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Cover Sheet for In-State Institutions
New Program or Substantial Modification to Existing Program

Institution Submitting Proposal	The Johns Hopkins University

Each action below requires a separate proposal and cover sheet.

- ○ New Academic Program
- ◉ New Area of Concentration
- ○ New Degree Level Approval
- ○ New Stand-Alone Certificate
- ○ Off Campus Program
- ○ Substantial Change to a Degree Program
- ○ Substantial Change to an Area of Concentration
- ○ Substantial Change to a Certificate Program
- ○ Cooperative Degree Program
- ○ Offer Program at Regional Higher Education Center

Payment Submitted: ◉ Yes ○ No | Payment Type: ○ R*STARS # 12134743 ◉ Check # 12134743 | Payment Amount: $250 | Date Submitted: 05/15/202

Department Proposing Program	Carey Business School	
Degree Level and Degree Type	Master of Science (Area of Concentration)	
Title of Proposed Program	AI Design, Governance, and Integration	
Total Number of Credits	36	
Suggested Codes	HEGIS: 0506-10	CIP: 11.0901
Program Modality	○ On-campus ○ Distance Education (*fully online*) ◉ Both	
Program Resources	◉ Using Existing Resources ○ Requiring New Resources	
Projected Implementation Date	○ Fall ◉ Spring ○ Summer	Year: 2027
Provide Link to Most Recent Academic Catalog	URL: https://e-catalogue.jhu.edu/	
Preferred Contact for this Proposal	Name: Westley Forsythe	
	Title: Academic Compliance Officer	
	Phone: (410) 516-0188	
	Email: wforsythe@jhu.edu	
President/Chief Executive	Type Name: Lainie Rutkow	
	Signature: [signature]	Date: 06/02/2026
	Date of Approval/Endorsement by Governing Board:	

Revised 1/2021

JOHNS HOPKINS
UNIVERSITY

June 15, 2026

Elena Quiroz-Livanis
Secretary
Maryland Higher Education Commission
217 E. Redwood Street, Suite 2100,
Baltimore, MD 21202

Dear Secretary Elena Quiroz-Livanis,

On behalf of Provost Rutkow, I write to request your review and endorsement of the enclosed proposal. The university proposes a new Area of Concentration in **AI Design, Governance, and Integration** within the **Master of Science in Information Systems and Artificial Intelligence for Business.**

The proposed concentration provides students with the skills necessary to lead AI-driven transformation projects within businesses. It emphasizes the practical application of machine learning and artificial intelligence technologies. Students complete foundational coursework in Data Analytics and Python for Data Analysis, before advancing to specialized topics like Practical Machine Learning, Generative AI, AI-Driven Sequential Decision Making, and a capstone Analytics Consulting Project.

The proposed program is consistent with the Johns Hopkins mission and the State of Maryland's Plan for Postsecondary Education. The proposal is endorsed by The Johns Hopkins University.

Should you have any questions or need further information, please contact Westley Forsythe at (410) 516-0188 or wforsythe@jhu.edu.

Thank you for your support of Johns Hopkins University.

Sincerely,

Janet Simon Schreck, PhD
Vice Provost for Academic Affairs and Innovation

cc: Dr. Lainie Rutkow

Dr. Westley Forsythe

Enclosures

The Johns Hopkins University
Carey Business School

Proposal for Substantial Modification to a Degree Program

Master of Science in Information System and Artificial Intelligence for Business with an area of concentration in AI Design, Governance, and Integration

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 Johns Hopkins University (JHU) Carey Business School proposes an area of concentration in AI Design, Governance, and Integration (ADGI) within the existing Master of Science in Information Systems and Artificial Intelligence for Business (ISAI) program (HEGIS: 050610; CIP: 11.0901). The MS ISAI program would require no modification and the standalone program would remain as a program offering. Each Area of Concentration is 12 graduate credits, composed of six 2-credit courses (including any courses that overlap with the program Functional Core).

   ADGI prepares students to design, deploy, and oversee AI systems that meet ethical, legal, and organizational standards across enterprise and public-sector organizations by teaching practical skills for designing, governing, auditing, and integrating AI systems at scale within real-world organizational and regulatory constraints. The concentration builds on the ISAI program's core strengths—technical understanding of AI and machine learning, data and systems thinking, and business analytics—while adding focused training in governance, accountability, verification, and regulatory compliance so graduates can translate ethical principles into implementable policies and technical controls, manage risk and accountability, verify system behavior, and lead deployment and sustainment efforts across interdisciplinary teams. This applied emphasis aligns directly with Carey's mission to educate leaders who bring rigorous analytical and technical methods to real-world business problems while addressing ethical and societal impacts, enabling graduates to advance responsible AI adoption in healthcare, finance, government, and other sectors where JHU already has strong institutional expertise and public-impact priorities.

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

   The ADGI concentration advances Carey's and Johns Hopkins' strategic goals by developing professionals who can ensure AI deployments are effective, trustworthy, and compliant—thereby supporting institutional commitments to public impact, ethical stewardship, and translational expertise. Market and policy signals confirm clear and

growing demand for these capabilities: national labor data show strong growth and substantial annual openings in oversight and management roles tied to computing and information security**. E**mployers and occupational databases identify a critical literacy gap in AI oversight and a need for skills in auditing, bias mitigation, risk management, and regulatory compliance**.** Maryland has prioritized AI and cybersecurity with targeted investments to prepare a workforce able to integrate AI safely and effectively. Student-interest data reinforce this rising demand for AI-focused specialized master's education, particularly among mid-career professionals seeking practical, career-advancing skills. The concentration complements existing university strengths in health, cybersecurity, and policy, creates cross-disciplinary synergies, and can be implemented with minimal modification to the existing ISAI program, enabling Carey to quickly respond to an articulated regional and national need while advancing institutional metrics for career outcomes, employer engagement, and public service.

3. **Provide a brief narrative of how the proposed program will be adequately funded for at least the first five years of program implementation. (Additional related information is required in section L).**

   The proposed ADGI area of concentration is not expected to increase overall program size. Enrollments are projected to remain steady at roughly 110 full-time students. The School is not currently at capacity and can handle any reasonable increase in student head count for this program. Any increase in student headcount would only cause an increase in instruction costs due to more course sections but form a physical space perspective, we have more than adequate reserves in this area.

   The Carey Business School is expecting strong financial results upon the launch of the new area of concentration. Gross tuition is projected to be $10,065,220 in revenue for FY28. Future tuition projections for FY29-FY32 assume a 3% annual increase in tuition rates. Direct expenses for the program are projected to be $2,083,900 in FY28 expenditures. Future Direct Expense projections for FY29-FY32 assume an average annual increase of 3%.

4. **Provide a description of the institution's a commitment to:**

   a) **ongoing administrative, financial, and technical support of the proposed program**

   b) **continuation of the program for a period of time sufficient to allow enrolled students to complete the program.**

      The Carey Business School is committed to providing ongoing administrative, financial, and technical support of the existing MS ISAI program. The School is fortunate to possess a core of experienced full-time faculty members who are available to teach, advise, and/or serve on the curriculum committee of the program. The faculty members who teach in the program are also engaged in program activities to ensure support and success of the students enrolled in the

program. In addition to faculty, the program manager, academic advisors, and other staff (such as student success center, financial aid, IT, Teaching & Learning, registrar's office, etc.) provide administrative and technical support to Master of Science in Information Systems and Artificial Intelligence for Business students to ensure that enrolled students successfully complete the program.

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

1. Demonstrate demand and need for the program in terms of meeting present and future needs of the region and the State in general based on one or more of the following:

a) The need for the advancement and evolution of knowledge

AI governance, assurance, and integration represent a rapidly evolving field where technical practice has outpaced formal knowledge. Organizations deploying AI systems face mounting questions about how to verify model behavior, manage risk across the system lifecycle, satisfy emerging regulatory requirements, and maintain accountability when automated decisions affect people at scale. Current academic offerings tend to address these challenges either from a purely technical perspective (machine learning engineering) or a purely normative one (AI ethics). Few programs cultivate the integrative expertise needed to translate principles into implementable governance frameworks, auditing protocols, and deployment workflows. The ADGI concentration advances knowledge in this applied middle ground — training professionals who understand both the technical architecture of AI systems and the organizational, legal, and ethical structures required to govern them. Students will engage with emerging scholarship and practice in areas such as algorithmic auditing, AI risk management, regulatory compliance frameworks (including the EU AI Act and evolving U.S. federal and state guidance), and human-AI teaming, contributing to a field whose methods and standards are still being defined

b) Societal needs, including expanding educational opportunities and choices for minority and educationally disadvantaged students at institutions of higher education

The ADGI concentration expands access to high-demand AI governance skills for populations that have historically been underrepresented in technology fields. By situating this training within an existing ISAI program that already serves a diverse student body — including working professionals, career-changers, and students from varied educational backgrounds — the concentration lowers barriers to entry for an emerging specialty that might otherwise require navigating multiple degree programs or expensive professional certifications. Carey's location in the Baltimore–Washington corridor, one of the most diverse metropolitan regions in the country, positions the program to recruit from a broad talent pool, including students from minority-serving institutions in the region. The program's applied, career-oriented

design is particularly relevant for mid-career professionals from underrepresented groups who seek to advance into AI leadership and oversight roles without leaving the workforce for an extended period. Carey's financial aid resources, employer-sponsored tuition partnerships, and flexible scheduling further support access for educationally and economically disadvantaged students

c) The need to strengthen and expand the capacity of historically black institutions to provide high quality and unique educational programs

The proposed Area of Concentration in AI Design, Governance, and Integration is engineered to serve as a high-level professional specialization that complements, rather than competes with, the foundational technology programs offered by Maryland's Historically Black Institutions (HBIs). By focusing on a narrow, mission-critical niche—specifically the operationalization of AI auditing, global regulatory compliance such as the EU AI Act, and technical controls—the program provides a distinct advanced pathway for graduates of HBI computer science and management information systems programs who seek to lead AI deployment and sustainment efforts. This strategic focus on "trust, assurance, and accountability" as measurable assets allows JHU to address a rapidly widening gap in the workforce while reinforcing the social justice and equity-oriented frameworks, such as bias mitigation and transparency, that are often central to HBI missions. Furthermore, the concentration's integration of niche healthcare content, including Cybersecurity and Privacy in Healthcare and Health Information Technology, leverages JHU's specific institutional identity to create a distinct market presence that does not duplicate the broader business intelligence or cybersecurity management identities established at regional HBIs like Morgan State or Bowie State. Ultimately, by serving as a leadership pipeline for oversight roles rather than a general entry point into the computing workforce, the JHU modification allows Maryland's HBIs to continue their vital work of developing core technical talent while JHU addresses a burgeoning regulatory and compliance niche essential to global enterprise AI strategy.

2. Provide evidence that the perceived need is consistent with the Maryland State Plan for Postsecondary Education.

The ADGI concentration directly supports all three goals of the Maryland State Plan for Higher Education.

Under **Access**, the concentration expands affordable pathways into a high-demand specialty by adding a focused area of study within an existing, approved master's program rather than creating a separate degree — keeping costs lower for students and the institution alike. Its design for working professionals, including flexible scheduling and applied coursework, aligns with the State Plan's priority to enhance postsecondary education as a platform for ongoing lifelong learning.

Under **Success**, the concentration strengthens career outcomes by equipping graduates with demonstrably marketable skills in AI governance, risk management, and systems integration — competencies that employers in Maryland's public, defense, health, and financial sectors are actively seeking. This career-relevance focus supports the State Plan's emphasis on ensuring student success through strong post-completion outcomes.

Under **Innovation**, ADGI exemplifies the State Plan's call to foster innovation across Maryland higher education. The concentration addresses a field — responsible AI deployment — where academic programming has not yet caught up to industry and regulatory demand. It also aligns with the State of Maryland's own AI priorities: Governor Moore's Executive Order 01.01.2024.02 directs state agencies to adopt AI responsibly and calls for workforce upskilling in AI governance, and the 2025 Maryland AI Enablement Strategy identifies workforce readiness as one of twelve critical domains for state action. By preparing professionals to fill these roles, ADGI directly serves Maryland's stated policy objectives.

Finally, the State Plan's equity lens is embedded throughout the concentration's design, from its accessibility to working professionals and career-changers to its focus on training graduates who will shape how AI systems affect diverse communities.

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

1. Describe potential industry or industries, employment opportunities, and expected level of entry (*ex: mid-level management*) for graduates of the proposed program.

Potential Industries

Professional, Scientific, and Technical Services: This sector is the leading driver for AI-based systems and associated consulting services[1].

Finance and Insurance: High demand for model risk management and compliance roles to meet federal and international banking standards.

Healthcare and Life Sciences: AI applications in clinical decision support, drug discovery, and claims processing must satisfy stringent safety, privacy, and regulatory

Energy and Critical Infrastructure: AI-driven optimiation of power grids, transportation systems, and supply chains creates governance demands around safety, reliability, equity, and compliance with sector-specific federal and state regulations.

[1] BLS Employment Projections 2024-34: https://www.bls.gov/news.release/pdf/ecopro.pdf

Public Sector & Defense: Particularly in the Maryland/D.C. corridor, driven by agencies like the NSA and NIST. Maryland has the second-highest demand for cyber and tech-related jobs in the nation[2].

Employment Opportunities

Target Roles: AI Compliance Officer, AI Governance Manager, Information Security Analyst (specializing in AI ethics/audits), and Computer and Information Systems Manager[3].

Key Responsibilities: Ensuring AI systems are designed with "Meaningful Human Oversight," conducting bias audits, and maintaining "AI Literacy" frameworks for workforce safety[4].

Expected Level of Entry

Mid-Level Management: Roles such as "Computer and Information Systems Manager" typically require a bachelor's degree plus 5+ years of experience, making a specialized Master's degree a key differentiator for mid-level advancement. Salary data support this positioning: the IAPP Salary and Jobs Report 2025–26 reports a median total compensation of approximately $151,800 for AI governance professionals, rising to over $169,700 for those combining privacy and AI governance expertise. Entry-level AI governance roles start at approximately $100,000–$130,000, with mid-career roles reaching $158,000+ and senior roles exceeding $270,000. These figures reflect the premium that employers place on the interdisciplinary skill set — technical AI literacy combined with governance, risk, and compliance expertise — that the ADGI concentration is designed to develop.

2. Present data and analysis projecting market demand and the availability of openings in a job market to be served by the new program.

Demand is driven by the rapid integration of AI across all economic sectors and the resulting need for oversight.

National Demand

The BLS projects employment in computer and mathematical occupations to grow by 10.1% through 2034—more than three times the average rate for the total economy. This growth is explicitly attributed to the "continued development of AI solutions and an

[2] Maryland Department of Labor – Cyber Maryland: https://labor.maryland.gov/cybermaryland/
[3] BLS Occupational Outlook Handbook – Computer and Information Systems Managers: https://www.bls.gov/ooh/management/computer-and-information-systems-managers.htm
[4] US Department of Labor AI Principles: https://www.dol.gov/sites/dolgov/files/general/ai/DOL-2025-AI-Compliance-Plan.pdf

increasing amount of data available for analysis[5]."

Maryland Demand

Maryland has designated AI and Cybersecurity as "Lighthouse Sector Priorities." The state is investing $4 million into programs like the Maryland Lighthouse Industries and AI Internship Program to prepare a workforce capable of "integrating AI within organizations safely and effectively[6]."

Openings

Nationally, there are approximately 55,600 projected annual openings for Computer and Information Systems Managers and 16,000 for Information Security Analysts[7].

3. **Discuss and provide evidence of market surveys that clearly provide quantifiable and reliable data on the educational and training needs and the anticipated number of vacancies expected over the next 5 years.**

Quantifiable evidence from the U.S. and Maryland Departments of Labor identifies a "critical literacy gap" in AI oversight.

National Vacancy Trends

The U.S. BLS reports that while pure technical roles like "Computer Programmers" are seeing a decline, roles requiring strategic oversight—such as Information Security Analysts—are projected to grow by 28% to 33% through 2034[8].

Skill Requirements (Officials BLS/O*NET Data)

According to the BLS and the O*NET database (the primary source for US occupational requirements), graduates in this field must possess the following competencies for "Bright Outlook" roles in AI management:

- ***Processing:*** The ability to "audit or verify information or data" –a core component of the proposed AI Compliance concentration.
- ***Analyzing Data or Information:*** Identifying the underlying principles or facts by breaking down data into separate parts[9].

[5] BLS Employment Projections 2024-34: https://www.bls.gov/news.release/pdf/ecopro.pdf
[6] Maryland Department of Labor News: https://labor.maryland.gov/whatsnews/govmooreannouncesinvestmentstopreparemdworkersforaiandemergingtechnologyeconomies.shtml
[7] BLS Occupational Outlook Handbook – Information Security Analysts: https://www.bls.gov/ooh/computer-and-information-technology/information-security-analysts.htm
[8] BLS Employment Projections 2024-34: https://www.bls.gov/emp/tables/fastest-growing-occupations.htm.
[9] O*NET 11-3021.00 – IT Managers: https://www.onetonline.org/link/details/11-3021.00

- ***Analytical & Decision-Making Skills:*** Managers must evaluate IT security threats and "assess the costs and benefits of new projects" to justify organizational funding[10].

Quantifiable Local Need

Maryland's 2025 AI Enablement Strategy explicitly calls for "maturing AI governance capabilities" to move from foundational use to full enterprise adoption. This transition requires roughly 600 new specialized cyber/AI professional per year just within the state's current grant-funded clinic initiatives[11].

4. **Provide data showing the current and projected supply of prospective graduates.**

The GMAC Prospective Students Survey 2025 Report[12] highlights a significant shift in the United States toward specialized business master's degrees, which are gaining ground as traditional MBA preference declines. The report provides extensive data on the demand for specialized master's programs and the specific pipeline for artificial intelligence curricula.

The demand for specialized master's programs in the US is rising as the market shifts away from the full-time MBA. Globally, preference for these specialized degrees returned to pre-pandemic levels in 2024, reaching 39 percent. In the United States specifically, the preference for full-time MBAs dropped from 50 percent in 2023 to 35 percent in 2024. This decline is mirrored by a growth in the "other business master's" category, a catchall for the newer, specialized offerings that business schools are increasingly rolling out to meet modern technical needs.

Regarding the projected pipeline for AI-focused curricula, the report indicates that 46 percent of global candidates now view artificial intelligence as an essential part of their ideal graduate management education. In the United States, 41 percent of prospective students identified AI as a critical component of their studies. These candidates are looking for more than just theory; they are specifically seeking hands-on experience through simulations, courses that explore AI's role in business strategy, and training on how to use AI for business decision-making.

The student profile for this pipeline shows that interest in AI-focused education actually increases with age. While 41 percent of candidates aged 22 and younger express interest, that figure jumps to 59 percent for those aged 40 and older, suggesting that mid-career professionals feel a stronger need to formalize their AI skills. Additionally, the gender gap in the AI pipeline is closing, with 45 percent of women and 48 percent of men now including AI in their ideal curriculum. Overall, the primary drivers for these specialized

[10] BLS OOH – How to Become an IT Manager: https://www.bls.gov/ooh/management/computer-and-information-systems-managers.htm#tab-4

[11] MD DoIT/Labor Strategy: https://doit.maryland.gov/policies/ai/Pages/maryland-AI-enablement-strategy-and-roadmap.aspx

[12] GMAC Prospective Students Survey 2025 https://www.gmac.com/market-intelligence-and-research/research-library/admissions-and-application-trends/2025-gmac-prospective-students-survey-summary-report

programs are pre-experience students under 22 and career switchers or stabilizers over the age of 30.

D. Reasonableness of Program Duplication:

1. Identify similar programs in the State and/or same geographical area. Discuss similarities and differences between the proposed program and others in the same degree to be awarded.

In the State of Maryland, several institutions offer graduate programs that overlap with the Master of Science in Information Systems and Artificial Intelligence for Business at Johns Hopkins University. These programs primarily reside within business schools or information systems departments and share a focus on the intersection of technical AI capabilities and organizational strategy.

Similar Programs:

The University of Baltimore (UBalt) offers a Master of Science in Artificial Intelligence for Business, which is positioned as a STEM-designated program specifically for managers and leaders across all sectors. Like the proposed JHU concentration, UBalt's curriculum includes courses such as Business, Ethical, and Regulatory Perspectives of AI, Machine Learning for Business, and various functional applications in finance, marketing, and operations. It requires 30 credits and emphasizes bridging the gap between technical AI and business needs.

The **University of Maryland (UMD), Robert H. Smith School of Business**, provides a Master of Science in Information Systems with a specialized track in AI. This program focuses on using AI and big data to solve business problems and improve decision-making. Its curriculum covers foundational information systems topics while allowing students to dive deep into machine learning, data mining, and AI strategy, closely mirroring the "Functional Core" of the JHU program.

UMBC (University of Maryland, Baltimore County) offers a Master of Science in Information Systems that includes a specific track in Artificial Intelligence. This 39-credit program is designed for students both with and without technical backgrounds. It emphasizes a step-by-step mastery starting from fundamentals like programming and databases, eventually leading to specialized electives in AI.

Bowie State University and **Hood College** both offer Master of Science programs in Management Information Systems (MIS). While these programs traditionally focus on the broader management of IT infrastructure and digital transformation, they increasingly incorporate AI and data science electives to address modern workforce demands.

Similarities to JHU MS ISAI Program:

The existing JHU program and its proposed new concentration share a common goal with these regional peers: translating technical AI principles into actionable business value.

All identified programs emphasize a curriculum that balances technical proficiency—such as machine learning and data analytics—with leadership and ethical considerations. For instance, both UBalt and JHU highlight "Ethical and Responsible AI Deployment" as a core competency. Additionally, like JHU's 36-credit requirement for the concentration, most of these programs are STEM-designated and range from 30 to 39 credits, catering to working professionals in the Baltimore-DC technology corridor.

Differences and Unique Value of the JHU MS ISAI Program:

In the context of the Maryland higher education landscape, the impact of the proposed Area of Concentration in AI Design, Governance, and Integration within the existing MS in Information Systems and Artificial Intelligence for Business at Johns Hopkins University (JHU) on the Master of Science in Information Systems & Sciences (ISS) at Bowie State University is defined by a distinct differentiation in academic and professional objectives. While both programs address the growing demand for technology leadership, the JHU concentration is specifically engineered to operationalize responsible AI across enterprise and public-sector organizations. It moves beyond general information systems management to emphasize highly specialized skills in auditing, governing, and verifying AI systems at scale. By focusing on "verifiable compliance" and "technical controls," the JHU program targets a rapidly widening gap in the AI workforce that requires professionals to navigate specific global regulatory frameworks like the EU AI Act. The JHU program further distinguishes itself by preparing graduates for "high-growth AI oversight roles"—such as AI audit and assurance teams—which are described as becoming essential to enterprise strategy rather than peripheral IT functions. This strategic focus on "trust, assurance, and accountability" as measurable assets complements the foundational MIS training at Bowie State by providing a specialized advanced pathway for professionals seeking to lead AI deployment and sustainment efforts across interdisciplinary teams. Moreover, the inclusion of niche curriculum areas such as Cybersecurity and Privacy in Healthcare ensures that the JHU program occupies a specialized sector of the market. This high degree of specialization helps maintain the stability of the broader MIS program at Bowie State by ensuring that the JHU offering serves a specific subset of the workforce focused on high-stakes AI decision-making and regulatory oversight rather than general IT management.

Table 1: Maryland Information Systems Masters

School	Degree	Program Name
University of Maryland College Park	Masters	Information Systems & AI
University of Maryland Baltimore County	Masters	Information Systems
Hood College	Masters	Management Information Systems
Bowie State University	Masters	Information Systems & Sciences
University of Baltimore	Masters	Artificial Intelligence for Business
Capitol Technology University	Master	Information Systems Management

2. Provide justification for the proposed program.

The ADGI concentration is justified on three grounds.

First, it fills a curricular gap that no existing Maryland program addresses. While several programs incorporate AI ethics as a topic within a broader technical or business curriculum, none offers a structured concentration that trains students to build governance frameworks, conduct algorithmic audits, manage AI risk portfolios, navigate regulatory compliance, and lead cross-functional deployment and sustainment efforts. ADGI's focus is not on building AI systems or on studying their ethics in the abstract — it is on making AI systems work responsibly inside real organizations.

Second, it serves a wide range of the student population. ADGI not only targets recent college graduates but also mid-career professionals — compliance officers, IT managers, risk analysts, program managers, and policy professionals — who need to add AI governance expertise to an existing career. These students are unlikely to enroll in the technically intensive UMD MSAI or the broader UBalt or UMBC programs, because those programs do not address their specific professional development needs. ADGI meets these learners where they are, within a business school environment that emphasizes applied, career-advancing skills.

Third, it responds to a market need that is growing faster than existing programs can serve. As documented in Section C, national labor projections show over 100,000 annual openings across the occupational categories most closely aligned with AI governance roles, and Maryland's own AI policy priorities — including Governor Moore's Executive Order and the 2025 AI Enablement Strategy — explicitly call for workforce development in responsible AI deployment. The emergence of comparable concentrations at peer institutions outside Maryland, including Purdue's AI Management and Policy track, Brown's Data Science: Policy, Governance & Society program, and Columbia's forthcoming MSAI with governance emphasis, confirms that leading universities nationally recognize this as a distinct field requiring dedicated programming. ADGI would make Carey the first institution in Maryland to offer this specialization, positioning the state competitively in a national talent market.

Because ADGI is an area of concentration within the already-approved ISAI program rather than a new standalone degree, it can be launched with minimal resource duplication and no adverse enrollment impact on existing Maryland AI programs, which serve fundamentally different student needs and career objectives.

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

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

In the context of the Maryland higher education landscape, the impact of the proposed Area of Concentration in AI Design, Governance, and Integration within the existing MS in Information Systems and Artificial Intelligence for Business at Johns Hopkins University (JHU) on the Master of Science in Information Systems & Sciences (ISS) at Bowie State University is defined by a distinct differentiation in academic and professional objectives. While both programs address the growing demand for

technology leadership, the JHU concentration is specifically engineered to operationalize responsible AI across enterprise and public-sector organizations. It moves beyond general information systems management to emphasize highly specialized skills in auditing, governing, and verifying AI systems at scale. By focusing on "verifiable compliance" and "technical controls," the JHU program targets a rapidly widening gap in the AI workforce that requires professionals to navigate specific global regulatory frameworks like the EU AI Act. The JHU program further distinguishes itself by preparing graduates for "high-growth AI oversight roles"—such as AI audit and assurance teams—which are described as becoming essential to enterprise strategy rather than peripheral IT functions. This strategic focus on "trust, assurance, and accountability" as measurable assets complements the foundational MIS training at Bowie State by providing a specialized advanced pathway for professionals seeking to lead AI deployment and sustainment efforts across interdisciplinary teams. Moreover, the inclusion of niche curriculum areas such as Cybersecurity and Privacy in Healthcare ensures that the JHU program occupies a specialized sector of the market. This high degree of specialization helps maintain the stability of the broader MIS program at Bowie State by ensuring that the JHU offering serves a specific subset of the workforce focused on high-stakes AI decision-making and regulatory oversight rather than general IT management.

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

1. Discuss the program's potential impact on the uniqueness and institutional identities and missions of HBIs.

The proposed Area of Concentration in AI Design, Governance, and Integration within the existing MS in Information Systems and Artificial Intelligence for Business at Johns Hopkins University is designed to address a specialized, mission-critical gap in the workforce—specifically the operationalization of responsible and auditable AI systems. When considering its potential impact on Maryland's Historically Black Institutions, the program serves as a complementary professional specialization rather than an encroachment on their institutional identities or core missions. The institutional identities of regional HBIs, such as Bowie State University, Morgan State University, Coppin State University, and UMES, are deeply rooted in providing broad access to transformative education in computer science, management information systems, and data analytics. These programs focus on building a robust pipeline of diverse talent in the foundational and applied aspects of technology. JHU's proposed AOC maintains this distinction by focusing on a narrow, high-level professional niche: the intersection of technical AI controls, global regulatory compliance (such as the EU AI Act), and enterprise-level risk management. This focus on "AI audit readiness" and "accountability as strategic assets" targets a different professional outcome than the comprehensive technical and managerial foundations that define HBI missions. The JHU program's emphasis on "bias mitigation," "transparency," and "responsible AI" aligns with and reinforces the social justice and equity-oriented frameworks often central to HBI missions. Rather than duplicating the general data science or computer science curricula found at institutions like Coppin State or UMES, JHU provides a highly specialized environment for students who have already mastered those fundamentals to focus specifically on the governance and ethical sustainment of those technologies. The uniqueness of the HBIs is further preserved

through the JHU program's specific integration of healthcare-related AI content, such as Health Information Technology. This curriculum leverages JHU's specific identity in the health sector, creating a distinct market presence that does not compete with the broader business intelligence or cybersecurity intelligence management identities established at Morgan State or Bowie State. By serving as a leadership pipeline for oversight roles—rather than a general entry point into the computing workforce—the JHU modification allows regional HBIs to continue their vital work of developing core technical talent while JHU addresses a burgeoning regulatory and compliance niche that is becoming essential to the global enterprise AI strategy.

G. Adequacy of Curriculum Design, Program Modality, and Related Learning Outcomes (as outlined in COMAR13B.02.03.10):

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

The AI Design, Compliance, and Integration Area of Concentration was developed by the MS ISAI Academic Program Director Changmi Jung (PhD, Carnegie Mellon University). The Area of Concentration was approved by the JHU Carey Business School Curriculum Committee. The existing MS ISAI program is overseen by Academic Program Director Changmi Jung, Associate Professor of Practice; additionally, the Vice Dean for Education, and the Associate Dean for Academic Programs have academic and administrative oversight of academic programs.

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

Educational Objectives

The ADGI concentration prepares graduates to serve as the organizational bridge between AI technical teams and executive, legal, and regulatory stakeholders. Upon completion, graduates will be equipped to design and implement enterprise AI governance structures, evaluate AI systems for compliance with ethical principles and regulatory requirements, manage risk across the AI lifecycle, and lead the integration and sustainment of AI systems within complex organizational environments. These objectives build on the ISAI program's existing educational goals — developing leaders who combine technical understanding of AI and data systems with business acumen and ethical reasoning — while adding the specialized governance, assurance, and integration competencies that employers and regulators increasingly demand.

Program Learning Outcomes

Graduates of the ADGI concentration will demonstrate the following learning outcomes, which are designed to reflect the rigor of a master's-level program, the interdisciplinary breadth required for AI governance practice, and the applied modality of the Carey

Business School curriculum:

1. Governance Framework Design. Develop, evaluate, and adapt AI governance frameworks — including policies, organizational structures, review processes, and accountability mechanisms — appropriate to an organization's sector, scale, risk profile, and regulatory environment.

2. Regulatory Analysis and Compliance. Analyze and apply current and emerging AI regulatory requirements — including the EU AI Act, U.S. federal guidance (e.g., OMB M-24-10, NIST AI Risk Management Framework), state-level mandates, and sector-specific rules (e.g., FDA AI/ML regulation, financial model-risk guidance) — to organizational AI systems and processes.

3. AI Risk Assessment and Management. Identify, assess, and prioritize risks associated with AI systems — including bias, safety, security, reliability, and reputational exposure — and design mitigation strategies that integrate into enterprise risk management frameworks.

4. Algorithmic Auditing and Assurance. Plan and conduct technical and procedural audits of AI systems for fairness, accuracy, robustness, transparency, and regulatory conformance, applying quantitative and qualitative evaluation methods.

5. Responsible AI Design and Human-AI Collaboration. Apply human-centered design principles and responsible AI methodologies to the development and deployment of AI systems, ensuring that systems augment human judgment rather than replace accountability.

6. AI Systems Integration and Lifecycle Management. Lead the end-to-end integration of AI systems into enterprise environments — from requirements definition and architecture review through deployment, monitoring, and sustainment — coordinating across technical, business, legal, and compliance functions.

7. Stakeholder Communication and Change Leadership. Communicate AI governance concepts, risk assessments, and compliance requirements to diverse audiences — including executive leadership, technical teams, regulators, and external stakeholders — and lead organizational change efforts required for responsible AI adoption.

3. Explain how the institution will:

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

The ADGI concentration assesses student achievement of the seven program learning outcomes (Section G.2) through direct and indirect measures at the course and program levels. At the course level, each contributing course includes assessments mapped to specific learning outcomes. Methods vary by competency: case analyses and policy deliverables for governance and compliance outcomes (1–2), quantitative auditing and

risk-scoring exercises for technical assurance outcomes (3–4), applied design projects and team-based integration assignments for design and systems outcomes (5–6), and presentations and written briefings for communication and leadership outcomes (7). All assessments are evaluated using rubrics aligned to the relevant learning outcomes. The capstone practicum (350.790) serves as the culminating assessment, requiring students to demonstrate integrated competency across all seven outcomes on a real-world organizational challenge, evaluated by faculty and, where applicable, industry partners. Indirect measures — including graduating-student surveys, end-of-course evaluations, and employer feedback from practicum partnerships — supplement direct assessment by capturing perceived preparedness and skill development.

b) document student achievement of learning outcomes in the program

Student achievement is documented at three levels. At the course level, faculty record performance on outcome-aligned assessments through the university's learning management system, with syllabi documenting the mapping between assignments and program learning outcomes. At the program level, the ISAI program director maintains a curriculum map linking each learning outcome to specific courses, assignments, and rubric criteria, and compiles aggregate performance data annually. At the institutional level, the concentration participates in Carey Business School's annual assessment cycle: each year a subset of outcomes undergoes focused review, findings are analyzed, and any resulting curricular changes are documented in assessment reports submitted to the school's assessment committee. Individual student transcripts and capstone portfolios provide the permanent record of achievement and are maintained in accordance with university policy and FERPA.

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

The following list shows all the program requirements for the Master of Science in Information Systems and Artificial Intelligence for Business and the Area of Concentration in AI Design, Compliance, and Integration. Program requirements include a minimum of 30 graduate credits for the standalone program; the program along with the area of concentration has a total credit requirement of 36 credits. All courses listed below are 2 credits, unless stated otherwise.

- **Business Foundations (6 credits)**
  - Business Communication
  - Business Leadership and Human Values
  - Statistical Analysis

- **Functional Core (10 credits)**
  - AI Essential for Business*
  - Cyber Networks: Security the Digital Frontiers

- Digital Transformation of Business
- Machine Learning: Design and Deployment*
- Responsible AI*

**Denotes Functional Core courses that are also part of the proposed area of concentration.*

- **AI Design, Compliance, and Integration AOC (12 credits)**
  - AI Essential for Business*
  - Machine Learning: Design and Deployment*
  - Responsible AI*
  - Generative AI
  - Database Management
  - Large Scale Computing on the Cloud

  Clarification: AOC credit calculation — 6 courses × 2 credits each = 12 credits. Three courses listed above* overlap with the Functional Core; these overlaps are permitted and are counted toward the AOC total. The 12 AOC credits are included in the student's 36-credit program total when the AOC is elected.

- **Elective Courses (14 credits)**

  Student must select elective courses from the following list:
  - Accounting and Financial Reporting
  - Advanced Business Analytics
  - Advanced Database Management
  - AI-Driven Sequential Decision Making
  - AI Development and Business Applications
  - Business Analytics
  - Crisis Management
  - Cryptos and Blockchain
  - Cybersecurity and Privacy in Healthcare
  - Data Analytics
  - Data Science and Business Intelligence
  - Data Visualization
  - Developing Internet Systems and Services
  - Digital Health and AI-Enabled Device Regulation in the U.S.
  - Forecasting Models for Business Intelligence
  - Health Information Technology
  - Human-AI Fusion
  - Introduction to Java for Business
  - IT Consulting Lab Practicum
  - Managing Complex Projects
  - Marketing Management
  - Python for Data Analysis
  - Simulation for Business Applications
  - Social Media Analytics

- **Total Degree Credits: 36 credits with AOC; 30 credits without AOC**

  Note: The AOC 12-credit total (6 × 2-credit courses) is included in the 36-credit program total for students who elect the concentration.

For course number and descriptions, please see Appendix A.

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.

Not applicable.

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

Not applicable.

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

During the months leading to the August start of the program (March - August), the Admissions and Academic Programs offices will communicate with prospective and admitted students the degree completion requirements and support services provided by the Carey Business School. This information will be communicated through email communications, webinars, and through email or phone conversations as needed. A welcome document is digitally sent to students who have accepted admission. This document includes further information on degree requirements, faculty information, student services, technology requirements, and learning platform (Canvas, etc.) information.

Prior to the start of the first semester of the program, students will participate in an MS Student Orientation that will include presentations from the Faculty Academic Program Director, Program Manager, Academic Advisor(s), Student Services (tutoring and academic support services). Other departments will be available for student questions or concerns.

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.

All marketing and admissions materials are updated on an annual basis or more frequently when needed. The Carey Business School's Office of Marketing and Communications is responsible for all internal and external communications, marketing, advertising, publishing, graphic design, special events, and sponsorships at the Johns Hopkins Carey Business School. Along with faculty, this office will develop a marketing strategy once the program is approved. This strategy will include updates to the website, application system, and all collateral materials (brochures, advertisements, etc.) for the program.

H. Adequacy of Articulation (as outlined in COMAR 13B.02.03.19)

1. **If applicable, discuss how the program supports articulation with programs at partner institutions. Provide all relevant articulation agreements. More information for Articulation Agreements may be found here.**

   Not applicable.

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

1. **Provide a brief narrative demonstrating the quality of program faculty. Include a summary list of faculty with appointment type, terminal degree title and field, academic title/rank, status (full-time, part-time, adjunct) and the course(s) each faculty member will teach in the proposed program.**

   The Carey Business School is fortunate to possess a core of experienced full-time faculty members who are available to teach, advise, or serve on the curriculum committee in the Master of Information Systems and Artificial Intelligence for Business program. All full-time, tenure track faculty have earned a doctoral degree, hold a primary appointment at the Carey Business School, and have considerable experience conducting and disseminating research in their area of expertise. It is our goal to have the program taught almost exclusively by full-time faculty. Appendix B provides detailed information about each core faculty member teaching in the Master of Science in Information Systems and Artificial Intelligence for Business and the area of concentration in AI Design, Compliance, and Implementation.

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

   a) **Pedagogy that meets the needs of the students**

   b) **The learning management system**

   c) **Evidenced-based best practices for distance education, if distance education is offered.**

Teaching & Learning at Carey promotes and supports teaching excellence at the Johns Hopkins Carey Business School by providing faculty with ongoing training in the above-mentioned three categories. Teaching & Learning at Carey is a division within Carey headed by an Assistant Dean of Teaching & Learning with more than 30 staff members. They help faculty to identify strengths and challenges in their teaching practice by analyzing information collected from various sources including, but not limited to, students, faculty, staff, observations, and relevant research. They work closely with faculty to integrate innovative technologies and pedagogical strategies to provide effective teaching and, in turn, to increase the quality of student learning at the Johns Hopkins Carey Business School. Specifically, Teaching & Learning at Carey provides the following training and services to faculty:

Faculty Development

- One-on-one consultations related to teaching and learning
- New faculty orientation and ongoing faculty development and pedagogy training
- In-person and online workshops addressing common topics and concerns related to teaching
- Online content providing relevant and practical information on teaching and learning

Instructional Technology

- Recommendations for new and emerging instructional technologies
- Assistance with implementing new technologies in the classroom
- Ongoing support and training for commonly used classroom technologies and learning management system, such as Canvas and Zoom

Instructional Design

- Design, development, and evaluation of face-to-face, remote-live and online courses
- Guidance on how to implement different instructional strategies, such as using learning activities as an alternative to traditional lectures
- Assistance with implementing best practices of instructional design, such as creating grading rubrics

Learning Assessment

- Collection and analysis of data to assess student learning outcomes and improve Carey's curriculum.
- Faculty training on Taskstream (the assessment tool used by Carey to track the school's progress)

In addition to training and services offered by Teaching & Learning at Carey, the Vice Dean for Faculty & Research regularly organizes workshops to provide

ongoing pedagogy training for faculty. Also, the Vice Dean works with Teaching & Learning at Carey to assign experienced faculty as mentors for less experienced faculty to continually improve face-to-face and distance education.

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

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

The Sheridan Libraries of Johns Hopkins University, including the Milton S. Eisenhower Library on the Homewood campus, comprise one of the nation's foremost research facilities. The libraries house more than 3.7 million print volumes and provide access to a massive digital repository of over 900,000 e-books and 171,000 print and electronic journal subscriptions. To ensure resources remain adequate for the proposed program, the university is currently undergoing a $100+ million modernization of the Eisenhower Library, scheduled for completion in late 2026, which will introduce a Digital Scholarship Lab and expanded collaborative study spaces. Students also benefit from 24/7 access to the Brody Learning Commons and the BorrowDirect network, which offers rapid access to 60 million additional volumes from peer Ivy Plus institutions. The library maintains an extensive website and provides remote access to hundreds of databases, while subject-specialist librarians offer instructional services and data management support. As the university remains committed to scholarly excellence, the existing institutional resources and continuous digital acquisitions are fully sufficient to meet the needs of the proposed program.

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

1. Provide an assurance that physical facilities, infrastructure and instruction equipment are adequate to initiate the program, particularly as related to spaces for classrooms, staff and faculty offices, and laboratories for studies in the technologies and sciences.

The Carey Business School's physical facilities, infrastructure and instruction equipment are not at capacity. The implementation of the proposed program will not cause the existing physical resources to be taxed beyond capacity.

2. Provide assurance and any appropriate evidence that the institution will ensure students enrolled in and faculty teaching in distance education will have adequate access to:

a) An institutional electronic mailing system, and

b) A learning management system that provides the necessary technological support for distance education

Students in the proposed program will share Carey's facilities and infrastructure.

The program students and faculty will have access to Carey's technological resources including electronic mailing and online distance education platforms.

L. Adequacy of Financial Resources with Documentation (as outlined in COMAR13B.02.03.14)

1. **Complete Table 1: Resources and Narrative Rationale. Provide finance data for the first five years of program implementation. Enter figures into each cell and provide a total for each year. Also provide a narrative rationale for each resource category. If resources have been or will be reallocated to support the proposed program, briefly discuss the sources of those funds.**

   Details concerning the resources and program expenses may be found in Appendix C.

2. **Complete Table 2: Program Expenditures and Narrative Rationale. Provide finance data for the first five years of program implementation. Enter figures into each cell and provide a total for each year. Also provide a narrative rationale for each expenditure category.**

   Details concerning program expenditures may be found in Appendix D.

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

1. **Discuss procedures for evaluating courses, faculty and student learning outcomes.**
2. **Explain how the institution will evaluate the proposed program's educational effectiveness, including assessments of student learning outcomes, student retention, student and faculty satisfaction, and cost-effectiveness.**

   On a day-to-day level, the program will be overseen by a combination of the Vice Dean for Education, Associate Dean for Academic Programs, Senior Director for Academics, Director for Career & Life Design, Director of MS Programs & Advising, and the Faculty Academic Program Director who together will be responsible for managing the program plans, monitoring students' progress in programs and ensuring that the students are in good academic standing according to the school's policies, as well as managing course offerings, conducting program evaluations, and working with the Curriculum Committee. The School's Curriculum Committee will be responsible for revision of the curriculum and recommendations for the required modifications with the course offerings and evaluation of the faculty expertise required for these course offerings and evaluating how students achieve the desired learning outcomes.

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

1. **Discuss how the proposed program addresses minority student access & success, and the institution's cultural diversity goals and initiatives.**

The Johns Hopkins University follows all stipulations of Title VI, Title IX, and Section 504. Accordingly, race is not considered in the administration of the school's educational programs. Nonetheless, in accordance with Johns Hopkins University's stated commitment to diversity, we believe educators should use aggressive and innovative recruitment and support processes to increase and sustain diversity. To that end, the following focused recruitment activities will be employed: (1) Involvement of students from culturally and linguistically diverse (CLD) backgrounds in the planning and delivery of information sessions and recruitment information; (2) Success stories about previous CLD graduates as part of the recruitment literature; (3) Focused information meetings that emphasize that the school provide mentoring opportunities and a range of student activities including student clubs that encourage participation of students from different cultural, academic and professional backgrounds.

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

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

Not Applicable

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

1. **Provide affirmation and any appropriate evidence that the institution is eligible to provide Distance Education.**

Johns Hopkins University is authorized by MSCHE and MHEC to offer distance education programs.

2. **Provide assurance and any appropriate evidence that the institution complies with the C-RAC guidelines, particularly as it relates to the proposed program.**

Johns Hopkins University adheres to the Council of Regional Accrediting Commissions' (C-RAC) Interregional Guidelines for Distance Education. The mission of the University is to educate its students and cultivate their capacity for life-long learning, to foster independent and original research, and to bring the benefits of discovery to the world. In turn, the Carey Business School supports business knowledge development and education through our own initiatives, innovations, and collaborative programs across the Johns Hopkins University. We create and share knowledge that shapes business practices while

educating business leaders who will grow productive economies and sustainable societies and are exemplary citizens.

APPENDIX A

Course List and Descriptions

Curriculum: 36 credits (with AOC); 30 credits (without AOC)

Business Foundations (6 credits)

BU.120.601. Business Communication. 2 Credits.
This course refines students' skills in business writing, public speaking, and interpersonal communication. Through analyses and practice of communication strategies adopted by successful business professionals, students learn to write clearly and concisely, deliver compelling presentations, and construct effective arguments.

BU.131.601. Business Leadership and Human Values. 2 Credits.
This foundational course develops students' capacities for understanding themselves as moral agents in a complex environment of competing values and often ambiguous ethical challenges inherent in business. Through a rigorously discursive exploration of human moral capabilities, value systems, ethical frameworks, and contemporary ethical dilemmas, students clarify their personal moral compass and develop a toolkit of knowledge and practices for sound ethical leadership in business and society.

BU.510.601. Statistical Analysis. 2 Credits.
Students learn statistical techniques for further study in business, economics, and finance. The course covers sampling distributions, probability, confidence intervals, hypothesis testing, regression and correlation, basic modeling, analysis of variance, and chi-square testing. The course emphasizes statistics to solve management problems. Case studies, spreadsheets, and Excel Add-in Data Analysis ToolPak computer software are used.

Functional Core (10 credits)

BU.350.620. AI and Digital Strategy*. 2 Credits.
This course equips future business leaders with the strategic mindset, practical frameworks, and foundational understanding to lead AI-powered transformation in their organizations. Spanning the evolution of digital technology to the frontiers of artificial intelligence, students will explore how AI is reshaping business models, value chains, and decision-making processes. The course begins with an overview of the AI imperative in today's economy, demystifying core technologies such as machine learning, large language models, and optimization. Participants will learn how to map AI capabilities to business functions, distinguish between automation and innovation, and understand why many AI initiatives fail to scale. As the course progresses, students will examine data as a strategic asset, evaluate AI infrastructure choices, and engage in comparative discussions of industry case studies. They will explore how AI creates competitive advantage across marketing, operations, finance, and HR while also navigating the risks of bias,

fairness, explainability, and emerging regulations.
**Denotes Functional Core courses that are also part of the proposed area of concentration.*

BU.520.710. AI Essentials for Business*. 2 Credits.
Artificial Intelligence (AI) is making substantial inroads into our everyday lives, demonstrating tremendous potential across numerous domains, including business and healthcare. This course aims to impart learners with crucial understanding of AI's core technologies, such as neural networks, deep learning, computer vision, natural language processing, and generative AI. We will also provide a succinct introduction to the burgeoning areas within AI. This course takes a hands-on, experiential learning approach, making use of the latest cloud computing platforms to provide practical understanding and application. Through this course, students will establish a robust comprehension of vital AI technologies, equipping themselves with the working knowledge required to harness these technologies in driving business growth and creating value.
**Denotes Functional Core courses that are also part of the proposed area of concentration.*

BU.330.705. Cyber Networks: Securing the Digital Frontiers. 2 Credits.
This course covers technological advancements in telecommunications and emerging wireless mobile systems, with emphasis on their business application: how the nature of these advances are driving business models and amplifying the strengths of today's firms; how businesses can select, integrate, and apply telecom and emerging mobile systems and cloud services into their business processes to maximize their value creation value capture, and value delivery. Business applications and contents delivered by mobile systems in public and private sectors – such as in healthcare services (mHealth), in financial and banking industries (mCommerce), mobile money and credits in social entrepreneurship will be covered. Analysis and selection of the needed telecom and mobile technologies, necessary to support business applications and processes, are examined. This course enables the students to gain an in-depth understanding of different telecom network systems, their developments and international standards. Finally, managerial, business critical, and technical issues such as technology evaluation, cost vs. performance trade-offs analysis, requirements analysis and vendor selection as they are needed by today's commercial and public organizations are covered.

BU.330.775. Machine Learning: Design and Deployment*. 2 Credits.
This comprehensive course aims to equip students with the essential knowledge and practical skills to excel in machine learning using Python. The topics covered include data preprocessing, feature selection, supervised machine learning, unsupervised machine learning, reinforcement learning, model training, evaluation, and optimization. This course takes a hands-on approach. By leveraging Python's extensive libraries such as scikit-learn, TensorFlow, and PyTorch, students will gain proficiency in implementing various machine learning algorithms and building predictive models. By the end of this course, students will have the confidence and proficiency to apply machine learning algorithms in real-world business scenarios. They will be equipped with the essential knowledge and practical skills to succeed as data scientists or data analysts.
**Denotes Functional Core courses that are also part of the proposed area of concentration.*

BU.330.735. Responsible AI*. 2 Credits.

In light of the accelerating and ubiquitous impact of artificial intelligence (AI) on all sectors of the economy, the significance of responsible AI, i.e., systems that conform to principles of safety, equity, fairness, etc. is paramount. This course is crafted to equip business leaders, AI practitioners, and policymakers with an in-depth understanding of the ethical, safety, and governance issues associated with AI technologies. Topics include ethical frameworks in AI, AI safety, the current regulatory landscape and governance roles, sources of bias in AI, transparency and accountability in AI systems, and real-world case studies in the finance, healthcare, marketing, and management domain. Upon completion, students will have acquired the essential knowledge and skills to formulate organizational strategies that integrate responsibility throughout the AI development lifecycle.

**Denotes Functional Core courses that are also part of the proposed area of concentration.*

Area of Concentration Courses (6 credits)

BU.330.760. Generative AI. 2 Credits.

This comprehensive course is designed to immerse students in the dynamic fields of generative AI. By exploring both the theoretical underpinnings and practical applications, students will gain an in-depth understanding of the most advanced AI models and their impact across various business sectors. Knowledge of deep learning is recommended but not required. Topics include encoder-decoder architectures, self-attention mechanism and transformer models, large language models, prompt engineering, customGPT, retrieval-augmented generation (RAG), agentic AI, generative adversarial networks (GANs) and diffusion, multimodality models, as well as the generative AI ecosystem, ethical issues, and its dark side. The course adopts a learning-by-doing approach. Students will utilize different tools and products, such as Amazon Web Services (AWS) and Python. The focus is on fostering awareness of generative AI technologies, building familiarity through assignments, and developing strategic thinking regarding their application in business.

BU.330.770. Database Management. 2 Credits.

Organizations and businesses increasingly rely on data-driven decision-making in today's data-driven world. As a result, database systems are central to most organizations' information systems strategies. This enforces that proficiency in database systems has become crucial at all levels of business. This course equips students with essential skills for working with databases, including understanding system capabilities and limitations, determining when to access data directly or through specialists, and effectively retrieving and using information. The course also provides an advantage by covering the design of new systems and applications, primarily focusing on Relational Database Management Systems (RDBMS). Students will apply what they have learned through lectures, homework, and SQL assignments.

BU.330.740. Large Scale Computing on the Cloud. 2 Credits.

The rapid growth of connected systems and digital platforms is generating massive volumes of data that power modern Artificial Intelligence (AI) applications. This course explores how

organizations design and manage **AI-ready data infrastructures**, focusing on distributed data systems, scalable computing, and data pipelines that enable machine learning and intelligent decision-making at scale. Through a hands-on, cloud-based approach using platforms such as AWS, students work with tools like Spark, Hive, and distributed storage systems to process and analyze large datasets. The course also introduces scalable data mining and machine learning techniques—including text analytics and recommendation systems—while emphasizing how data architecture supports AI-driven business value and strategic decision-making.

Elective Courses (14 credits)

BU.210.620. Accounting and Financial Reporting. 2 Credits.
This course emphasizes the vocabulary, methods, and processes by which business transactions are communicated. Topics include the accounting cycle; basic business transactions involving assets, liabilities, equity, revenues, and expenses; as well as preparation and understanding of financial statements, including balance sheets, statements of income, and cash flows.

BU.330.785. Advanced Database Management. 2 Credits.
This course covers advanced database technologies and their role in supporting modern data and AI applications. Students develop strong proficiency in advanced SQL for complex querying, data transformation, and analytical data preparation, along with procedural database programming using PL/SQL. The course also explores database design and management using enterprise tools, while introducing key concepts in data warehousing and the integration of analytical data environments. Building on traditional database foundations, the course expands into modern data architectures, comparing relational and NoSQL systems. Students are introduced to vector databases and vector search using Python, enabling similarity search and retrieval for AI applications such as recommendation systems and semantic search. Through hands-on exercises, the course emphasizes how databases evolve to support data-intensive and AI-driven use cases in contemporary organizations.

BU.520.750. AI-Driven Sequential Decision Making. 2 Credits.
This course will serve as a nexus between business analytics and cutting-edge artificial intelligence (AI) methodologies, which are increasingly vital in strategic business decision-making, encompassing areas from sales forecasting and inventory optimization to revenue management and supply chain analytics. There is a strong emphasis on the art, theory, and applications of Markov decision processes (MDPs) in modeling and optimizing large-scale business analytics problems in the presence of uncertainty. While MDPs can be applied to a broad range of decision analytics problems in practice, they often encounter the curse of dimensionality, which leads to exponential growth in the size of these models. To address this challenge, state-of-the-art AI methods, reinforcement learning (RL) and deep RL, are extensively discussed as solutions to overcome the curse of dimensionality. Additionally, if time permits, the course will present further recent advancements in AI-empowered decision analytics. This course will balance theory and practical applications of AI-empowered decision analytics, making it accessible to a diverse range of students and practitioners in fields like business, economics,

finance, and engineering. Each lecture is composed of three components: theory, case studies, and tools. These are designed to equip students with an understanding of the underlying art and theory of MDPs and RL, insights into real-world applications, and proficiency in Python programming. Additionally, through a final group project, students will gain hands-on experience in the entire process of predictive and prescriptive analytics in practice. The final outcomes will be showcased through presentations.
Prerequisite(s): BU.510.601 AND BU.520.601 AND some skill and experience in programming required.

BU.330.750. AI Development and Business Applications. 2 Credits.
This course covers the foundations of Artificial Intelligence (AI) technologies with emphasis on their business application. It will cover models of machine learning and pattern optimizations. This course will enable the student to gain a fundamental understanding of the foundations and applications of different AI technologies, analysis of the required AI algorithms and machine Learning technologies, necessary to support different business applications. It will require basic uses and applications of an AI tool's (IBM Watson, Python, or R,), however, it does include teaching software coding

BU.520.601 Business Analytics. 2 Credits
Business analytics makes extensive use of data and modeling to drive decision making in organizations. To become a leader in a data driven world, it is therefore critical to acquire hands-on experience of both data-related (statistical) and modelling skills. This class focuses on the latter: it introduces students to analytical frameworks used for decision making to make sense of the data. The methodologies covered include Linear and Integer Linear Programming, Decision Analysis, Foundations of utility and risk, and Monte Carlo Simulation. For each topic/methodology students are first exposed to the basic mechanics of the framework, and then apply the methodology to several business problems using software.
Prerequisite(s): BU.510.601 OR BU.920.621 OR PH.140.611 OR PH.140.621

BU.610.705. Crisis Management. 2 Credits.
In this course, we will examine the entire crisis management lifecycle – from prevention and preparedness through response, recovery, and mitigation – and consider the lifecycle's principles and practices. We will identify and use the entire crisis management toolkit to address challenges faced by managers when organizations face any crisis, due to either external factors outside the organization's control or internal control or strategic management failures. We will develop a complete crisis management plan, including tools and methods to identify potential crises, implement response and mitigation strategies to limit exposure, manage crisis response teams, and create communications to address stakeholder and public relation issues.
Prerequisite(s): BU.120.601 OR BU.930.610 OR BU.920.601

BU.330.710 Cryptos and Blockchain. 2 Credits

This course introduces students to one of the most exciting financial technological innovation in modern time -- the Blockchain. Students will gain a strong understanding of how blocks are created and linked together by cryptography. Within this decentralized peer-to-peer ledger system, students will examine in detail its construction, immutability, and security with a keen focus on the potential benefits and weaknesses of its fundamental structure as applied to businesses and organizations. Moreover, students will learn how companies are applying blockchain technologies in practice. We will review the first use-case of the blockchain – Bitcoins. Additionally, the course will chart the evolution of Bitcoins to Ethereum and the advantages of Ethereum's smart-contract framework. Additionally, we will dive into the growing alternative crypto-currencies markets. Initial Coin Offerings (ICOs) will be discussed with focus on their potential implications for destabilizing traditional funding sources. The regulatory challenges and current ICO best practices will be reviewed and analyzed. We will be discussing this industry from the perspective of the academic, entrepreneur, investor, and software engineer. The course will be delivered by standard lectures, presentations, case study discussions, assignments, guest speakers, programming exercises in Python, group presentations, and a final comprehensive exam.

BU.330.745. Cybersecurity and Privacy in Healhcare. 2 Credits.
Healthcare delivery depends on digital systems — electronic health records, connected medical devices, telehealth platforms, and AI/ML-enabled tools. These bring tremendous benefits, but also significant risk to patient data privacy, system security, trust, and regulatory compliance. This course focuses on the intersection of cybersecurity, privacy, and artificial intelligence in healthcare. We will analyze real-world cyber incidents, AI/ML device vulnerabilities, regulatory and ethical frameworks, privacy-by-design, and governance strategies to protect health systems and patient data.

BU.510.650. Data Analytics. 2 Credits.
This course prepares students to gather, describe, and analyze data, using advanced statistical tools to support operations, risk management, and responses to disruptions. Analysis is done targeting economic and financial decisions in complex systems that involve multiple partners. Topics include probability, statistics, hypothesis testing, regression, clustering, decision trees, and forecasting.
Prerequisite(s): BU.510.601 OR BU.914.610 OR BU.920.621 OR PH.140.611 OR PH.140.621

BU.330.780. Data Science and Business Intelligence. 2 Credits.
This course introduces a set of fundamental principles and a framework that guide extracting business insights from data to generate competitive advantage. We will discuss how the ubiquity and massiveness of digital data and the application of business intelligence have changed competitive landscapes. The business intelligence techniques that will be covered in this course include data visualization, online social network and sentiment analysis (for user-generated content), and predictive analytics (e.g. classification and clustering), which are widely used in the real world. The topics and cases discussed in this course cover a wide range of fields, including marketing, finance, healthcare, and more. This course is not a statistics or computer

programming course. The emphasis will be on applications and interpretations of the results from business intelligence techniques for making business decisions. Students will apply these techniques in hands-on exercises as we analyze strategic concepts, which will allow students to deepen their understanding of the fundamentals and the applicability of business intelligence.

BU.520.650. Data Visualization. 2 Credits.
This project-based course prepares students to make informed decisions based on data using descriptive-analytical techniques. Students will view examples from real-world business cases in which data visualization helps the decision makers to visualize, discover, and decode the hidden information from within the data, and to exploit such information for making educated decisions. We will use Tableau to import, clean, transform, analyze, visualize, and present data. As the course progresses, students will learn to work with Tableau features such as data connectors, data blending, data preparation, interactive dashboards, and calculations and functions. During the eight weeks of the course, students will collaborate with each other in small teams to analyze real-world datasets as well as design, build, and deliver interactive visualizations and dashboards.

BU.300.700. Developing Internet Systems and Services. 2 Credits.
The subject of this course is the development of services that are delivered over the Internet: system feature specification, design, user interface, implementation, and the role of development environments. Increasingly the delivery of services and user access to them is driven by considerations of third-party development, user platform specifications, security, privacy, and performance. Much of the focus of contemporary development is on mobile apps, reflecting the changing modes of behavior and expectations of users for instant availability of highly special-purpose and location-aware applications. This course will consider these trends and their implications for design and development.

BU.330.755 Digital Health and AI-Enabled Device Regulation in the U.S.
Artificial Intelligence is revolutionizing healthcare, powering innovations that enhance patient care and streamline clinical practice. From AI-driven diagnostics that catch diseases early to wearable devices monitoring health in real time, telehealth platforms expanding access, and algorithms personalizing treatments, these tools are transforming lives. To unlock their potential, AI solutions must meet strict regulatory standards, with the FDA setting the benchmark for safety and efficacy in the U.S. This course is designed for healthcare professionals, regulatory specialists, and innovators eager to bring AI to market with precision and confidence. You'll master the FDA's approval processes—classifying technologies, crafting compelling submissions, and ensuring long-term compliance—through immersive workshops, real-world case studies, and guidance from industry experts. The course also covers protecting patient privacy, aligning with global standards, and addressing ethical challenges like equity and trust.

BU.610.740. Forecasting Models for Business Intelligence. 2 Credits.

Students learn advanced statistical models and state-of-the-art machine learning methods for modeling and analyzing time series data with applications in business, economics, and finance. Time series analysis is a methodology to exploit historical data generated by real-world systems to forecast the future values of these systems. This course will balance theory and practical applications of time series modeling and analysis at a level accessible to a wide variety of students and practitioners in business, economics, finance, engineering, and quantitative social sciences. Emphasis is placed on the development and choice of appropriate models, how to estimate and test model parameters, and forecast future values for making better business decisions. Furthermore, challenges in dealing with big time series data problems are discussed and recent advances in overcoming their practical issues are presented. Each lecture consists of three components including theory, case studies, and tools, to train students with the underlying theory of time series models, real-world applications, and Python programming practices. Moreover, students will experience the whole process of predictive analytics in practice through a final group project, by finding appropriate real-world time series data, modeling and analyzing the data, making predictions, and providing managerial decisions. The final outcomes will be showcased through poster presentations.
Prerequisite(s): BU.510.601

BU.883.702. Health Information Technology. 2 Credits.
This course examines health care organizations from the perspective of managing the information systems that exist within the enterprise. Identifying the clinical and health care delivery processes and how they relate to information systems is the main focus. The intent of the course is to identify key issues confronting the management of today's health care information systems and health care organizations, examine their causes, and develop reasonable solutions to these issues. Specific federal regulations, vendor solutions, and financial implications as they relate to health care information systems are also examined.

BU.330.765. Human-AI Fusion. 2 Credits.
This cutting-edge course is designed for professionals, technologists, and leaders who are eager to harness the combined power of human creativity and artificial intelligence. The course offers an in-depth exploration of how AI can augment human capabilities, enhance decision-making processes, and transform industries. Topics covered include the comparison and combination of human and AI capabilities, AI as a service to human users, augmented intelligence, brain-computer interface, human-AI teaming, autonomous intelligence, social AI, and the business of human-AI fusion. Upon completion, students will have acquired the essential knowledge and skills to develop strategies for human-AI collaboration, focusing on roles, tasks, and processes that maximize the strengths of both.

BU.350.700. Introduction to Java for Business. 2 Credits.
This course is designed to enable students without a background in software development to become proficient in solving problems through the use of computer programming. The Java programming language is used as the implementation language for this course. Java is free, and instructions for how to install Java on your computer are contained in the materials in the first-

course module. The course begins by introducing students to basic computing concepts and Java language syntax using structured and procedural programming approaches and then proceeds to cover object-oriented programming concepts and techniques. Throughout the course, students will be exposed to and are expected to follow programming best practices. There will be textbook reading assignments each week and occasional supplemental readings, which will be posted as part of the course materials. There will also be weekly programming assignments, several mini-projects throughout the semester, and a final exam.

BU.300.620. Managing Complex Projects. 2 Credits.
This course aims to equip you with effective techniques, methods, and practices for defining, scoping, and planning a project, and then managing it to successful completion. Special areas of emphasis in the course are driven by practical experiences with large and complex projects frequently being late, over budget, and failing to meet specifications. We will pay particular attention to understanding project complexity, risk, and uncertainty so that you are prepared to address these challenges to success. You will gain experience using a leading project management software package.

BU.410.620. Marketing Management. 2 Credits.
This course covers principles of market-driven managerial decision making that determine competitiveness in dynamic consumer and organizational markets. Particular areas of emphasis include industry analyses, dynamics of competition, market segmentation, target marketing, channels of distribution, and product and pricing decisions. In-depth analytical skills are developed through case analyses, class discussions, and applied projects.

BU.510.615. Python for Data Analysis. 2 Credits.
This is an introductory course in using Python for analytical purposes. Python (www.Python.org) is a general-purpose cross-platform programming language that has a strong presence in the diverse areas of analytics. This course will provide a pragmatic and hands-on introduction to the fundamental aspects of Python programming language with a focus on data exploration, analysis, and driving insights from data. Additionally, towards the end of the semester, students will be exposed to using Python for introductory optimization and machine learning. Class time will be used for short overview lectures followed by analysis of worked-out examples and in-class coding exercises. As the course progresses, students will learn to work with libraries such as statistics, random, numpy, scipy, pandas, matplotlib, seaborn, and plotly. By the end of this course, students should be able to start writing useful Python programs on their own or to understand and modify Python code written by others. Additionally, they should have a solid understanding of forecasting using time series. This course is an introductory Python course for students with a working statistical analysis knowledge. It does not assume any prior coding experience. If you have an extensive knowledge of Python, you might experience significant repetition. Starting the 3rd week, students will be exposed to basic time series analysis. Not only does time series analysis have a strong presence in all areas of business; it also provides a rich context for practicing Python's data handling capabilities (from applying a regression model for forecasting to data aggregation, dataset merging, slicing, and grouping). Time series analysis

theory will be covered via a pre-recorded video; students are required to watch the videos prior to each class. The instructor will briefly review this theory at the beginning of each lecture; the majority of the lecture will be spent on learning and practicing Python's capabilities.

BU.610.615. Simulation for Business Applications. 2 Credits.
This course provides a foundation for applying Simulation in managerial decision making in all areas of an organization. These decision areas could be in both predictive and prescriptive analytics area. Students learn to build quantitative models, in the presence/absence of reliable data, for quantifying and understanding impact of uncertain future on performance metrics under consideration. Simulation constructs probabilistic estimates of quantities of interest such as net present value of an investment, rate of a disease spread under a certain policy, or cost and time of a mega-project. This provides a very insightful information for decision makers to evaluate risks involved and make decisions accordingly. Results of Monte Carlo Simulation could be used for short-term and strategic planning of an organization. @Risk software package will be used for this part of the course. Additionally, in real world complex problems, where closed-form solutions, offered by classical mostly deterministic optimization methodologies, are not readily available/reachable, Simulation enables decision makers to see the distribution of all possible outcomes as a function of underlying uncertainties and using simulation-optimization methodology to make the best decision in the presence of uncertainty. Students will learn RiskOptimizer for this part of the course.
Prerequisite(s): BU.520.601 OR BU.232.620 OR BU.920.711 OR BU.920.721

BU.450.765. Social Media Analytics. 2 Credits.
The rapid growth of social media has given the mass consumers a powerful tool to create knowledge and propagate opinions. At the same time, social media has created an unprecedented opportunity for companies to engage real-time interactions with consumers. In addition, the size and richness of social media data has provided companies an unusually deep reservoir of consumer insights to transform the business and marketing operations. The social media analytics course will enable students to grasp the analytics tools to leverage social media data. The course will introduce tools such as engagement analytics, sentiment analysis, topic modeling, social network analysis, identification of influencers and evaluation of social media strategy. It will involve lots of hands-on exercises.
Prerequisite(s): (BU.510.601 OR BU.914.610
OR BU.920.621 OR PH.140.611 OR PH.140.621) AND (BU.410.620 OR BU.911.610
OR BU.920.605)

AI in the Health Care Ecosystem (New Course). 2 Credits.
This course examines how artificial intelligence is reshaping healthcare delivery, financing, life sciences, and patient engagement across a complex, highly regulated ecosystem. Rather than focusing on algorithms, the course emphasizes business value creation, ecosystem coordination, data strategy, governance, and responsible AI deployment in healthcare. Students will analyze how AI is applied by providers, payers, life sciences firms, digital health startups, and public sector actors—and why many AI initiatives fail to scale. Through case discussions, executive-

style memos, and a final ecosystem strategy project, students will learn how to evaluate AI opportunities, assess data readiness, manage risk, and design scalable AI strategies that align with healthcare's operational, ethical, and regulatory realities.

Agentic AI Practicum (New Course). 2 Credits.
This course bridges the critical gap between understanding Generative AI literacy and building production-grade system architecture, complementing existing coursework by moving beyond simple prompting to the engineering of autonomous workflows and agents. While current offerings introduce students to the capabilities of LLMs, this course addresses the urgent industry need for reliable, governed AI systems, directly tackling the widely reported failure of 95% of GenAI pilots. By equipping students with the technical skills to orchestrate agents and the strategic insight to manage their lifecycle, it empowers graduates to build and lead high-impact digital transformation initiatives that turn AI into sustainable business value.

APPENDIX B

Faculty Course Information

Course	Type	Faculty
Business Communication	Business Foundation	Steven D. Cohen
Business Leadership and Human Values	Business Foundation	Lindsay Thompson
Statistical Analysis	Business Foundation	Nazli Turken
AI Essentials for Business	Functional Core	Gordon Gao
Cyber Networks: Security the Digital Frontiers	Functional Core	Reza Djavanshir, Javad Abed
AI and Digital Strategy	Functional Core	Andrew Burton-Jones
Responsible AI	Functional Core	Ritu Agarwal
Machine Learning: Design and Deployment	Functional Core	Minghong Xu
Generative AI	AOC Course	Harang Ju
Database Management	AOC Course	Changmi Jung
Large Scale Computing on the Cloud	AOC Course	Javad Abed
Accounting and Financial Reporting	Elective	Xian Sun
Advanced Database Management	Elective	Changmi Jung
Agentic AI Practicum	Elective	Harang Ju
AI-Driven Sequential Decision Making	Elective	Ali Eshragh
AI: Development and Business Applications	Elective	G. Reza Djavanshir
Business Analytics	Elective	Evgeny Kagan
Crisis Management	Elective	Jon Links
Cybersecurity and Privacy in Healthcare	Elective	Javad Abed
Data Analytics	Elective	Ruxian Wang
Data Science and Business Intelligence	Elective	Chamgmi Jung
Data Visualization	Elective	Mohammad Ali Alamdar Yazdi

Developing Internet Systems and Services	Elective	Joe Demasco
Digital Health and AI-Enabled Device Regulation in the U.S.	Elective	Javad Abed
Forecasting Models for Business Intelligence	Elective	Ali Eshragh
Health Information Technology	Elective	Atiye Erol
Human-AI Fusion	Elective	Weiguang Wei
Introduction to Java for Business	Elective	Joe Demasco
IT Consulting Lab Practicum	Elective	Javad Abed
Managing Complex Projects	Elective	G. Reza Djavanshir
Marketing Management	Elective	Andrew Ching
Python for Data Analysis	Elective	Mohammad Ali Alamdar Yazdi
Simulation for Business Applications	Elective	Ali Eshragh
Social Media Analytics	Elective	Tao Chen

Faculty Profiles

Javad Abed, PhD (Business Administration - Information Systems, Virginia Commonwealth University), MSc (Information Systems, Middle East Technical University), BSc (Information Technology Engineering, University of Tabriz). Assistant Professor of Practice, Johns Hopkins University Carey Business School. Courses instructed: Cybersecurity, Digital Transformation of Business, Artificial Intelligence and Security, Cloud Computing, Cybersecurity Risk Management, IT Consulting Lab, Cybersecurity Compliance. (Full-time)

Ritu Agarwal, PhD (Information Systems, Syracuse University), MS (Computer Science, Syracuse University), MBA (Indian Institute of Management, Calcutta), BA (Mathematics, St. Stephen's College, Delhi University). Wm. Polk Carey Distinguished Professor, Johns Hopkins University Carey Business School. Courses instructed: Information Systems, Database Management, Decision Support Systems, Digital Transformation, Artificial Intelligence Applications. (Full-time)

Mohammad Ali Alamdar Yazdi, PhD (Industrial and Systems Engineering, Auburn University), MSc (Computer Science and Software Engineering, Auburn University), MEng (Industrial and Systems Engineering, Auburn University). Associate Professor of Practice, Johns Hopkins University Carey Business School. Courses instructed: Data Visualization, Statistical Analysis, Artificial Intelligence, Machine Learning. (Full-time)

Tao Chen, PhD (Marketing, Carnegie Mellon University), MSIA (Marketing, Carnegie Mellon University), MS (Economics, Shanghai Jiao Tong University), BE (Economics and Electrical Engineering, Shanghai Jiao Tong University). Associate Professor of Practice, Johns Hopkins University Carey Business School. Courses instructed: Marketing Research, Social Media Analytics, New Product Development, Marketing Management, Statistical Analysis. (Full-time)

Andrew Ching, PhD (Economics, University of Minnesota), MA (Economics, University of Minnesota; Economics, University of British Columbia), BA (Economics, Australian National University). Professor, Johns Hopkins University Carey Business School. Courses instructed: Marketing Management, Customer Analytics, Health Marketing and Access. (Full-time)

Steven D. Cohen, PhD (Communication, University of Maryland), MPP (Harvard University), BA (Business Administration, University of Florida). Professor, Johns Hopkins University Carey Business School. Courses instructed: Business Communication, Effective Communication, Business Writing, Effective Workplace Presentations, Persuasive Communication, Public Speaking for Professionals. (Full-time)

Tinglong Dai, PhD (Operations Management/Robotics, Carnegie Mellon University), MS (Industrial Administration, Carnegie Mellon University), M.Phil (Industrial Engineering & Engineering Management, Hong Kong University of Science & Technology). Bernard T. Ferrari Professor, Johns Hopkins University Carey Business School. Courses instructed: Artificial Intelligence, Operations Management, Contracting: Incentive Design and Analytics, Supply and Service Contracting. (Full-time)

Joseph Demasco, MS (Operations Research, Cornell University), BS (Systems Engineering, Polytechnic Institute of New York University). [Doctoral Study in Management Science, Wharton School, University of Pennsylvania]. Senior Lecturer, Johns Hopkins University Carey Business School. Courses instructed: Foundations of Software Engineering, Object-Oriented Analysis and Design, Object-Oriented Programming with C++. (Full-time)

G. Reza Djavanshir, ScD (Systems Engineering, George Washington University), MS (Industrial Engineering & O.R., George Washington University), BSc (Mathematical Sciences, State University of Azarabadegan-Tabriz). Professor of Practice, Johns Hopkins University Carey Business School. Courses instructed: Artificial Intelligence, Business Analytics, Managing Complex Projects, IT Development and Global-sourcing Strategies. (Full-time)

Atiye Cansu Erol, PhD (Operations, Information and Decisions, University of Pennsylvania), BS (Industrial Engineering, Koc University). Assistant Professor, Johns Hopkins University Carey Business School. Courses instructed: Information Systems, Health Care Management (Health IT focusing on vulnerable populations). (Full-time)

Ali Eshragh, PhD (Stochastic Operations Research, University of South Australia), MS (Industrial Engineering, Sharif University of Technology), BS (Industrial Engineering, Sharif University of Technology). Associate Professor, Johns Hopkins University Carey Business School. Courses instructed: Forecasting Models for Business Intelligence, Statistical Analysis, Business Analytics, Simulation for Business Applications. (Full-time)

Ali Fattahi, PhD (Decisions, Operations & Technology Management, University of California, Los Angeles), MS (Industrial Engineering, Koc University), BS (Industrial Engineering, Sharif University). Assistant Professor, Johns Hopkins University Carey Business School. Courses instructed: Advanced Business Analytics, Innovation Field Project. (Full-time)

Guodong (Gordon) Gao, PhD (Wharton School, University of Pennsylvania), MBA (Tinghua-MIT Sloan), BE (Electric Engineering, Tsinghua University). Professor, Johns Hopkins University Carey Business School. Courses instructed: Information Systems, Health IT, AI in Healthcare. (Full-time)

Changmi Jung, PhD (Healthcare Information Systems, Carnegie Mellon University), MS (Information Systems Management, Carnegie Mellon University), BS (Statistics, Ewha Womans University). Associate Professor of Practice, Johns Hopkins University Carey Business School. Courses instructed: Healthcare Information Systems, Digital Innovations in Healthcare. (Full-time)

Evgeny Kagan, PhD (Operations Management, University of Michigan), MPhil (Logistics and Information Systems, Erasmus University), BS (Business Administration, Mannheim University). Associate Professor, Johns Hopkins University Carey Business School. Courses instructed: Business Analytics. (Full-time)

Jonathan Links, PhD (Environmental Health Sciences, Johns Hopkins University), BA (Medical Physics, University of California - Berkeley). Professor, Johns Hopkins University

Carey Business School. Courses instructed: Public Health Preparedness, Disaster Mental Health, Risk and Compliance. (Full-time)

Xian Sun, PhD (Finance, Rensselaer Polytechnic Institute), MBA (Finance, Rensselaer Polytechnic Institute), BA (English and International Finance, Shanghai Jiao Tong University). Professor of Practice, Johns Hopkins University Carey Business School. Courses instructed: Accounting and Financial Reporting, Emerging Markets, Corporate Finance, Financial Intermediation and Risk Management. (Full-time)

Lindsay Thompson, PhD (Classics/Anthropology, Johns Hopkins University), MA (Education, University of St. Thomas), BA (French, University of Minnesota). Professor of Practice, Johns Hopkins University Carey Business School. Courses instructed: Business Leadership and Human Values, CityLab Toolkit, Health Policy Design and Implementation, Real Estate and Infrastructure Capstone. (Full-time)

Nazli Turken, PhD (Operations Management, University of Florida), MS (Industrial and Systems Engineering, University of Florida), BS (Industrial Engineering, Pennsylvania State University). Associate Professor of Practice, Johns Hopkins University Carey Business School. Courses instructed: Statistical Analysis, Sustainable Supply Chains, Advanced Business Analytics, Business Analytics, Service Operations Management. (Full-time)

Ruxian Wang, PhD (Operations Research, Columbia University), M.Phil (Operations Research, Columbia University), MS (Applied Mathematics, Nanjing University), BS (Applied Mathematics, Nanjing University). Professor, Johns Hopkins University Carey Business School. Courses instructed: Operations Management, Data Analytics, Revenue Management and Pricing, Discrete Choice Models. (Full-time)

Weiguang Wang, PhD (Information Systems, University of Maryland), MS (Management Science, Chinese Academy of Sciences), BS (Management Science, University of Science and Technology of China). Assistant Professor, Johns Hopkins University Carey Business School. Courses instructed: Information Systems, Artificial Intelligence in Healthcare. (Full-time)

Minghong Xu, PhD (Management Information Systems, University of Illinois - Chicago), MS (Revenue and Risk Management, Columbia University), BS (Computer Science, University College - Dublin; Software Engineering, Fudan University). Associate Professor of Practice, Johns Hopkins University Carey Business School. Courses instructed: Machine Learning, Deep Learning, Generative AI, Cloud Computing, Python for Data Analysis, Information Systems. (Full-time)

APPENDIX C

Program Resources

Resource Categories	2027-28	2028-29	2029-30	2030-31	2031-32
1. Reallocated Funds	$0	$0	$0	$0	$0
2. Tuition/Fee Revenue (c + g below)	$10,065,220	$10,367,177	$10,678,192	$10,998,538	$11,328,494
a. Number of F/T Students	110	110	110	110	110
b. Annual Tuition/Fee Rate	$91,502	$94,247	$97,074	$99,987	$102,986
c. Total F/T Revenue (a x b)	$10,065,220	$10,367,177	$10,678,192	$10,998,538	$11,328,494
d. Number of P/T Students	10	10	10	10	10
e. Credit Hour Rate	$2,099	$2,162	$2,227	$2,294	$2,362
f. Annual Credit Hours	0	0	0	0	0
g. Total P/T Revenue (d x e x f)	$0	$0	$0	$0	$0
3. Grants, Contracts & Other External Sources	$0	$0	$0	$0	$0
4. Other Sources	$0	$0	$0	$0	$0
TOTAL (Add 1 – 4)	**$10,065,220**	**$10,367,177**	**$10,678,192**	**$10,998,538**	**$11,328,494**

Resources narrative

1. Reallocated Funds. No funds will be reallocated from existing campus resources.
2. Tuition/Fee Revenue. Tuition revenue is the product of the incremental number of F/T students and annual tuition rate. In addition, each new student is charged a $1,000 matriculation fee upon entering the program. For AY 2027-28, tuition rate is anticipated to be $91,502. It is anticipated that this rate will increase by 3% per year through AY 2031-32. The average student will complete 36 credit hours (18 courses) per year.
3. Grants and Contracts. There are no grants or contracts that will provide resources for this program.
4. Other sources: The program does not expect any funding from other sources.

APPENDIX D

Program Expenditures

Expenditure Categories	2027-28	2028-29	2029-30	2030-31	2031-32
1. Faculty (b + c below)	$1,688,400	$1,722,168	$1,756,611	$1,791,744	$1,827,578
a. # Sections offered	18	18	18	18	18
b. Total Salary	$1,260,000	$1,285,200	$1,310,904	$1,337,122	$1,363,865
c. Total Benefits	$428,400	$436,968	$445,707	$454,622	$463,714
2. Admin. Staff (b + c below)	$100,500	$102,510	$104,560	$106,651	$108,784
a. # FTE	1	1	1	1	1
b. Total Salary	$75,000	$76,500	$78,030	$79,591	$81,182
c. Total Benefits	$25,500	$26,010	$26,530	$27,061	$27,602
3. Support Staff (b+c below)	$0	$0	$0	$0	$0
a. # FTE	0	0	0	0	0
b. Total Salary	$0	$0	$0	$0	$0
c. Total Benefits	$0	$0	$0	$0	$0
4. Equipment	$10,000	$10,000	$10,000	$10,000	$10,000
5. Library	$135,000	$135,000	$135,000	$135,000	$135,000
6. New or Renovated Space	$0	$0	$0	$0	$0
7. Other Expenses	$150,000	$150,000	$150,000	$150,000	$150,000
TOTAL (Add 1 – 7)	**$2,083,900**	**$2,119,678**	**$2,156,172**	**$2,193,395**	**$2,231,363**

Expenses narrative

1. Faculty. The number of incremental sections is computed from the incremental student body, with each student taking 18 sections per year. The Carey School's average class size of 30 determines the number of incremental sections that will be required. Faculty cost per section is computed based on the % of faculty salary attributed to teaching multiplied by total faculty base salaries and then divided by the total number of sections to be taught. This number increases by 3% per year. Benefits are added to the salary cost using the Johns Hopkins standard multiplier of 34% in FY28.
2. Administrative Staff. This includes salaries for administrative staff members, including academic advisors, and career advisors, increasing by 2% per year.
3. Support Staff. This includes salaries for IT Help desk, technical staff, and administrative support staff members, increasing 2% per year.
4. Equipment. No anticipated expenditures for equipment; only technical support.
5. Library. The school pays for library services at an average rate of $1500 per student. This rate is expected to remain constant over this planning horizon.

New or Renovated Space. No new or renovated space will be needed.