UNIVERSITY SYSTEM of MARYLAND

BOARD OF REGENTS

SUMMARY OF ITEM FOR ACTION, INFORMATION, OR DISCUSSION

TOPIC: University of Maryland, Baltimore: Master of Science in Health and Social Innovation

COMMITTEE: Education Policy and Student Life

DATE OF COMMITTEE MEETING: Tuesday, November 14, 2017

SUMMARY: The proposed Master of Science in Health and Social Innovation is a unique departure from traditional innovation and entrepreneurship programs, because it focuses on health and social issues and targets audiences in healthcare, technology transfer, science, research, social work, community engagement, city planning, government, or private and non-profit organizations. Courses in the proposed program will focus primarily on the principles of innovation, entrepreneurship, and design-thinking to solve complex health and social challenges.

There is a critical and compelling need for such a program to equip professionals with innovative and interdisciplinary skills to improve human conditions in Baltimore and the region. National data purports that top employers posted 6,296 jobs during December 2015 to November 2016 for master's-level neighborhood innovation professionals to challenge systems of inequality, develop innovative health and social initiatives, and create jobs through economic development from new ventures (Sell & Anderson, 2017). Baltimore is truly a city with tremendous health and social challenges. In 2016, nearly a quarter of the city's total population and 34% of children were below the poverty line (Jacob France Institute, 2017), and a crime rate much higher than the national average with 344 homicides in 2015 (Baltimore Homicides, 2017). This program will train students to examine and challenge systems of inequality, develop innovative initiatives and promote entrepreneurship to help improve Baltimore, the nation and the global economy. UMB is uniquely qualified to prepare and deliver the proposed curriculum.

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

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

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

COMMITTEE RECOMMENDATION:	DATE: November 14, 2017
BOARD ACTION:	DATE:

SUBMITTED BY: Joann A. Boughman 301-445-1992 jboughman@usmd.edu

MARYLAND HIGHER EDUCATION COMMMISSION
ACADEMIC PROGRAM PROPOSAL

PROPOSAL FOR:

X **NEW INSTRUCTIONAL PROGRAM**

____ **SUBSTANTIAL EXPANSION/MAJOR MODIFICATION**

____ **COOPERATIVE DEGREE PROGRAM**

X **WITHIN EXISTING RESOURCES or** ____ **REQUIRING NEW RESOURCES**

(For each proposed program, attach a separate cover page. For example, two cover pages would accompany a proposal for a degree program and a certificate program.)

University of Maryland , Baltimore (UMB)
Institution Submitting Proposal

Fall 2018
Projected Implementation Date

Master of Science
Award to be Offered

M.S. in Health and Social Innovation
Title of Proposed Program

Suggested HEGIS Code

26.1201
Suggested CIP Code

UMB Graduate School
Department of Proposed Program

Roger J. Ward, EdD, JD, MPA
Name of Department Head

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Bruce E. Jarrell, MD, FACS
Senior Vice President/Chief Academic & Research Officer

Date
Date Endorsed/Approved by Governing Board

UNIVERSITY OF MARYLAND, BALTIMORE (UMB) GRADUATE SCHOOL
Proposal for Master of Science in Health and Social Innovation

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A. Centrality to institutional mission statement and planning priorities

1. Program description and alignment with mission

The University of Maryland, Baltimore (UMB) Graduate School is pleased to submit a proposal for a new Master of Science in Health and Social Innovation. The master's degree will require students to take 36 credits of coursework for successful completion. Courses in the programs will be taught predominately face-to-face and in hybrid formats. The proposed degree program will commence in beginning in the fall of 2018.

With this degree program, we intend to create an opportunity for students to explore principles of innovation, entrepreneurship, and design-thinking to solve complex health and social challenges. Students will demonstrate their ability to develop and execute a project that leads to a social or health innovation, iterate and test their ideas, and build strong professional relationships with faculty, community practitioners and entrepreneurs, student colleagues, and mentors. After the program, students will be equipped to launch their own start-ups, examine and impact innovation within existing organizations, and understand how change can be realized by examining policy and regulations. Our students will learn a wide range of skills that will allow them to be innovative leaders, making a difference that will positively influence many generations to come.

This program will be housed in the upcoming Graduate Research Innovation District, ("the Grid") the University's newest innovation space, launching in fall of 2017. The Grid is a space designed to support entrepreneurial ventures through education, early stage funding, and programming. Here, members of the UMB community will be able to mix with startup companies, collaborate with UM Ventures staff working to launch new companies, and engage with experts with office hours including UMB entrepreneurs in residence, business advisory services by Maryland Small Business Development Center, and the University of Maryland Business and Intellectual Property Law Clinic. The Grid is an innovation space where students, entrepreneurs, faculty, and staff will connect to bring innovative health and social impact ideas to life. The Grid is strategically co-located with the University of Maryland Ventures at the University's BioPark.

There are three concentrations within the degree that are also stackable Post-Baccalaureate Certificates (PBCs). These concentrations and PBCs are Health Science, User Experience, and Biomedical Entrepreneurship. Depending on their concentration, students will be equipped to tackle different health and social challenges with a core curriculum steeped in methods of design thinking, principles of business, and market research.

The concentration in Health Science will educate students to engage with and respond to civic, social, environmental, medical, and economic challenges at the local, national and global levels. Students will learn how to search, interpret and evaluate the medical and public health literature; including qualitative and quantitative studies. They will examine and critically appraise healthcare delivery systems and health policy at the local and global level; discuss and inform health care delivery, patient safety, quality, and risk management; and articulate and explain principles and practice of medical and public health ethics. Students will take 12 credits in the Health Science Curriculum listed in Appendix B.

The User Experience concentration is a collaboration with the University of Baltimore. User experience or UX, encompasses all aspects of the end-user's interaction with the company, its services, and its products. Through the program students will learn how to use research and principles from design, psychology, business, and computing to create technology that not only solves problems, but also is intuitive, functional, and enjoyable to use. Students will learn how to promote a user experience that balances the goals of businesses, the demands of content and the needs of users, become familiar with requirements analysis,

information design and delivery, usability testing and Web-based application development, and develop, design, and produce a range of electronic information resources.

The concentration in Biomedical Entrepreneurship is a partnership with the Institute of Marine and Environmental Technology (IMET), UM Ventures, and the University of Maryland School of Medicine. The concentration and PBC provides students with an opportunity to learn technology development and commercialization skills in the real world environment that combines theory and practice. Students experience the entire spectrum of the commercialization process: taking ideas from their life sciences bench research through invention, product development, technical and market feasibility analysis, intellectual property acquisition and protection, business design, and venture funding, while experiencing what is required to become a stakeholder in a new technology venture.

In addition to traditional coursework, students will be able to participate in Impact Labs hosted in the Grid. Impact Labs are co-curricular offerings bundled for academic credit. These programs are designed around themes of innovation and entrepreneurship including concepts such as customer discovery, design-thinking, intellectual property, business model generation, the art of the pitch, social policy, determinants of public health, and regulatory issues. Students will select topics that align with their capstone project. Impact Labs will help students deeply examine their topics through the lens and context of entrepreneurship and design thinking.

The proposed degree is consistent with the mission of the University of Maryland, Baltimore. UMB is the state's first public academic health and law university devoted to excellence in professional and graduate education, research, public service and patient care. UMB is committed to ensuring that the knowledge we generate through our degree programs will provide maximum benefit to society. Through this new program, we will continue to focus on our mission while providing our students with the tools to make a positive impact on communities in the Baltimore area and beyond.

The program is designed for students with related work experience in healthcare, tech transfer, technology, science, basic and translational biomedical research, journalism, social work, community engagement, city planning, and those who have worked in government, private, and non-profit organizations. The proposed degree program will emphasize concepts, practices and skills that professionals need to be effective in a wide range of organizations.

2. Alignment with institutional strategic goals

The proposed master's degree program will advance UMB's mission "to improve the human condition and serve the public good of Maryland and society at-large through education, research, clinical care, and service." Additionally, the certificate programs contribute to the fulfillment of related strategic goals for UMB, in a number of significant ways:

- One of the university's key strategic themes is to "excel at interdisciplinary research and interprofessional education, clinical care and practice, and public service". This master's degree directly responds to this theme by developing areas of learning which are focused on interdisciplinary research and interprofessional education.
- The university has recognized the important role the Graduate School plays in creating accessible education for individuals already engaged in their professions and developing productive discovery-to-delivery research model that serves as a catalyst for economic development.

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

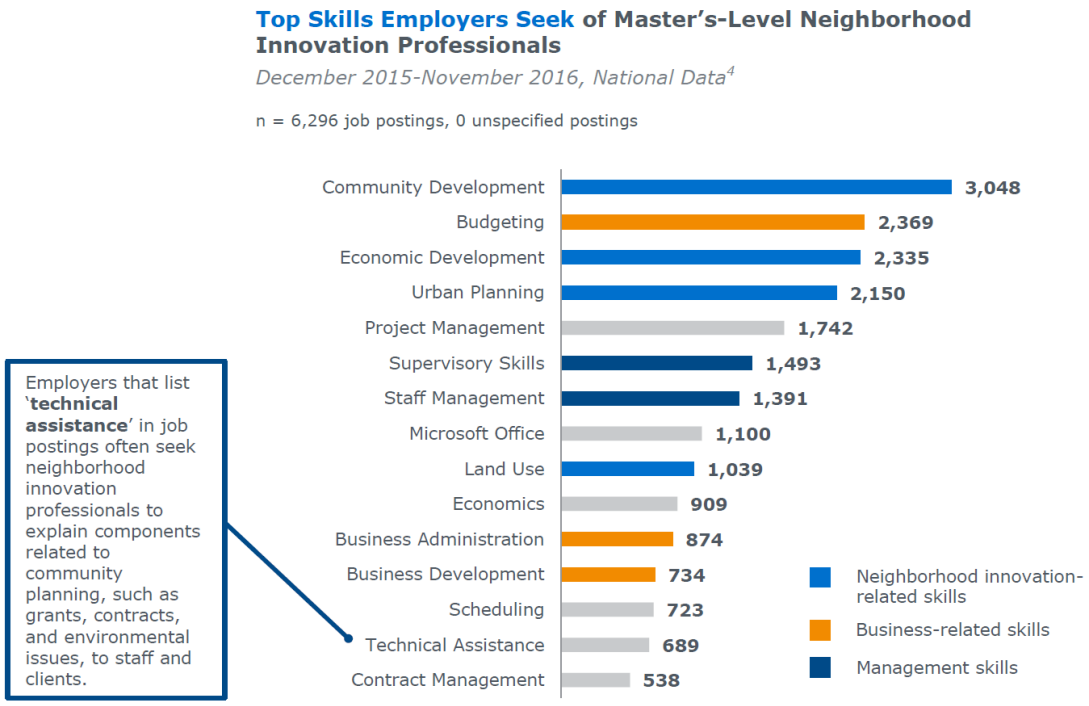
There is critical and compelling regional and statewide need for the Master's in Health and Social Innovation. The coursework will challenge students to examine and challenge systems of inequality, develop innovative initiatives that support the health of the region, and create jobs through economic development from new ventures. Baltimore is truly a tale of two cities, with tremendous health and social challenges disproportionally distributed among the population. In 2016, nearly a quarter of the city's total population and 34% of children (Jacob France Institute, 2017) were below the poverty line. Violence is also a pervasive issue, with Baltimore suffering from a crime rate much higher than the national average (city-data.com, 2017). There were 344 homicides in 2015, a number second only to 1993 when the population was 100,000 higher (Baltimore Homicides, 2017).

In contrast with these outcomes, affluent neighborhoods in Baltimore face less health and social challenges. Residents in Roland Park, Baltimore's wealthiest neighborhood, live to an average age of 84. Compared with the average life expectancy of 66 years in Downtown/Seton Hill and Greenmount East, there is a shameful 18-year disparity (Deason, Trull, & Creasman Welcome). Beyond geographic and socioeconomic disparities, there are pervasive racial disparities. Infant mortality for African Americans is triple the rate for whites, and black mortality from homicide is more than seven times that of whites (Tavernise, 2015). Students will apply principles of design thinking and participatory co-design to work with and in communities to tackle these issues.

Beyond the health challenges faced by many residents of the city, promoting innovation and entrepreneurship will help improve Baltimore's often negative national reputation. We want to equip our students to improve the human condition for Baltimore residents and around the world. Baltimore is the best-kept secret of the nation's innovation scene. It consistently ranks among the 20 hottest cities for tech (Richardson & Munshaw, 2017), and top three cities for women in technology (Curtis, 2017). Maryland as a whole was ranked third in Fast Company's list of innovative states, and fourth in the number of startups per million residents (Bergl, Cattel, Feifer & Kratochwill, 2013). There are 38+ entrepreneurial support groups and co-working spaces throughout the city, and a host of venture, angel, and grant opportunities for startups. Baltimore is a city of makers, doers, creators, and problem solvers and the Master's in Health and Social Innovation will help educate and empower students to contribute to this narrative.

Due to the flexibility and personalization of this proposed Master's degree program, students can choose a concentration that will prepare them for different career paths and specializations. Depending on their individual academic profile, graduates will have a wide range of career options in social and health improvement, particularly in interdisciplinary and transdisciplinary research and practical contexts. They will also have access to leading positions in business and consulting, public administration, national and international third sector organizations as well as political advising.

Students will be prepared for employment in local, state and government planning and policymaking, community development and advocacy, nonprofit and for-profit leadership, community managers, city and urban planning, entrepreneurs and business owners, international business and peace-making, and health and social research.



(Sell & Anderson, 2017)

Through our Master's degree program, students will learn many of the essential skills that employers in the industry seek according to EAB

C. Quantifiable and reliable evidence and documentation of market supply and demand in the region and the state

We have strategically aligned the courses in our program to coincide with the current needs of employers in the industry to ensure that our graduates are well prepared for professional success.

The chart below represents the number of positions available for common job titles for people with specialized training offered in the proposed certificate programs based on information provided by www.indeed.com.

Table 1. Job Availability for Selected Careers Relevant to the Masters

Keyword Search	Number of Jobs Available in Maryland	Number of Jobs Available Nationally
Executive Director	1,022	59,123
Senior Planner	163	5,395
Community Manager	4,164	190,060
City Manager	849	51,317
Planner	948	36,854
Development Associate	5,221	214,423
Health Director	3,522	134,604
Policy Analyst	1,741	36,362
Project Manager	9,119	349,610

Scientist	1,443	39,402
Research Coordinator	644	21,947
Scientific Director	443	9,006
Lab Manager	515	15,431

Data collected June 26, 2017 from indeed.com

To highlight the concentration in Biomedical Entrepreneurship, our state has received the largest per capita share of funding from the NSF and NIH in 2015. The Maryland state government has been actively fostering the growth of the biotechnology sector with several state funded research opportunities, incubator facilities, biotechnology investor tax credits, industry academia partnership grant programs, technology validation grant programs, stem cell funding, and venture capital funds. As a result of this, Maryland is experiencing a boom in biotechnology startups. Maryland biotechnology companies received a total of $1.3 billion in venture capital investment in 2010-2014. More than 40,000 people in the state are employed in biology/health industry, earning $4 billion in wages, and contributing $15 billion to the state's economy (Bottalico, 2016). Continued success of this vital economic engine depends on a well-trained workforce and a steady stream of innovators and entrepreneurs.

D. Reasonableness of program duplication

To our knowledge, there are no other institutions in Maryland with a degree program such as this. The University of Maryland at College Park has a Master of Professional Studies in both Technology Entrepreneurship and Corporate Innovation, although they are focused exclusively on technology commercialization and innovation within larger organizations respectively. The Master's in Health and Social Innovation has a strong emphasis on health and social innovation, and commitment to examine and challenge systems of inequality, develop innovative initiatives that support the health of the region, and create jobs through economic development from new ventures.

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

Bowie State University, Coppin State University, Morgan State University, and University of Maryland Eastern Shore do not offer Master's Degree programs similar to our proposed program. Morgan State does have a Bachelor's in Entrepreneurship, but nothing at a Master's level that would be relevant. Thus, there is no negative impact on HBIs.

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

This degree does not have relevance to the uniqueness and/or institutional identities and missions of HBIs.

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

1. Provide a list of courses with title, semester credit hours and course descriptions

Courses that are online are designated with an asterisk.

CORE COURSES

INNO 600: Foundations in Health and Social Innovation (3 Credits)
INNO 602: Methods in Innovation (3 Credits)
INNO 612: Impact Labs (1 credit)
INNO 622: Project Management (3 credits)
INNO 640: Business and Finance (3 credits)*

INNO 642: Marketing Strategies (3 credits)*
INNO 650: Community Engagement and Partnerships (3 Credits)
INNO 652: Capstone Project and Pitch (3 Credits)

HEALTH SCIENCE (Students who select this concentration will choose four courses from this list)
MHS 602: Legal and Ethical Issues for Health, Human Services, and Clinical Professionals (2 credits)*
MHS 603: Technical Writing (3 credits)*
MHS 605: Perspectives in Global Health (3 credits)*
MHS 607: Writing for Scholarly Journals (3 credits)*
MHS 610: National & International Approaches to Healthcare Delivery (3 credits)*
MHS 612: Introduction to Integrative Health and Biological and Body-based Interventions (3 credits)*
MHS 613: Research Implementation and Dissemination I (3 credits)*
MHS 614: Research Implementation and Dissemination II (3 credits)*
MHS 618: Regulatory and Legal Issues in Research (3 credits)*
MHS 619: Clinical Application of Integrative Health and Wellness (3 credits)*
MHS 626: Advanced Skills in Integrative Mind-Body Interventions (3 credits)*
MHS 627: Writing for the Public (3 credits)*
MHS 628: Integrative Health and Wellness Coaching (3 credits)*
MHS 633: Clinically Applied Social and Behavioral Health Theory (3 Credits)*
MHS 635: Grant and Contract Management in Research (3 credits)*
MHS 637: Writing Proposals and Grants (3 credits)*
MHS 639: Health Responses to Mass Violence and Disaster (3 credits)*
MHS 640: Technology Transfer (3 credits)*
MHS 652: Communications and Leadership (3 credits)*
THAN 604: Death and Dying: Ethical and Legal Considerations (3 credits)*
THAN 605: Palliative Care (3 credits)*
THAN 606: Caring for the Bereaved (3 credits)*
THAN 609: Psychosocial Perspectives in Aging (3 credits)*

USER EXPERIENCE (UX) – Collaboration with University of Baltimore
IDIA 612: Interaction and Interface Design (3 credits) Both online and in-person*
IDIA 630: Information Architecture (3 credits) Both online and in-person*
IDIA 640: Humans, Computers, and Cognition (3 credits)
IDIA 642: User Experience Research Methods (3 credits) Both online and in-person*

BIOMEDICAL ENTREPRENEURSHIP – Collaboration with IMET, UM Ventures, and the University of Maryland School of Medicine (Students who select this concentration will choose four courses from this list)
GPILS 791: From Bench to Bedside: Steps in Translational Research
MHS 640: Technology Transfer (3 credits)*
INNO 630: Market Research and Value Proposition (3 credits)
INNO 632: Case Studies in New Venture Creation (3 credits)
INNO 634: Practicum in Biomedical Entrepreneurship (3 credits)

2. Describe the educational objectives and intended student learning outcomes

With this degree program, we intend to create an opportunity for students to explore principles of innovation, entrepreneurship, and design-thinking to solve complex health and social challenges. The educational objectives of the program are for students to:

- Use the principles of human-centered design to identify societal, community, and individual needs.
- Demonstrate skills required by successful entrepreneurs, including team building and leadership, negotiation, working in complex social and cultural environments, and applying theoretical frameworks for enhancing entrepreneurial success.
- Apply concepts of innovation and entrepreneurship in new ventures and existing ventures.
- Identify and apply tools, methods, and self-reflection techniques necessary to evaluate the market viability of new ideas.
- Identify various social, health, and biomedical enterprise strategies and critically assess their effectiveness in economic development and social transformation.
- Demonstrate ability to develop and execute a work plan leading to a social, health, or biomedical innovation.
- Build strong professional relationships with and draw upon the resources of faculty, community practitioners and entrepreneurs, student colleagues, and external advisors.
- Test assumptions about health, social, and/or biomedical innovation design through rapid prototyping.
- Apply user research methods to iteratively refine concepts and prototypes.
- Explain basic principles of accounting, financing models, equity financing, investing and different types of funding including crowdfunding, angel investors, grants, and venture capital.
- Develop a sustainable business and financing model to advance a health or social innovation concept, emphasizing principles of growth strategies and scaling.
- Conduct a market analysis and apply the marketing mix as it relates to health and social enterprises.
- Develop a marketing plan for a social, health, or biomedical venture.
- Understand the basic patent and regulatory framework governing commercialization of drugs, devices, and services.

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

   Not applicable.

4. **Identify any specialized accreditation or graduate certification requirements**

   Not applicable.

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

   MOU with UB in Appendix D

H. Adequacy of articulation

N/A

I. Adequacy of faculty resources

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

aligned around the same learning outcomes and principles, overseen and taught by the same faculty, and held to the same standards as classroom courses.

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

Table 2. Faculty Resources Available

Course Title	Faculty Lead
Health and Social Innovation Foundational Coursework	
INNO 600: Foundations in Health and Social Innovation (3 credits)	*Flavius Lilly, PhD, MPH, MA*
INNO 602: Methods in Innovation (3 credits)	*Jenny Owens, ScD, MS*
INNO 612: Impact Labs (1 credits)	*Sara Menso, MBA, MS*
INNO 622: Project Management (3 credits)	*Sara Menso, MBA, MS*
INNO 640: Business and Finance (3 credits)	*Sara Menso, MBA, MS*
INNO 642: Marketing Strategies (3 credits)	*Jenny Owens, ScD, MS*
INNO 650: Community Engagement and Partnerships (3 credits)	*Kelly Quinn, PhD*
INNO 652: Capstone Project and Pitch (3 credits)	*Tammira Lucas, MBA*
Biomedical Entrepreneurship - Collaboration with IMET, UM Ventures, and University of Maryland School of Medicine	
GPILS 791: From Bench to Bedside: Steps in Translational Research (3 credits)	*Feyruz Rassool, PhD*
MHS 640: Technology Transfer (3 credits)	*Rana Quirashi, PhD*
INNO 630: Market Research and Value Proposition (3 credits)	*Ken Malone, PhD*
INNO 632: Case Studies in New Venture Creation (3 credits)	*Nick Hammond, PhD*
INNO 634: Practicum in Biomedical Entrepreneurship (3 credits)	*Nick Hammond, PhD*
USER Experience (UX)- Collaboration with University of Baltimore	
IDIA 612: Interaction and Interface Design (3 credits)	*Greg Walsh, PhD*
IDIA 630: Information Architecture (3 credits)	*Kathryn Summers, PhD*
IDIA 640: Human, Computers, and Cognition (3 credits)	*Deborah Kohl, PhD*
IDIA 642: User Experience Research Methods (3 credits)	*Lucy Holman, ScD*
Health Science – Students select 12 credits of the following courses	
MHS 602: Legal and Ethical Issues for Health, Human Services, and Clinical Professionals (2 credits)	*Mary Jo Bondy, DHEd, MHS, PA-C*
MHS 603: Technical Writing (3 credits)	*Isabell May, PhD*
MHS 605: Perspectives in Global Health (3 credits)	*Delia Chiaramonte,*
MHS 607: Writing for Scholarly Journals (3 credits)	*Isabell May, PhD*
MHS 610: National & International Approaches to Healthcare Delivery (3 credits)	*Kathy Marconi PhD, MSW*

Course Title	Faculty Lead
MHS 612: Introduction to Integrative Health and Biological and Body-based Interventions (3 credits)	*Alejandro Chaoul, PhD*
MHS 613: Research Implementation and Dissemination I (3 credits)	*Man E. Charurat, PhD*
MHS 614: Research Implementation and Dissemination II (3 credits)	*Clement Necho, MD*
MHS 618: Regulatory and Legal Issues in Research (3 credits)	*Sarah Archibald, PhD, MS, MA*
MHS 619: Clinical Application of Integrative Health and Wellness (3 credits)	*Delia Chiaramonte, MD*
MHS 626: Advanced Skills in Integrative Mind-Body Interventions (3 credits)	*Michelle Pearce, PhD*
MHS 627: Writing for the Public (3 credits)	*Christy Chang, PhD*
MHS 628: Integrative Health and Wellness Coaching (3 credits)	*Michelle Pearce, PhD*
MHS 633: Clinically Applied Social and Behavioral Health Theory (3 Credits)	*Jody Olsen PhD, MSW*
MHS 635: Grant and Contract Management in Research (3 credits)	*Lynn McGinley, MS*
MHS 637: Writing Proposals and Grants (3 credits)	*Isabell May, PhD*
MHS 639: Health Responses to Mass Violence and Disaster (3 credits)	*Jodi Frey, PhD, LCSW-C*
MHS 640: Technology Transfer (3 credits)	*Rana Quirashi, PhD*
MHS 652: Communications and Leadership (3 credits)	*Mary Jo Bondy, DHEd,*
THAN 604: Death and Dying: Ethical and Legal Considerations (3 credits)	*Anita Tarzian,PHD RN, Delia Chiaramonte*
THAN 605: Palliative Care (3 credits)	*Delia Chiaramonte, MD*
THAN 606: Caring for the Bereaved (3 credits)	*Jennifer Maxfield-DeCarlo, PhD, MSW*
THAN 609: Psychosocial Perspectives in Aging (3 credits)	*Flavius Lilly, PhD, MPH, MA*

J. Adequacy of library resources

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

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

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

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

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

K. Adequacy of physical facilities, infrastructure, and instructional equipment

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

This program will be housed in the upcoming Graduate Research Innovation District, ("the Grid") the university's newest innovation space launching in fall of 2017. The Grid is a space designed to support entrepreneurial ventures through education, early stage funding, and programming. Here members of the UMB community will be able to mix with startup companies, collaborate with UM Ventures staff working to launch new companies, and engage with experts with office hours including UMB entrepreneurs in residence, business advisory services by Maryland Small Business Development Center, and the University of Maryland Business and Intellectual Property Law Clinic. The Grid is an innovation space where students, entrepreneurs, faculty, and staff connect to bring innovative health and social impact ideas to life. The Grid is strategically co-located with the University of Maryland Ventures at the University's BioPark.

L. Adequacy of financial resources with documentation

No new general funds will be required for implementation of the proposed Master's program. The Master's program will be coordinated and administered fully through the Graduate School including identifying program directors for each area of concentration who are directly affiliated with the Graduate School. Tuition will be administered through the Graduate School and student tuition payment is in addition to that required of any individual professional school at UMB. As shown in Budget Table provided in *Appendix C* this certificate is expected to be self-supported.

M. Adequacy of provisions for evaluation of program

Students will have the opportunity to evaluate courses and faculty through a standard evaluation of every course. Formal assessment planning is already in place throughout UMB Schools including the Graduate School. Our approach includes ensuring that student learning is in alignment with course learning outcomes, alignment of mission at institutional and program levels, alignment of mission with learning outcomes, then program outcomes with curriculum, flowing down to course outcomes and assignments. Assessment activities emphasize analysis of results and feedback loops for continuous improvement. Additional evaluation includes tracking of student retention, grade distributions, and cost-effectiveness, and regular academic program reviews consider these factors.

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

A key feature of UMB's mission and strategic planning involves respecting, valuing and achieving diversity. The Strategic Plan states: diversity represents a core value, which is defined as being "committed to a culture that is enriched by diversity, in the broadest sense, in its thoughts, actions, and leadership." UMB realizes that it must embrace and celebrate diversity and become culturally competent. The State also has a goal of expanding educational opportunities for minority and educationally disadvantaged students.

The proposed new Master's programs aims to address both UMB's and the State's cultural diversity goals. First, the delivery of some of the courses in the program by the use of distance learning technology will enhance minority student access, as it expands access and success for learners from diverse communities. Essentially, distance learning is quickly become the educational opportunity for those student who may not or would not be able to participate in a traditional college education. The emergence of the so-called "virtual universities" has had more success in attracting diverse populations compared to traditional colleges. Universities and their missions and Internet-based degree programs embracing core values emphasizing social change and community engagement have been highly attractive to historically underrepresented groups (Ibarra, 1999). For rural and isolated communities, distance learning can be the vehicle that conquers geography and space between teachers and students.

The second manner in which the new certificates addresses diversity goals is that distance learning not only achieves "access," but can also help ensure "success," as the technology of distance learning meets the needs of various learners and allows for differentiated instruction. Increasingly, culture, language, and social factors are being recognized as having an impact on learning styles (Joy & Kolb, 2009). To be sure to avoid any chare of stereotyping, we recognize that individuals within a particular culture display the traditional traits and cultural markers of that group to varying degrees and hence, while on one hand, all behaviors are found in all cultural groups, some behaviors are demonstrated more so in some cultures than in others. These variations can be due to ethnic group differences within the larger culture, socio-economic status, degree of acculturation to the mainstream society, gender, religion, and myriad other factors. Essentially, with the proper use of its varied technology, distance learning can address the needs of all populations, and especially underrepresented groups that can not only attract but can help thrive as well. Also, with its varied types of interactions, distance learning embraces a shift from passive to active learning and from competition to collaboration. Different learning styles and cultures can be accommodated more easily because effective collaborative learning values diversity (Palloff & Pratt, 2005; Brindley, Walti, & Blaschke, 2009). This contrasts with the traditional university's predominance of a particular and preferred learning environment grounded on outmoded ideas about one-size fits all educational pipelines tends to exclude all the others.

O. Relationship to low productivity programs identified by the Commission

The proposed new Master's and PBC programs are not directly related to an identified low productivity program identified by the Maryland Higher Education Commission.

P. Distance education principles of good practice

Context of Online Education at UMB

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

3. *Education Pipeline*. The education pipeline is now seeing inputs at every level with a highly diverse prospective student pool. Prospective students are typically working adults who demand part-time and non-residential educational opportunities. Results of the educational experience are becoming ever more outcomes-based.

4. *Changing Demographics*. Data indicate a shift from the traditional student (the 18-22-year-old, full-time resident) to older students studying part-time.

5. *Technology Shift*. Online delivery is far outpacing traditional forms of delivery. From 2002 to 2008, online enrollments grew at an annual compound rate of 19% vs. 1.5% for all of Higher Education. By the fall of 2008, 25% (4.6 million) of all students took at least one online course. There is a growing acceptance that online education as being as good as or better than traditional face-to-face delivery models. It is estimated that by 2020, half of all learning may be online.

6. *Growth of Mobile Technologies*. Mobile technologies and miniaturization are changing the computing environment and the educational delivery paradigm. Technologies like netbooks, e-Readers, iPhones and iPads have the potential to revolutionize the delivery space and to provide anywhere, anytime learning.

7. *Web 2.0 Revolution*. Other technologies that are already figuring widely into the future of education are part of the Web 2.0 revolution. The use of a variety of technologies is disaggregating the educational experience into 'the cloud'. Many of the technologies for the future, like blogs, wikis, podcasts, video, social networking and social media, virtual worlds, mobile learning, and Personal Learning environments, will have profound effects on the future learning landscape

Essentially, online education represents a strategy that can address the restrictions of traditional onsite college courses. Online learning seeks to expand knowledge beyond the walls of the campus and can reach millions of new learners who could never put their lives on hold to attend college in a traditional manner. Online programs also have the ability to respond to individual student learning needs and styles in ways that cannot be duplicated in the face-to-face classroom. Major determinants of successful online programs include 1) course design that incorporates best practices, 2) quality faculty who can engage students in the material, and 3) responsible academic oversight. All three of these determinants are present in this proposal.

Ensuring Effective Instruction

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

- Course overview and introduction to the students
- Course organization and design
- Learning Objectives (competencies)
- Instructional Materials
- Learner Communication, Interaction and Collaboration
- Assessment and Evaluation (measurement)
- Course Technology
- Learner Support

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

Instructional Design Team

The following individuals from the Instructional Design team have been assigned to direct the distance education strategy for the four additional PBC programs:

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

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

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

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

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

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

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

- Course-level outcomes and module level objectives
- Course storyboards that will serve as planning documents for new course that outline objectives, discussion prompts and learning activities, and resources (articles, websites, online videos)
- Assignments and assessments that measure student performance, and clear instructions for completing them
- Grading rubrics
- Course syllabus

Supporting Students in Distance Education

Some of the courses for the Master's in Health and Social Innovation will be online, and others will be in person. We realize that the key to the success of the online courses is dependent on a) students knowing upfront the assumptions, requirements and responsibilities of taking an online course, 2) the ability of students to have the background, knowledge, and technical skills to undertake an online program; and 3) their having access to academic and technical support services to support their online activities. Accordingly, we will provide the following services to support the students in accessing distance learning technology:

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

Evaluation and Assessment of Online Courses

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

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

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

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

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Appendix A: Sample Two-Year Plan of Study

Semester and Course Number/Title	Credit
Fall Year 1	
INNO 600: Foundations in Health and Social Innovation	3 Credits
INNO 602: Methods in Innovation	3 Credits
ELECTIVE 1	3 Credits
	Total: 9 Credits
Spring Year 1	
INNO 612: Impact Labs	1 Credit
INNO 622: Project Management	3 Credits
ELECTIVE 2	3 Credits
ELECTIVE 3	3 Credits
	Total: 10 Credits
Summer Year 1	
INNO 612: Impact Labs	1 Credit
INNO 640: Business and Finance	3 Credits
INNO 642: Marketing Strategies	3 Credits
ELECTIVE 4	3 Credits
	Total: 10 Credits
Fall Year 2	
INNO 612: Impact Labs	1 Credit
INNO 650: Community Engagement and Partnerships	3 Credits
INNO 652: Capstone Project and Pitch	3 Credits
	Total: 7 Credits
TOTAL 36 CREDITS	

Appendix B. Course Descriptions

CORE COURSES

1. **INNO 600: Foundations in Health and Social Innovation (3 Credits)*** | **new course**
   Flavius Lilly, PhD, MPH, MA
   This course introduces students to social and health entrepreneurship through case studies, key readings, and primary information resources. Students will become familiar with the social determinants of health, systems of public health, the science of team-based innovation, basic business fundamentals, and the essentials of social and health improvement through the lens of entrepreneurship. Students will begin to develop skills demonstrated by successful social entrepreneurs, including team building and leadership, negotiation, and working in complex social and cultural environments. They will explore the sources of funding for social enterprises, including philanthropy, governmental funding, and income generating, self-sustaining social enterprises. Students will also begin to plan their course of study in their selected concentration and consider an initial proposal for a Master's project.

2. **INNO 602: Methods in Innovation (3 Credits)** | **new course**
   Jenny Owens, ScD, MS
   This course provides an overview of the entrepreneurial process, while examining entrepreneurship from a range of several scholarly contexts, including the social, health and behavioral sciences. The course introduces the student to the language of entrepreneurship and covers the initial stages of idea formation and initial development of entrepreneurial opportunities. Emphasis is given in this course to developing theoretical frameworks for enhancing entrepreneurial success. Students will learn to engage with their ideas in early-stage market and rapid prototyping. Students will engage in both qualitative and quantitative approaches to understanding innovation. Students will learn the tools, methods, and self-reflection techniques necessary to bring new ideas to reality while also providing them with ways to learn about how to test the viability of and response to their ideas in the market. Learning through iteration is a key component of this course as it is expected that the first version of any idea is not likely the last. Human-centered design methodologies will be front-and-center in this course from the perspective of how to innovate based not on the ideas of the innovator but based first on the needs of the customer. This course will provide practical, real world knowledge about the lean approach, human centered design, how to design a minimum viable product, when to pivot, and other aspects of entrepreneurial strategy. At the end of the course students will be able to develop a strategy to launch their ideas.

3. **INNO 612: Impact Labs (1 credit)** | **new course**

   Sara Menso, MBA, MS

   Impact labs are co-curricular offerings bundled for academic credit. These programs are designed around themes of innovation and entrepreneurship including concepts such as customer discovery, design-thinking, intellectual property, business model generation, the art of the pitch, social policy, determinants of public health, and regulatory issues. Students will select topics that align with their capstone project. Impact Labs will help students deeply examine their topics through the lens and context of entrepreneurship and design thinking. 1 academic credit is the equivalent of 15 hours of participation in Impact Labs during the course of the semester.

4. **INNO 622: Project Management (3 credits)** | **new course**

   Sara Menso, MBA, MS

   Project management has been proven to be the most effective method of delivering products within cost, schedule, and resource constraints. This course teaches students the skills to ensure their projects are completed on time and on budget while giving the user the product they expect. Students will gain a strong working knowledge of the basics of project management and be able to immediately use that knowledge to effectively manage work projects. At the end of the series you will be able to identify and manage the product scope, build a work breakdown structure, create a project plan, create the project budget, define and allocate resources, manage the project development, identify and manage risks, and understand the project procurement process. After the course students will be prepared to sit for the Project Management Professional (PMP) Exam through the Project Management Institute.

5. **INNO 640: Business and Finance (3 credits)*** | **new course**

   Sara Menso, MBA, MS

   This course is designed to provide students with an understanding of the essential elements of successful business strategy and financing. Students will create a business canvas and will gain an understanding of basic principles in accounting, financing models, equity financing, and investing. In addition, students will be exposed to different types of funding including crowdfunding, angel investors, grants, and venture capital. At the end of the course, students will be able to develop a sustainable business and financing model to advance their health or social innovation concepts. Emphasis will be placed on principles of growth strategies and scaling growth opportunities.

6. **INNO 642: Marketing Strategies (3 credits)*** | **new course**

   Jenny Owens, ScD, MS

   Students will learn how to conduct a market analysis and apply the marketing mix as it relates to health and social enterprises. Students will employ techniques to market their ideas effectively using best practices in digital marketing, SEO, social media, and public relations. Emphasis will be placed on customer discovery, determining segments and

positioning, the importance of branding, consumer behavior, and strategic marketing management. By the end of the course students will be able to develop a marketing plan for their health and social venture and examining marketing needs in context of their goals and business strategy.

7. **INNO 650: Community Engagement and Partnerships (3 Credits)** | **new course**
   Kelly Quinn, PhD
   This course is designed to help students gain insights into economic and social value creation. Specifically, the purpose of this course is to provide students with hands-on exposure to the entrepreneurial pursuit of social and health impact and innovation. Students will learn to recognize and critically assess various forms of social and health enterprise strategies as tools of economic development and social transformation. Students will gain a greater understanding of the challenges of growing and sustaining a social or health enterprise. Students can expect to improve their consulting skills, including project planning, issue analysis, formulation of strategic and tactical recommendations, and client relationship management. By participating in this course, students will be better able to adapt and apply business skills and academic disciplines in the social and health sectors, and will have increased skills for effective and thoughtful leadership in business and society. The course is divided into two components: 1) Academic and 2) Practical. In the academic component students will spend 10 weeks of the semester engaged in coursework intended to provide socially relevant learning experiences using case studies, lectures, and class discussions to help students to act with an economic mindset and a social conscience. In the practical component, students will be partnered with a number of thoroughly-vetted Baltimore-based social and health enterprises to apply their classroom learning to real-world issues by conducting field work projects, which will include approximately four days of onsite work. Team-based projects will focus on areas such as poverty alleviation, workforce development, education, food insufficiency, health and sustainability. Student teams will work in close collaboration with partner organizations to deliver on discrete projects designed to meet existing needs. In addition, students will be required to share the deliverables of their projects with the partner organizations and with student colleagues.

8. **INNO 652: Capstone Project and Pitch (3 Credits)** | **new course**
   Tammira Lucas, MBA
   This course will draw together the experiential, curricular, and individual components of the Master's degree. The Capstone project serves as a vehicle to integrate what students learn in their graduate coursework, impact lab participation, community engagement field work, and study abroad (if applicable). It does this by providing an opportunity for students to demonstrate their ability to apply what they have learned in the program in a situation that approximates aspects of the post-graduate professional activities in which they intend to engage. It is a bridge between fulltime graduate study and fulltime involvement in the world of social and health innovation and entrepreneurship. By the end of the capstone, students must demonstrate their ability to develop and execute a work plan that leads to a social or

health innovation; iterate a project sufficiently to have produced a resume-worthy accomplishment; build strong professional relationships with and draw upon the resources of faculty, community practitioners and entrepreneurs, student colleagues, and external advisors. Students' capstone projects should be creative, have the potential to create positive change, be innovative, and reflect students' personal and professional identity. Capstone projects may be solo efforts or team endeavors, depending on the nature of the proposal. All students engaged in a capstone will meet periodically to both learn techniques that cut across the range of projects undertaken that semester, and to advise, coach, and support each other. Each student or team will conclude the project by presenting it to an audience of students, faculty, community-based entrepreneurs and partners. Because each student's interests are different, their capstone projects may take different forms. They may create a new organization, build a prototype, or apply a social or health enterprise technique to an existing organization. Some students will work in the U.S., some abroad. The common thread is that these are all hands-on efforts intended to result in doing something, in taking an action that leads to some form of societal betterment.

CONCENTRATIONS

BIOMEDICAL ENTREPRENEURSHIP – Collaboration with Institute of Marine and Environmental Technology (IMET), UM Ventures, and the UMSOM

1. **GPILS 791: From Bench to Bedside: Steps in Translational Research (3 credits) |existing course**
   Feyruz Rassool, PhD
   Designed to introduce the process of how drugs, devices, and diagnostics are developed, providing students with the experience and skills necessary to facilitate the translation of new biological knowledge into tools to improve human health. A 3-credit course, once a week for 2 hours consisting of a 1-hour lecture by a faculty member, followed by a discussion of an assigned paper. Each student will prepare a 30 minute presentation of a translational study with a faculty mentor.

2. **MHS 640: Technology Transfer (3 credits)* | existing course**
   Rana Quraishi, PhD
   This course introduces the concept of intellectual property in advancing technological innovation and promoting economic development. Students will learn how to safeguard intellectual property and facilitate technology transfer including the legal, licensing, and disclosure. The course will also explore the requirements for issue of a patent including preparation of a patent application. The course explores how research or an invention may be commercialized in the process of technology transfer. Emphasis is placed on the patenting and transfer of technologies pertinent to the biotechnology, pharmaceutical and medical device industries

3. **INNO 630: Market Research and Value Proposition (3 credits) | new course**
   Ken Malone, PhD
   Learn the skills to translate management problems into market research problems. Gain the

ability to analyze problems systematically. Develop critical eyes for market research and understand its contributions and limitations. Gain a working "hands-on" experience with the full process of market research and customer discovery.

4. **INNO 632: Case Studies in New Venture Creation (3 credits) | new course**
   Nick Hammond, PhD
   Using research case studies and other real life examples, students will gain the tools necessary to develop biomedical start-ups. Topics include creativity, value creation, customer discovery, stage gate processes, intellectual property, strategic communications, entrepreneurship, and market research. This course will be taught in an accelerated format on the weekends.

5. **INNO 634: Practicum in Biomedical Entrepreneurship (3 credits) | new course**
   Nick Hammond, PhD
   Students in this course are required to identify commercialization opportunities and take a product concept through the commercialization process. Students will be able to conceptualize, strategize, design, plan, and pitch an idea that they've developed. This allows for a unique individual training experience for students to understand the application of their research and shape their research questions as they progress through their careers. INNO 542 is a pre-requisite. This course will be taught in an accelerated format on the weekends.

USER EXPERIENCE (UX) – Collaboration with University of Baltimore

1. **IDIA 612: Interaction and Interface Design (3 credits) Both online and in-person*| existing course**
   Greg Walsh, PhD
   Explores electronic publication environments as fluid spaces where interactions among people, machines and media (words, images, sounds, video, animations, simulations) must be structured for the unforeseen. The course focuses on planning, analyzing, prototyping and integrating interaction design with interface design. Lab fee required. prerequisite: PBDS 501 or passing score on the Hypermedia Proficiency Exam

2. **IDIA 630: Information Architecture (3 credits) Both online and in-person *| existing course**
   Kathryn Summers, PhD
   Teaches students to gather requirements data, model information structures and develop a variety of documents to communicate the information architecture to other participants, including technical experts, usability experts, clients and users. Students learn to determine a target audience, develop personas or user profiles, refine and validate requirements and create site maps and other "specs" and wire frames. Lab fee required. prerequisite: University of Baltimore PBDS 501 or passing score on the Hypermedia Proficiency Exam

3. **IDIA 640: Humans, Computers, and Cognition (3 credits) | existing course**
   Deborah Kohl, PhD
   Introduces concepts, theories and methods that support the study of human-computer interaction and user-centered system design. Major approaches to machine-mediated learning and understanding are surveyed, with an emphasis on problem-solving, knowledge representation, structure of knowledge systems and problems of interface design. Prepares students to understand and analyze research based on empirical study of human behavior and on models of learning and understanding.

4. **IDIA 642: Research Methods (3 credits) Both online and in-person*| existing course**
   Lucy Holman, ScD, MS
   Introduces the chief methods for studying users' interactions with software and information resources. Encompasses both quantitative and qualitative methods, including analysis of logs, indirect observation, traditional usability studies and ethnographic techniques.

HEALTH SCIENCE

Students will take 12 credits in the Health Science Curriculum and can choose from the courses listed here:

1. **MHS 602: Legal and Ethical Issues for Health, Human Services, and Clinical Professionals (2 credits)* | existing course**
   Mary Jo Bondy, DHEd, MHS, PA
   This 8-week, 2-credit online course will explore ethical and legal issues that are timely and germane to health professionals. This course is based on the premise that to act in an ethical manner means to engage in conduct according to accepted principles, and to improve moral confidence and moral action we must prepare the next generation of health professionals with the ethical resources, tools and skills. A case based learning design will be utilized to engage students in ethical discussion, exploration, analysis with the goal of determining ethical and legal action that is sound and logical. This course will prepare students to make ethical health care decisions in the future.

2. **MHS 603: Technical Writing (3 credits)* | existing course**
   Isabell May, PhD
   This course will provide a rigorous analysis of scientific writing on the sentence and paragraph level. Students will master the elements of concision and coherence as they learn and employ various strategies for packaging information.

3. **MHS 605: Perspectives in Global Health (3 credits)* | existing course**
   Jody Olsen PhD, MSW
   The course provides an overview to the field of global health, it introduces students to major global health challenges, programs the determinants of health hand disease, current

and emerging global health priorities, policies, evidence base intervention, disaster relief, key legal issues, ethics and models of reform. In addition, particular attention is given to building key student competencies in analyzing national public health trends including major communicable and non-communicable disease burdens, key organizations supporting public health and professional opportunities in global health. Student skills are developed in analysis, leadership, teamwork and communication in a global context.

4. **MHS 607: Writing for Scholarly Journals (3 credits)* | existing course**
   Isabell May, PhD
   This course will provide students with a comprehensive overview of the process of writing for scholarly journals. Students will read and analyze articles from a variety of journals, focusing on both form and content of research articles, case studies, meta-analyses, theoretical articles, and book reviews.

5. **MHS 610: National & International Approaches to Healthcare Delivery (3 credits)* | existing course**
   Kathy Marconi PhD, MSW
   This course applies the concepts, theories, and principles of the field of global health presented in the first course to the practical challenges facing global health professionals. Each student will select a specific global health priority for a given national or geo politically defined population to examine over the Durant of the course. The students selected case will be her primary focus for applying needs assessment methodologies, including epidemiological methods, mapping local, national and global policy processes, identifying strategies for building infrastructure and workforce capacity, analyzing financial opportunities and limitations and assessing the impact of macro changes in global economy, political environment and human rights and legal systems. Each student will complete a final summary project report that will summarize findings regarding scope, option, outcomes and a recommended action plan for improving the health status of the population group they have studied.

6. **MHS 612: Introduction to Integrative Health and Biological and Body-based Interventions (3 credits)* | existing course**
   Alejandro Chaoul, PhD
   Students will examine the fundamental concepts of integrative health and wellness (IHW), including the history, philosophies, and methods of prominent integrative therapies. Perceived differences between and limitations of traditional “allopathic” medicine and IHW “nontraditional” medicine will be identified. Patients’ motivations and patterns of use of IHW approaches will be explored. Components of the five major areas within IHW as identified by the National Institutes of Health will be introduced. These include alternative medical systems, body-based systems (massage, chiropractic, rolfing), mind-body medicine, biological approaches (herbal medicine, nutritional approaches, pharmacological therapies, Ayurveda), and bioelectromagnetics (energy healing). The state of basic scientific knowledge

and data from controlled trials relating to the safety, efficacy, and mechanisms of action of integrative therapies are presented. In the second half of the course, an overview of the scientific evidence for the integrative biological and body-based approaches will be provided. Theories for how these approaches function to affect health are examined, such as psychoneuroimmunology, the role of inflammation, and the gut microbiome. Key practice, legal, and ethical issues facing CAM researchers and practitioners are reviewed.

7. **MHS 613: Research Implementation and Dissemination I (3 credits)* | existing course**
   Man E. Charurat, Ph.D.
   The past several decades have witnessed advances in medical sciences and the discovery of new medicines, vaccines, and diagnostics tools that have the capacity to lead to large improvements in global health. However, the translation of research findings into practice has been slow and uneven. This has led to a widening gap by applying research and evaluation approaches to identify and address the barriers in scale-up evidence-based interventions in local settings. This course provides an introduction to the emerging field of implementations science by reviewing various design and methods, health systems and policy research, and examples in HIV, non HIV ST and non-communicable disease.

8. **MHS 614: Research Implementation and Dissemination II (3 credits)* | existing course**
   Clement Necho MD
   Dissemination science is the process of distribution of information and intervention materials to a specific public health or clinical practice audience. Translating research into practice is a complex process that involves dissemination science. The purpose of dissemination science research is to translate evidence based interventions into practice to improve lives. This research seminar provides and introduction to dissemination science. Topics include the vocabulary of dissemination science; distinction between dissemination and implementation research; principles and methods used in dissemination science research; and future issues.

9. **MHS 618: Regulatory and Legal Issues in Research (3 credits)* | existing course**
   Sarah Archibald, PhD, MS, MA
   Research involves many ethical, legal, and regulatory issues related to the treatment of subjects, personal privacy, and institutional compliance, among others. This course examines ethical codes of conduct, regulatory requirements, and existing laws that govern research, recruitment and protection of human subjects; diversity and vulnerable populations in research; informed consent; privacy and confidentiality; the role of independent review committees; and the importance of reporting serious adverse events.

10. **MHS 619: Clinical Application of Integrative Health and Wellness (3 credits)* | existing course**
    Delia Chiaramonte, MD
    This course will provide students an interprofessional overview of the clinical application of

integrative health and wellness approaches. Students will learn the skills necessary for developing an effective therapeutic practitioner-patient relationship and strategies for communicating and educating patients about integrative health and wellness approaches, potential benefits, and possible risks. The factors affecting the utilization, interpretation, and patient understanding of these therapies will be examined. Clinical decision-making and the influence of research on recommendations and evaluation will be examined. Students will learn how the integrative assessment differs from the conventional assessment process and how to develop an integrative treatment plan. Numerous case studies demonstrating the application of integrative approaches for the treatment and prevention of common and chronic diseases will be analyzed. Finally, the challenges in developing research to adequately examine the integrative approach as it is applied in clinical practice will be discussed. *Prerequisite MHS 612

11. **MHS 626: Advanced Skills in Integrative Mind-Body Interventions (3 credits)* | existing course**

    Michelle Pearce, PhD

    Students will learn about the connections between the mind, body, spirit, and energy in relation to health and disease. In this course, students will learn about the connections between the mind, body, spirit, and energy in relation to health and disease. An overview of the scientific evidence for integrative interventions for health promotion and treatment is provided. Students will learn advanced skills in approaches that promote or rely on the connection between the mind and body. These include meditation, mindfulness, guided imagery, autogenics, hypnosis, spirituality, movement-based, journaling, acupuncture and energy therapies, and art therapies. Students will participate in experiential learning by practicing integrative approaches and interacting with an integrative health provider to increase their self-awareness of the interconnections between emotional, physical, mental, social, and spiritual aspects of health.

12. **MHS 627: Writing for the Public (3 credits)* | existing course**

    Christy Chang, PhD

    This course will prepare students to communicate to lay audiences. Students will analyze the writing in various documents such press releases, magazines articles, websites, and popular science books.

13. **MHS 628: Integrative Health and Wellness Coaching (3 credits)* | existing course**

    Michelle Pearce, PhD

    Students will learn the fundamentals of health coaching, which is guiding and enabling patients/clients to make and sustain choices to achieve and maintain health. Students will review frameworks and techniques of health coaching from a holistic perspective including assessment, identification of goals and barriers, development of action plans, implementation strategies, and monitoring progress. Students will be introduced to health behavior change theories and models, as well as interventions from integrative health and

wellness. Also explored are personal, social, lifestyle, and medical resources to encourage comprehensive wellness. Students will work to develop strategies appropriate to their patient/client population through research, class discussions, mentored coaching activities, and independent assignments. Students will also complete a behavioral change project with a partner, allowing them to experience the roles of both a health and wellness coach and a client.

14. **MHS 633: Clinically Applied Social and Behavioral Health Theory (3 Credits)* | existing course**
    Jody Olsen PhD, MSW
    This course will discuss the social determinants of health and will go beyond the individual risk factor approach to health and disease, applying multi-disciplinary models and social epidemiology to elucidate the economic, sociocultural, political, and behavioral context and processes underlying health care access and health outcomes. Using a problem based context will explore how nutrition, oral health, addiction and mental illness impact health and disease and explore how social and behavioral health theories can be applied in a clinical context.

15. **MHS 635: Grant and Contract Management in Research (3 credits)* | existing course**
    Lynn McGinley, MS
    This course covers all topics related to Grants Management and Awards. Students will learn how to setup grants proposals and awards, bill and perform cost reimbursement, distribute indirect costs. Students will examine various aspects of maintaining grant and contract awards including increasing or decreasing award funding, adjusting the award budget, updating grant information, updating project status, and closing a grant or contract.
16. **MHS 637: Writing Proposals and Grants (3 credits)* | existing course**
    Isabell May, PhD
    This course will explore the elements of successful grants and proposals. Students will be required to produce a grant or proposal relating to their capstone project.

17. **MHS 639: Health Responses to Mass Violence and Disaster (3 credits)* | existing course**
    Jodi Frey, PhD, LCSW-C
    This course increases knowledge of how to apply different theories and intervention strategies to the health assessment and response to mass violence and disaster. Crisis theory used to guide crisis use a system approach to health services management including strategic planning budgeting and resources allocation.

18. **MHS 640: Technology Transfer (3 credits)* | existing course**
    Rana Quirashi, PhD
    This course introduces the concept of intellectual property in advancing technological innovation and promoting economic development. Students will learn how to safeguard intellectual property and facilitate technology transfer including the legal, licensing, and

disclosure. The course will also explore the requirements for issue of a patent including preparation of a patent application. The course explores how research or an invention may be commercialized in the process of technology transfer. Emphasis is placed on the patenting and transfer of technologies pertinent to the biotechnology, pharmaceutical and medical device industries.

19. **MHS 652: Communications and Leadership (3 credits)* | existing course**
    Mary Jo Bondy, DHEd, MHS, PA
    Students learn effective management and communication skills through case study-analysis, reading, class discussion and role-playing. The course covers topics such as effective listening, setting expectations, delegation, coaching, performance, evaluations, conflict management, negotiation with senior management and managing with integrity.

20. **THAN: 604: Death and Dying: Ethical and Legal Considerations (3 credits)* | existing course**
    Anita Tarzian, PHD RN, Debra Wiegand PhD, RN
    This course provides participants with the information and skills needed to address ethical and legal concerns related to palliative and end-of-life care. Participants will learn the theoretical foundations of health care ethics, including the Hippocratic Oath, ethical principles, virtue ethics, deontology, utilitarianism, and care-based ethics. The relationship between law and ethics will be clarified. The focus of society and medicine in delaying death and addressing human suffering will be discussed. Emphasis will be placed on developing a knowledge base of key concepts and strategies that can be used to prevent and resolve problems that are specific to palliative and end-of-life care, including advance directives, cardiopulmonary resuscitation, suffering, withholding and withdrawing life-sustaining treatments, organ donation, and assisted suicide.

21. **THAN 605: Palliative Care (3 credits)* | existing course**
    Delia Chiaramonte, MD
    In this course on end-of-life care, participants will learn practical skills to assist people who are facing incurable illnesses, such as cancer, severe cardiovascular disease, and progressive neurodegenerative diseases. Palliative care focuses on symptom control and amelioration of suffering, which are often underemphasized in conventional healthcare training. Topics will include pain and symptom management strategies, both conventional and complementary, determination of terminal prognosis, hospice care, palliative care emergencies, and discussion of advance directives.

22. **THAN 606: Caring for the Bereaved (3 credits)* | existing course**
    Jennifer Maxfield-DeCarlo, PhD, MSW
    In this course, participants will learn the prominent theories of grieving and the grief reaction, as well as the empirically-based therapeutic interventions available to support and care for the bereaved. Participants will learn to distinguish between anticipatory grief,

normal grief, and complicated grief and to identify factors that affect the grieving process. This course also explores reflective practice and self-care for the end-of-life care professional while learning to support those who are dying and those who are grieving.

23. THAN 609: Psychosocial Perspectives in Aging (3 credits)* | existing course

Flavius Lilly, PhD, MA, MPH

This 3-credit course explores the psychological and social aspects of adult development within the context of the ongoing process of aging. Upon completion of this course, students will be able to describe the major psychological and sociological theories of aging and adult development; understand the physical, psychological, social, and health changes that occur during aging; evaluate the biological, psychological, intellectual, and social dimensions along which developmental changes occur in adult aging and their implications for the aging individual, family and society; understand the importance of an individual's cultural context while progressing through the life course; and identify current research trends and theories regarding several aspects of the aging process (e.g. death and dying, mental health, positive affect, personality, chronic disease, and social roles).

Appendix C. Budget

Expenditure Categories	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
1. Faculty (b +c below)	**$ 112,370**	**$ 115,361**	**$ 118,443**	**$ 121,617**	**$ 124,887**
Faculty Program Director	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Instructional Faculty	$ 78,900	$ 81,267	$ 83,705	$ 86,216	$ 88,803
b. Total Faculty Salaries	$ 88,900	$ 91,267	$ 93,705	$ 96,216	$ 98,803
c. Total Benefits	$ 23,470	$ 24,094	$ 24,738	$ 25,401	$ 26,084
2. Administrative (b + c below)	**$ 52,838**	**$ 35,225**	**$ 36,282**	**$ 37,370**	**$ 38,491**
a. # FTE	0.50	0.30	0.30	0.30	0.30
b. Total Salary	$ 37,500	$ 25,000	$ 25,750	$ 26,523	$ 27,318
c. Total Benefits	$ 15,338	$ 10,225	$ 10,532	$ 10,848	$ 11,173
3. Support Staff (b + c below)	**$ 21,135**	**$ 21,769**	**$ 22,422**	**$ 23,095**	**$ 23,788**
a. # FTE	0.25	0.25	0.25	0.25	0.25
b. Total Salary	$ 15,000	$ 15,450	$ 15,914	$ 16,391	$ 16,883
c. Total Benefits	$ 6,135	$ 6,319	$ 6,509	$ 6,704	$ 6,905
4. Equipment	**$ -**	**$ -**	**$ -**	**$ 5,000**	**$ 5,000**
5. Library	$ -	**$ -**	**$ -**	**$ -**	**$ -**
6. New or Renovated Space	$ -	$ -	$ -	**$ -**	**$ -**

7. Other Expenses	**$ 10,000**	**$ 10,000**	**$ 10,000**	**$ 20,000**	**$ 20,000**
8. Contingency Funding	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
TOTAL (ADD 1 - 8)	**$ 196,342**	**$ 182,356**	**$ 187,147**	**$ 207,082**	**$ 212,165**

Resource Categories	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
1. Reallocated Funds	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
2. Tuition/Fee Revenue					
(c + g below)	**$ 99,540**	**$ 194,880**	**$ 241,056**	**$ 248,256**	**$ 255,744**
a. Number of F/T Students	-	-	-	-	-
b. Annual Tuition/Fee Rate	$ -	$ -	$ -	$ -	$ -
c. Total F/T Revenue (a x b)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
d. Number of P/T Students	14	20	24	24	24
e. Credit Hour Rate	$ 790.00	$ 812.00	$837.00	$ 862.00	$ 888.00
f. Annual credit hours per P/T student	9	12	12	12	12
g. Total P/T Revenue	**$ 99,540**	**$ 194,880**	**$ 241,056**	**$ 248,256**	**$ 255,744**
(d x e x f)					
3. Grants, Contracts & Other					
External Sources	**$ 30,000**	**$ -**	**$ -**	**$ -**	**$ -**
4. Other Sources (Academic Innovation Supp)	**$ 66,802**	**$ -**	**$ -**	**$ -**	**$ -**
TOTAL (ADD 1 - 4)	**$ 196,342**	**$ 194,880**	**$ 241,056**	**$ 248,256**	**$ 255,744**

MEMORANDUM OF UNDERSTANDING
Between the University of Maryland, Baltimore Graduate School and
University of Baltimore

Cooperative Master of Science
Health and Social Innovation

This Cooperative Program Agreement (the "Agreement") is made effective on the date of the last signature below, by and between the University of Maryland, Baltimore ("UMB") acting through its academic department the University of Maryland Graduate School (the "Graduate School") and the University of Baltimore ("UB"). Hereinafter collectively referred to as the "Parties".

WHEREAS, the Graduate School has developed a curriculum for a Master of Science in Health and Social Innovation ("INNO"). Enrolled students will be able to select one of three academic concentrations when pursuing the degree, Health Science, Biomedical Entrepreneurship, and User Experience.

WHEREEAS, the concentration in User Experience is a partnership with UB. Students who select the User Experience concentration will take those courses at UB, and also earn a post-baccalaureate certificate ("PBC") from UB.

WHEREAS, the degree program is designed to prepare students to receive a Master of Science in Health and Social Innovation degree from the University of Maryland, Baltimore while concurrently pursuing a User Experience PBC ("UX Certificate") from UB.

NOW, THEREFORE, the Graduate School and UB agree to the following terms and conditions:

A. PROGRAM ORGANIZATION AND DEVELOPMENT

The Parties agree to collaborate regarding seeking all approvals necessary from MHEC and any other applicable regulatory agencies for the Program. Each party agrees to comply with all laws and regulations that apply to the program.

GRADUATE SCHOOL RESPONSIBILITIES

1. Certify student eligibility, based on UMB admissions criteria, for enrollment in the INNO degree program and award the INNO degree upon successful completion of degree requirements.

2. Maintain student records pertaining to matriculation and progression toward the INNO degree.

3. Conduct orientation and advising for students entering the INNO degree program.

4. Designate a full-time Faculty Executive Director (the "Executive Director") dedicated to the INNO degree program. The Executive Director will be a full-time employee of the

Graduate School. The Executive Director responsibilities will include, but are not limited to, institutional responsibilities and resources, assume admissions administrative/clerical responsibilities based on the Graduate Schools' admissions policies and procedures, and chair the curriculum and student progression committees. The Executive Director will act as a liaison between UB and the Graduate School to address logistical and administrative issues. Additionally, the Executive Director will work closely with a UB faculty designee overseeing the User Experience certificate to ensure effective operations of all academic and student affairs functions.

UB RESPONSIBILITIES

1. Designate a faculty member with appropriate skills and effort to meet the demands of the Graduate School's INNO program. The responsibilities of this position will include:

    a. Work in conjunction with the Executive Director to develop and execute UB UX courses that may be part of the INNO program curriculum;

    b. Provide input and assistance to the Executive Director in the initial establishment of the Admissions criteria, Curriculum and Student Progression committees;

    c. Serve on an ongoing basis on the Admissions, Curriculum and Student Progression committees;

    d. Oversee the delivery and creation of UB coursework described herein (Appendix A) for students enrolled in the INNO program in accordance with the INNO curriculum;

    e. Meet regularly with the Executive Director and other leadership within the Graduate School to ensure effective coordination, leadership and management of the INNO degree program.

2. Designate UB faculty to serve on the Curriculum, Student Progression, and Admissions Committees for the INNO program. The administrative responsibilities for these committees will be the responsibility of the INNO Executive Director.

3. Designate UB faculty who will be responsible for teaching UX courses and evaluating students in those courses.

B. CURRICULUM

1. Overall curriculum design and direction will come from the INNO Curriculum Committee, composed of Graduate School faculty, the INNO Executive Director and UB's faculty designee.

2. UB may make curriculum changes to the UX PBC as it deems necessary and without the need to proceed through the process in Paragraph 3 below. The UB faculty designee will, however, notify the INNO Curriculum Committee of any such curriculum changes.

3. The INNO Curriculum Committee will meet on a regular basis and curricular changes initiated by the INNO Curriculum Committee will be sponsored by appropriate individuals originating from the Graduate School, or UB, to facilitate courses or any other relevant changes through the UMB curriculum approval process. Changes to the INNO curriculum will be effective if a unanimous vote by the Committee has been reached, and all modifications to the INNO curriculum will be in writing. Should changes of 33% or more of the MS or PBC curriculum be necessary, Maryland Higher Education Commission approval is required.

4. Students who select the UX concentration in the INNO curriculum will follow the schedule sequence below. INNO will require students to take and satisfy academic progress standards for 35 credits of coursework for successful competition of the degree program. Courses in the programs will be taught in both face to face and hybrid formats. If taken full-time at an average of nine credits per semester, the coursework should be completed in four semesters. If taken part-time at an average of six credits a semester the coursework can be completed in six semesters.

Fall Term 1		
INNO 600	UMB 1: Foundations in Health and Social Innovation	3 credits
INNO 602	UMB 2: Methods in Health and Social Innovation	3 credits
IDIA 612	UB UX 1: Interaction and Interface Design	3 credits
IDIA 630	UB UX2 : Information Architecture	3 credits
Spring Term 2		
INNO 612	UMB 3: Impact Labs	1 credit
INNO 622	UMB 4: Project Management	3 credits
IDIA 640	UB UX 3: Humans, Computers, and Cognition	3 credits
IDIA 642	UB UX 4: User Experience Research Methods	3 credits
Summer Term 1		
INNO 600	Core 3: Impact Labs	1 credit
INNO 640	Core 5: Business and Finance	3 credits
INNO 642	Core 6: Marketing Strategies	3 credits
Fall Term 2		
INNO 600	Core 3: Impact Labs	1 credit
INNO 650	Core 7: Community Engagement and Partnerships	3 credits
INNO 652	Core 8: Capstone and Pitch Project	2 credits

5. UB will deliver the following courses in the INNO-UX curriculum, which can be modified by mutual agreement of the parties prior to convening and charging a

curriculum committee, and with the agreement of UB and the INNO curriculum committee thereafter:

IDIA 612	Interaction and Interface Design
IDIA 630	Information Architecture
IDIA 640	Humans, Computers, and Cognition
IDIA 642	User Experience Research Methods

6. The UM Graduate School will deliver the following courses in the INNO curriculum:

INNO 600	Foundations in Health and Social Innovation
INNO 602	Methods in Health and Social Innovation
INNO 612	Impact Labs
INNO 622	Project Management
INNO 640	Business and Finance
INNO 642	Marketing Strategies
INNO 650	Community Engagement and Partnerships
INNO 652	Capstone and Pitch Project

C. ADMISSIONS CRITERIA

To be accepted into the program, applicants will be required to apply to the INNO degree program at UMB. The selection of students who select the UX concentration will be made cooperatively by the joint Admissions Committee. The administration of admissions and enrollment in the INNO program and UX certificate will happen at the level of each school. An applicant must meet admissions criteria of both schools for admissions into the program. These criteria include acceptable scores on the Graduate Management Admission Test (GMAT).

D. COMMITTEE ROLES & RESPONSIBILITIES

The Graduate School and UB recognize that it is with mutual interest that faculty play a meaningful role in defining the curriculum of the UX concentration of the INNO degree program. Considering that faculty participation in such decision-making occurs primarily through the work of committees, the Graduate School and UB will work collaboratively on the Admissions Committee, Curriculum Committee, and Student Progression Committee.

The Graduate School will:

1. Develop an Admissions Committee with UMB and UB to establish screening criteria and engage in the selection of applicants. Screening criteria shall include but not be limited to: Total GPA 3.0 or greater; demonstration of English proficiency consistent with both UB and UMB graduate school admission requirements. The composition of and number

of members on the Admissions Committee shall be mutually determined by the Graduate School and UB. This committee may include admissions staff.

2. Develop a Curriculum Committee with the Graduate School and UB to develop, review and make policy determinations regarding the INNO curriculum, establish degree requirements, determine student educational objectives, monitor content and workload of courses, monitor and propose changes in pedagogy, review proposals for new courses and course reductions, and evaluate the curriculum annually. The Curriculum Committee will also verify and certify that faculty are properly trained to teach online.

3. Develop a Student Progression Committee with the Graduate School and UB to review and evaluate the overall achievement and performance records of students pursuing the INNO degree for the purposes of promotion, graduation, program alteration, remediation, retention, repetition, and dismissal. Students must maintain at least a C average to remain in the program based on the Graduate Schools' academic policy and procedures. The Student Progression Committee will additionally assist with degree certification. The composition of and number of members on the Student Progression Committee shall be mutually determined by the Graduate School and UB.

UB will:

1. Ensure participation of the faculty designee and other UB faculty members on the Admissions, Curriculum, and Student Progression Committees. In general, the Faculty Program Director and one additional faculty member will serve on each committee.

The faculty designee at each institution is listed below:

University of Maryland, Baltimore
Jenny Owens, ScD, MS
Faculty Executive Director
Graduate Research Innovation District (the Grid)
875 Hollins St., Suite 102
Baltimore, MD 21201
jowens@umaryland.edu
(410) 706-4412

University of Baltimore
Greg Walsh, PhD
Graduate Program Director for IDIA
1420 N. Charles St
Baltimore, MD 21201
gwalsh@ubalt.edu
(410) 837-5473

E. ADMINISTRATION, INSTRUCTIONAL DESIGN AND FACULTY TRAINING

The two institutions' academic officers shall appoint a cross-institutional implementation team that will meet and document further the operational details of the cooperative program. This documentation will be appended to this agreement prior to the program launch in fall 2018.

F. FINANCIAL OBLIGATIONS

Tuition, Fees, Student Financial Assistance and Scholarships

1. Tuition and fees will be set by each institution for its own courses and activities. The Graduate School will be the home school for all UB and UMB Collaborative Program students for purposes of student financial assistance.

2. UMB office of University Student Financial assistance will process and disburse student aid based on the combined registered hours at both UB and UMB for each semester of an academic year. UB agrees it will not award any loans to its Collaborative Program students. UB agrees it will not award any loans to its Cooperative Program students.

3. To ensure compliance with federal financial aid regulations, students will receive financial aid from only one institution, UMB. If UB chooses to award scholarships, the amount of the scholarship will be calculated by UMB as a reduction to tuition cost. UB will promptly inform UMB of scholarships awarded, and UMB will account for the scholarship in determining the loan amount each student requires. UMB will classify such scholarships as an outside resource. UMB's current process will be to send a check or use RSTARS to UB for each student to cover tuition and fees at UB, by term. Any desired modifications to this process will be discussed and mutually agreed upon between UB and UMB.

4. UB will be required to submit semester grade reports and scheduled enrollment status updates to UMB. The list must include the student's name, ID number, email address and telephone number.

5. UB will notify the UMB University Student Financial Assistance of all enrollment changes, and the receipt of any scholarships and financial aid or scholarship resources that come to its attention that are received by a Cooperative Program student within 5 business days. If a change of enrollment occurs, a student's aid may be adjusted and the student may be billed. Financial assistance will be calculated on the combination of registered hours at both UB and UMB. Refunds will be issued in accordance with the policies of UMB and will be issued on the same schedule as those to other UMB students.

6. UMB will notify UB if a student in the program withdraws, is suspended, or has another such significant enrollment change.

G. TERM AND TERMINATION

1. Unless otherwise terminated, this Agreement will run for a term of five years and be renewable. It may be reviewed and revised at any time by mutual written consent of the Graduate School and UB.

2. Either party may terminate this Agreement upon 90 days advance written notice to the other party in the event of a material breach by the other party that is not resolved within 90 days of written notice.

3. Either party may terminate this Agreement without cause upon 365 days advance written notice to the other party. A decision to terminate the agreement must take into consideration a reasonable plan to teach-out students currently enrolled.

4. Each institution reserves the right to suspend their portion of the curriculum (the PBC for UB and the overall MS for UMB). Written notice of at least six months must be provided prior to notification to the State of the intention to suspend the program. Discontinuation may follow suspension, or the program may be reactivated.

G. PROGRAM REVIEW

1. At the end of each academic year, the parties will discuss the effectiveness of this Agreement and make suggestions as to what mutually agreeable programmatic changes or amendments, if any, should be made to the Agreement in writing.

2. The Graduate School will be responsible for program review to the University System of Maryland for the MS.

3. Academic assessment consistent with MSCHE standards will be conducted on an iterative cycle consistent with other academic programs.

H. POLICIES

Each Party will apply its unique institutional policies, including but not limited to academic policies, to its portion of the curriculum and to the Program students' enrollment at that Party's school. Each Party's minimum grade requirement for transfer of credits from another school will apply to credits student earns at the other Party's school as part of the Program.

The Parties agree to communicate as necessary to manage institutional policy issues which may arise affecting students enrolled in the Program and agree to work cooperatively to identify and promptly resolve any such issues that may arise. As needed to implement the Program and address issues related to a Program student's enrollment in either Party's school, the Parties may share the information in the education records of Program students, subject to any applicable provisions of USM policy and the Family Educational Rights and Privacy Act. As a condition of admission to the Program, each Party will require a Program student to acknowledge that the

Parties may share information from the educational records of the students.

I. ADDITIONAL TERMS

1. When students are enrolled in a UB course, they are subject to the UB code of conduct and all other UB policies; when students are enrolled in a UMB course, they are subject to the UMB code of conduct and all other UMB policies.

2. Each party may use the name and institutional trademark of the other party for the limited purposes of use in press releases and advertising announcing this Program and institutional announcements promoting the Program and seeking applicants. Neither university will modify the trademarks of the other university or use them in connection with any activity other than the purposes set forth herein without the prior written permission of the other university. This permission will automatically terminate upon the expiration or termination of this MOU.

3. Each Party will be responsible for direct and indirect expenses related to its portion of the Program. The Parties will not be individually responsible for any cost incurred by the other unless otherwise agreed in writing. In addition, neither Party is authorized to act for the other for any reason including but not limited to the incurring of any costs, liabilities or exposures. This Agreement does not affect in any way the institutional reimbursement rules, policies and requirements that each institution has for its own staff, faculty and students.

4. The parties will not discriminate. The parties will not discriminate against any employee, applicant or student enrolled in their respective programs on the basis of race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, marital status, gender identity or expression, creed, genetic information, or any other status or characteristic protected by law.

5. This Agreement shall be governed by and construed in accordance with the laws of Maryland. This Agreement may be executed in any number of counterparts, each of which shall be an original, but which together constitute one and the same instrument.

READ AND AGREED BY THE PARTIES:

FOR: UNIVERSITY OF BALTIMORE

Darlene Brannigan Smith, PhD
Executive Vice President and Provost

11/7/17
Date

Kurt L. Schmoke

Kurt L. Schmoke, JD
President, University of Baltimore

11/7/17
Date

FOR: UNIVERSITY OF MARYLAND GRADUATE SCHOOL

Bruce E. Jarrell, MD, FACS
Dean, University of Maryland Graduate School
Chief Academic and Research Officer

Nov 6, 2017
Date

Jay A. Perman, MD
President, University of Maryland, Baltimore

11/6/17
Date

Appendix A

COURSES IN USER EXPERIENCE (UX) – To be delivered by the University of Baltimore

1. **IDIA 612: Interaction and Interface Design (3 credits) Both online and in-person*| existing course**
   Greg Walsh, PhD
   Explores electronic publication environments as fluid spaces where interactions among people, machines and media (words, images, sounds, video, animations, simulations) must be structured for the unforeseen. The course focuses on planning, analyzing, prototyping and integrating interaction design with interface design. Lab fee required. prerequisite: PBDS 501 or passing score on the Hypermedia Proficiency Exam

2. **IDIA 630: Information Architecture (3 credits) Both online and in-person *| existing course**
   Kathryn Summers, PhD
   Teaches students to gather requirements data, model information structures and develop a variety of documents to communicate the information architecture to other participants, including technical experts, usability experts, clients and users. Students learn to determine a target audience, develop personas or user profiles, refine and validate requirements and create site maps and other "specs" and wire frames. Lab fee required. prerequisite: University of Baltimore PBDS 501 or passing score on the Hypermedia Proficiency Exam

3. **IDIA 640: Humans, Computers, and Cognition (3 credits) | existing course**
   Deborah Kohl, PhD
   Introduces concepts, theories and methods that support the study of human-computer interaction and user-centered system design. Major approaches to machine-mediated learning and understanding are surveyed, with an emphasis on problem-solving, knowledge representation, structure of knowledge systems and problems of interface design. Prepares students to understand and analyze research based on empirical study of human behavior and on models of learning and understanding.

4. **IDIA 642: Research Methods (3 credits) Both online and in-person*| existing course**
   Lucy Holman, ScD, MS
   Introduces the chief methods for studying users' interactions with software and information resources. Encompasses both quantitative and qualitative methods, including analysis of logs, indirect observation, traditional usability studies and ethnographic techniques.