MARYLAND HIGHER EDUCATION COMMISSION
ACADEMIC PROGRAM PROPOSAL

PROPOSAL FOR:

X	**NEW INSTRUCTIONAL PROGRAM**
	SUBSTANTIAL EXPANSION/MAJOR MODIFICATION
	COOPERATIVE DEGREE PROGRAM
	WITHIN EXISTING RESOURCES or _X_ 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.)

Maryland University of Integrative Health
Institution Submitting Proposal

Fall 2018
Projected Implementation Date

Post-Master's Certificate	**Nutritional Genomics in Clinical Practice**
Award to be Offered	Title of Proposed Program
1306.00	**51.3199**
Suggested HEGIS Code	Suggested CIP Code
Nutrition and Integrative Health	**Kathleen Warner**
Department of Proposed Program	Name of Department Head

Christina Sax	**csax@muih.edu**	**410-888-9048 ext 6655**
Contact Name	Contact Email	Contact Phone

Signature and Date — President/Chief Executive Approval

February 21, 2018 — Date Endorsed/Approved by Governing Board
Date

Maryland Higher Education Commission Proposal for New Instructional Program

Post-Master's Certificate in Nutritional Genomics in Clinical Practice Maryland University of Integrative Health

Maryland University of Integrative Health (MUIH) proposes the creation of a new Post-Master's Certificate (PMC) in Nutritional Genomics in Clinical Practice, within its Nutrition and Integrative Health program area. This will be a one-year (three trimesters), fully online program, effective Fall 2018.

A. Centrality to Institutional Mission Statement and Planning Priorities

1. Program description and alignment with mission

The mission of Maryland University of Integrative Health (MUIH) is:

> *A distinctive community of scholars, researchers, practitioners, and advocates, Maryland University of Integrative Health promotes whole person, relationship-centered healthcare.*
>
> *Through discovery and exploration, we deliver progressive educational programs, advance innovative clinical models, build mutually beneficial partnerships, and provide opportunities for fulfilling careers.*

Our vision is:

> *Serving as a leader in the global transformation of health and wellness, we integrate healing traditions and contemporary science, acknowledge the wisdom of the body and nature as a teacher, and focus on the interconnection of mind, body, and spirit.*
>
> *Our work enables people to thrive through the cycles of life.*

MUIH is the pre-eminent institution in the U.S. for the study of health and wellness. Its programs integrate healing traditions and contemporary science and acknowledge the wisdom of the body and nature as a teacher to educate diverse and erudite healthcare professionals for today and tomorrow. In keeping with its mission and vision, MUIH currently offers graduate programs in areas related to natural medicine such as acupuncture, herbal medicine, health and wellness coaching, nutrition, and yoga therapy. MUIH has been a pioneer and driving force in the national movement toward wellness, disease prevention, and relationship-centered healthcare.

As an anchoring academic institution for the emerging wellness system in America, MUIH has trained over 2647 wellness professionals and has a current, annual unduplicated headcount enrollment of 1754 graduate students. Graduates not only help to frame the healthcare options in the U.S. and abroad, but also are instrumental in encouraging people to switch to more natural lifestyle choices that improve their overall health and wellness.

The proposed PMC explores the emerging field of Nutritional Genomics research and its application in clinical practice. The culmination of the sequencing of the human genome in 2001 shifted the scope of scientific inquiry from that of a single gene and its DNA sequence to the study of how genes are expressed and how changes outside of the gene, as well as molecules within the cell, can influence gene expression. Studies at the molecular level have led to the emergence of new fields such as proteomics, metabolomics and pharmacogenomics. Nutrigenomics is at the intersection of nutrition and genetic expression, specifically how nutrients influence the genome and their relationship to health and wellness.

Nutritional genomics "concentrates on the effect our genes have on our risk of disease and dysfunction that can be mitigated by nutritional intervention, as well as the impact our food, nutrition, stress, and toxins have on the expression of our genes."[1] The emergence of this field parallels the emergence of the broader field of precision health care, in which approaches are tailored to individuals based on their unique genetic makeup. It thus aligns with MUIH's mission and its role as a leader in new approaches to individualized, integrative healthcare.

In June 2017, MUIH held a three-day symposium on Nutritional Genomics in Clinical Practice, which laid the groundwork for the department's interest in offering this Post-Master's Certificate. The symposium, at MUIH's campus in Laurel, Maryland, was presented in partnership with the Maryland Naturopathic Doctors Association and focused on translating nutrigenomics information for the clinician and clinical practice. Thirteen leaders in the field of nutrigenomics addressed an audience of 95 naturopathic doctors, nutritionists, academics, students, and other healthcare professionals from across the United States.[2] In addition to a pre-symposium workshop on genetics and genomics, the symposium examined the relation between nutrition and gene expression and the ways in which "genomic testing, along with functional testing such as nutrient level analysis, can allow experienced clinicians to develop personalized therapeutic plans for their clients that will optimize their interactions between the food they eat, their lifestyle, their environment, and their unique genetic makeups." Topics included "genetic modification through diet and lifestyle; reactions to specific food or substances … based on individual genetic variations; and how nutrigenomic determinants can affect the aging process, behavioral disorders, fertility, immunity, and other physical outcomes." Breakout sessions included "culinary genomics, nutrigenomics and neurotransmitters, precision testing combining genomic and microbiome data, nutrient-specific genes, and using nutritional genomics to personalize clinical application."[3]

Planning is underway for a second symposium in summer 2018. The proposed Post-Master's Certificate in Nutritional Genomics in Clinical Practice draws on the same body of

[1] "Nutritional Genomics," Dietitians in Integrative and Functional Medicine, https://integrativerd.org/nutritional-genomics/, accessed February 9, 2018.

[2] Participation in the symposium was pre-approved for Continuing Education Units for naturopathic doctors by the Oregon Board of Naturopathic Medicine; for nutritionists by the Board for Certification for Nutrition Specialists, Commission on Dietetic Registration; and for acupuncturists by the Maryland Board of Acupuncture.

[3] Sherryl Van Lare, "Nutritional Genomics Symposium Highlights" (summary of proceedings), http://muih.edu/academics/continuing-education/muih-nutrition-symposium, accessed February 5, 2018; see also Andrea K. McDaniels, "Genetics Playing a Growing Role in Intersection of Nutrition and Health," *The Baltimore Sun,* July 13, 2017, www.baltimoresun.com/health/bs-hs-nutritional-genomics-20170713-story,amp.html.

knowledge and builds on the continued national exposure from this annual symposium to offer graduate-level training and education concerning the relation between nutrients and the genome. As a stand-alone certificate, the three-trimester program can provide a complementary add-on to other MUIH degrees.

As with all MUIH programs, the emphasis on establishing rapport with the client and developing a "healing presence" will be integrated into this program. Consistent with MUIH's mission to deliver innovative solutions for healthier living and career-oriented opportunities for students, the proposed certificate will continue to advance MUIH's leadership in the emerging wellness system.

2. Priority and support of institutional strategic goals

The creation of the Nutritional Genomics certificate supports MUIH's strategic goals, values and institutional principles. Since its founding, MUIH has positioned itself as a pioneer and advocate for a more natural and relationship-oriented approach to health and well-being. It is helping to lead the transformation of our healthcare delivery system through behavioral changes in consumer self-care, teaching MUIH graduates to become partners in health by educating, facilitating and coaching. Understanding of nutritional genomics will provide another tool for addressing the role of diet and lifestyle in individual health and clinical practice.

By addressing this emerging field in healthcare, the proposed certificate program supports MUIH's strategic goal of becoming the preeminent academic institution serving the health and wellness field. The creation of this program supports goals and objectives in the University's strategic plan and 2017-2018 strategic action plan:

- Strategic Plan G1.O1: Increase awareness, reputation and visibility of the University's academic programs, research initiatives, and clinical offerings.
- Strategic Plan G1.O4: Leverage and adapt current academic program offerings to reach new audiences.
- Strategic Plan G4.O4: Create alternative revenue streams.
- 2017-2018 Strategic Priority 2G: Launch new and revised academic programs for 2018-2020.

The nutritional genomics model, as with all of the disciplines at MUIH, is prevention- and education-oriented, nature-based, community-focused and relationship-centered. The proposed certificate in Nutritional Genomics expands and complements MUIH's curricular content and diversifies career options for graduates. It will help to enhance existing programs by offering opportunities for adding to other degrees and expanding knowledge of this emerging area among current health professionals. The Nutritional Genomics certificate will provide additional educational and career opportunities for professionals in a variety of fields, including nutritionists, medical doctors, nurse practitioners, physician assistants, osteopathic physicians, naturopathic physicians, and other health professionals.

B. Adequacy of Curriculum Design and Delivery to Related Learning Outcomes

The proposed PMC in Nutritional Genomics is a three-trimester, five-course (14-credit) program designed to meet the clinical needs of a variety of licensed healthcare professionals, by providing graduate-level knowledge and credentialing in a newly emerging field. The audience for this certificate includes individuals with a master's degree in Clinical Nutrition (including MUIH alumni), those with other clinical master's and advanced clinical degrees such as Medical Doctor, Chiropractic Medicine, Nurse Practitioner, Physician Assistant, Dentist, Osteopathic Physician, Naturopathic Physician, and Doctor of Pharmacology. It also includes other licensed health professionals. Students will have at least three semester credits of nutrition, biochemistry, and four semester credits of physiology and/or pathophysiology.

The program will prepare students to understand and address the role of genomics in the context of overall clinical care, including evaluation of the genetic and genomic profile, use of genomic testing in clinical practice, and relation of the genomic profile to overall health and recommendations regarding lifestyle and diet. Students will gain knowledge regarding genetics and genomics, nutritional genomics, epigenetics, and genomic testing, and ways that nutritional interventions can be integrated into clinical care based on that knowledge.

1. Courses and program requirements

The curriculum for the certificate program is designed to establish an understanding of genetics and genomics, nutritional genomics, epigenetics, genomic testing in clinical practice, and the integration of nutritional genomics into clinical care.

Prospective students for the program will have completed a master's degree in an advanced clinical field including at least three semester credits of nutrition, biochemistry and four semester credits of physiology and/or pathophysiology.

The certificate builds on existing course content in the M.S. nutrition program, faculty expertise, and external collaborations in nutrigenomics. All courses are new and will be available online. Full course descriptions are provided in Appendix A. In addition to the PMC, the courses may be shared by other programs at the university as electives or required courses where appropriate.

Requirements for the Nutritional Genomics PMC program include 14 credits taken over one year (three trimesters), consisting of four Nutrition courses and one in Integrative Sciences (course numbers to be determined):

Trimester 1	
NUTR 617 Nutritional Genomics	3
ISCI 672 Introduction to Genetics, Genomics and the Omics	3
Trimester 2	
NUTR644 Epigenetics, Nutrients and Lifestyle Influences on the Genome	2
NUTR 638 Genomic Testing in Clinical Practice	3

Trimester 3	
NUTR 639 Integrating Nutritional Genomics into Clinical Care	3
Total Credits for Post-Master's Certificate	**14 credits**

2. Educational objectives and student learning outcomes

The PMC in Nutritional Genomics in Clinical Practice is designed to build an understanding of the relation between nutrients and the genome, and skills related to the application of that knowledge to provide individualized healthcare. Students who complete the PMC in Nutritional Genomics in Clinical Practice will be able to:

- Evaluate the contributions of an individual's genetic and genomic profile to nutrient/genomic interactions and apply to client care
- Assess the utilization of nutritional genomics and genomic testing in clinical practice for clients with specific health conditions
- Analyze the contributions of an individual's genomic profile, lifestyle and diet to their overall health

3. General education requirements

Not applicable.

4. Specialized accreditation or graduate certification requirements

Not applicable.

5. Contractual agreement with other institutions

MUIH utilizes a three-pronged approach to identifying and establishing contractual agreements with other institutions. First, the Provost's office, academic program leadership, Office of Academic Partnerships, and Office of Admissions work collaboratively to develop and maintain articulation agreements and memoranda of understanding with other institutions, organizations, and employers to facilitate pathways to enrollment. Second, the Director of Academic Partnerships functions on a global level to actively identify and pursue partnerships that could lead to multiple academic placements as well as opportunities for partnership in research and curriculum. Third, using a more focused approach, each academic department actively fields external solicitations for partnership and works in collaboration with the Office of Academic Partnerships to ensure a streamlined process for formalizing placements. Once placements have been identified and vetted through MUIH's administrative and academic leadership, the placements are properly established via contractual agreements that outline the specifics of the placements.

Staffing that supports these partnerships includes:

- Christina Sax, Provost and Vice President for Academic and Student Affairs
- James Snow, Dean of Academic Affairs
- Alexandra York, Director of Academic Partnerships
- Elizabeth Owens, Manager of Experiential Programs Nutrition and Integrative Health
- Robert Brooks, Coordinator, Career Services

A sample agreement that serves as a template for partnering with other institutions can be found in Appendix B.

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

1. Demand and need for the program

Healthcare costs and expenditures for healthcare in the United States are rapidly increasing. The Centers for Medicare and Medicaid Services project that healthcare spending will rise from $2.9 trillion in 2013 to over $5 trillion in 2022.[4] In percentage terms, total expenditures on healthcare are projected to rise from 17.8 percent of GDP in 2015 to 19.9 percent in 2025.[5]

Expenditures for integrative and preventive healthcare are part of this growth and are increasingly important in efforts to control costs and improve patient outcomes. Integrative models focus on preventive practices, the adoption of healthy lifestyles, consolidated visits and group sessions for education and support, and out-patient care in home and workplace settings. These approaches have repeatedly been shown to be cost effective.[6] As a result, they play a key role in delivering patient outcomes and support the shift in emphasis from acute to preventive care.

The 2012 National Health Interview Survey conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics demonstrated significant use and spending on integrative healthcare approaches.[7] As spending on integrative medicine

[4] Centers for Medicare and Medicaid Services, "National Health Expenditure Projections 2012-2022," https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/Proj2012.pdf.

[5] Centers for Medicare and Medicaid Services. "NHE Fact Sheet," last modified 12/6/2017, https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet.html.

[6] P. Herman, et al., "Are Complementary Therapies and Integrative Care Cost-Effective? A Systematic Review of Economic Evaluations," *BMJ Open* 2(5): e001046, 2012; and E. Guarneri, B. Horrigan, and C. Pechura, "The Efficacy and Cost-Effectiveness of integrative Medicine," The Bravewell Collaborative, 2010.

[7] National Center for Health Statistics, "Use of Complementary Health Approaches in the US: 2012 National Health Interview Survey," Centers for Disease Control and Prevention, https://nccih.nih.gov/research/statistics/NHIS/2012; see also T.C. Clarke, et al., "Trends in the Use of Complementary Health Approaches Among Adults: United States, 2002–2012," *National Health Statistics Report*, Feb 10 (79): 1–16, 2015; and R.L.Nahin, et al., "Expenditures on Complementary Health Approaches: United States, 2012," *National Health Statistics Report*, June 22 (95):1-11, 2016.

continues to increase,[8] integrative health professions represent some of the fastest growing occupations in the U.S.[9]

MUIH's programs, including its Nutrition and Integrative Health program, prepare individuals to provide such integrative healthcare. Integrative and preventive healthcare includes nutritional assessment and counseling. In recent years, the connection between nutrition and health has become better understood, particularly in areas such as cardiovascular health, osteoporosis, diabetes, and obesity, as well as certain cancers and other diseases. The sequencing of the human genome and resulting genomic technologies promise to take that connection to a new level, allowing a better understanding of the relation between diet and health not only in general but for specific populations and individuals. This raises "the possibility of individualizing nutritional intake for optimal health and disease prevention on the basis of an individual's genome."[10]

Nutritional genomics thus "has tremendous potential to change the future of dietary guidelines and personal recommendations. Nutrigenetics will provide the basis for personalized dietary recommendations based on the individual's genetic make up." While research continues, it is clear that genomic information is already offering ways to identify behavioral and dietary strategies, and that "nutrition will be the cornerstone of this endeavor."[11] The resulting potential for improvements in healthcare is enormous, allowing for better health maintenance, "blocking or slowing the early stages of disease development."[12] The American College of Nutrition forecasts nutritional genomics as the third hottest area of nutrition research for 2020.[13]

Nutritional genomics is therefore emerging as an essential part of healthcare and nutrition; it has been identified as one of five strategic focus areas for the Academy of Nutrition and Dietetics.[14] The Academy cautions that this is still an emerging science and that "proficiency requires advanced knowledge and skills" which most healthcare professionals, not trained in clinical genetics, currently lack.[15] However, the field is burgeoning with discussions of how to integrate genetic information into client counseling and treatment.[16] The National Human Genome Institute recognizes "nutrigemonicist" as a genomic career path with faster than average job growth.[17] The proposed certificate will help to develop and disseminate the

[8] Report Linker, Alternative Medicine Industry: Market Research Reports, Statistics and Analysis. https://www.reportlinker.com/.

[9] "Health Professions: Capitalizing on Creative Disruption," COE Forum Industry Futures Series, Education Advisory Board, 2017.

[10] Stover, "Influence of Human Genetic Variation on Nutritional Requirements," The American Journal of Clinical Nutrition, February 2006, https://doi.org/10.1093/ajcn/83.2.436S.

[11] Ordovas and Corella, "Annual Review of Genomics and Human Genetics," February 2004, https://www.researchgate.net/publication/8232046_Nutritional_Genomics.

[12] Elliott and Ong, "Nutritional Genomics," BMJ June 15, 2002, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1123385/.

[13] Journal of American College of Nutrition, 2014, 33(4), 340-346.

[14] https://integrativerd.org/nutritional-genomics/.

[15] Camp and Trujillo, "Position of the Academy of Nutrition and Dietetics: Nutritional Genomics," http://jandonline.org/article/S2212-2672(13)01783-8/fulltext.

[16] See for example the series of articles from 2005 through 2017 in Journal of the Academy of Nutrition and Dietetics, http://jandonline.org/content/nutritionalGenomics.

[17] https://www.genome.gov/genomiccareers/career.cfm?id=30

needed knowledge and skills.

MUIH is especially well positioned to support the incorporation of this knowledge into clinical practice. Its commitment to the advancement and evolution of knowledge in healthcare, its understanding of complementary and integrative medicine, and its emphasis on collaborative teamwork to support individual and collective health can position it to affect clinical practice in a variety of healthcare settings. It already has significant programs and faculty expertise in related areas, including the Nutrition and Integrative Health M.S. program. MUIH is well prepared to offer and support this important certificate.

2. Consistency with the Maryland State Plan for Post-Secondary Education

The proposed program will serve the needs of the State of Maryland, consistent with the goals of the *2017-2021 Maryland State Plan for Postsecondary Education: Student Success with Less Debt*.[18]

The State Plan's second goal is "Promote and implement practices and policies that will ensure student success." The proposed certificate's focus on nontraditional students who are working professionals is consistent with Strategy 5, "Ensure that statutes, regulations, policies, and practices that support students and encourage their success are designed to serve the respective needs of both traditional and non-traditional students."

The State Plan's third goal is "Foster innovation in all aspects of Maryland higher education to improve access and student success." Strategies under this goal include Strategy 8, "Include long-term graduate education opportunities when considering a student's career trajectory" and Strategy 11, "Encourage a culture of risk-taking and experimentation." The proposed certificate offers an extended path for learning for current professionals and involvement in a new and emerging field. By offering the certificate in Nutritional Genomics in Clinical Practice, MUIH will build on its existing expertise in nutrition and integrative health to offer current healthcare professionals the opportunity to pursue additional graduate education and to add skills and knowledge in a field that is just emerging.

This online certificate will also add to the portfolio of programs through which MUIH reaches nontraditional students such as practicing health professionals through an online platform for which faculty are trained in best practices and online resources are provided to students. These features address Strategy 9, "Strengthen and sustain development and collaboration in addressing teaching and learning challenges." Full discussion of MUIH's online philosophy, training and assessment is in Appendix C.

[18] http://www.mhec.state.md.us/About/Documents/2017.2021%20Maryland%20State%20Plan%20for%20Higher%20Education.pdf.

D. Quantifiable and Reliable Evidence and Documentation of Market Supply & Demand in the Region and State

1. Market Demand

It is now well established that our nation's health is a social, economic, financial, and behavioral issue of enormous proportions, offering significant opportunities for economic growth and employment. The U.S. Department of Labor and the U.S. Bureau of Labor Statistics (BLS) see the healthcare and social assistance sector as leading job growth, largely due to an aging population and increased access to healthcare. BLS employment statistics for the period 2004-2014 show exceptionally strong growth in employment in the healthcare sector; that sector "is projected to grow 18 percent from 2016 to 2026, much faster than the average for all occupations, adding about 2.4 million new jobs … more jobs than any of the other occupational groups."[19] Maryland's Department of Labor also predicts exceptional job growth in this area, exceeding 27 percent for the decade 2014-2024.[20]

In this growing market, prevention and wellness initiatives are increasingly important, with health professionals focusing on overall lifestyle wellness and targeting specific behaviors such as nutrition. In addition, advances in nutritional genomics offer the opportunity for physicians, nutritionists and other health professionals to take the holistic approach to a new level, more individualized and specific. The holistic, client-centered approach is central to MUIH's model and genomics offers a new tool for that approach.

Nutrigenomics is also aligned with the increasing use of data analytics and personalized medicine in healthcare. The use of nutrigenomics in clinical and medical practice involves the use of data analytics to integrate the individual's unique genetic blueprint with data on their lifestyle and environment in order to determine the best course and interventions to achieve health and wellness, and to predict and alleviate illness.

Stanford University's 2017 *Health Trends Report* suggests that "doctors and other members of the medical community must be more data literate and skilled in data analytics" if the impact of big data health is to be fully realized.[21] That impact is already large; the global precision medicine market was valued at over $1 billion in 2014, and is projected to grow to $2.4 billion in 2022 and over $3 billion in 2025. Key drivers of the market include growing development of next-generation sequencing, whole genome technology, companion diagnostics and growing number of retail clinics. The use of personalized nutrition and wellness approaches comprises over half of this market.[22]

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[19] BLS, "Occupational Outlook Handbook," updated January 30, 2018, https://www.bls.gov/ooh/healthcare/home.htm.

[20] Maryland Department of Labor, Licensing and Regulation, "Maryland Long Term Industry Projections - 2014-2024 - Workforce Information and Performance," https://www.dllr.state.md.us/lmi/iandoproj/industry.shtml.

[21] Stanford Medicine "2017 Health Trends Report: Harnessing the Power of Data in Health," June, 2017, https://med.stanford.edu/news/all-news/2017/06/stanford-medicine-launches-health-care-trends-report.html.

[22] Personalized Medicine (PM) Market Analysis By Product (PM Diagnostics, PM Therapeutics, Personalized Medical Care, Personalized Nutrition & Wellness) And Segment Forecasts To 2022," Grandview Research, June 2016. https://www.grandviewresearch.com/press-release/global-personalized-medicine-market.

The proposed certificate is being created at an advantageous time. Although several universities offer graduate clinical nutrition certificates and genomic analysis certificates and have added nutrigenomics courses to their graduate curriculum in response to this emergent field, none have a program like MUIH's, dedicated to the intersection of clinical nutrition and genomic analysis and focused specifically on nutrigenomics. There is currently only one graduate program in the US: the University of New Haven offers an onsite PBC. However, its post-baccalaureate program provides an introductory theoretical focus, compared to MUIH's in-depth clinical focus and PMC.

At the 2017 MUIH symposium, five keynote speakers, nationally recognized experts in nutrigenomics, urged MUIH to "claim the space" to fill a growing need, which no other institution is yet addressing. The proposed program offers an opportunity for current and future healthcare professionals to acquire an additional area of expertise. The online format allows the program to reach those workers throughout Maryland and the nation.

2. Educational and training needs, expected vacancies

The U.S. Department of Labor's Bureau of Labor Statistics' *Occupational Outlook Handbook* projects the growth rate for dietitians and nutritionists for 2014-2024 to be much faster than average (15%); 68,000 were employed nationwide in 2016, with an additional 9900 projected by 2026.[23] These projections demonstrate the growing importance of nutrition counseling and planning in the expanding healthcare industry.

Although the field of nutritional genomics is so new that specific job outlook data are limited, there are clear indicators of its promise. The premier international peer-reviewed scientific journal *Nature* dedicated a supplement to nutrigenomics in 2010,[24] and the *Journal of the Academy of Nutrition Dietetics* from 2005 through 2017 has devoted a growing number of articles to the integration of genetic information into nutrition and dietetic counseling and treatment.[25] The 2018 annual conference of the American College of Nutrition is focused solely on nutrigenomics,[26] and multiple major universities have invested in creation of centers on nutrigenomics.[27] The rapid rise of commercial, non-medically prescribed, personalized genetic testing packages also attests to growing interest in the field of genomics.

In this environment, the addition of knowledge concerning nutritional genomics to the existing expertise of healthcare professionals will enhance their employability and relevance. The PMC in Nutritional Genomics in Clinical Practice will offer new expertise and career opportunities for medical doctors, chiropractic and naturopathic physicians, nurse practitioners, and physician assistants as well as clinical nutritionists. Based on the latest

[23] https://www.bls.gov/ooh/healthcare/dietitians-and-nutritionists.htm
[24] *Nature*, 468, 7327, supplement, 2010.
[25] Jandonline.org.
[26] http://www.americancollegeofnutrition.org/conference.
[27] For example: University of Arizona (https://www.nutrigenomics.arizona.edu/), Penn State University (http://vbs.psu.edu/research/centers/nutrigenomics), Stanford University (https://geneticscertificate.stanford.edu/), Southern California University of Health Sciences (https://www.scuhs.edu/academics/sps/genomics/).

knowledge in the field of nutritional genomics, students will gain the skills to evaluate the relation of an individual's genomic profile to nutritional care, assess the use of nutritional genomics and genomic testing in clinical practice, and relate genomic profile, lifestyle and diet to a client's overall health.

The *Occupational Outlook Handbook* cites the median salary for dietitians and nutritionists (where entry-level jobs require only a bachelor's degree) as $58,920 per year in 2016.[28] However, the proposed MUIH certificate (with a prerequisite of a master's degree or other advanced clinical degree) will offer academic credit in an emerging area of knowledge to enhance students' previous graduate-level study and/or clinical experience in healthcare. It will thus support greater earning potential by adding a new area of expertise to professionals in a range of healthcare professions and increasing their clinical knowledge and skills. It also draws on MUIH's solid reputation in the area of both online learning and health education.

3. Prospective graduates

The MUIH program has differentiating factors that will support its competitiveness in this growing market: its grounding in MUIH's solid reputation and philosophy; cost; distinctive features of the program experience such as MUIH's hallmark focus on integrative medicine, holistic approach and healing presence; online availability; and MUIH's current strong foundation in nutrition and integrative health.

Given the growth trends in alternative and integrated healthcare in general and nutrition and genetic counseling in particular, as well as enrollment history for similar certificates and for its master's and doctoral programs in nutrition, MUIH projects solid enrollment growth over the first five years based on expected completion of the program in one year (see table below).

PROJECTED ENROLLMENTS FOR PROGRAM*

Year	Trimester	New Students	Continuing Students	Total Students
Year 1	Fall 2018	5		5
	Spring 2019	5	4	9
	Summer 2019		8	8
Year 2	Fall 2019	8	4	12
	Spring 2020	8	6	14
	Summer 2020		12	12

[28] https://www.bls.gov/ooh/healthcare/.

Year 3	Fall 2020	10	6	16
	Spring 2021	10	8	18
	Summer 2021		16	16
Year 4	Fall 2021	12	8	20
	Spring 2022	12	10	22
	Summer 2022		20	20
Year 5	Fall 2022	12	10	22
	Spring 2023	12	10	22
	Summer 2023		20	20

*Enrollment Assumptions: New students are admitted into the program during the fall and spring trimesters, but not during the summer trimester. Continuing students have an overall average retention rate of 80%, consistent with that of MUIH's existing programs.

E. Reasonableness of Program Duplication

There are no other related certificate programs in Maryland.

Johns Hopkins University offers a Master's degree in Individualized Genomics and Health. This degree is not a standalone certificate. It focuses on laboratory methods, bioinformatics tools and "ethical, legal and regulatory aspects of individualized genomics and health." It does not provide MUIH's emphasis on nutritional genomics or on integration of genomics into clinical practice.

University of Maryland College Park offers Master's and doctoral degrees in Nutrition and Food Science. They do not offer a post-master's certificate, and the graduate degrees do not focus on nutritional genomics.

F. Relevance to Historically Black Institutions (HBIs)

There are no certificate programs in Maryland HBIs addressing nutritional genomics. The proposed program will have no potential impact on high-demand programs at the HBIs or on the uniqueness and institutional identities and missions of the HBIs.

G. Evidence of Principles of Good Practice if online

The proposed program will be offered online. MUIH has successfully offered fully online courses and programs since 2013, as approved by both the Maryland Higher Education Commission and the Middle States Commission on Higher Education. Thus, MUIH is well versed in supporting teaching and learning via online and digitally enhanced modalities, and its principles and

practices align with MHEC's Principles of Good Practice for Distance Education. At MUIH, online courses are considered to be those in which 100 percent of the teaching and learning process is conducted at a distance, while blended courses are those in which a significant portion of face-to-face instruction is replaced by online or other means of digitally enhanced teaching and learning.

Appendix C provides a full description of how this program and others at MUIH comply with the Principles of Good Practice for Distance Education.

H. Adequacy of Faculty Resources

A number of potential faculty for this proposed program have already been teaching at MUIH for years in MUIH's Master of Science in Nutrition and Integrative Health and its doctoral program in Clinical Nutrition, both of which were developed with a highly qualified core team of program instructors. Expertise for course development and instruction in the new program is available among existing salaried academic staff, ranked and adjunct faculty.

All courses are taught by faculty with a master's degree or higher with significant experience teaching similar coursework. Guest lecturers and adjunct faculty are subject to the same high standards of education and experience.

As with many health professions programs where the curriculum calls for expertise across a broad spectrum of theory and practice, and consistent with the model through which MUIH delivers all its programs, the Nutritional Genomics in Clinical Practice certificate program will rely on a combination of core salaried faculty and the use of part-time adjunct faculty. Salaried full-time faculty will be strategically placed to anchor the program and provide stability and continuity for students. It is vital that faculty have practical, general experience, as well as specialization in discrete areas that will allow for expert instruction, supervision, and guidance.

Before beginning their first online or blended course development or teaching assignment, MUIH requires faculty to complete the Best Practices in Online/Blended training focused on online pedagogy/andragogy, the Canvas Learning Management System (LMS) training, Big Blue Button web conferencing training, and one-on-one consultation tailored to their individualized needs, all provided by the Center for Teaching and Learning (CTL). These faculty are also provided the Quality Matters Rubric as a guiding resource and access to 24/7 support through the Canvas Help Desk. Faculty developing and teaching online and blended classes also have ongoing opportunities for professional development through various face-to-face and online webinars, workshops, trainings, and conferences.

The current MUIH budget already accounts for the needed faculty, including a mix of salaried and adjunct faculty. Criteria for faculty recruitment include:

- Advanced degree in naturopathy, clinical nutrition or biomedical sciences
- Qualified to teach graduate courses, and to advise and mentor students.
- Faculty experience in higher education and, in some cases, a public health education environment.
- Experience developing and teaching courses related to the field.
- Demonstrated commitment to continuing education and professional development.

- Desire to engage in activities for a new program with a strong wellness philosophy at its foundation.
- Research publication and scholarship are preferred but not required.

Appendix D contains a list of representative faculty for the program, categorized by status as current ranked faculty, current academic administrators with additional teaching responsibilities, and the remainder who serve as adjunct faculty (based on enrollment-driven needs).

I. Adequacy of Library Resources

The University provides online support for faculty and students with an enhanced integrated and online library system, and the Library continues to expand to support all modalities of teaching and learning as well as enrollment growth. The Sherman Cohn Library at MUIH has a total collection of over 18,000 titles in health and wellness (13,000 physical holdings and 5,000 electronic). Electronic resources augment the number of health and wellness materials available. The Library's computerized systems and licensing agreements with vendors permit access to open-access journals and other free Internet resources, as well as selected journal articles from individual subscriptions and from the Library's EBSCO host databases. The Library uses the National Library of Medicine's Docline service for document delivery. When the Library does not own an article, it can be obtained in a timely manner for faculty and students through the Library's use of Docline.

In 2016, the University opened a Quiet Study Room associated with Sherman Cohn Library that addressed onsite students' expressed need for a place to work in silence. The Library is located in a single room and fosters an information commons environment.

The Library conducts the MUIH550 Academic Research and Scholarship non-credit course that is required of all students during their first trimester at MUIH; this course is available online to all students.

The Sherman Cohn Library at MUIH has and will continue to expand to support all modalities of teaching and learning, as well as moderate enrollment growth. In FY 2014, the University added online support for faculty and students with a newly purchased and significantly enhanced integrated library system. All online courses contain a direct link to the Sherman Cohn Library at MUIH, prominently positioned in the Canvas online classrooms.

J. Adequacy of Facilities, Infrastructure, and Equipment

MUIH's 12-acre campus contains a 32,500 square-foot, two-story building, herbal medicine teaching garden, parking for all students, and ample space for additional buildings to be built in order to accommodate growth. Over 300 people can be accommodated in the current building's large event space, which totals 2,750 square feet. The current building serves as the primary home for all of MUIH's programs, and includes:

- Eight classrooms and a ninth, multipurpose space;
- An herbal dispensary;
- A library;
- A quiet study room;
- A Career Center
- 22 clinical treatment rooms, assigned to the Student Teaching Clinic;
- Space for faculty offices;
- A faculty kitchen;
- A student lounge with an adjacent kitchen;
- A bookstore/café that includes seating

All classrooms have access to voice and data communications and WiFi is available throughout the building. Two large, dividable classrooms are equipped with ceiling-mounted data projectors and screens, as well as an integrated sound system. A portable sound system, TV, laptops, and overhead and LCD projectors are available for use in classrooms as needed. Other space is leased in Howard County as needed, and offices for general administration of the university and faculty will continue to be located at the current campus locations.

Since the program will be fully online, this physical space will not be affected except inasmuch as students may wish to use the Library, Career Center, and student spaces, and concurrently enroll in other programs offered on campus.

Those enrolled in the program will be served by the current infrastructure including admissions, financial aid, registrar, advising, student success services, disabilities support services, and career services. Students enrolled in online and blended courses have online and other remote access to these services, as well as the University-wide Orientation, Library and Program Community Sites.

The Student Success Office provides individualized academic and non-academic success support to students who are either self-directed or referred by faculty. Such services include writing and scientific tutoring, study skills, academic success strategies and planning, and disabilities support services. An online University Wide Orientation provides an introduction to academic resources. Each department maintains a Community Site in the Canvas LMS for all students enrolled in its programs. These sites contain learning resources that cut across the program, access to selected online course learning modules, and resources that assist students in their study and practice for national licensing exams.

K. Adequacy of Financial Resources

Table 1: Resources

Reallocated funds
During the start-up phase of the program, the university will reallocate funds from general operation to support this new program. This reallocation of funds will not have an adverse impact on existing programs since the university operates with a net surplus sufficient to reallocate the necessary funds to the new program.

Tuition and Fee Revenue
The intake assumptions for years 1 through 5 are 10, 16, 20, 24, and 24 new students respectively. The projected intake is conservative to reflect the launch of a new program and a ramp-up in the later years. The projected intake is consistent with the enrollment history for similarly stackable certificates and the Master's program in nutrition and integrative health. The model also accounts for a modest level of attrition of students prior to completion of their program (overall average retention rate of 80% for all students, consistent with that of MUIH's existing programs).

Table 2: Expenditures

New and/or renovated space
Not applicable.

Other Expenses
Other expenses include faculty development, office supplies, data processing and communications, maintenance, marketing, course development costs, and building operating costs not already included in the nutrition and integrative health program.

PMC in Nutritional Genomics in Clinical Practice
Resources and Expenditures

Resources					
Resource Categories	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
1. Reallocated Funds	$0	$0	$0	$0	$0
2. Tuition/Fee Revenue (c + g)					
a. # f/t Students NOTE: p/t duplicated headcount for 3 trimesters/year	22	38	50	62	64
b. Annual tuition fee/rate NOTE: tuition rate/credit	$867/credit $125 fee/ trimester	$893/credit $125 fee/ trimester	$920/credit $125 fee/ trimester	$948/credit $125 fee/ trimester	$976/credit $125 fee/ trimester
c. Credit Hours per student per trimester NOTE: Average credit hours per p/t student per trimester	4.7	4.7	4.7	4.7	4.7
d. Total Tuition Revenue (a x b x c)	$92,398	$164,240	$222,450	$283,997	$301,581
3. Grants, Contracts, & Other External Sources	$0	$0	$0	$0	$0
4. Other Sources	$0	$0	$0	$0	$0
TOTAL (Add 1 - 4)	$92,398	$164,240	$222,450	$283,997	$301,581

Expenditures					
Expenditure Categories	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
1. Total Faculty Expenses (b + c below)					
a. #FTE NOTE: #Credit Course Assignments (adjunct and salaried)	14	14	14	14	14
b. Total Salary NOTE: Based on MUIH starting mid-point adjunct compensation rate.	$17,220	$17,570	$17,920	$18,284	$18,648
c. Total Benefits	$0	$0	$0	$0	$0
2. Total Administrative Staff Expenses (b + c below)					
a. # FTE	0.10	0.10	0.10	0.10	0.10
b. Total Salary	$10,978	$11,198	$11,422	$11,650	$11,883
c. Total Benefits	$300	$300	$300	$300	$300
3. Total Support Staff Expenses (b + c below)					
a. # FTE	0.10	0.10	0.10	0.10	0.10
b. Total Salary	$5,722	$5,836	$5,953	$6,072	$6,193
c. Total Benefits	$300	$300	$300	$300	$300
4. Equipment	$0	$0	$0	$0	$0
5. Library	$0	$0	$0	$0	$0
6. New or Renovated Space	$0	$0	$0	$0	$0
7. Other Expenses (Course development, marketing, overhead)	$18,630	$18,801	$12,724	$11,657	$11,831
TOTAL (Add 1 - 7)	$53,150	$54,005	$48,619	$48,263	$49,155

L. Adequacy of provisions for evaluation of program

Since its establishment, MUIH has nurtured a culture of assessment and feedback. Expected student learning outcomes are clearly stated at the course and programmatic levels, and these outcomes are well designed to align with the University's mission and the standards established by higher education in general.

Learning outcomes assessment is multilevel and predominantly utilizes a 360-degree design. Course outcomes and measures are consistent with the specific subject matter, and the achievement of outcomes is documented from both the faculty and student perspectives.

The academic departments, programs, and curriculum committees, subject matter experts (SMEs), and faculty responsible for designing, delivering, and assessing learning outcomes receive support from a 360-degree team. This team is led by the Learning Outcomes Assessment Team (LOAT), which serves as an umbrella committee to guide and facilitate academic assessment initiatives. Additional support is provided by the Assistant Provost for Academic Assessment and Accreditation, University Curriculum Committee, Student Affairs, Alumni Affairs, Natural Care Center clinic administration, and the Provost in gathering and interpreting assessment results. The involvement of all of these groups in assessment practices demonstrates that MUIH invests necessary institutional resources and is committed to outcomes assessment.

In 2011, MUIH piloted and then adopted the IDEA Student Rating of Instruction tool as the system students would use to evaluate courses and faculty. IDEA is a nonprofit organization whose mission has been to provide assessment and feedback systems to improve learning in higher education. The IDEA tool meets the needed and desired criteria for a sustainable course evaluation system that was previously identified by the LOAT Committee. Further, the IDEA system is based on 26 years of research and allows the institution to compare faculty performance within similar disciplines and among over 400 other universities. In 2016, MUIH shifted its use of the IDEA tool to the Campus Labs online platform, allowing for use of this tool by students in face-to-face, blended, and online classes alike.

Outcomes assessment is ongoing and based on the academic performance of students, as well as communication, collaboration, and leadership qualities and behaviors assessed in other settings. Online and blended courses are included in the university's overarching academic assessment plan. Expected student learning outcomes are clearly stated centrally and in syllabi at the course and programmatic levels, and are the same for each course regardless of the delivery format of each section of the course. With MUIH's master course philosophy, consistent delivery of certain content and utilization of common key assessment tools allows more precise learning outcomes assessment across various occurrences or sections of the online course. As part of the standard online and blended course design process at MUIH, course assessments are required to be aligned with the stated course learning outcomes, as specified by Standard 2 (Learning Objectives/Competencies) and Standard 3 (Assessment and Measurement) of the Quality Matters Rubric. Further details on assessment and evaluation in online courses are provided in Appendix C.

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

MUIH seeks qualified applicants who have the maturity, commitment, and preparation necessary to take full advantage of the specialized studies offered in each of its programs of study. MUIH is committed to being, communicating, and educating in ways that recognize and honor the full range of human diversity. Each student, faculty, staff, and board member strives to use language and manifest behavior that promotes inclusiveness and cultivates a positive learning community. Further, each student and faculty, staff, and board member is responsible for creating an atmosphere that supports all in growth and movement toward inclusiveness and the appreciation of diversity. MUIH is committed to broadening the diversity of student body, staff, administration, and board members.

MUIH is an equal opportunity institution. Applicants for admission, employment, and financial aid are considered based on individual merit. No person is excluded from participation in, denied the benefits of, or subject to discrimination in any program or activity of MUIH on the basis of race, color, national or ethnic origin, gender, gender identity, sexual orientation, marital status, pregnancy, age, religion, disability, or any other characteristic protected by law.

MUIH does not specifically recruit or advertise to any race, color, national or ethnic origin, gender, gender identity, sexual orientation, marital status, pregnancy, age, religion, or disability group; however, we find that the nature of our programs draws students from all races and backgrounds and countries.

N. Relationship to low productivity programs identified by the Commission

Not applicable.

Appendix A
Course Descriptions

Nutritional Genomics PMC Courses

(Course numbers to be determined)

ISCI 672 Introduction to Genetics, Genomics and the 0mics
3 credits
An overview of genetics and genomics including topics such as gene transcription, translation, post-translation modifications, and the omics: proteomics, metabolomics, lipomics, and glycomics.

NUTR 617 Nutritional Genomics
3 credits
The focus of this course will be on nutritional genomics and how individual genomic variation influences nutrient metabolism. Discussion will include single nucleotide polymorphisms, the effect of nutrients on hormone responses, biotransformation, and interactions with the microbiome.

NUTR 644 Epigenetics, Nutrients and Lifestyle Influences on the Genome
2 credits
This course will explore epigenetics, bioactive food compounds, and the mechanisms of inheritance of genomic modifications as well as the role of lifestyle in nutrient/genome interactions. The field of culinary genomics will be discussed.

NUTR 638 Genomic Testing in Clinical Practice
3 credits
Emphasis will be on current genomic tests and the technologies utilized in testing. Topics will include ribosomal sequencing and the field of bioinformatics. The ethics, the costs and the benefits of genomic testing for client/patient populations will be explored.

NUTR 639 Integrating Nutritional Genomics into Clinical Care
3 credits
This course will examine the role of genomics in the context of overall clinical care, including the therapeutic order and will discuss how nutritional genomics and nutritional interventions can be integrated into client care for specific health conditions such as inflammation, immune dysregulation, detoxification, bone health, and gastrointestinal conditions.

Appendix B
Sample Agreement with Partnering Institutions

MEMORANDUM OF AGREEMENT BETWEEN

Maryland University of Integrative Health Laurel, MD 20723 AND

_____

This Agreement is made this ____ day of _____, 20___, between Maryland University of Integrative Health, Inc. (the "University") and _____ (the "Provider") (sometimes collectively referred to as the "Parties").

WHEREAS, the University desires to offer its students the opportunity to learn to practice in a collaborative environment, including the opportunity to collaborate with physicians, nurses, and other allopathic health providers in an integrative healthcare setting at Provider's facilities.

WHEREAS, the Provider recognizes the need for providing the community, which it undertakes to serve, with adequate staff in all allied health areas at Provider's facilities, and,

WHEREAS, the Parties are desirous of cooperating to furnish educational experiences to students of the University, based on the terms and conditions contained in this Agreement,

NOW THEREFORE, it is mutually agreed by and between parties, to wit:

1. Definitions.

1.1 "Student Clinical Intern" shall mean a student enrolled in an academic program at the University who provides acupuncture treatments, yoga therapy, health and wellness coaching, nutritional counseling, or other services as mutually agreed to by the parties, to Provider's patients or provides any of these therapies in an educational series at Provider's facilities, under the supervision of a Faculty Supervisor (as defined below).

1.2 "Student Educator" shall mean a student enrolled in an academic program at the University who may provide patient and/or staff education and or the demonstration of a therapy on a patient and or staff member under the Supervision of a Faculty Education Supervisor, in the following areas: acupuncture treatments, yoga therapy, health and wellness coaching, or one-to-one nutritional counseling to Provider's patients.

1.3 "Faculty Supervisor" shall mean a faculty member employed by the University who will provide supervision to Student Clinical Interns.

1.4 "Faculty Education Supervisor" shall mean a faculty member employed by the University who may provide patient and/or staff education and who will provide supervision to Student Educators demonstrating therapies in any education series, but who will not provide supervision to Student Clinical Interns. The Student Clinical Interns and Student Educators may collectively be referred herein as "Students" and the Faculty Supervisors and Faculty Education Supervisors may collectively be referred herein as "Faculty Members".

2. Scope of Agreement.
2.1 Patient and Staff Education.

2.1.1. The Provider and the University shall collaborate on the University's offering patient and staff education regarding a variety of topics pertaining to integrative healthcare, including but not limited to, acupuncture, yoga therapy, nutrition, and health and wellness coaching.

2.1.2 Each education session shall be conducted by Faculty Education Supervisors and/or Student Educators, provided however that any education session in which a Student Educator will be demonstrating a therapy shall be supervised by a Faculty Education Supervisor. The content and the method of supervision for each discipline or during the delivery of a particular modality shall be in the sole discretion of the University. The faculty-to-student ratio is in the sole discretion of the University, in accordance with the University's accreditation, insurance requirements and regulatory requirements.

2.1.3 The University will ensure that all participating patients and staff are provided with the appropriate education and information and that they execute all necessary consent forms prior to the provision of any services contemplated under this Agreement. The Provider agrees to permit the University to use the University's unique patient information and consent forms that are required and approved by the University's professional liability insurance carrier. The University shall submit the information and consent forms to the Provider for review in advance of usage.

2.1.4 The Provider shall be responsible for communicating the availability of services by the University under this Agreement to its patients at Provider's facilities. Provider shall submit all such patient communication materials to the University for its approval prior to distribution. The University shall be permitted to publicize the availability of its services at the Provider's facilities to Provider's patients and staff provided however that any such communications and or publications shall be subject to Provider's standard vendor marketing policies and procedures. The University shall submit all such communication materials to Provider for its approval prior to distribution.

2.2 Clinical Experience.

2.2.1. The Parties will work together to develop a clinical internship program at Provider's facilities for the Student Clinical Interns in the University's various academic programs with the understanding that that the University is ultimately responsible for the academic clinical content of the internship. As of the effective date of this Agreement, the academic programs which shall be included under this Agreement include acupuncture, yoga therapy, nutritional counseling, and health and wellness coaching, and any other additional academic program mutually agreed by the parties. The clinical experience shall afford Student Clinical Interns with the opportunity to provide treatment to the Provider's patients under the supervision of a Faculty Supervisor. During the clinical experience, the Provider shall permit Student Clinical Interns with the opportunity to observe treatments provided by other Student Clinical Interns. The Provider retains the right to restrict any services provided hereunder, including patient care activities, at its sole discretion. In addition to providing treatment to Provider's patients, at the request of the Provider and subject to all applicable consent requirements, the University shall allow the Student Clinical Interns to treat Provider's staff in order to educate them on the specific therapies so that they may be better equipped to discuss treatment options with patients.

3. Faculty Supervisors' Qualifications.
The University shall identify Faculty Members who will provide supervision of Students consistent with the requirements of appropriate licensing boards, accrediting bodies, and the University's professional and general liability insurance carriers. The Provider shall not require any Faculty Members in the University's Acupuncture and Oriental Medicine programs to hold NCCAOM certification or any Faculty Member to have specialized or advanced training regarding caring for Patients with any particular condition (including but not limited to cancer) at the time that the University identifies the Faculty Members. However, the Provider may require that the Faculty Members complete specialized patient care training prior to beginning work at the Provider's facility and Provider will provide such training. Notwithstanding the foregoing, it is the sole responsibility of the University to ensure that Students are supervised by competent and qualified Faculty Members, including any requirements under applicable laws and regulations and accreditation requirements.

4. Patient Medical Records.
The Parties agree that all patient records shall be maintained in accordance with State and Federal law. All direct patient care provided by Student Clinical Interns will be documented in the patient's electronic medical record maintained by the Provider, in accordance with Provider's policies and procedures. The Parties agree that patient electronic records shall remain confidential and shall not be disclosed except as required or permitted by State or Federal law. The Provider acknowledges that the University may provide treatment record forms that are unique to the various treatment modalities provided by the Student Clinical Interns and shall permit usage of such forms. The University shall submit these forms to the Provider in advance of such usage to allow the Provider to determine whether and how such forms can be incorporated into the Provider's electronic recordkeeping system. In addition, the Provider agrees to permit the University to use the University's unique Patient information and consent forms that are required and approved by the University's professional liability insurance carrier. The University shall submit the information and consent forms to the Provider for review in advance of usage. The Provider shall permit Student Clinical Interns under the supervision of the Faculty Supervisor, to have access to patient medical records for treatment planning purposes in accordance with Provider's policies and procedures. The Student Clinical Interns shall also have access to patient medical records to prepare clinical tracking forms (treatment and patient contact hours) which are required to track Student Clinical Interns' academic progress and to satisfy accreditation standards. These clinical tracking forms shall only include de- identified patient information as that term is defined in the Health Insurance Portability and Accountability Act and or its implementing regulations as amended. The University agrees to execute as of the same date as this Agreement, the Provider's standard Business Associate Agreement.

5. Supplies, Furniture, and Equipment.
Provider shall be responsible for the cost of all supplies, furniture, and equipment necessary for the University's provision of services under this Agreement. For some services, the University will purchase supplies (for example, acupuncture needles) and the Provider will reimburse the University. For other services, the Provider will purchase supplies, furniture, and equipment directly (for example, yoga mats and straps). All supplies will be stored at Provider's facilities. When deemed necessary by the University, the Provider will provide a locked cabinet for storage of certain supplies (for example, for acupuncture needles).

6. Patient Care and Supervision of Student Clinical Interns.
The Parties agree that the Provider shall retain complete control over patient care in accordance with clinical care guidelines, including cancer center practice guidelines, during the clinical experience except that the Faculty Supervisors shall provide supervision of and direct all treatments provided by the Student Clinical Interns. The method of supervision shall be mutually agreed upon by the parties, provided however that the supervision for each discipline or during the delivery of a particular modality shall be in the sole discretion of the University such that supervision of Student Clinical Interns may be either on-site (direct) or off-site (indirect), in accordance with the University's accreditation and insurance requirements, and regulatory requirements. The faculty-to-student ratio is in the sole discretion of the University, in accordance with the University's accreditation, insurance requirements and regulatory requirements, provided however that the University will provide this information to the Provider's Director of Education [or equivalent] in advance to the provision of services hereunder and will be willing to discuss any questions or concerns that the Director may have. The Faculty Supervisors shall approve all treatment records prepared by the Student Clinical Interns and submit the approved treatment records to Provider's team members who shall be responsible for incorporating the Student Clinical Interns' treatment records into the Patients' medical record.

7. Provider's Policies and Procedures.
All Faculty Members and Students when onsite at Provider's facilities will comply with Provider's policies and procedures including, but not limited to, dress code requirements.

7.1. The University will abide by the Risk Management and Safety programs of the Provider. All Faculty Members and Students will report and complete an incident report for all incidents occurring on the premises of Provider's facilities as a result of their clinical experience and or education session, and will in addition, notify the Provider's Director of Education [or equivalent] of any incident that involves a Student and/or Faculty member. The Provider's clinical area Supervisor/Charge Nurse will complete an incident report upon notification by the Student or Faculty Member of an incident discovered by the Student or Faculty Member that occurred on the Provider's premises. Subject to applicable privacy laws, the Provider agrees to inform the University of all incidents in which Students or Faculty Members are involved in so that the University can provide all necessary reports to the University's professional and general liability insurance carriers.

7.2. Faculty Supervisors and Student Clinical Interns will wear a picture ID badge while on the premises of Provider's facilities. Provider will provide one picture badge to each Faculty Supervisor and Student Clinical Intern. In the event the badge is not with the individual on a particular day, a temporary Student Clinical Intern or Faculty Supervisor badge will be secured from the Provider's Education Department until a replacement badge is purchased by the individual at the cost of $_____. A temporary badge may be used for one day only.
7.3 Faculty Members and Students shall have no access to the Provider's Medication Room.

8. Removal of Students or Faculty Members.
The Parties agree that the Provider shall have the right, after consultation with the University, to require the immediate removal of a Student or Faculty Member from the clinical experience under this Agreement, at the facility of the Provider if, in the sole discretion of the Provider, the

Student or Faculty Member is disruptive, disreputable or otherwise a risk to the operation of the facility or to patient care or if the Student or Faculty Member refuses to abide by the Provider's policies and procedures. Nothing under this paragraph shall prohibit the University from removing any Student or Faculty Member in its discretion. The University shall be solely responsible for promptly informing the Faculty Member and or Student regarding his/her removal, whether required by the Provider or the University.

9. Provider's Dining Facilities.
Students and Faculty Members shall be permitted to use the Provider's dining facilities.

10. Responsibilities of the University.
10.1 University's Insurance.

10.1.1.The University shall maintain, throughout the term of this Agreement, professional and general liability insurance that covers the Students and Faculty Members under this Agreement.

10.1.2. The University agrees to carry professional liability insurance for Faculty Members and Students and will supply the Provider with a copy of the current insurance certificates immediately upon request. Professional and general liability insurance with minimum limits of $1 million per occurrence or claim, $3 million annual aggregate, as well as Workers Compensation Insurance that meets statutory requirements of the State of Maryland will be provided by the University.

10.1.3. The University shall promptly notify the Provider of any claim that has been filed against a Student or Faculty Member as a result of their participating in any clinical training under this Agreement.

10.2 Health and Training Requirements.
Prior to participation of a Student Clinical Intern or Faculty Supervisor in the clinical experience onsite at Provider's facilities, the University shall:

10.2.1 Require each Student Clinical Intern and Faculty Supervisor to provide evidence, satisfactory to the Provider, that the Student Clinical Intern or Faculty Supervisor has had a PPD within one year of the Student Clinical Intern or Faculty Supervisor's participation in the clinical experience (chest x-ray every five years for history of a positive PPD);

10.2.2 Require each Student Clinical Intern and Faculty Supervisor to provide evidence, satisfactory to the Provider, that the Student Clinical Intern or Faculty Supervisor has had a seasonal flu shot or has signed the Provider's declination form prior to participation in the clinical experience;

10.2.3 Require each Student Clinical Intern and Faculty Supervisor to provide evidence, satisfactory to the Provider, that the Student Clinical Intern or Faculty Supervisor has received adequate immunizations for MMR and varicella/chicken pox (vaccinations and/or positive titers);

10.2.4. Inform each Student Clinical Intern and Faculty Supervisor, in writing, of the risk of Hepatitis B and require each Student Clinical Intern or Faculty Supervisor to either (a) provide proof an adequate vaccination, or (b) sign a written proof of understanding of the risk of

Hepatitis B and their decline of vaccination; and

10.2.5. Require that prior to commencement of the clinical experience, each Student Clinical Intern and Faculty Supervisor has completed a blood borne pathogen and tuberculosis education program, and HIPAA training which will be offered by the Provider;

10.2.6. Require each Student Clinical Intern and Faculty Supervisor to complete OSHA training that will be offered by the Provider.

10.2.7. This evidence must be on file at the University and available to the Provider upon request before any particular Student Clinical Intern may begin his/her clinical experience under this Agreement.

Each Student Clinical Intern and Faculty Supervisor must be approved in writing via email by the Provider's Director of Education [or equivalent] prior to participating under this Agreement, such approval acknowledging compliance with the above health and training requirements. The University shall forward to Provider's Director of Education [or equivalent] a letter verifying completion of the health requirements upon request.

11. Indemnification by University.
The University shall indemnify and hold harmless the Provider, its directors, officers, agents and employees from any claims, injuries, losses or demands caused by the negligent or willful misconduct of Faculty Members or Students during the clinical experience under this Agreement and any attorney's fees associated with those claims, injuries, losses or demands. The indemnification obligation of the University includes the cost of any damage to the Provider's furniture or equipment caused by Faculty Members, Students or other agents and employees of the University during the clinical experience. Furthermore, it is understood and agreed that the University, by the terms of this Agreement, is not waiving or relinquishing in any manner any defenses that may be available to the University nor is the University relinquishing any defenses that may become available to it at any time during the term of this Agreement and that the University is free to assert all defenses that may be available to it. Provider will promptly notify the University of any claim for which it seeks indemnity under this Section.

12. Legal Compliance.
The Parties shall perform their duties, responsibilities and obligations in compliance with all applicable federal, state, and local laws, rules, regulations and ordinances, as well as Joint Commission standards as applicable. The University represents that it has obtained all licenses and permits required by law to engage in the activities necessary to perform its duties, responsibilities and obligations under the terms of this Agreement.

13. HIPAA Compliance.

13.1 Students and or Faculty Members assigned to work at Provider's premises may not remove any patient information, including but not limited to information relating to treatment and or care provided to patients under this Agreement, from Provider's premises. The foregoing does not pertain to the clinical tracking forms that are maintained by the Student Clinical Interns as these clinical tracking forms only contain de- identified patient information.

13.2. Prior to beginning work at Provider's premises, each Student and Faculty Member will complete Provider's training module regarding the Health Insurance Portability and Accountability Act (HIPAA) and Provider's policies designed to promote compliance with that Act and its associated regulations, including execution of the confidentiality statement that is part of that training.

13.3 The Parties agree to execute Provider's standard Business Associate Agreement at the same time this Agreement is executed.

14. University's Accreditation. During the term of this Agreement, the University shall maintain full accreditation by Middle States Commission on Higher Education. Should the University lose accreditation, or should its accreditation change in any way that will negatively affect the University's ability to deliver services under this Agreement, it shall immediately notify the Provider. Such event shall be cause for the Provider to terminate this Agreement immediately.

15. Status of Students and Faculty Members. The Students and Faculty Members shall not be considered employees or agents of the Provider for any purpose including reimbursement for rendering services to patients during the term of this Agreement, or workers' compensation claims for injuries incurred while the Students or Faculty Members are onsite at Provider's facilities.

16. Use of a Party's Name and/or Logo. The Parties shall not use each other's name and/or logo in connection with any publicity or advertisement regarding the clinical experience without the prior consent of the other. The University shall obtain written approval of the Provider prior to publication of any information related to Provider or the clinical experience under this Agreement.

17. Details for Each Academic Program. The University and the Provider shall mutually agree on the hours, days, place of assignments with respect to the academic programs covered under this Agreement.

18. Qualifications of Students. The University has sole responsibility for planning and determining the content and clinical education goals for each academic program, including the educational experience of the Students in theoretical background, basic skills, professional ethics, attitude, and behavior, and shall refer only those Students who have satisfactorily completed the prerequisite portions of the University's curriculum.

19. University's Curriculum and Clinical Education Goals. Upon request, the University will provide the Provider with current information about its curriculum and clinical education goals.

20. Parking at Provider's Facilities. Faculty and Students will be provided a parking permit from the Director of Education [or equivalent] once approved. Faculty and Students must park in designated team member parking areas and the parking permit must be visible and displayed while on the Provider's property.

21. Responsibilities of Provider. The Provider shall:

21.1 Appropriately inform and orient internal Provider employees about the Student Clinical Interns, their roles and responsibilities, access to patient records and other related activities. The Provider will not ask Student Clinical Interns to perform duties outside their scope of practice or to perform activities that were not included in the Agreement.

21.2 Work with the University to develop a plan to inform individuals that could benefit from the disciplines or modalities offered under this Agreement about upcoming educational events.

21.3 Identify a point of contact for the University who will serve as contact person for this project.

21.4. Accept Students for each clinical experience in the academic programs established under this Agreement.

21.5. Retain absolute control over its facilities and the care of its patients, except that Faculty Supervisors shall have responsibility for supervising Students as provided in this Agreement;

21.6 Provide the facilities and qualified personnel required for each clinical experience under this Agreement, including a designated team member who will be available to the Student Clinical Interns and Faculty Supervisors during the clinical experience;

21.7. If requested by the University, provide the University with input on the Student Clinical Interns' academic progress with regard to the clinical experience;

21.8 Inform the University of any changes to the services or operation of Provider's facilities that will affect the clinical experience;

21.9. Provide Students and Faculty with all necessary training and orientation regarding the Provider's policies, procedures, systems and tools for maintaining medical records, and risk management/safety; and

21.10. Provide emergency medical care to Students and Faculty for injuries that may occur while the Student or Faculty is participating in a clinical experience at Provider's facilities. The Faculty and Students will be covered by the Occupational Health Service policies on the same basis as Provider's team members. Health Service includes prophylaxis and exposure investigation follow-up for blood borne diseases following accidental exposure as defined in the Hospitals' Bloodborne Pathogen Exposure Control Plan. The Provider will not be responsible for payment for prophylaxis for the Students or Faculty Members.

22. Provider's Insurance.

22.1 The Provider shall maintain, throughout the term of this Agreement, professional liability insurance that covers its officers, trustees, directors, agents and employees involved in the clinical experience.

22.2 The Provider agrees to carry professional liability insurance with minimum limits of one

million dollars ($1,000,000) per occurrence or claim, and three million dollars ($3,000,000) annual aggregate and will supply the University with a copy of the current insurance certificates immediately upon request.

22.3 The Provider agrees to carry workers compensation insurance that meets statutory requirements of the State of Maryland.

22.4 The Provider shall promptly notify the University of any claim that has been filed against its employees or agents as a result of the University's Students or Faculty Members participating in any clinical training.

23. Provider's Indemnification of University.
The Provider shall indemnify and hold harmless the University, its officers, trustees, directors, agents, employees, students and faculty from any claims, injuries, losses or demands caused by the negligent or willful misconduct of its employees or agents during the clinical training and any attorneys fees associated with those claims, injuries, losses or demands. The University will promptly notify the Provider of any claim for which it seeks indemnity under this Section.

24. Term and Termination of Agreement.

24.1 This Agreement shall commence on _____, 20_____ and end on _____, 20___. Thereafter, this Agreement is automatically renewable for one-year periods for up to 5 years after which time the Agreement will terminate unless extended by the parties in writing.

24.2. Either party upon sixty (60) calendar days notice may terminate this Agreement for any reason or no reason; provided, however, if notice of termination is given by the Provider during any of the University's academic trimesters and such notice is not provided as a result of a breach of this Agreement by the University, Student Clinical Interns currently assigned to the Provider's facilities for that trimester will be provided the opportunity to continue their clinical experience through the end of that trimester, subject to the requirements of this Agreement.

25. Research Collaboration Opportunities.
Both parties will work together to identify, establish and support opportunities for research collaboration, where available. As an institution of higher education, the University is committed to advancing scholarship and building the evidence-base related to integrative practices. Ranked faculty members are obligated to engage in scholarship, and the University's students are increasingly interested in gaining research experience during their studies. Where research interests overlap between institutions, the formation of collaborative working groups can be used to help identify appropriate mechanisms for evaluating the impact of integrated services. Where research infrastructure exists, it will be made available to individuals from both parties in order to foster greater efficiency and rigor. Both parties will also encourage guest lectures and presentations to students and other faculty in order to capitalize on the diverse expertise within each institution. Any publications resulting from collaborative scholarship with result in shared authorship between members of both institutions.

26. Evaluation.
The parties agree to collaborate regarding establishing methods to evaluate the effectiveness of the education of patients and staff, the students' clinical experience, and the clinical services

provided to patients, as well as the viability and sustainability of the education and clinical services.

27. Miscellaneous.

27.1. Discrimination. Each Party warrants that it is an equal opportunity employer and does not discriminate with regard to race, color, gender, gender identity, sexual orientation, sexual identity, religion, creed, ancestry, age, marital status, pregnancy, citizenship, national or ethnic origin, genetic information, disability, or any other characteristic protected by law with regard to the provision of services, use of facilities, and/or assignment of personnel. Neither party shall discriminate with respect to acceptance of qualified Students or with respect to instruction of such Students during their clinical training. Receipt by either Party of evidence of such discrimination shall be cause for immediate termination of this Agreement. The Parties agree to maintain the privacy and security of personally identifiable education records and health information and to prevent disclosure in compliance with State and Federal laws.

27.2 The parties agree to report appropriate information (including but not limited to suspected child abuse and/or neglect, imminent threat of danger to self or others, and abuse of vulnerable adults) as mandated by applicable laws.

27.3. Policy Conflicts. Where areas of differences exist or occur in policies, procedures, rules, regulations or questions of clinical or medical practices (collectively, "Policies") of Hospital and University, Hospital's Policies shall prevail. In the event that a material conflict arises between the Parties' Policies, the Parties agree to discuss and determine whether either or both Parties' Policies may be appropriately modified to eliminate the conflict, any such modification to be made in the applicable Party's sole and absolute discretion.

27.4. No amendment or modification of or addendum to this Agreement shall be effective unless in writing and executed by authorized representatives of the parties hereto.

27.5. Governing Law. This Agreement shall be governed by, construed and interpreted in accordance with the laws of the State of Maryland.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their respective authorized officers as of the day, month, and year as stated in the first paragraph of this Agreement.

PROVIDER

BY:_____ Date: _____

UNIVERSITY
Maryland University of Integrative Health, Inc. 7750 Montpelier Road Laurel, Maryland 20723

_____
President and Chief Executive Officer Date: _____

Appendix C
MUIH and Principles of Good Practice for Distance Education

1. Curriculum and Instruction

(i) A distance education program shall be established and overseen by qualified faculty.

MUIH faculty have Master's, doctoral, or professional degrees and academic, clinical, or practical expertise in the content areas of the courses they are assigned to teach. Online and blended programs are established and overseen through a collaborative process that includes such qualified faculty. Each program is led by an Academic Director or Program Director, who is also a faculty member. Larger programs include faculty positions such as Director of Academic Development and Division Chair, who lead particular academic aspects of their programs. Curriculum committees composed of faculty members exist in each academic department to oversee courses and programs, including those that involve online and blended delivery methods.

A comprehensive program review of each program in the University is conducted every five years, involving program faculty and using internal and external experts. The University Curriculum Committee, which includes representation from the Faculty Senate, provides integrated and institutional oversight of courses and programs, including online or blended offerings.

(*ii) A program's curriculum shall be coherent, cohesive, and comparable in academic rigor to programs offered in traditional instructional formats.*

MUIH's curricula, regardless of delivery format, are designed in consultation with experts in the field, MUIH's qualified faculty, and external environmental scanning and workforce needs analyses to ensure coherence, cohesiveness, and academic rigor. The curriculum, learning outcomes, and academic expectations of faculty and students of a program, regardless of the delivery format, are the same and are overseen and approved by the same program faculty and curriculum committees. They are also overseen by the same University bodies including the University Curriculum Committee, Faculty Senate, Executive Management Committee, and the Board of Trustees.

(iii) A program shall result in learning outcomes appropriate to the rigor and breadth of the program.

Program learning outcomes are developed based on input from MUIH's qualified faculty and academic leaders, consultation with expert professionals in the field, and external environmental scanning and workforce needs analyses. The academic rigor and expectations of programs, regardless of their delivery format, are aligned with the nationally recognized standards specified by the Council of Graduate Schools and the Lumina Foundation's Degree Qualification Profile (DQP). The content, learning outcomes, rigor, depth, and breadth of programs, regardless of their delivery format, are also aligned with external program-specific accrediting and curriculum-guiding bodies, where available. These include the Council on Naturopathic Medical Education (CNME), Council of Chief Academic

and Clinical Officers of the Association of Accredited Naturopathic Medical Colleges (AANMC), Accreditation Commission for Acupuncture and Oriental Medicine (ACAOM), Accreditation Council for Nutrition Professional Education (ACNPE), Board for Certification of Nutrition Specialists (BCNS), International Coach Federation (ICF), National Consortium for Credentialing Health and Wellness Coaches (NCCHWC), Certified Health Education Specialist (CHES) examination of the National Commission for Health Education Credentialing (NCHEC), and International Association of Yoga Therapists (IAYT).

(iv) A program shall provide for appropriate real-time or delayed interaction between faculty and students.

Online and blended courses and programs are delivered using the Canvas Learning Management System (LMS). This platform supports asynchronous interaction between faculty and students through a variety of embedded tools. Faculty and students also have the opportunity for synchronous interaction using the Big Blue Button web conferencing system, which can be directly accessed from the Canvas online classroom.

MUIH develops its online and blended courses according to the "master course philosophy." For each online and blended course, a master version is developed, with components and activities designed to foster ongoing engagement between faculty and students. These components include online asynchronous discussion forms and synchronous lectures, chats, and office hours. Appropriate asynchronous and synchronous interactions between faculty and students are designed and included in online and blended courses as guided by Standard 4 (Instructional Materials) and Standard 5 (Course Activities and Learner Engagement) of the Quality Matters Rubric.

(v) Faculty members in appropriate disciplines in collaboration with other institutional personnel shall participate in the design of courses offered through a distance education program.

MUIH uses a collaborative team approach to develop its online and blended courses. Faculty subject matter experts (SMEs) design, develop and offer online and blended courses appropriate to the mission and objectives of the program. Faculty SMEs are selected based on their discipline expertise, professional and teaching experience, and their completion of onboarding and training activities for online and blended faculty. Academic and Program Directors, who are also faculty members, lead the course development teams and guide and collaborate with the faculty SMEs.

The Center for Teaching and Learning (CTL) supports the faculty SMEs and academic departments in online and blended course development, and in teaching and assessing the quality of online and blended learning. The Center's instructional designers, instructional technologists, digital learning specialists, multimedia specialists, and learning management system administrator are collaborative members of the online and blended course development teams. The Center's Assistant Provost provides oversight and guidance for the course development teams, who are also supported by the Assistant Provost for Academic Assessment and Accreditation.

The University develops its online and blended courses according to the "master course philosophy," developing and maintaining a master version of each online and blended

course. The master version contains certain course components as determined by the University's academic leadership, including the learning outcomes, a syllabus, content learning modules, reading assignments, key learning objects, and key assessment tools, thus ensuring consistency of delivery of online and blended courses and allowing more precise assessment across various occurrences/sections of online and blended courses. Each instructor of online and blended courses receives a copy of the master course and reviews it to determine whether any edits are necessary. The faculty then make all appropriate edits to the master course, and each instructor supplements the master course with his/her unique teaching materials, including discussion forums and other activities.

2. Role and Mission

(i) A distance education program shall be consistent with the institution's mission.

MUIH's mission is … "A distinctive community of scholars, researchers, practitioners, and advocates, Maryland University of Integrative Health promotes whole person, relationship-centered healthcare. Through discovery and exploration, we deliver progressive educational programs, advance innovative clinical models, build mutually beneficial partnerships, and provide opportunities for fulfilling careers." All of MUIH's programs, regardless of their delivery method, are aligned with this mission and emphasize innovative and progressive practices and philosophies in the emergent fields of integrative health.

While such programs constitute the foundation and core of MUIH's academic offerings, they are unique among other colleges and universities across Maryland, the Mid-Atlantic region, and the United States. To ensure consistency with the university's mission, new programs are developed according to a process flowchart that emphasizes cross-functional input at early and frequent decision points, from initial exploration to program launch. In addition to faculty, academic program leadership, the Faculty Senate, and program and university curriculum committees, the Executive Management Committee provides a further level of oversight with respect to institutional mission alignment and the impact and integration of the curriculum with student affairs, admissions, marketing, budget and finance, facilities and technology, and legal and compliance issues.

(ii) Review and approval processes shall ensure the appropriateness of the technology being used to meet a program's objectives.

As part of the online and blended course development process, the development team conducts a review of technology needs and potential uses in the course and program. Technologies are selected for inclusion based on their ability to support the achievement of the course learning objectives, alignment with the discipline, and the principles of Standard 6 (Course Technology) and Standard 8 (Accessibility and Usability) of the Quality Matters Rubric.

All online and blended courses are designed with the support of instructional designers, instructional technologists, digital learning specialists, multimedia specialists, and learning management system administrators. These specialists assist faculty and the Academic and Program Directors in identifying and recommending the most effective learning

technologies to facilitate and achieve the course's learning objectives. The Academic and Program Directors and the Assistant Provost of CTL use these recommendations to approve the inclusion of particular technologies in particular online and blended courses.

The adoption of new learning technologies across the curriculum is considered by the Academic Leadership Council (ALC) in collaboration with the Director of Information Technology. The ALC is composed of the Provost, all Associate and Assistant Provosts, and all of the Academic and Program Directors, who are faculty members.

3. Faculty Support

(i.) An institution shall provide for training for faculty who teach with the use of technology in a distance education format, including training in the learning management system and the pedagogy of distance education.

Faculty developing and teaching online and blended courses are supported by CTL (The Center for Teaching and Learning), which provides both group and one-on-one support. CTL recognizes the central role of teaching and learning at MUIH and its deep commitment to academic excellence. Its activities and initiatives, designed to enhance students' learning experience and support faculty teaching excellence in all disciplines and formats, include: fostering quality and innovation in pedagogical approaches, the meaningful use of technology in teaching and learning, the role of assessment in teaching and learning, the scholarship of teaching and learning, and the application of learning science and research.

CTL comprises an integrated set of units: the digital learning team of instructional designers, instructional technologists, digital learning specialists, and multimedia specialists; the learning management system (LMS) administration team; the faculty onboarding and engagement team; and the faculty professional development team. It is led by an Assistant Provost, who provides oversight for all online and blended course developments and for faculty training and professional development.

Before beginning their first online or blended course development or teaching assignment, MUIH requires faculty to complete the Best Practices in Online/Blended training focused on online pedagogy/andragogy, the Canvas LMS training, Big Blue Button web conferencing training, and one-on-one consultation tailored to their individualized needs, all provided by CTL. These faculty are also provided the Quality Matters Rubric as a guiding resource and access to 24/7 support through the Canvas Help Desk. Faculty developing and teaching online and blended classes also have with ongoing opportunities for professional development through various face-to-face and online webinars, workshops, trainings, and conferences.

(ii.) Principles of best practice for teaching in a distance education format shall be developed and maintained by the faculty.

MUIH's principles of best practice for developing and teaching online and blended courses are based on nationally recognized research-based standards, including those of Quality Matters, the Online Learning Consortium (OLC), EDUCAUSE, WICHE Cooperative for Educational Technologies (WCET), National University Technology Network (NUTN), the

Middle States Commission on Higher Education, and the Council of Regional Accrediting Commissions (C-RAC). Ongoing opportunities for the dissemination of best practices in online and blended course development and teaching are coordinated jointly by CTL and the Faculty Development subcommittee of the Faculty Senate. Such opportunities include the Annual All Faculty Meeting, the Faculty Explorations Webinar Series, program-specific faculty meetings, and informal faculty peer review, shadowing, and mentoring activities. These activities highlight the best practices of MUIH's faculty teaching online and blended courses in areas such as differential pedagogies for face-to-face, online, blended, and digitally-enhanced teaching and learning; student learning outcomes assessment; strategies that foster student engagement; and the effective use of the Canvas LMS and other learning technologies.

(iii.) An institution shall provide faculty support services specifically related to teaching through a distance education format.

Faculty who teach online and blended courses are provided the extensive training and support specifically related to online and blended teaching that are detailed in section 3.i. In addition, they have access to the same support services as faculty who teach face-to-face classes.

Through online and other digital means, CTL's faculty onboarding and engagement team provides support to online and blended course faculty through their transition from recruitment and hiring, to onboarding and orientation, to teaching and university engagement. Faculty teaching online and blended courses have online and other remote access to the university's library, student academic advising office, student academic support office, student information system, Registrar, academic program leadership and support staff, human resources office, and 24/7 Canvas support. Through online and other remote means, faculty teaching online and blended courses have the opportunity to participate in ongoing university activities such as the All Staff, Faculty Senate, and academic program meetings; faculty journal club; academic, administrative, and search committees and working groups; and trainings and professional development activities.

4. Appropriate Learning Resources

An institution shall ensure that appropriate learning resources are available to students including appropriate and adequate library services and resources.

Students enrolled in online and blended courses have online and other remote access to the Library, Student Academic Support office, and Program Community Sites. The University provides online support for faculty and students with an enhanced integrated and online library system, and the Library continues to expand to support all modalities of teaching and learning as well as enrollment growth. The Library's computerized systems and licensing agreements with vendors permit access to online and open-access journals and other free Internet resources, as well as selected journal articles from individual subscriptions and from the Library's EBSCO host databases. The Library uses the National Library of Medicine's Docline service for document delivery. When the Library does not own an article, it can be obtained in a timely manner for faculty and students through the Library's use of

Docline. The Library also conducts the MUIH550 Academic Research and Scholarship non-credit course that required of all students during their first trimester at MUIH; this course is available online to all students.

All Canvas classrooms contain a direct link to the Library. In addition, each department maintains a Community Site in the Canvas LMS for all students enrolled in its programs. These sites contain learning resources that cut across the program, access to a selected online course learning modules, and resources that assist students in their study and practice for national licensing exams.

The Student Academic Support office conducts the online University Wide Orientation, which provides an introduction to academic resources. The office also provides individualized academic success support to students who are either self-directed or referred by faculty. Such services include writing and scientific tutoring, study skills, and academic success strategies and planning.

5. Students and Student Services

(i.) A distance education program shall provide students with clear, complete, and timely information on the curriculum, course and degree requirements, nature of faculty/student interaction, assumptions about technology competence and skills, technical equipment requirements, learning management system, availability of academic support services and financial aid resources, and costs and payment policies.

MUIH's public website (www.muih.edu) and password-protected portal (MyMUIH) provide all students with information regarding their curriculum, course and degree requirements, tuition and fees, payment policies and procedures, financial aid resources, academic advising and support services, and all university academic policies. The website and portal also provide information about online and blended course expectations, technical skills, hardware and software requirements for online and blended courses, and access to the Canvas LMS, tutorials, and 24/7 help desk. These aspects are also provided in the online University Wide Orientation and students' academic program online orientation, both of which are required for new online and blended learning students, as well as students' online Program Community Site. MUIH's online and blended courses are also designed to provide access to such information through the Syllabus and course information, as specified by Standard 1 (Course Overview and Introduction) and Standard 7 (Learner Support) of the Quality Matters Rubric.

(ii.) Enrolled students shall have reasonable and adequate access to the range of student services to support their distance education activities.

MUIH's public website (www.muih.edu) and password-protected portal (MyMUIH) provide all students with information regarding student services including registration dates and processes, disability support services, student complaint and grievance processes, graduation and commencement application and review, textbook and instructional material purchasing, as well as all university administrative policies. This information and access are also provided in the online University Wide Orientation and students' academic program

online orientation, both of which are required for new online and blended learning students, as well as students' online Program Community Site. MUIH's online and blended courses are also designed to provide access to such information through the Syllabus and course information, as specified by Standard 1 (Course Overview and Introduction) and Standard 7 (Learner Support) of the Quality Matters Rubric.

(iii) Accepted students shall have the background, knowledge, and technical skills needed to undertake a distance education program.

The same admissions requirements and criteria apply to all students in a particular program, regardless of the program's delivery format. Prior to admission, prospective students are invited to participate in open houses, webinars, and interviews to learn about the nature of online and blended courses and to determine whether the online learning environmental is suitable to their circumstances and learning style. All new students are required to complete the online MUIH550 Academic Research and Scholarship non-credit course and the online University Wide Orientation, which includes an introduction to the university's academic resources, academic success and planning strategies, and strategies for being a successful online student.

(iv) Advertising, recruiting, and admissions materials shall clearly and accurately represent the program and the services available.

All relevant program information is kept up-to-date on the university's public website (www.muih.edu); print, online, social, and broadcast media; open house presentations and materials; online informational webinar presentations; campus visitation materials; and information tables at off-campus education fairs and conferences.

6. Commitment to Support

(i.) Policies for faculty evaluation shall include appropriate consideration of teaching and scholarly activities related to distance education programs.

The criteria for faculty appointment, evaluation, rank, and promotion are the same regardless of the delivery method in which the faculty member teaches. With respect to faculty workload and the number of credits taught annually, online or blended courses are weighted the same as face-to-face instruction. Faculty, including ranked faculty, who teach online or blended courses are eligible and encouraged to participate in scholarly activities, including those related to distance education.

(ii.) An institution shall demonstrate a commitment to ongoing support, both financial and technical, and to continuation of a program for a period sufficient to enable students to complete a degree or certificate.

The University's five-year strategic plan includes innovative course and program delivery formats such as online, blended, and digitally-enhanced learning to provide flexible and accessible programs. The university's budget, directly linked to its strategic plan and approved annually by the Board of Trustees, outlines all resource requirements (financial, personnel, administrative, support, compliance, and technical) to maintain and grow. As part of its commitment to the sustainability of online and blended teaching and learning,

MUIH maintains a rolling annual online and blended course development schedule. It adheres to the nationally recognized Hallmarks of the Excellence in Online Leadership specified by the University Professional and Continuing Education Association (UPCEA) and the Quality Scorecard: Criteria for Excellence in the Administration of Online Programs specified by the Online Learning Consortium (OLC).

In the event that the University decides to cease admitting students for an academic program, it will ensure that courses continue to be offered to allow students already enrolled in that program to complete their degree or certificate.

7. Evaluation and Assessment

(i.) An institution shall evaluate a distance education program's educational effectiveness, including assessments of student learning outcomes, student retention, student and faculty satisfaction, and cost-effectiveness.

MUIH administers a standardized online student evaluation process at the end of each trimester for all courses, using the IDEA course evaluation tool and Campus Labs online platform. Individual faculty members may also add course-specific items to the standardized evaluation instrument. Faculty members have access to the results of their student course evaluation results. Academic and Program Directors also have access to the student course evaluation results of the faculty teaching courses in their department/program. The Directors review and discuss these results with faculty on an ongoing basis, and use these results to guide referrals of faculty for additional support, future staffing assignments, and recommendations for appointment, rank, and promotion.

When an online or blended course first launches, the design team continually monitors it, and consults with the instructors and Academic and Program Directors to make adjustments to the course as needed. Academic and Program Directors, in collaboration with faculty in their department/program, review the curriculum, learning objectives, and learning outcome results of all courses, regardless of the delivery format, on an annual basis. Any needed substantive curricular changes are reviewed and approved by the faculty, department curriculum committee, and University curriculum committee. Any needed changes to the online or blended course Syllabus, course structure, learning modules, activities, instructional materials, or assessments are reviewed with CTL, and placed on the university's annual online and blended course development schedule.

Enrollments and retention rates for all programs, specific to each delivery format, and their impact on the university's budget are tracked and analyzed on an ongoing basis by the university's Vice Presidents, Associate Vice President for Enrollment Management, and the Academic and Program Directors. The results of comprehensive exams and projects, clinical evaluations, portfolios, peer-to-peer evaluations, patient outcomes and feedback, licensure examinations, and graduate surveys for all programs, specific to each delivery format, are also tracked and analyzed. The results of all such reports are used to make adjustments as needed in online and blended courses and programs with respect to curriculum, course development, student and faculty support, staffing, library and technology resources, marketing, recruitment and admissions, tuition/fees and budget, new course and program development, and course and program discontinuation.

(ii.) An institution shall demonstrate an evidence-based approach to best online teaching practices.

MUIH's principles of best practice for developing and teaching online and blended courses are based on nationally recognized research-based standards, including those of Quality Matters, the Online Learning Consortium (OLC), EDUCAUSE, WICHE Cooperative for Educational Technologies (WCET), National University Technology Network (NUTN), the Middle States Commission on Higher Education, and the Council of Regional Accrediting Commissions (C-RAC). CTL and the academic leadership continually participate in professional development activities to keep abreast of evidence-based approaches in online and blended teaching and learning practices. When appropriate, such opportunities are also provided to faculty. These online and blended teaching practices are then incorporated into faculty, student, and course development practices conducted by CTL, the Faculty Senate, and academic programs.

(iii.) An institution shall provide for assessment and documentation of student achievement of learning outcomes in a distance education program.

Online and blended courses are included in the university's overarching academic assessment plan. Expected student learning outcomes are clearly stated centrally and in syllabi at the course and programmatic levels, and are the same for each course regardless of the delivery format of each section of the course. With MUIH's master course philosophy, consistent delivery of certain content and utilization of common key assessment tools allows more precise learning outcomes assessment across various occurrences or sections of the online course. As part of the standard online and blended course design process at MUIH, course assessments are required to be aligned with the stated course learning outcomes, as specified by Standard 2 (Learning Objectives/Competencies) and Standard 3 (Assessment and Measurement) of the Quality Matters Rubric.

The Academic and Program Directors, in collaboration with the Learning Outcomes Assessment Team (LOAT), Assistant Provost for Academic Assessment and Accreditation, and Assistant Provost of CTL compare attainment of course and programmatic learning objectives by students in online, blended, and face-to-face courses, reporting this data to the Provost to ensure its inclusion in continuous assessment of the University's courses and programs. Any needed changes to the online or blended courses, revealed by learning outcome discrepancies with the face-to-face instances of the same course, are reviewed with CTL, and placed on the university's annual online and blended course development schedule.

Appendix D
Representative Faculty for the Certificate Program in Nutritional Genomics in Clinical Practice

Academic Administrators with Teaching Responsibilities

Liz Lipski, PhD
Director of Academic Development for Nutrition Program, Professor
Possible Courses: NUTR 617 Nutritional Genomics; NUTR 638 Genomic Testing in Clinical Practice
Dr. Lipski holds a PhD in Clinical Nutrition, two board certifications in clinical nutrition and one in functional medicine. She is on faculty for the Institute for Functional Medicine, the Metabolic Medicine Institute fellowship program. She currently sits on advisory boards for Ubiome, the Certified International Health Coaches, and the Autism Hope Alliance. Dr. Lipski has been published in peer reviewed journals including Nutrition in Clinical Practice and *Integrative Medicine: A Clinician's Journal*, has written textbook chapters, and is the author of several books*: Digestive Wellness*, *The Digestion Connection*, *Digestive Wellness for Children*, and *Leaky Gut Syndrome*. She is also an advocate for the field of Clinical Nutrition and the founder of InnovativeHealing.com, where she offers webinar-based Mentoring Programs and Advanced Nutrition Forums for nutritionists, dietitians, and other clinicians.

Current Ranked Faculty

Randy Gastwirt, ND, PhD
Faculty in Integrative Science Department
Possible Courses: ISCI XXX Introduction to Genetics, Genomics and the Omics
Dr. Randy Gastwirt is a licensed Naturopathic Physician who focuses on adult medicine – providing comprehensive, personalized and integrative healthcare by understanding the patient's unique circumstances and the root cause of illness. Additionally, as a Biofeedback and Functional Medicine practitioner, Dr. Gastwirt actively involves the patient in the naturopathic healing process using a broad range of tools including biofeedback, functional nutrition, mind-body medicine, and herbal medicine. He received his Doctor of Naturopathic Medicine degree from Bastyr University in San Diego, California – an institution recognized as a leader in the education of natural medicine. Prior to Bastyr University, Dr. Gastwirt earned a Bachelor of Arts degree in Biology from Pomona College and a PhD in Biomedical Science from University of California, San Diego, School of Medicine. He worked in research both as at post-doctoral fellow at UC San Diego and the VA hospital and served as Associate Director for Research at a biotechnology company prior to his transition into Naturopathic Medicine.

Adjunct Faculty, Nutrition and Integrative Health Program

Jessica Pizano, MS
Possbile Courses: NUTR 617 Nutritional Genomics; NUTR 644, Epigenetics, Nutrients and Lifestyle Influences on the Genome
Jessica Pizano is the co-owner of Nutritional Genomics Institute, LLC, which offers nutrition and nutritional genomics counseling in Midlothian, VA. Her specialties include nutritional genomics,

autoimmune disorders, mast cell activation disorders, dysautonomia, mood disorders, autism, allergies/sensitivities, chronic fatigue, fibromyalgia, and other medical conditions. She is also a co-owner of SNPed, which is a nutritional genomics webinar series for practitioners. Additionally, she is an adjunct faculty member at Maryland University of Integrative Health (MUIH), where she teaches Introduction to Nutritional Genomics. Jessica Pizano earned a master's degree in human nutrition at the University of Bridgeport. She is a certified nutrition specialist (CNS) through the Board for Certification of Nutrition Specialists and graduated with a doctor of clinical nutrition (DCN) from MUIH in 2018.

Christy Williamson, MS
Possible Courses: Possible Courses: NUTR 617 Nutritional Genomics; NUTR 644 Epigenetics, Nutrients and Lifestyle Influences on the Genome
Christy Williamson graduated with honors from the University of Bridgeport's functional nutrition master's program, is a Certified Nutritional Specialist and is a candidate for the Doctor of Clinical Nutrition at Maryland University of Integrative Health. She is the co-owner of the Nutritional Genomics Institute and Zebra Diagnostics, companies that focus on functional nutrition as it relates to biochemical nuances within the genome, metabolome and microbiome. Zebra Diagnostics is designed for state-of-the-art research in genomics and houses SNPed, a webinar-based educational series in nutritional genomics for nutrition and medical professionals. Christy Williamson is also an adjunct faculty member at Maryland University of Integrative Health and teaches Introduction to Nutritional Genomic Counseling.

Tara Nayak, ND
Possible Courses: NUTR 638 Genomic Testing in Clinical Practice; NUTR 639 Integrating Nutritional Genomics into Clinical Care
Tara Nayak is a naturopathic physician practicing in Philadelphia, PA. She is a Temple University graduate where she first concentrated on the study of genetics and epigenetics. Dr. Nayak then went on to the University of Bridgeport for her doctoral degree, after which she completed a residency under Dr. Peter D'Adamo at his precision medicine clinic: The Center of Excellence in Generative Medicine. She spent this time focusing in depth on incorporating bioinformatics including genomics and microbiome analysis as well as personalized nutrition into clinical practice. This knowledge has guided her to specialize in the treatment of complex chronic diseases. Dr. Nayak also teaches Nutrigenomics and Epigenetics for Maryland University of Integrative Health and Generative Medicine for the University of Bridgeport's College of Naturopathic Medicine.