 94% of SCH production. It also includes UMCES for the first year. For comparison purposes with previous years' reports, totals are reported both with UMCES and UMGC data and without.

Including UMCES and UMGC, core instructional faculty (tenured/tenure-track and full-time, non-tenure track instructional faculty) account for 53.25% of all SCH produced and the percentage of SCH produced by teaching/graduate assistants and other part-time faculty is 45.8%.

When UMCES and UMGC are removed from the totals, the percentage of SCH accounted for by core instructional faculty is 70.44% (up slightly over last year's 70.12%) and SCH produced by teaching/graduate assistants and other part-time faculty is 28.25% (down from last year's 28.69%).

**Table 5. Percentage of SCH Produced by Faculty Type (2023-24 vs. 2019-20)**

	FT Tenured/Tenure Track		Full-time Non-Tenure Track Instructional		FT non-TT Research		Teaching/Graduate Assistants		Other PT Instructional Staff	
	% of total 2019-20	% of total 2023-24	% of total 2019-20	% of total 2023-24	% of total 2019-20	% of total 2023-24	% of total 2019-20	% of total 2023-24	% of total 2019-20	% of total 2023-24
BSU	44.67%	44.80%	0.14%	9.93%	0.00%	0.00%	0.00%	0.00%	43.28%	45.27%
CSU	90.32%	47.90%	4.24%	23.86%	0.00%	6.15%	0.00%	0.00%	5.44%	22.09%
FSU	65.62%	71.40%	13.92%	12.44%	0.00%	0.00%	0.41%	0.10%	20.05%	16.06%
SU	60.53%	62.29%	19.49%	18.41%	0.00%	0.00%	0.55%	0.63%	19.43%	18.67%
TU	40.20%	38.00%	28.89%	32.09%	0.00%	0.00%	0.42%	0.33%	30.49%	29.58%
UBalt	55.28%	58.43%	14.27%	11.44%	0.00%	0.00%	0.00%	0.65%	30.45%	29.49%
UMBC	29.40%	23.98%	31.17%	34.06%	0.26%	0.54%	1.72%	2.31%	37.45%	39.11%
UMCES	--	71.38%	--	0.00%	--	0.29%	--	0.00%	--	0.00%
UMCP	33.43%	30.47%	36.31%	43.77%	1.54%	2.56%	6.43%	3.99%	22.29%	19.22%
UMES	48.62%	45.85%	23.52%	21.41%	0.53%	0.82%	0.41%	4.49%	26.92%	27.42%
UMGC	--	0.00%	--	5.12%	--	0.00%	--	0.00%	--	94.88%
<b>Total</b>	--	<b>27.62%</b>	--	<b>25.63%</b>	--	<b>0.96%</b>	--	<b>1.64%</b>	--	<b>44.16%</b>
<b>Total - no UMCES or UMGC</b>	<b>41.13%</b>	<b>37.47%</b>	<b>27.71%</b>	<b>32.97%</b>	<b>0.63%</b>	<b>1.28%</b>	<b>2.84%</b>	<b>2.23%</b>	<b>26.98%</b>	<b>26.05%</b>

Source: USM Report on Faculty Teaching Workload

Table 6, below, illustrates how faculty types are being deployed across undergraduate and graduate programs. Here again, totals are presented both with UMCES and UMGC data and without, for comparison purposes to previous reports.

**Table 6. Course Levels of Total Student Credit Hours Produced by Faculty Type**

	FT Tenured/TT	FT non-TT Instructional	FT non-TT Research	Teaching/Graduate Assistants	Other PT Instructional Staff	Total
Faculty Headcount	3,949	2,680	523	565	10,429	18,146
Lower-Division	331,385	470,185	13,939	34,063	683,216	1,532,789
Upper-Division	398,614	296,535	13,083	17,514	544,418	1,270,163
Graduate I	93,899	53,612	2,819	1,092	180,850	332,272
Graduate II	37,340	3,654	757	57	8,840	50,647
Graduate III	27,308	462	150	-	3,226	31,146
<b>Total w/ UMCES, UMGC</b>	<b>888,951</b>	<b>825,601</b>	<b>31,104</b>	<b>52,771</b>	<b>1,422,430</b>	<b>3,218,976</b>
<b>Total w/o UMCES, UMGC</b>	<b>888,098</b>	<b>782,224</b>	<b>30,762</b>	<b>53,083</b>	<b>619,116</b>	<b>2,372,971</b>

Source: USM Report on Faculty Teaching Workload

As expected, full-time tenured/tenure-track faculty carry the largest load at the graduate level as compared to other faculty types. Of note, the institutions appropriately make heavy use of part-time faculty (usually also practitioners in the field) at the Graduate I Level, which are typically master’s and professional practice courses.

**Average Student Credit Hour Production for Core Instructional Faculty**

Table 7 indicates that USM average SCH produced by FT core instructional faculty again decreased slightly in 2023-24 from the previous year with core instructional faculty at all institutions reported here producing fewer SCH as compared to 2022-23. UMCES is included in this year’s total for the first time. That said, overall average SCH production is on par with the five-year period since 2019-20.

**Table 7. Trends in Average SCH Generated by All Core Faculty**

	2019-20	2020-21	2021-22	2022-23	2023-24
BSU	314	311	293	308	318
CSU	340	373	265	352	315
FSU	388	374	328	326	342
SU	407	391	368	364	360
TU	412	396	378	364	357
UBalt	294	306	288	268	263
UMBC	358	358	346	354	342
UMCES	--	--	--	--	19
UMCP	359	374	363	353	356
UMES	264	221	212	224	228
UMGC	--	275	235	251	273
<b>USM Average</b>	<b>351</b>	<b>362</b>	<b>344</b>	<b>341</b>	<b>335</b>

Note that total does not include UMB

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



## Instructional 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. Until the recent shifts in USM policy, UMB has applied a different set of standards for judging faculty instructional workload that were more appropriate for its professional schools. We are still working to integrate UMB into the above analyses to the extent possible.

For 2023-24, UMB reports that 94% of all core faculty met or exceeded the institution's standard faculty instructional workload, consistent with the attainment for previous years. In fact, nearly half of faculty exempted from teaching the standard load taught anyway to pursue externally funded or department supported research and service.

## Student Outcomes

While SCH are one measure of faculty production, student outcomes -- such as number of degrees awarded and graduation rates-- are also indicators of faculty contributions to student success. While an increase or decrease in the number of degree recipients can reflect a number of factors such as the institution's growth in enrollment and their level of success in retaining students to graduation, students' ability to graduate in a timely fashion is also dependent on the quality of faculty advising and the appropriateness of course offerings.

**Table 8. 5-year trends in undergraduate degrees awarded**

	2020	2021	2022	2023	2024
BSU	870	881	850	855	757
CSU	335	332	329	333	289
FSU	967	1,023	928	728	818
SU	1,907	1,842	1,664	1,605	1,468
TU	4,701	4,628	4,529	4,064	3,986
UBalt	521	468	391	373	340
UMBC	2,632	2,643	2,674	2,419	2,263
UMCP	8,295	8,100	8,420	8,028	7,989
UMES	516	384	300	304	276
UMGC	6663	7638	7,904	7,843	8,400
<b>Overall</b>	<b>27,407</b>	<b>27,939</b>	<b>27,989</b>	<b>26,552</b>	<b>26,586</b>

Note that total does not include UMB or UMCES.

Source: USM Institutional Research Information System (IRIS)

As seen in Table 8, above, the number of graduating students is up slightly from last year. USM's student time-to-degree resembles that of the previous year. Table 9, below, illustrates four-year graduation rates and Table 10 documents changes in the six-year graduation rates. Although graduation rates reflect only part of the larger picture, they are a useful measure of student success.

**Table 9. Four-Year Graduation Rate by Entering Year (first-time, full-time, degree seeking students)**

	2014	2015	2016	2017	2018	2019	2020
BSU	17%	18%	18%	15%	17%	19%	14%
CSU	12%	12%	9%	9%	11%	7%	10%
FSU	27%	27%	31%	34%	31%	30%	32%
SU	49%	49%	50%	48%	49%	46%	45%
TU	47%	49%	47%	45%	46%	43%	45%
UBalt	18%	22%	20%	23%	22%	25%	21%
UMBC	42%	43%	45%	46%	45%	47%	42%
UMCP	65%	69%	70%	71%	73%	74%	72%
UMES	21%	15%	20%	19%	18%	19%	17%
UMGC	4%	5%	6%	6%	6%	8%	6%
<b>Total</b>	<b>47%</b>	<b>48%</b>	<b>49%</b>	<b>49%</b>	<b>53%</b>	<b>52%</b>	<b>51%</b>

Source: USM Institutional Research Information System (IRIS)

Note: Does not include UMB or UMCES. Percentages reflect graduation anywhere in USM for all first-time full-time freshman

**Table 10. Six-Year Graduation Rate by Entering Year (first-time, full-time, degree seeking students)**

	2012	2013	2014	2015	2016	2017	2018
BSU	46%	46%	46%	44%	42%	40%	38%
CSU	21%	25%	31%	25%	23%	26%	25%
FSU	57%	57%	59%	55%	55%	57%	48%
SU	71%	74%	70%	74%	70%	70%	65%
TU	75%	72%	75%	75%	74%	71%	69%
UBalt	41%	44%	40%	42%	36%	50%	36%
UMBC	68%	71%	72%	73%	72%	73%	64%
UMCP	86%	87%	87%	88%	88%	87%	86%
UMES	44%	46%	45%	37%	40%	38%	34%
UMGC	15%	17%	13%	13%	11%	23%	19%
<b>Total*</b>	<b>70%</b>	<b>72%</b>	<b>72%</b>	<b>71%</b>	<b>71%</b>	<b>71%</b>	<b>70%</b>

Source: USM Institutional Research Information System (IRIS)

Note: Does not include UMB or UMCES. Percentages reflect graduation any where in USM for all first-time full-time freshmen

## MEASURES OF FACULTY CONTRIBUTIONS TO THEIR DISCIPLINES AND SERVICE

### Scholarship and Service Activity

Table 11 is a summary of the scholarship and service activity of the USM faculty from the reporting institutions (including UMB and UMCES). During the 2023-24 academic year, USM faculty published 561 books and 15,455 peer-reviewed articles. Faculty also participated in 4,308 juried and non-juried creative activities combined. Additionally, faculty logged 43,305 days in public service to their communities, government, schools, and non-profit organizations. The numbers of books published, refereed publications, participation in juried and non-juried creative activities, professional presentations, prestigious faculty awards, and faculty in leadership positions in professional societies all show slight decreases over last year. The number of faculty who were awarded externally funded grants and contracts and the number of days spent in public service show increases over last year, even when not including UMCES, who was added in this year. Table 12 below, provides these same data disaggregated by faculty type. Totals show with UMB and without UMB. Some categories did not have information from UMB. UMCES is included this year for the first time.

**Table 11. Scholarship and Service of the USM Faculty (Academic Year 2023-2024)**

	# Books Published	# Refereed Publications	# Non-Refereed Publications	# Juried Creative Works	# Non-Juried Creative Works	# Professional Presentations	# Prestigious Faculty Awards	# Faculty Awarded Externally Funded Grants and Contracts	# Patents Awarded to Faculty	# Faculty in Leadership Positions in Professional Societies	# Days Spent in Public Service
<b>Comprehensive</b>											
BSU	35	161	56	28	43	373	47	24	3	66	6,183
CSU	6	32	18	13	0	42	6	26	0	21	749
FSU	1	84	42	0	321	97	4	18	0	6	1,452
SU	8	136	31	50	48	252	20	27	0	73	1,019
TU	69	762	215	618	357	804	62	78	0	221	5,978
UB	10	83	61	19	18	198	15	65	0	38	823
UMES	12	88	45	84	38	248	28	77	1	91	1,237
<b>Research</b>											
UMB	315	5,285	725	--	2,051	3,933	697	2,490	--	--	15,975
UMBC	24	868	415	49	102	1,098	38	182	13	206	266
UMCES	8	214	41	--	--	261	2	68	--	4	546
UMCP	73	7,742	395	58	411	232	383	848	80	172	9,077
<b>UMGC</b>	14	54	51	28	42	67	19	4	0	28	1,398
<b>Overall</b>	<b>561</b>	<b>15,455</b>	<b>2,044</b>	<b>919</b>	<b>3,389</b>	<b>7,538</b>	<b>1,302</b>	<b>3,903</b>	<b>97</b>	<b>898</b>	<b>43,305</b>

Source: USM Report on Faculty Teaching Workload

**Table 12. Measures of Research and Scholarly/Creative Productivity by Faculty Type**

	FT Tenured/TT	FT non-TT Instructional	FT non-TT Research	Other	Total - no UMB	Total with UMB
# Books Published	200	46	5	9	260	516
# Refereed Publications	8,103	319	1,552	250	10,224	15,455
# Non-refereed Publications	921	146	236	67	1,329	2,003
# Juried Creative Works	785	135	9	18	947	--
# Non-juried Creative Works	804	455	79	42	1,380	--
# Professional Presentations	2,980	365	243	84	3,672	7,538
# Prestigious Faculty Awards	476	82	46	20	624	1,302
# Faculty who were Awarded Externally Funded Grants and Contracts	960	84	171	202	1,417	--
# Patents Awarded to Faculty	83	1	10	3	97	--
# Faculty in Leadership Positions in Professional Societies	724	152	32	18	926	--
# Days spent in public service	16,951	9,052	496	2,230	28,728	43,305

Source: USM Report on Faculty Teaching Workload

## 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 in support of their division's programmatic mission, to expand resources available to the institution for strategic aims, and to secure needed infrastructure to support the research, education, and engagement activities of the institution. Finally, external research is a driver of reimbursements for institutional investments in faculty, facilities and administrative costs connected to research but in support of broad institutional goals as well.

Table 13 records the level of research and other sponsored program expenses by USM institutions, as reported by each institution's Office of Sponsored Programs. Previous versions of this report shared the total amount of awards received in each fiscal year. This year, USM institutions shared the total expenses for research and other sponsored programs that were submitted to the National Science Foundation's Higher Education Research and Development Survey (NSF HERD). The NSF HERD is an established external repository for information for all institutions that wish to provide data on research and development. It is often cited in rankings related to institutional characteristics. Because of this, it is a widely cited and understood metric measuring research activity that can be monitored over time to determine only year-over-year changes within an institution but also the specific areas of focus at a given institution, the institutional investments in research, and the non-federal investments in research. Its widespread use means that nearly all of our institutions complete this on an annual basis, allowing us to support the reduction of administrative burden to the institutions in their reporting requirements to the USM. The expenditure data is captured and reported with a lag, so the table shows the research expenditures from the last 5 years, ending with the 2022-2023 academic year, the most recent year for the HERD report. In the 2022-2023 academic year, the USM spent over \$1.6 billion in research. This represents a 14.2% increase from the 2021-2022 academic year. Two institutions do not currently report to the NSF HERD, so the Office of the Vice Chancellor for Research and Economic Development has reached out to those institutions to provide an estimate of expenditures for the purpose of this

report. Moving forward, USM will aim to provide technical assistance to USM institutions to complete the NSF Herd and to report that same information to the USM when it is filed with NSF.

Table 13: Research & Sponsored Programs Expenditures Per Institution Over the Last Five Years

	FY2019	FY2020	FY2021	FY2022	FY2023	Pct Diff. From 2019 to 2023	Dollar Diff. From 2019 to 2023	Pct Diff. From 2022 to 2023	Dollar Diff. From 2022 to 2023
<b>Comprehensive</b>									
BSU	1,911,000	1,967,000	1,398,000	3,351,000	2,612,000	36.7%	\$ 701,000	-22.1%	\$ (739,000)
CSU	243,000	202,000	299,000	398,000	357,000	46.9%	\$ 114,000	-10.3%	\$ (41,000)
FSU	4,380,893	4,351,025	4,449,178	4,818,999	4,882,007	11.4%	\$ 501,114	1.3%	\$ 63,008
SU	9,368,000	9,496,000	10,552,000	10,614,000	14,557,000	55.4%	\$ 5,189,000	37.1%	\$ 3,943,000
TU	3,423,000	3,612,000	3,794,000	8,788,000	17,198,000	402.4%	\$ 13,775,000	95.7%	\$ 8,410,000
UBalt	12,451,000	15,054,000	14,672,000	6,646,000	6,615,000	-46.9%	\$ (5,836,000)	-0.5%	\$ (31,000)
UMES	7,133,000	8,092,000	8,636,000	9,274,000	10,730,000	50.4%	\$ 3,597,000	15.7%	\$ 1,456,000
<b>Research</b>									
UMBC	80,632,000	83,867,000	84,418,000	110,319,000	144,262,000	78.9%	\$ 63,630,000	30.8%	\$ 33,943,000
UMCES	56,033,000	54,560,000	51,201,000	53,718,000	53,233,000	-5.0%	\$ (2,800,000)	-0.9%	\$ (485,000)
UM(UMB&UMCP)	1,096,600,000	1,103,062,000	1,142,264,000	1,228,550,000	1,385,302,000	26.3%	\$ 288,702,000	12.8%	\$ 156,752,000
UMGC <sup>1,2</sup>					2,000,000				
<b>Total</b>	<b>\$ 1,272,174,893</b>	<b>\$ 1,284,263,025</b>	<b>\$ 1,321,683,178</b>	<b>\$ 1,436,476,999</b>	<b>\$ 1,641,748,007</b>	<b>28.9%</b>	<b>\$ 367,573,114</b>	<b>14.2%</b>	<b>\$ 203,271,008</b>

Sources: FY2023 HERD Survey Reports (tentative numbers, unpublished as of 11/20/2024), FY2022 HERD Survey Results, USM Research & Sponsored Programs Expenditures Survey for non-HERD Institutions

Notes:  
<sup>1</sup> FY2023 represent estimates  
<sup>2</sup> Data collection underway but not reported as of 11/20/2024

## SUMMARY

This report provided summary data on faculty workload for the University System of Maryland for the 2023-2024 academic year in the areas of faculty contributions to student success, their disciplines, and service activities. While there are variations across institutions, production of SCH kept pace with overall enrollment trends in 2023-24, suggesting there are sufficient numbers of courses available for students to graduate in a timely fashion. This is further substantiated by the fact that the number of degrees increased slightly, and the four-year and six-year graduation rates remained steady. That said, to ensure we are keeping pace with longer-term enrollment trends, the USM continues to track SCH generated by core instructional faculty. The data indicate that teaching responsibilities continue to shift, but less-so over to part-time faculty as is commonly thought and more-so over to full-time, non-tenure track instructional faculty whose primary responsibility is teaching. Non-instructional productivity in the form of research and sponsored programs expenditures remained at very high levels, with an increase of 14.2% in the 2022-2023 academic year (the most recent data available).

**TOPIC:** Convening Closed Session

**COMMITTEE:** Committee on Education Policy and Student Life and Safety

**DATE OF MEETING:** January 30, 2025

**SUMMARY:** The Open Meetings Act permits public bodies to close their meetings to the public in special circumstances outlined in §3-305 of the Act and to carry out administrative functions exempted by §3-103 of the Act. The Board of Regents will now vote to reconvene in closed session. As required by law, the vote on the closing of the session will be recorded. A written statement of the reason(s) for closing the meeting, including a citation of the authority under §3-305 and a listing of the topics to be discussed, is available for public review.

It is possible that an issue could arise during a closed session that the Board determines should be discussed in open session or added to the closed session agenda for discussion. In that event, the Board would reconvene in open session to discuss the open session topic or to vote to reconvene in closed session to discuss the additional closed session topic.

**ALTERNATIVE(S):** No alternative is suggested.

**FISCAL IMPACT:** There is no fiscal impact

**CHANCELLOR'S RECOMMENDATION:** The Chancellor recommends that the Committee vote to reconvene in closed session.

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COMMITTEE ACTION:

DATE: January 30, 2025

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BOARD ACTION:

DATE:

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SUBMITTED BY: Alison Wrynn, [awrynn@usmd.edu](mailto:awrynn@usmd.edu), 301-445-1992

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STATEMENT REGARDING CLOSING A MEETING  
OF THE USM BOARD OF REGENTS

Date: January 30, 2025  
Time: Approximately 10:15 a.m.  
Location: Via Zoom

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STATUTORY AUTHORITY TO CLOSE A SESSION

Md. Code, General Provisions Article §3-305(b):

- (1) To discuss:
  - (i) The appointment, employment, assignment, promotion, discipline, demotion, compensation, removal, resignation, or performance evaluation of appointees, employees, or officials over whom it has jurisdiction; or
  - (ii) Any other personnel matter that affects one or more specific individuals.
- (2)  To protect the privacy or reputation of individuals with respect to a matter that is not related to public business.
- (3)  To consider the acquisition of real property for a public purpose and matters directly related thereto.
- (4)  To consider a preliminary matter that concerns the proposal for a business or industrial organization to locate, expand, or remain in the State.
- (5)  To consider the investment of public funds.
- (6)  To consider the marketing of public securities.
- (7)  To consult with counsel to obtain legal advice on a legal matter.
- (8)  To consult with staff, consultants, or other individuals about pending or potential litigation.
- (9)  To conduct collective bargaining negotiations or consider matters that relate to the negotiations.

- (10) [ ] To discuss public security, if the public body determines that public discussions would constitute a risk to the public or public security, including:
- (i) the deployment of fire and police services and staff; and
  - (ii) the development and implementation of emergency plans.
- (11) [ ] To prepare, administer or grade a scholastic, licensing, or qualifying examination.
- (12) [ ] To conduct or discuss an investigative proceeding on actual or possible criminal conduct.
- (13) [ ] To comply with a specific constitutional, statutory, or judicially imposed requirement that prevents public disclosures about a particular proceeding or matter.
- (14) [ ] Before a contract is awarded or bids are opened, to discuss a matter directly related to a negotiation strategy or the contents of a bid or proposal, if public discussion or disclosure would adversely impact the ability of the public body to participate in the competitive bidding or proposal process.
- (15) [ ] To discuss cybersecurity, if the public body determines that public discussion would constitute a risk to:
- (i) security assessments or deployments relating to information resources technology;
  - (ii) network security information, including information that is:
    1. related to passwords, personal identification numbers, access codes, encryption, or other components of the security system of a governmental entity;
    2. collected, assembled, or maintained by or for a governmental entity to prevent, detect, or investigate criminal activity; or
    3. related to an assessment, made by or for a governmental entity or maintained by a governmental entity, of the vulnerability of a network to criminal activity; or
  - (iii) deployments or implementation of security personnel, critical infrastructure, or security devices.

Md. Code, General Provisions Article §3-103(a)(1)(i):

- [ ] Administrative Matters

TOPICS TO BE DISCUSSED:

The Committee on Education Policy and Student Life will discuss recommendations for Regents' Faculty Awards and nominations for honorary degrees.

REASON FOR CLOSING:

1. To maintain confidentiality of personnel-related and personal information of candidates for faculty awards and honorary degrees. (§3-305(b)(1) and (2)).