



7750 Montpelier Road
Laurel, Maryland 20723
www.muih.edu
410-888-9048

March 18, 2020

Dr. James D. Fielder, Jr.
Secretary of Higher Education
Maryland Higher Education Commission
6 North Liberty Street
Baltimore, MD 21201

Dear Secretary Fielder:

Maryland University of Integrative Health (MUIH) seeks approval for the enclosed new program, the Post-Baccalaureate Certificate in Cannabis Science: Therapeutics, Product Design, and Quality Assurance, beginning in Fall 2020. This new program falls within an existing program area (herbal medicine) at MUIH.

Please don't hesitate to contact me should you require additional information in considering this proposal.

A handwritten signature in black ink, appearing to read "Christina M. Sax".

Dr. Christina M. Sax
Provost and Vice President for Academic
and Student Affairs

cc: Marc Levin, President and CEO, MUIH



Cover Sheet for In-State Institutions

New Program or Substantial Modification to Existing Program

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|---------------------------------|---|
| Institution Submitting Proposal | Maryland University of Integrative Health |
|---------------------------------|---|

Each action below requires a separate proposal and cover sheet.

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| <input type="radio"/> New Academic Program | <input type="radio"/> Substantial Change to a Degree Program |
| <input type="radio"/> New Area of Concentration | <input type="radio"/> Substantial Change to an Area of Concentration |
| <input type="radio"/> New Degree Level Approval | <input type="radio"/> Substantial Change to a Certificate Program |
| <input checked="" type="radio"/> New Stand-Alone Certificate | <input type="radio"/> Cooperative Degree Program |
| <input type="radio"/> Off Campus Program | <input type="radio"/> Offer Program at Regional Higher Education Center |

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|--|--|---------------|--------------------|
| Payment <input checked="" type="radio"/> Yes | Payment <input type="radio"/> R*STARS | Payment \$850 | Date |
| Submitted: <input type="radio"/> No | Type: <input checked="" type="radio"/> Check | Amount: | Submitted: 3/18/20 |

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|--|--|--------------|---------------|
| Department Proposing Program | Nutrition and Herbal Medicine | | |
| Degree Level and Degree Type | Post-Baccalaureate Certificate | | |
| Title of Proposed Program | Cannabis Science: Therapeutics, Product Design, and Quality Assurance | | |
| Total Number of Credits | 15 | | |
| Suggested Codes | HEGIS: 129950 | CIP: 51.3702 | |
| Program Modality | <input type="radio"/> On-campus <input checked="" type="radio"/> Distance Education (fully online) | | |
| Program Resources | <input checked="" type="radio"/> Using Existing Resources <input type="radio"/> Requiring New Resources | | |
| Projected Implementation Date | <input checked="" type="radio"/> Fall <input type="radio"/> Spring <input type="radio"/> Summer Year: 2020 | | |
| Provide Link to Most Recent Academic Catalog | URL: https://muih.edu/academics/office-of-the- | | |
| Preferred Contact for this Proposal | Name: Christina Sax | | |
| | Title: Provost and Vice President for Academic and Student Affairs | | |
| | Phone: 410-888-9048, ext 6655 | | |
| | Email: csax@muih.edu | | |
| President/Chief Executive | Type Name: Marc Levin | | |
| | Signature: | | Date: 3/18/20 |
| | Date of Approval/Endorsement by Governing Board: | | 3/4/20 |

Revised 3/2019

Maryland Higher Education Commission Proposal for New Instructional Program

Post-Baccalaureate Certificate in Cannabis Science: Therapeutics, Product Design, and Quality Assurance Maryland University of Integrative Health

Maryland University of Integrative Health (MUIH) proposes to add a new program, the Post-Bachelor's Certificate (PBC) in Cannabis Science: Therapeutics, Product Design, and Quality Assurance. This new program falls within an existing program area at MUIH – herbal medicine. This 15-credit program will be offered online and can be completed in three trimesters. The program is scheduled to begin in the fall 2020 trimester, pending approval by the Maryland Higher Education Commission.

A. Centrality to Institutional Mission and Planning Priorities

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

The mission of MUIH is: A distinctive community of scholars, researchers, practitioners, and advocates, MUIH 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. The vision of MUIH 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 a leading academic institution for integrative health. It is an accredited, private, non-profit university offering the most comprehensive array of graduate-level certificates, master's, and doctoral degrees in integrative health in the nation. MUIH focuses solely on a whole-person, relationship-centered care approach. Since 1974, MUIH has educated and informed practitioners and leaders in health and wellness through programs that draw from traditional wisdom and contemporary science. Graduate programs in acupuncture, Ayurveda, health and wellness coaching, health promotion, herbal medicine, narrative health, nutrition, workplace wellness, and yoga therapy are offered on-campus and online. As an anchoring academic institution for the emerging complementary and integrative health and wellness system in America, MUIH has an unduplicated fulltime equivalent headcount of 1010 students (2017-2018 IPEDS reporting) and has awarded graduate credentials to more than 3,000 individuals across the U.S. and internationally. Student interns and professional practitioners provide compassionate and affordable healthcare through 20,000+ clinical visits annually in the on-campus Natural Care Center, and conventional healthcare and community outreach settings. The on-campus herbal dispensary formulates and compounds herbal preparations for local patients and practitioners, and for shipment across the U.S. MUIH conducts research in collaboration with leading national universities. Through scholarly publications and presentations nationally and internationally its faculty are recognized as experts in their field. MUIH offers a wide range of professional symposia and continuing education, community education, and outreach activities online and on-campus. MUIH alumni across the U.S. and internationally, provide affordable, high impact, and high-quality care in

private practice, integrative group practices, conventional health care settings including VA and other hospitals, and mental health, addiction, pain, and rehabilitation centers, and community and corporate settings.

The addition of the proposed program extends MUIH's mission and vision by opening new avenues of academic study and employment in the field of integrative health and herbal medicine. MUIH is one of the few colleges and universities in the U.S. that focuses on integrative health and wellness. In addition, very few other colleges and universities in the U.S. offer degrees in integrative health and wellness fields and, in particular, in the field of herbal medicine. The proposed online PBC Cannabis Science: Therapeutics, Product Design, and Quality Assurance program expands the options available for academic study in integrative health and herbal medicine nationally.

The program educates students about cannabis-based products with an emphasis on health effects, safety, formulation, and quality assurance. It integrates the traditional herbal medicine knowledge and evidence-informed cannabis research needed to develop innovative strategies for commercializing safe and effective cannabis products. Unique to this program, students will investigate ways to combine cannabis with other herbs to optimize health benefits and reduce risks. The program provides education in the following areas: foundational knowledge of the endocannabinoid system, cannabis research to inform appropriate therapeutic recommendations and to evaluate and design commercial products, CBD-dominant hemp-based dietary supplements and wellness products and THC-dominant medical and recreational marijuana, optimizing health benefits and reducing risk combining herbal medicine and cannabis, dispensary practices, quality assurance, and industry standards that support appropriate access to high-quality and safe cannabis-based products. This is a non-experiential program; there are no internships, laboratories, field work, or hands on work with cannabis as part of this curriculum and program.

This program is designed for individuals who wish to support evidence-informed, safe, and responsible use of high-quality cannabis-based products. The program is ideal for those seeking an initial career in the cannabis industry or looking to expand their job options within the field. The program is also designed for conventional and integrative health practitioners interested in learning about cannabis in order to be informed for their clients.

This 15-credit program will be offered online and can be completed in three trimesters. As is the case with other MUIH programs, the proposed program is designed to serve students with and without a background in science or medicine. Courses are designed to scaffold learning, knowledge, and skills in ways that meet students' prior educational levels in the sciences and herbal medicine. Courses and instruction are also designed to respect and incorporate students' workplace experiences, and to build upon them and enrich the course for others.

The proposed program helps to fill a national gap in the graduate educational needs of the expanding legal cannabis industry. To date, only two master's degrees and five graduate certificates in the field exist nationally. None have the same focus as MUIH's proposed program, which is grounded in holistic and natural health and wellness, herbal medicine, product design, dispensary practices, and quality assurance and industry standards that support appropriate access to high-quality and safe products.

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

The addition of the PBC in Cannabis Science: Therapeutics, Product Design, and Quality Assurance program supports MUIH's strategic goals, values and institutional principles. Since its founding, MUIH has been a pioneer and advocate in the national movement toward wellness, disease prevention, and patient- and relationship-centered health care. It is helping to lead the transformation of the U.S. healthcare delivery system through behavioral changes in consumer self-care and the services provided by conventional medical providers and systems, by preparing MUIH graduates to become partners in health by educating, facilitating and coaching.

The creation of this program supports the University's overarching strategic goals and it's 2019-2020 strategic priorities:

University Strategic Goals

- Goal 1.O1: Increase awareness, reputation and visibility of the University's academic programs, research initiatives, and clinical offerings.
- Goal G1.O4: Leverage and adapt current academic program offerings to reach new audiences.
- Goal G4.O4: Create alternative revenue streams.

2019-2020 Strategic Priorities

- Strategic Priority 1: Enhance the student experience
- Strategic Priority 3: Enhance Integrated Enrollment Management
- Strategic Priority 4: Enhance a Culture of Continuous Improvement

This program complements MUIH's long-standing expertise in herbal medicine. MUIH has offered master's and graduate certificate programs in herbal medicine since 2002. Its current programs in this field include MS Herbal Product Design and Manufacture, MS Clinical Herbal Medicine, and PBC Herbal Studies. As with all MUIH disciplines, the program model is prevention and education oriented, nature-based, community-focused, and relationship-centered with an emphasis on establishing rapport with the client and developing a healing presence. Consistent with MUIH's mission to deliver innovative solutions for healthier living and career-oriented opportunities for students, the proposed program will continue to advance MUIH's leadership in the emerging wellness system.

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

Within MUIH's current and foreseen context, limited new resources specific to this new program are needed to fund and support it through its launch and through the first five years of its implementation. Based on the projected number of enrollments for the program, advising, student success, career services, registrar, student accounts, library, information technology, admissions, and financial aid support can be accommodated within MUIH's current staffing. Instructional needs can be accommodated within MUIH's current faculty complement. Modest program-specific resources are needed to develop and support the program in the form of new online course development; the five courses of this program are new courses requiring development. Conceptual content for some of these courses exist within MUIH's current physiology, herbal medicine, and herbal product design and manufacture courses and can be dual purposed for the proposed program. The Instructional Design

Services unit's course development schedule and budget can accommodate the five new course developments that will be needed, given the small number of other new online programs and courses debuting during this time frame. One course development will be needed in fall 2020, two in spring 2021, and two in summer 2021.

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

This new program will be housed in the existing Nutrition and Herbal Medicine department which supports 554 graduate students annually (453 nutrition, 101 herbal medicine); an additional 30 students are projected for the PBC Cannabis Science: Therapeutics, Product Design, and Quality Assurance program during the first year. MUIH has dedicated academic, administrative, faculty, and advising personnel, as well as instructional materials and facilities, marketing, recruiting, and additional general student affairs and administrative resources to this department. This is a stable department that currently administers eight programs: Doctor of Clinical Nutrition, MS Nutrition and Integrative Health, MS Clinical Herbal Medicine, MS Herbal Product Design and Manufacture, PMC Nutrition and Integrative Health, PMC Nutritional Genomics in Clinical Practice, PBC Sports Performance and Integrative Nutrition, and PBC Herbal Studies. Dedicated herbal medicine resources and infrastructure have been included in MUIH's budget on an ongoing basis since academic year 2002-2003; the existing budget division will continue and support the new program, and it will continue to be included in the University's standard annual budget planning process. The program will be overseen and administered by its existing Chair, Department Manager, faculty Program Director, and program curriculum committee. The existing dedicated Academic Advisor from Student Affairs will support students in the current herbal medicine programs and the proposed PBC Cannabis Science: Therapeutics, Product Design, and Quality Assurance program. Courses will be staffed by a combination of existing salaried faculty, as well as existing and new adjunct faculty (see Section I for additional details). The new program will be included in the centralized support provided to all programs by the Student Affairs, Library, Information Technology Services, Instructional Design Services, and Faculty Development units. The impact on these areas is expected to be minimal given the projected 30 new students in the first year within MUIH's total enrolled population of approximately 1000 students (an approximate 3% increase in the overall student population).

MUIH will use its previously successful enrollment management model to launch the PBC Cannabis Science: Therapeutics, Product Design, and Quality Assurance program; this model has been successful in growing University enrollments including the cultivation of new audiences for new program areas. New programs are allowed a minimum of five years to mature and develop an ongoing prospective student funnel. New student enrollment targets for this program have been set based on the enrollment history of previous new MUIH programs, tracking enrollment trends for similar programs at other universities, and considering MUIH's resources and capacity. MUIH's financial model permits it to run programs with small cohort enrollments, further supporting sustainability of the program in both its early and later years. Any choice to discontinue a program involves collaborative decision making by the academic department, Dean of Academic Affairs, Provost, Admissions office, Marketing unit, Vice President for Marketing and Enrollment Management, Vice President for Finance and Administration, and President. Decisions to discontinue a program have been made rarely and have include teach-out plans for enrolled students with extended times to completion given the part time nature of MUIH's programs and the flexibility needed by its non-traditional student population.

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

1. Demonstrate demand and need for the program in terms of meeting present and future needs of the region and the State.

Health Care

Health care costs, and expenditures for health care, are on the rise. The Centers for Medicare and Medicaid Services has projected that health care spending will rise from \$2.9 trillion in 2013 to over \$5 trillion in 2022.¹ In percentage terms, the total expenditures on health care are projected to rise from 17.8% of GDP in 2015 to 19.9% of GDP in 2025.² Expenditures for preventive care, a key component of integrative health, are also increasing. The Federal Reserve Bank of San Francisco observed that “spending for preventive treatment increased at an extremely rapid rate over the [2003 to 2007] period. Growth in the percentage of enrollees getting preventive treatment ... drove half this increase. That indicates people are seeking preventive care at an increasing rate.”³

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 health care and social assistance sector as leading job growth. “Employment of healthcare occupations is projected to grow 14% from 2018 to 2028, much faster than the average for all occupations, adding about 1.9 million new jobs. Healthcare occupations are projected to add more jobs than any of the other occupational groups. This projected growth is mainly due to an aging population, leading to greater demand for healthcare services.”⁴ Maryland’s Department of Labor also predicts exceptional job growth in the health care of social service sector for the decade 2016-2026.⁵ Taken together, these are an indicator of the increasing importance of health-focused programs and interventions. The growing costs associated with health care and demands on insurance and treatment systems make prevention and early intervention, strategies emphasized by integrative health care practices, even more important for employers.

Integrative Health

A key component of a successful preventive health program is the use of complementary and integrative therapies. Integrative and complementary health approaches include an array of modalities and products with a history of use or origins outside of conventional medicine.

¹ 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>.

² Centers for Medicare and Medicaid Services. “NHE Fact Sheet,” last modified 6/14/2017, <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet.html>.

³ A. Shapiro, “What’s Driving Medical-Care Spending Growth?” Federal Reserve Bank of San Francisco, 2013.

⁴ BLS, “Occupational Outlook Handbook,” updated January 30, 2018, <https://www.bls.gov/ooh/healthcare/home.htm>.

⁵ Maryland Department of Labor, Licensing and Regulation, “Maryland Industry Projections - 2016-2026 - Workforce Information and Performance”, <https://www.dlir.state.md.us/lmi/iandoproj/industry.shtml>.

Medicine's leading accreditor, The Joint Commission⁶, the federal government's Inter-Agency Task Force on Pain Management⁷, the Centers for Medicare & Medicaid Services⁸, and the American College of Physicians⁹ have recognized the effectiveness of integrative health practices and have recommended their use to manage pain and mitigate the use of pharmacologic approaches, and in part assist in addressing society's opioid crisis.

2019 reports by the Global Wellness Summit¹⁰ and Forbes¹¹ cite integrative health practices among the top future global wellness trends. A 2013 McKinsey and Company report called the wellness industry "a demographic sweet spot of enormous potential" and calculated this market as close to \$16.5 billion per annum.¹² Individuals often use integrative health approaches to improve health and wellbeing¹³ or to relieve symptoms associated with chronic diseases or the side effects of conventional medicine.¹⁴ In the U.S., most persons who use complementary health approaches do so to complement conventional care, rather than as a replacement.¹⁵

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 health care approaches.¹⁶ One-third of U.S. adults and nearly 12% of children ages 4 to 17 used complementary health approaches. An estimated 59 million persons aged four years and over had at least one expenditure for some type of complementary health approach, resulting in total out-

⁶ J. Weeks, "The joint commission moves integrative approach ahead of pharmaceuticals for main management", *Integrative Medicine: A Clinician's Journal*, 2015, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4566474/>.

⁷ <https://www.hhs.gov/ash/advisory-committees/pain/index.html>

⁸ <https://www.cms.gov/newsroom/press-releases/cms-finalizes-decision-cover-acupuncture-chronic-low-back-pain-medicare-beneficiaries>

⁹ A. Qaseem, T.J. Wilt, R.M. McLean, M.A. Forciea, "Noninvasive treatments for acute, subacute, and chronic low back pain: A clinical practice guideline", *Annals of Internal Medicine*, 166(7). DOI: 10.7326/M16-2367, 2017.

¹⁰ Global Wellness Summit, "2019 Global Wellness Trends Report", 2019, <https://www.globalwellnesssummit.com/2019-global-wellness-trends/>.

¹¹ J. Sweet, "10 Wellness Trends You Have To Try In 2019", *Forbes*, Jan 4, 2019, <https://www.forbes.com/sites/jonisweet/2019/01/04/top-10-wellness-trends-2019/amp>

¹² P. Cloos, et al., "Healthy, Wealthy, and (Maybe) Wise: The Emerging Trillion-Dollar Market for Health and Wellness," McKinsey and Company, 2013.

¹³ A.M. McCaffrey, G.F. Pugh, and B.B. O'Connor, "Understanding Patient Preference for Integrative Medical Care: Results from Patient Focus Groups," *Journal of General Internal Medicine* 2007, 22(11):1500–5; and A.M. Greene, et al., "Perceived Benefits of Complementary and Alternative Medicine: A Whole Systems Research Perspective," *Open Complementary Medicine Journal* 2009, 1:35–45.

¹⁴ R.L. Nahin, et al., "Disease Severity Is Associated with the Use of Complementary Medicine to Treat or Manage Type-2 Diabetes: Data from the 2002 and 2007 National Health Interview Survey," *BMC Complementary and Alternative Medicine* 2012, 12:193; and C.B. Lo, R.A. Desmond, and S. Meleth, "Inclusion of Complementary and Alternative Medicine in US State Comprehensive Cancer Control Plans: Baseline Data," *Journal of Cancer Education* 2009, 24(4):249–53.

¹⁵ J.A. Astin, "Why Patients Use Alternative Medicine: Results of a National Study," *Journal of the American Medical Association (JAMA)* 1998;279(19):1548–53; also B.G. Druss and R.A. Rosenheck, "Association between Use of Unconventional Therapies and Conventional Medical Services," *JAMA* 1999, 282(7):651–6; and D.M. Eisenberg, et al., "Trends in Alternative Medicine Use in the United States, 1990–1997: Results of a Follow-Up National Survey," *JAMA* 1998, 280(18):1569–75.

¹⁶ 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>; 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.

of-pocket expenditures of \$30.2 billion per year. Out-of-pocket spending for complementary health approaches represented 9.2% of all out-of-pocket spending on health care. Moreover, spending on integrative medicine is expected to increase to \$115 billion by the year 2015.¹⁷ The 2017 National Health Interview Survey revealed an increase in the use of chiropractors from 9.1% in 2012 to 10.3%.¹⁸

Additional studies point to the growing use of integrative health approaches in health care. Taylor et al. demonstrated in 2018 that 52% of veterans surveys used some type of complementary and integrative health approach.¹⁹ A 2010 study conducted by the National Center for Complementary and Alternative Medicine and the American Association of Retired Persons indicated that 50% of Americans age 50 and older reported using complementary and alternative medicine.²⁰ In 2018, health and wellness coaching emerged as a \$6 billion service market in the U.S., with an estimated 109,000 health coaches and health educators.²¹

Traditional health care organizations, employers, and regulators are responding to increased consumer demand for integrative health therapies.²² In 2020, the Centers for Medicare and Medicaid (CMS) announced that it would reimburse acupuncture for Medicare recipients.²³ A 2019 study by the National Center for Complementary and Integrative Health of the National Institutes of Health, and the National Center for Health Statistics, indicated that 53% of office-based physicians, across disciplines, recommended at least one complementary health approach to their patients during the previous year.²⁴ Massage therapy was the most commonly recommended approach (30%), followed by chiropractic/osteopathic manipulation (27%), herbs/nonvitamin supplements (27%), yoga (26%), and acupuncture (22%). In 2018, the U.S. Department of Veteran Affairs (VA) was the first to recognize licensed acupuncturists in the federal government's General Schedule (GS) classification and pay system; acupuncturists are included at the GS-9 to GS12 levels.²⁵ In 2014, the U.S. Department of Veteran Affairs (VA) launched its Whole Health Initiative which is centered in the use of integrative

¹⁷ Report Linker, Alternative Medicine Industry: Market Research Reports, Statistics and Analysis.

<https://www.reportlinker.com/>.

¹⁸ National Center for Health Statistics, "Use of Complementary Health Approaches: Adults and Children, 2017", Centers for Disease and Control Prevention, <https://nccih.nih.gov/research/statistics/NHIS/2017>; also L.I. Black, P.M. Barnes, T.C. Clarke, B.J. Stussman, R.L. Nahin, "Use of yoga, meditation, and chiropractors among U.S. children aged 4–17 years", *NCHS Data Brief*, no 324, National Center for Health Statistics, 2018, <https://www.cdc.gov/nchs/data/databriefs/db324-h.pdf>; and T.C. Clarke, P.M. Barnes, L.I. Black, B.J. Stussman, R.L. Nahin, "Use of yoga, meditation, and chiropractors among U.S. adults aged 18 and over", *NCHS Data Brief*, no 325, National Center for Health Statistics, 2018, <https://www.cdc.gov/nchs/data/databriefs/db325-h.pdf>.

¹⁹ Taylor, S. L., Hoggatt, K. J., & Kligler, B. (2018). Complementary and integrated health approaches: What do Veterans use and want. *Journal of general internal medicine*, 1-8.

²⁰ National Center for Complementary and Alternative Medicine, "Complementary and Alternative Medicine: What People Aged 50 and Older Discuss with their Health Care Providers," April 2011.

²¹ Marketdata, LLC, "The U.S. Health Coaching Market", May 2018, <https://www.researchandmarkets.com/reports/4649614/the-u-s-health-coaching-market#rela2-4531925>.

²² Hart, J. (2018). Cleveland Clinic Center for Integrative & Lifestyle Medicine: Setting the Standards for Chronic Disease Management and Prevention. *Alternative and Complementary Therapies*, 24(4), 180-181.

²³ <https://www.cms.gov/newsroom/press-releases/cms-finalizes-decision-cover-acupuncture-chronic-low-back-pain-medicare-beneficiaries>

²⁴ Barbara J. Stussman, Richard R. Nahin, Patricia M. Barnes, and Brian W. Ward. U.S. Physician Recommendations to Their Patients About the Use of Complementary Health Approaches. *The Journal of Alternative and Complementary Medicine*. Dec 2, 2019. <http://doi.org/10.1089/acm.2019.0303>

²⁵ <https://www.integrativepractitioner.com/practice-management/news/va-respectfully-recognizes-acupuncture-professionals-gs-9-gs-12-new-employment-handbook>

health practices to support veterans' health and wellness.²⁶ Its Integrative Health Coordinating Center (IHCC) was formed to identify and address barriers to providing complementary and integrative health across the VA, and serve as a resource for clinical practices and education for Veterans, clinicians, leadership, and staff. This initiative includes acupuncture, biofeedback, clinical hypnosis, guided imagery, massage therapy, meditation, Tai chi / qi gong, and yoga.

A 2007 study by McKinsey and Company report found that 41% of patients' choice of hospital is based on their offerings of "amenities" that included complementary and alternative therapies.²⁷ A 2007 study by the Bravewell Collaborative indicated that in 1999 only 7.7% of hospitals offered integrative therapies, by 2004 that number had increased to 18.3%, and by 2005 25% of hospitals were offering services in a complementary or integrative fashion.²⁸ A 2010 study by the Samueli Institute and Health Forum, and American Hospital Association Company, indicated that of the responding hospitals (299), 42% stated that they offered one or more complementary and integrative health therapies in the hospital.²⁹ The 2007 National Home and Hospice Care Survey conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics found that nearly 42% of hospice care providers offered complementary and alternative therapies, had a provider on staff or under contract, or both.³⁰ All twenty hospitals on the 2017-2018 US News and World Report America's Best Hospitals Honor Roll offer integrative health care and practices.³¹ Membership in the Academic Consortium for Integrative Medicine and Health grew from 36 traditional and allopathic academic medical schools and centers in 2008, to 70 in 2018.³² In addition, allopathic health care providers are personally using integrative therapies at an increased rate.³³ The spread of integrative health practices in allopathic settings is also demonstrated through the increase of hospitals and other health care organizations approaching MUIH in the last three to five years seeking internship placements for MUIH students.

The increase in integrative health approaches has been driven in part by changes in incentive structures for health care providers under the provisions of the Patient Protection and Affordable Care Act (known as the ACA or Obamacare), the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA), and the 21st Century Cures Act of 2016. Briefly, these changes have resulted in awards to health care providers for reducing acute care consumption and impose penalties for inefficient, low-quality care. Integrative and allied health professions play a key role in delivering patient outcomes and support the shift in emphasis from acute to preventive care. Integrative health has been shown to

²⁶ <https://www.va.gov/WHOLEHEALTH/professional-resources/clinician-tools/cih.asp>,

AND

[file:///C:/Users/csax5/AppData/Local/Packages/Microsoft.MicrosoftEdge_8wekyb3d8bbwe/TempState/Downloads/1137_D_2017-05-18%20\(4\).pdf](file:///C:/Users/csax5/AppData/Local/Packages/Microsoft.MicrosoftEdge_8wekyb3d8bbwe/TempState/Downloads/1137_D_2017-05-18%20(4).pdf)

²⁷ K.D. Grote, J.R.S. Newman, S.S. Sutaria, "A better hospital experience", The McKinsey Quarterly, 2007.

²⁸ B. Horrigan, "Integrative Medicine Best Practices: Introduction and Summary." Bravewell Collaborative, 2007.

²⁹ Samueli Institute and Health Forum, "2010 Complementary and alternative medicine survey of hospitals: Summary of results", 2010, http://www.samueliinstitute.org/File%20Library/Our%20Research/OHE/CAM_Survey_2010_oct6.pdf.

³⁰ A. Bercovitz, et al., "Complementary and Alternative Therapies in Hospice: The National Home and Hospice Care Survey: United States, 2007," *National Health Statistics Report* 33, Jan. 19, 2011.

³¹ US News and World Report, U.S. News Hospitals Rankings and Ratings, <https://health.usnews.com/best-hospitals>

³² Academic Consortium for Integrative Medicine & Health, <https://www.imconsortium.org>. And Consortium of Academic Health Centers for Integrative Medicine, <https://www.integrativepractitioner.com/whats-new/all-news/consortium-of-academic-health-centers-for-integrative-medicine/>

³³ P. Johnson, A. Ward, and L. Knutson, "Personal Use of Complementary and Alternative Medicine (CAM) by U.S. Health Care Workers," *Health Services Research* 47 (part 1): 211-227, 2012.

be cost effective and yield savings in more than two dozen studies,³⁴ and in an analysis of research from medical literature, data from corporate wellness programs, and pilot projects at insurance companies.³⁵ Indeed, to succeed in the future, health care organizations will need to shift their workforce from one that prioritizes hiring for in-patient acute care toward new value-based models.³⁶ Professionals in those models will 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.

Collectively, these represent some of the fastest growing occupations and areas of health care expansion in the U.S.³⁷ MUIH's programs, including the PBC Cannabis Science: Therapeutics, Product Design, and Quality Assurance program, prepare individuals to provide such integrative health care.

Herbal Medicine

Consumer use of herbal medicine continues to grow. A 2011 study by the National Center for Health Statistics indicated that the use of dietary supplements is common among the U.S. adult population and has been growing significantly.³⁸ Over 40% of adults in the U.S. used supplements in 1988–1994 and over 50% used them in 2003–2006. The 2012 National Health Interview Survey indicated that more than 40 million individuals in the U.S. used non-vitamin, non-mineral supplements in 2012, up from 38 million users in 2007.³⁹ In addition, significant increases in the sales of herbal supplements has been seen in recent years.⁴⁰ In 2017, total U.S. retail sales of herbal supplements surpassed \$8 billion for the first time, reaching nearly \$8.1 billion. Consumer spending on herbal supplements increased 8.5% from 2016 – the strongest sales growth for herbal supplements in more than 15 years. Total U.S. retail sales of herbal supplements have increased every year since 2004, and since that time consumer spending on supplements has nearly doubled. Increasingly, these consumers are reaching out to professional clinicians to help them understand what is safe and effective from the vast array of herbal supplements found in the market. The development of MUIH's MS Herbal Product Design and Manufacture program parallels this growth and helps to support the growing need for health care professionals who have been trained in the use of this modality.

Cannabis Industry

³⁴ P. Herman, et al., "Are Complementary Therapies and Integrative Care Cost-Effective? A Systematic Review of Economic Evaluations," *BMJ Open* 2(5): e001046, 2012.

³⁵ E. Guarneri, B. Horrigan, and C. Pechura, "The Efficacy and Cost-Effectiveness of integrative Medicine," The Bravewell Collaborative, 2010.

³⁶ The Advisory Board, "Build Your Workforce from the Outside-In," 2016.

³⁷ Education Advisory Board, "Health Professions: Capitalizing on Creative Disruption," COE Forum Industry Futures Series, 2017.

³⁸ J. Gahche, R. Bailey, V. Burt, J. Hughes, E. Yetley, J. Dwyer, M. F. Picciano, M. McDowell, C. Sempos, "Dietary Supplement Use Among U.S. Adults Has Increased Since NHANES III (1988–1994)", NCHS Data Brief, No. 61, National Center for Health Statistics, 2011, <https://www.cdc.gov/nchs/data/databriefs/db61.htm>

³⁹ National Center for Health Statistics, "Use of Complementary Health Approaches in the US: 2012 National Health Interview Survey," Centers for Disease Control and Prevention, 2015, <https://nccih.nih.gov/research/statistics/NHIS/2012>; and 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.

⁴⁰ T. Smith, et al., "Herbal Supplement Sales in US Increased 8.5% in 2017, Topping \$8 Billion", HerbalGram, Issue 119, pg 62-71, 2018, <http://cms.herbalgram.org/herbalgram/issue119/hg119-herbmktrpt.html>.

Legalization and Use: As of January 2020, medical and recreational marijuana is legal in 11 states, medical marijuana only is legal in 22 states, and hemp is federally legal in all 50 states.⁴¹ In Maryland, marijuana is legal for medical purposes only.⁴² The 2017 National Survey on Drug Use and Health estimated that 24 million Americans above the age of 18 were users of marijuana, representing nearly 9% of the total population; marijuana use among the same group increased from 21% in 2002 to 30% in 2017.⁴³

Overall Cannabis Industry Growth: New Frontier Data reports overall sales within the legalized U.S. cannabis industry, which includes both recreational and medical marijuana, were expected to reach \$13.6 billion throughout 2019, a 32% increase over 2018 sales.⁴⁴ Total combined U.S. legal sales are projected to continue to grow at an annual rate of 14%, reaching \$30 billion in sales by 2025. Total legal recreational use sales are projected to grow 16% to \$16.6 billion in sales by 2025. If the total U.S. cannabis market were to be legalized, Barclay's estimates the market could be worth \$41 billion by 2028, and Cowen and Company estimates a market value of \$80 billion by 2030.⁴⁵ Globally, Fortune Business Insights reports the cannabis market (including medical, recreational and hemp-based) was \$10.6 billion in 2018 and projects it to reach \$97.3 billion by the end of 2026, a 33% annual growth from 2019 to 2026.⁴⁶

Medical and Recreational Marijuana Industry Growth: New Frontier Data projects combined U.S. sales of medical cannabis to grow 17% annually from \$4.4 billion in 2018 to \$13.1 billion in 2025.⁴⁷ In Maryland, sales doubled in the first year of legalization (2018-2019) and required a second round of business license applications for medical marijuana dispensaries, cultivators, and processors to meet

⁴¹National Conference of State Legislatures. State Medical Marijuana Laws. Retrieved from <https://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx>, AND Interactive Marijuana Legislation Map. Cannabis Business Times. Retrieved from <https://www.cannabisbusinesstimes.com/page/marijuana-legislative-map-cbt>

⁴² Maryland Medical Cannabis Commission, <https://mmcc.maryland.gov/Pages/home.aspx>

⁴³ Substance Abuse and Mental Health Services Administration. (2018). Key substance use and mental health indicators in the United States: Results from the 2017 National Survey on Drug Use and Health (HHS Publication No. SMA 18-5068, NSDUH Series H-53). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from: <https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUHF2017/NSDUHF2017.pdf>

⁴⁴Hudock, C. (2019) U.S. Legal Cannabis Market Growth. New Frontier Data. Retrieved from: <https://newfrontierdata.com/marijuana-insights/u-s-legal-cannabis-market-growth>

⁴⁵ Sheetz, M. (2019) Barclays estimates US weed market would be \$28 billion if legalized today, growing to \$41 billion by 2028, CNBC. Retrieved from: <https://www.cnbc.com/2019/05/01/barclays-us-cannabis-market-28-billion-if-legalized-today.html>, AND Owusu, T. (2019) Cowen's Cannabis Analyst Raises 2030 U.S. Market Forecast to \$80 Billion. The Street. Retrieved from: <https://www.thestreet.com/investing/cowen-cannabis-analyst-raises-2030-us-market-forecast-to-80-billion-14828252>

⁴⁶ Cannabis/Marijuana Market Size, Share and Industry Analysis By Type (Flowers/Buds and Concentrates), By Application (Medical, Recreational (Edibles and Topicals), and Industrial Hemp), and Regional Forecast 2019-2026. Fortune Business Insights. Retrieved from: <https://www.fortunebusinessinsights.com/industry-reports/cannabis-marijuana-market-100219>

⁴⁷ Hudock, C. (2019) U.S. Legal Cannabis Market Growth. New Frontier Data. Retrieved from: <https://newfrontierdata.com/marijuana-insights/u-s-legal-cannabis-market-growth>, AND Arcview Market Research. (2019) The Roadmap to a \$57 Billion Worldwide Market [White Paper]. Retrieved from: <https://bdsanalytics.com/wp-content/uploads/2019/06/Roadmap-Exec-Summ.pdf>

consumer demand.⁴⁸ Globally, BDS Analytics projects sales of recreational marijuana at \$83 billion and medical marijuana at \$19 billion by 2027.⁴⁹

CDB Industry Growth: Significant consumer interest exists in hemp-based and CBD-containing cannabis supplements. Hemp-derived CBD is now available in general retail channels outside of licensed cannabis dispensaries, including online, drug stores, natural products, beauty, convenience, grocery and pet stores. Research firm Brightfield Group projects the U.S. CBD industry will outpace the marijuana market and reach \$23.7 billion in sales by 2023.⁵⁰ BDS Analytics forecasts U.S. CBD sales to reach \$20 billion by 2024, accounting for nearly 44% of the \$45 billion total forecasted cannabinoid market.⁵¹ Hemp-based cannabis sales of CBD-based supplements grew 332% from 2018 to 2019, with over \$52 million in 2019 sales, making hemp-based cannabis supplements the top selling herbal supplement in the U.S. market.⁵² Current herbal supplement manufacturers are increasingly embracing CBD based cannabis products. The percent of natural product manufacturers selling such products doubled in the first six months of 2019, with 75% of the industry planning on launching new CBD-based products over the next two years.⁵³

The development of MUIH's PBC Cannabis Science: Therapeutics, Product Design, and Quality Assurance program parallels this growth and helps to support the growing need for health care professionals who have been trained in the use of this modality.

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

The proposed program will serve the needs of the State of Maryland, consistent with the goals of the Maryland State Plan for Postsecondary Education for 2017-2021.⁵⁴ Given that this program is a graduate program its focus is on Maryland's Success and Innovation goals, rather than the Access goal which emphasizes the K-12 to postsecondary education pathway.

Success: Promote and implement practices and policies that will ensure student success.

Strategy 4: The online format of the program increases accessibility to higher education by residents of Maryland and other states for whom geography and time may be barriers to enroll. MUIH provides the

⁴⁸ Cowee, M. (2019) Chart: US cannabis employment to jump 34% in 2019 thanks to California, growth in new markets. Marijuana Business Daily. Retrieved from: <https://mjbizdaily.com/us-cannabis-employees-increase-34-percent-2019>

⁴⁹ Arcview Market Research. (2019) The Roadmap to a \$57 Billion Worldwide Market [White Paper]. Retrieved from: <https://bdsanalytics.com/wp-content/uploads/2019/06/Roadmap-Exec-Summ.pdf>

⁵⁰ Brightfield Group. (2019) US CBD Market to Grow 700% Through 2019 [Press Release]. Retrieved from: <https://www.brightfieldgroup.com/press-releases/cbd-market-growth-2019>

⁵¹ BDS Analytics (2019) The Global Cannabinoids Market: Will CBD Overtake THC? [White Paper]. Retrieved from: <https://bdsanalytics.com/wp-content/uploads/2019/08/BDS-Analytics-The-Global-Cannabinoids-Market-Will-CBD-Overtake-THC.pdf>

⁵² Smith T., et al. (2019) Herbal Supplement Sales in US Increase by 9.4% in 2018: Record growth driven by sales of CBD, mushrooms, and immune-health products. HerbGram. 23: 62-73. Retrieved from: <http://cms.herbalgram.org/herbalgram/issue123/files/HG123-HMR.pdf>

⁵³ Parfitt, S. (2018) U.S. Marijuana Industry Jobs Estimated to Triple by 2025. azmarijuana.com. Retrieved from: <https://azmarijuana.com/marijuana-news/u-s-marijuana-industry-jobs-estimated-to-triple-by-2025>

⁵⁴ <https://mhec.maryland.gov/About/Pages/2017StatePlanforPostsecondaryEducation.aspx>

residents of Maryland and other states with unique access to educational opportunities in the emerging field of integrative health. MUIH is one of the few colleges and universities in the U.S. to focus solely on integrative health and to provide professional education in such fields. The PBC Cannabis Science: Therapeutics, Product Design, and Quality Assurance program will be one of the few graduate programs in the U.S. It will enhance MUIH's portfolio of programs, build on its existing expertise in integrative health and herbal medicine, support the State's goals of furthering the education of its citizens, and position Maryland as a national leader in the emerging field of integrative health.

Strategy 7: MUIH provides the residents of Maryland with unique degrees and certificates that provide direct access to career pathways in the growing health care sector. The field of integrative health is increasingly being recognized by consumers, patients, employers, and conventional medicine as a powerful health care adjunct that provides access to high quality, high impact, and low-cost health care. In this respect, MUIH integrates academic and career advising throughout students' enrollment; provides professional development and employment search services to students and alumni through the Career Center; and offers a variety of co-curricular professional opportunities. The PBC Cannabis Science: Therapeutics, Product Design, and Quality Assurance program has direct applicability to a wide variety health and wellness and health care professions and disciplines and will be incorporated into MUIH's suite of professional, career, and employment services.

Innovation: Foster innovation in all aspects of Maryland higher education to improve access and student success.

Strategy 8: MUIH develops partnerships to support workforce development and improve workforce readiness. The proposed program is grounded in a holistic health and wellness philosophy which is aligned with the goals and work of the Health Department of Howard County, in which MUIH is situated. The Health Department's vision is that of a model community in which health equity and optimal wellness are accessible for all who live, work and visit Howard County. Its mission is to promote, preserve and protect the health of all in Howard County. Among its core values are strategic public health investment and advancing the public health field. In support of our shared goals, MUIH regularly partners with non-profit, community, and health and wellness related organizations in Howard County including the Association of Community Services of Howard County, Business Women's Network of Howard County, Community Foundation of Howard County, Community Action Council of Howard County, Horizon Foundation, Howard County Community College, Howard County Office on Aging and Independence, Howard County Fire and Rescue, Howard County Human Resources Society, Howard County Local Health Improvement Coalition, Humanim, Green Farmacy, and Johns Hopkins Medicine/Howard County General Hospital. In other parts of Maryland, MUIH regularly partners with the Foundation for Advanced Education in the Sciences at National Institutes of Health, Fort Meade Military Family Alliance, Shoemaker Center Rehabilitation Center, Uniformed Services University of the Health Sciences, University of Maryland Medical System's Upper Chesapeake Health/Kaufman Cancer Center, and Veterans of Foreign Wars (VFW) Post 160.

C. Quantifiable and Reliable Evidence and Documentation of Market Supply and 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 health care and social assistance sector as leading job growth. "Employment of healthcare occupations is projected to grow 14% from 2018 to 2028, much faster than the average for all occupations, adding about 1.9 million new jobs. Healthcare occupations are projected to add more jobs than any of the other occupational groups. This projected growth is mainly due to an aging population, leading to greater demand for healthcare services."⁵⁵ Maryland's Department of Labor also predicts exceptional job growth in the health care of social service sector for the decade 2016-2026.⁵⁶ Taken together, these are an indicator of the increasing importance of health-focused programs and interventions. The growing costs associated with health care and demands on insurance and treatment systems make prevention and early intervention, strategies emphasized by integrative health care practices, even more important for employers.

Herbalists will support the continued projected growth of healthcare occupations in the U.S. Individuals who hold the MS Herbal Product Design and Manufacture degree will support the \$8 billion herbal supplement industry.⁵⁷ The MS Herbal Product Design and Manufacture program is designed for individuals with a wide range of interests in the growing herbal supplement industry. Graduates of the program will be poised to contribute as change agents for quality, rigor, and efficacy in diverse areas of the herbal product field. The program is ideal for individuals interested in herbal product development, formulary, sustainable production, quality control, research, education, retail, marketing, and sales. Individuals with graduate level credentials in herbal medicine are achieving employment. MUIH's Next Destination Survey of alumni (2018--2019) indicated that 79% of respondent herbal medicine master's graduates were employed within one year of graduation.

Marijuana Business Daily's 2019 Marijuana Business Factbook estimates the number of full-time workers in the U.S. marijuana industry was between 130,000 and 160,000 in 2018, increased to 175,000 to 215,000 in 2019, and will reach 385,000 to 475,000 workers by 2023.⁵⁸ BDS Analytics and Arcview estimate as many as 630,000 cannabis jobs by 2025.⁵⁹ Leafly's Cannabis Job Count report suggests that the cannabis industry is among the largest job creation engines in the U.S (14).⁶⁰ The career opportunities vary based on the segment of the market (medical vs. recreational vs. hemp-based cannabis). However, all three segments demand similar knowledge and skill sets that are basic to the world of herbal supplements. Nationally based cannabis-specific hiring firm Vangst provides a benchmarking salary guide for working in the cannabis industry and the requirements for employment

⁵⁵ BLS, "Occupational Outlook Handbook," updated January 30, 2018, <https://www.bls.gov/ooh/healthcare/home.htm>.

⁵⁶ Maryland Department of Labor, Licensing and Regulation, "Maryland Industry Projections - 2016-2026 - Workforce Information and Performance", <https://www.dllr.state.md.us/lmi/iandoproj/industry.shtml>.

⁵⁷ T. Smith, et al., "Herbal Supplement Sales in US Increased 8.5% in 2017, Topping \$8 Billion", HerbalGram, Issue 119, pg 62-71, 2018, <http://cms.herbalgram.org/herbalgram/issue119/hg119-herbmktrpt.html>.

⁵⁸ Cowee, M. (2019) Chart: US cannabis employment to jump 34% in 2019 thanks to California, growth in new markets. Marijuana Business Daily. Retrieved from: <https://mjbizdaily.com/us-cannabis-employees-increase-34-percent-2019>

⁵⁹ Parfitt, S. (2018) U.S. Marijuana Industry Jobs Estimated to Triple by 2025. [azmarijuana.com](https://azmarijuana.com/marijuana-news/u-s-marijuana-industry-jobs-estimated-to-triple-by-2025). Retrieved from: <https://azmarijuana.com/marijuana-news/u-s-marijuana-industry-jobs-estimated-to-triple-by-2025>

⁶⁰ Barcott, B. and Whitney, B. (2019) Special Report: Cannabis Jobs Count. Call it America's hidden job boom. Leafly. Retrieved from: <https://d3atagt0rnqk7k.cloudfront.net/wp-content/uploads/2019/03/01141121/CANNABIS-JOBS-REPORT-FINAL-2.27.191.pdf>

in each state.⁶¹ Careers that graduates of the PBC Cannabis Science: Therapeutics, Product Design, and Quality Assurance programs include:

- Cannabis Jobs in Testing: Laboratory Analysts, Laboratory Technicians, Quality Control Inspector, and Marijuana Tester
- Cannabis Jobs in Processing and Manufacturing: Extractor, Product Developer/Formulator, Marketing Lead, and Regulatory Specialist
- Cannabis Jobs in Dispensaries and Retail: Budtender, Dispensary (or Store) Manager

The proposed program is being created at an advantageous time. It offers an opportunity not only for new entrants but for existing professionals in workplace settings to acquire an additional area of expertise. The online format means that the program can reach those workers throughout Maryland and the nation.

2. Educational and Training Needs

The educational pathways available to support the cannabis industry were analyzed. The proposed PBC Cannabis Science: Therapeutics, Product Design, and Quality Assurance program fills a national gap of opportunities for academic graduate study. Six graduate programs and six undergraduate programs exist at other colleges and universities across the U.S. A number of other colleges and universities offer stand-alone credit bearing courses and non-credit courses and certificates. In addition, seventeen non-credit corporate training providers have been identified. The currently available academic programs include:

| Level | Institution | Program | Format |
|---------------|-------------------------------------|---|--------|
| Undergraduate | Hocking College (OH) | AAS Laboratory Science – Cannabis Lab Technician | F2F |
| | Minot State Univ (ND) | BS Medicinal Plant Chemistry (cannabis concentration) | F2F |
| | Northern Michigan Univ (MI) | BS Medicinal Plant Chemistry (cannabis concentration) | F2F |
| | Oakton Community College (IL) | Certificate – Cannabis Dispensary & Patient Care Specialist | F2F |
| | Stockton University (NJ) | Minor – Cannabis Studies | F2F |
| | Western Illinois University (IL) | Minor – Cannabis-Growing | F2F |
| Graduate | American International College (MA) | MS Cannabis Science and Commerce | Hybrid |
| | Clark University (MA) | Certificate – Regulatory Affairs for Cannabis Control | Online |
| | Jefferson University (PA) | Certificate – Cannabinoid Chemistry and Toxicology | Hybrid |
| | | Certificate – Cannabinoid Pharmacology | Online |
| | | Certificate – Cannabis Medicine | Online |

⁶¹ Cannabis Jobs Database. Retrieved from: <https://vangst.com>

| | | | |
|--|---|---|--------|
| | Pacific College of Health and Science (CA) | Certificate – Medical Cannabis for Healthcare Professionals | F2F |
| | University of Maryland, School of Pharmacy (MD) | MS Medical Cannabis and Therapeutics | Hybrid |

The University of Maryland's (UMD) School of Pharmacy' M.S. Medical Cannabis and Therapeutics degree is the first ever master's degree in cannabis offered in the U.S.; it has a strong focus on the pharmaceutical use of cannabis with chemistry and toxicological analysis. American International College will begin offering a M.S. Cannabis Science and Commerce program in fall 2020. This program focuses on the basic science, business, and legal issues of the cannabis industry. Jefferson University, a graduate medical and health sciences university, offers three graduate certificates that focus on chemical analysis, pharmacology and toxicology, and a review of conventional medical therapeutic uses. Pacific College of Health and Science offers a graduate certificate at its California campus that serves the conventional healthcare professional and focuses on the medical uses of cannabis. Clark University's certificate program is the only graduate program in the U.S. to focus on regulatory and policy matters that impact the cannabis industry. None of these programs have the focus on herbal medicine, holistic health and wellness, and safety and quality assurance in product design that MUIH's program has.

3. Prospective Graduates

The proposed PBC Cannabis Science: Therapeutics, Product Design, and Quality Assurance program has differentiating factors that will support its competitiveness in the growing integrative health and herbal medicine fields and the cannabis industry: one of only a few graduate programs in the cannabis field; the only cannabis program grounded in holistic and natural health and wellness, herbal medicine, product design, dispensary practices, and quality assurance; its grounding in MUIH's solid reputation and philosophy; cost; distinctive features of the program experience such as the MUIH's singular and hallmark focus on integrative health, a holistic approach, and a relationship-based and healing presence approach; and the opportunity to sequentially cross-train in other integrative health fields at MUIH.

Given the upward trends in the integrative health field, the enrollment history for new programs at MUIH, and the enrollment trend for cannabis programs at other universities, the following enrollment projections call for modest but solid growth over the first five years.

Projected Enrollments for Program*

| Year | Trimester | New Students | Continuing Students | Total Students per Trimester | Total Students per Year |
|--------|-------------|--------------|---------------------|------------------------------|-------------------------|
| Year 1 | Fall 2020 | 30 | | 30 | 81 |
| | Spring 2021 | | 27 | 27 | |
| | Summer 2021 | | 24 | 24 | |
| Year 2 | Fall 2021 | 50 | | 50 | 135 |
| | Spring 2022 | | 45 | 45 | |

| | | | | | |
|--------|-------------|----|----|----|-----|
| | Summer 2022 | | 40 | 40 | |
| Year 3 | Fall 2022 | 70 | | 70 | 189 |
| | Spring 2023 | | 63 | 63 | |
| | Summer 2023 | | 56 | 56 | |
| Year 4 | Fall 2023 | 80 | | 80 | 216 |
| | Spring 2024 | | 72 | 72 | |
| | Summer 2024 | | 64 | 56 | |
| Year 5 | Fall 2024 | 80 | | 80 | 216 |
| | Spring 2025 | | 72 | 72 | |
| | Summer 2025 | | 56 | 56 | |

*Enrollment Assumptions: New students are admitted once a year in the fall trimester. The program is designed to be completed in three trimesters. Continuing students have an overall average retention rate of 80%, consistent with that of MUIH's existing programs.

D. Reasonableness of Program Duplication:

One other university in Maryland offers a graduate program in the cannabis field. The University of Maryland's School of Pharmacy (UMSOP) offers the M.S. Medical Cannabis and Therapeutics degree, which is the first master's degree in the cannabis to be offered in the U.S. This program and MUIH's program share some similarities while also being distinctly different from one another, as shown in the following charts:

| Feature | UMSOP Program | MUIH Program |
|----------------------|---|---|
| Program Type | Master of Science | Post-Baccalaureate Certificate |
| Number of Credits | 30 | 15 |
| Instructional Format | Hybrid | Online |
| Major Areas of Focus | Medical use of cannabis, emphasis on therapeutics, pharmacology, chemistry and toxicology | Holistic health and wellness, herbal medicine, and safety and quality assurance in product design |

| Content Similarities | Unique to UMSOP | Unique to MUIH Program |
|---|---|--|
| <ul style="list-style-type: none"> Cannabinoid chemistry and pharmacology Clinical effects of medical cannabis Therapeutics and known side effects | <ul style="list-style-type: none"> Introduction to medical cannabis history and culture Broad view of cannabis laws and policies Focus on principles of drug action, cannabinoid chemistry and drug delivery | <ul style="list-style-type: none"> Overarching focus on herbal medicine Therapeutic focus on both health promotion and disease management Therapeutic strategies that combine cannabis with herbal medicine |

| | | |
|--|---|--|
| | <ul style="list-style-type: none"> • Research design and medical cannabis. • Cannabis genomics • Advanced cannabinoid chemistry and analytic testing methodology | <ul style="list-style-type: none"> • Formulation and designing herbal/cannabis products • Regulatory and good manufacturing practices in the herbal supplement market • Focus on dispensary function, services, and related state and federal cannabis laws and policies • Focus on all 3 market segments – CBD dominant chemovars that make up the herbal supplement domain, and the medical and recreational use of THC dominant chemovars |
|--|---|--|

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

There are no graduate programs in the cannabis field offered by Maryland HBIs. The proposed program will have no potential impact on high-demand programs at Maryland's HBIs or on the uniqueness and institutional identities and missions of the HBIs.

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

There are no graduate programs in the cannabis field offered by Maryland HBIs. The proposed program will have no potential impact on high-demand programs at Maryland's HBIs or on the uniqueness and institutional identities and missions of the HBIs.

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

1. Program Development Model

MUIH uses an ongoing and iterative process to identify and research potential new programs. Potential new programs are routinely identified by faculty, academic and administrative leadership, and external professional collaborators through an ongoing analysis of trends and career needs in the health care sector and the field of integrative health, and the career pathways and needs of MUIH's students and alumni. Data sources include national and regional career outlook and projection statistics; professional credentialing trends and requirements; competitive programs at other colleges and universities; the results of student learning outcomes assessment activities in existing programs; the results of periodic academic program reviews; and the results of alumni surveys. The Provost's office leads an annual review of potential new programs and selection of new programs for development in collaboration with the academic leadership, departments, and faculty, and with input from the President's Executive Council, and the advising, admissions, marketing teams. Faculty are responsible for the development of the program learning outcomes, description, requirements, curriculum, courses, student learning experiences, and program assessment plans, in collaboration with academic administrators. These aspects of the program are then reviewed and approved

successively by the department curriculum committee, University Curriculum Committee, Provost, Board of Trustees' Academic Affairs Committee, and Board of Trustees.

The herbal medicine program engaged in an analysis of its programs in 2017-2019 with the goals of ensuring a student-centric design, a quality student learning experience, and workplace relevance and alignment of the curriculum. This analysis was informed by various sources. First, the career readiness and employment status of herbal medicine alumni was assessed through a survey of working herbalists in 2014, herbal medicine alumni in 2017, and herbal medicine alumni one year after graduation in 2018-2019. Second, the skills, knowledge, and need for herbalists was assessed through phone interviews with two groups of working herbalists – MUIH alumni and non-alumni identified through the American Herbalists Guild. Third, the American Herbal Products Association (AHPA) 2018 survey on herbal product and employment trends was reviewed. Fourth, MUIH's Herbal Design Business Advisory Group provided feedback in 2017-2018 on the previous program curriculum and input on the and new program curriculum with respect to workforce needs, skills, and knowledge; this group includes representation from nationally-recognized industry leaders, federal agencies, and trade associations in the herbal product field. Fifth, the academic department and faculty reviewed the previous herbal medicine programs' curriculum, learning outcomes assessment results, students' clinical placements and professional portfolios, student success and retention rates, program structure, content, and length (credits and time), and enrollment trends. Sixth, throughout 2018-2019, a cannabis-specific working group analyzed the industry and its educational needs with respect to an emphasis on herbal medicine, holistic health and wellness, product design, and safety and quality assurance. This collective analysis resulted in a redesign of the herbal medicine master's degrees in 2019 and the PBC Cannabis Science: Therapeutics, Product Design, and Quality Assurance program proposed here.

2. Program Description and Requirements

Program Description

The Post-Baccalaureate Certificate in Cannabis Science: Therapeutics, Product Design, and Quality Assurance educates students about cannabis-based products with an emphasis on health effects, safety, formulation, and quality assurance. The program integrates the traditional herbal medicine knowledge and evidence-informed cannabis research needed to develop innovative strategies for commercializing safe and effective cannabis products. Unique to this program, students will investigate ways to combine cannabis with other herbs to optimize health benefits and reduce risks.

This is a non-experiential program. There are no internships, laboratories, field work, or hands on work with cannabis as part of this curriculum and program.

The program provides education in the following areas:

- Foundational knowledge of the endocannabinoid system
- Cannabis research to inform appropriate therapeutic recommendations and to evaluate and design commercial products
- CBD-dominant hemp-based dietary supplements and wellness products and THC-dominant medical and recreational marijuana
- Optimizing health benefits and reducing risk combining herbal medicine and cannabis
- Dispensary practices, quality assurance, and industry standards that support appropriate access to high-quality and safe cannabis-based products

The program includes a scientific exploration of two distinct sets of cannabis-based products. The first group is the CBD-dominant hemp-based products that are not psychoactive, are legal in all fifty U.S. states, and are being integrated increasingly into the dietary supplement industry. The second set of products are medical and recreational THC-dominant cannabis products that are psychoactive, regulated more strictly than hemp-based products, and mostly available through a limited number of licensed dispensaries. The program examines the science behind cannabis and explores the evidence for therapeutic benefits and risks, considerations in product design, and issues of quality assurance for both types of products.

With regards to CBD-dominant hemp-based products, students including complementary and integrative health (CIH) practitioners will learn how to assess products on the market and safely and appropriately recommend those that are well-designed and meet quality control standards. Students interested in product design or other work in the dietary supplement industry, will learn the principles of formulation and quality assurance for purposes of evaluating existing products and product development.

Recommending THC-dominant cannabis products does not fall within the scope of practice for most CIH practitioners; however, many clients are consuming or considering consuming THC-dominant products. It is important that CIH practitioners be well informed about quality, safety, and effectiveness of THC-dominant cannabis products in order to identify safety concerns as well as refer to other clinicians when appropriate. Students interested in working in licensed dispensaries will also benefit from this education as it provides them with the tools to evaluate retail products, build quality control practices into the dispensary workflow, and inform customers about available products in an ethical and responsible fashion.

Like other MUIH programs, this one is designed to serve students with and without a background in science or medicine. Courses are designed to scaffold learning, knowledge, and skills in ways that meet students' prior educational levels in the sciences. Courses and instruction are also designed to respect and incorporate students' workplace experiences, and to build upon them and enrich the course for others.

Program Outcomes

Upon completion of this program, graduates will be able to:

- Explain the endocannabinoid system and its role in the body's response to cannabis and other medicinal plants.
- Apply foundational knowledge of herbal pharmacology, clinical research, and traditional use to design and evaluate safe and effective cannabis-containing herbal supplements that support health and well-being.
- Utilize pharmacological and clinical research on cannabis to inform safe and effective therapeutic choices.
- Apply an ethical framework, along with regulatory and industry standards, to provide cannabis education and access to high-quality cannabis products in dispensaries and other retail environments.
- Apply best practices in quality assurance to develop quality control practices and assess cannabis-based products.

Admission Requirements

- Bachelor's Degree from a degree-granting college or university accredited by an accrediting body recognized by the U.S. Department of Education, with a minimum GPA of 2.5
- Official transcript(s) for prior undergraduate and graduate course work and degrees
- Resume
- Essay questions
- TOEFL/IELTS/PTE for international students

Program Requirements

This program consists of the following 15 credits and 6 courses.

- HRB610 The Endocannabinoid System and Phytocannabinoids (3 cr)
- HRB611 Cannabis Therapeutics (3 cr)
- HRB612 Cannabis Dispensary Practices (3 cr)
- HRB613 Formulating Herbal Products using Cannabis (3 cr)
- HRB614 Quality Assurance in Cannabis Products (3 cr)
- MUIH550 Academic Research and Scholarship (0 cr)

Course Descriptions

Course descriptions and course learning outcomes are provided in Appendix A.

3. Student Learning Assessment and Achievement

Student learning achievement and outcomes assessment is governed by each programs' comprehensive Academic Assessment Plan. Such Plans include program and course learning outcomes established during the initial development of the program and courses, respectively. The Plans include a five-year schedule for the assessment of specific program learning outcomes and university learning outcomes, in specific courses or activities, and via specific assessment methods. The Plans also include avenues for the use of assessment results for program and course improvement. Such avenues include ongoing department, faculty, and program curriculum committee meetings; University Curriculum Committee, and Institutional Assessment Committee meetings; the formal course development and redevelopment cycle; the five-year Academic Program Review cycle; and faculty development initiatives. Annual Assessment Reports are prepared by each program and they include an analysis of student learning outcomes assessment and how such results will be or have been used to improve the curriculum and instruction. These annual reports are reviewed by the Provost, Dean of Academic Affairs, and the Institutional Assessment Committee as a part of institutional assessment and planning activities. Student learning outcomes and achievement are also included in the five-year comprehensive Academic Program Review process.

The academic departments, programs, and curriculum committees, subject matter experts (SMEs), and faculty are responsible for designing, delivering, and assessing learning outcomes. They are supported by the University Curriculum Committee to guide and facilitate academic assessment initiatives. Additional support is provided by the Assistant Provost for Academic Assessment and Accreditation, Dean of Academic Affairs, Provost, and Institutional Assessment Steering Committee in gathering, interpreting, documenting, and using assessment results.

The Curriculum Map for the PBC Cannabis Science: Therapeutics, Product Design, and Quality Assurance program is provided in Appendix B. It maps the program learning outcomes and the

university learning outcomes to specific courses where various levels of outcome mastery will be achieved and assessed.

4. Specialized Accreditation or Graduate Certification Requirements

Not applicable to the proposed program.

5. Program Oversight

Oversight of the program will be provided by the faculty listed in Appendix C. This includes the Chair of the Nutrition and Herbal Medicine department, the faculty Program Director, and the salaried/ranked and adjunct faculty with expertise herbal medicine and cannabis.

6. Program Information for Current and Prospective Students

Multiple means are used to provide current and prospective students with clear, complete, and timely information on the curriculum, course and degree requirements, policies, the nature of faculty/student interaction, assumptions about technology competence and skills, technical requirements, the learning management system, the availability of academic support services and financial aid resources, and costs and payment policies. These include:

Publicly Available to Prospective and Current Students

- Student Consumer Webpage: <https://www.muih.edu/admissions/student-consumer-information>
- Admissions: <https://www.muih.edu/admissions>
- Academic Catalog: <https://www.muih.edu/academics/academic-catalog>
- Academic Program Webpages: <https://www.muih.edu/academics>
- Academic Policies (Transfer and Exemption, Satisfactory Academic Progress, Attendance, Leave of Absence, Withdrawal Process): <https://www.muih.edu/admissions/student-consumer-information>
- Office of the Registrar: <https://www.muih.edu/academics/office-registrar>
- Disabilities Services: <https://www.muih.edu/disabilities-services>
- Technology Requirements: <https://www.muih.edu/academics/online-learning/technical-requirements>
- Learning Management System: <https://muih.edu/academics/online-learning/support/>
- Financial Aid Resources: <https://www.muih.edu/admissions/financial-aid>
- Program Costs: <https://www.muih.edu/admissions/tuition-fees> and <https://www.muih.edu/cost-attendance>
- Payment Policies: <https://www.muih.edu/admissions/tuition-fees> and <https://www.muih.edu/admissions/financial-aid>
- Career Center: <https://www.muih.edu/career-services/career-center>

Password Protected Resources Available to Current and Confirmed New Students

- Full set of Administrative and Academic Policies
- Student Handbook
- Program Plans of Study

- Online New Student Orientation
- Program-Specific Student Community Site
- Student Affairs Community Site (advising, student success, disabilities support, career center)

H. Adequacy of Articulation

Not applicable to the proposed program.

I. Adequacy of Faculty Resources

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 PBC Cannabis Science: Therapeutics, Product Design, and Quality Assurance program will rely on a combination of salaried and adjunct faculty with expertise in herbal medicine and cannabis. Salaried faculty will be strategically placed to anchor the program and provide stability and continuity for students. It is vital that faculty have practical skills and knowledge in the field, generalized experience, as well as specialization in discrete areas that will allow for expert instruction, supervision, and guidance.

Salaried and adjunct faculty are hired and staffed to develop and teach program courses based on the following general criteria. Guest lecturers are subject to the same high standards of education and experience.

- Ph.D., Professional Doctorate, M.S., or other advanced graduate degrees in the related field of the course.
- Professional or academic credentials or experience in herbal medicine, physiology, and/or research
- Qualified to teach graduate courses, and to advise and mentor students.
- Faculty experience in higher education, in didactic, experiential, and/or clinical education.
- 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 C contains the list of faculty for the program. The faculty for the program include six salaried/ranked faculty and three adjunct faculty. Additional current and potential new adjunct faculty have also been identified.

Pedagogical preparation for teaching online courses is provided by the Faculty Development and Instructional Design Services units through ongoing opportunities for professional development offered via face-to-face and online trainings, workshops, tutorials, symposia, conferences, and one-on-one consultations tailored to individualized needs. Evidence-based pedagogical best practice resources and guides are provided for faculty on an ongoing and on demand basis through the online Faculty Community Site; such resources and guides are created and provided by in-house, external, and commercially developed sources. Before beginning their first online or hybrid course development or teaching assignment, MUIH requires faculty to complete basic onboarding focused on online pedagogy/andragogy, instructional design principles, the Quality Matters design principles and rubric, the

Canvas Learning Management System (LMS) and embedded technology tools and web conferencing training. Faculty who use the Canvas LMS have access to 24/7 support through the Canvas Help Desk.

J. Adequacy of Library Resources

The Sherman Cohn Library's physical space includes the Collaborative Commons, which serves as a space for individual and group learning, researching, interacting and engaging in collaborative work, and use of computers, and a printer/scanner/copier. The Library houses the Physical Collection of carefully selected materials from small presses and mainstream publications in support of the innovative academic programs offered at MUIH. Library Services includes circulation, reference, and research assistance from Library staff members. MUIH provides online support for students and faculty 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. All online courses contain a direct link to the Sherman Cohn Library at MUIH, prominently positioned in the Canvas online classrooms. 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 Library 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.

The adequacy of library resources to support academic programs is ensured through various measures. The Library Reports to the Provost and Library leadership is a member of the standing University Leadership Council. In addition, Library leadership is a member of the Faculty Senate's Information, Research, and Scholarship subcommittee and the Library engages faculty and the academic departments in the regular and periodic review of the Library's collection.

K. Adequacy of Physical Facilities, Infrastructure and Instructional 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; a library and quiet study room; 22 clinical treatment rooms and an herbal dispensary, assigned to the Student Teaching Clinic; a Student Affairs suite consisting of academic advising, a Student Success Center, and a Career Center; a student lounge with an adjacent kitchen; and a bookstore/café that includes seating. Offices for general administration of the University and faculty are located at the current campus locations. Other space is available and leased in Howard County as needed, for overflow office and classroom needs. 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. Since the program will be delivered primarily online, these physical instructional and support spaces will not be affected except inasmuch as students may use them during the two weekends they are on campus for class meetings and may wish to otherwise use them and concurrently enroll in other programs offered on campus.

All students are served by the current infrastructure including remote and online access to admissions, financial aid, registrar, library, advising, student success, disabilities support, counseling, career, IT support, and student account services, an online University Wide Orientation, and online Program Community Sites. The Student Success Center 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 and counseling services. The Career Center provides individualized and group services focused on career development and employment search, as well as a job board. Each department maintains a Program 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.

All students are provided Office 365 accounts, including access to an institutional electronic mailing system. IT support for electronic mail, Office 365 functions, the Student Information System, and other technologies is available to all students remotely. MUIH has licensed the Canvas Learning Management System (LMS) and embedded technology and web conferencing tools. All students have access to the Canvas LMS and 24/7 support through the Canvas Help Desk, and online tutorials and guides. These and other technologies have the capacity to scale with additional enrollments with little to negligible budgetary impact.

L. Adequacy of Financial Resources with Documentation

1. Table 1: Resources and Narrative Rationale

| TABLE 1: 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 below) | \$425,250 | \$722,250 | \$1,030,050 | \$1,210,800 | \$1,222,800 |
| a. Number of F/T Students | 0 | 0 | 0 | 0 | 0 |
| b. Annual Tuition/Fee Rate | \$0 | \$0 | \$0 | \$0 | \$0 |
| c. Total F/T Revenue (a x b) | \$0 | \$0 | \$0 | \$0 | \$0 |

| | | | | | |
|---|---|---|---|---|---|
| d. Number of P/T Students (new students each year) | 30 | 50 | 70 | 80 | 80 |
| e. Credit Hour Rate (credits/student/year) (new students each year) | 15 | 15 | 15 | 15 | 15 |
| f. Annual Credit Hour Tuition/Fee Rate | \$890/credit \$275 fee/ trimester | \$908/credit \$275 fee/ trimester | \$926/credit \$275 fee/ trimester | \$945/credit \$275 fee/ trimester | \$964/credit \$275 fee/ trimester |
| g. Total P/T Revenue (d x e x f) | \$425,250 | \$722,250 | \$1,030,050 | \$1,210,800 | \$1,222,800 |
| 3. Grants, Contracts & Other External Sources | \$0 | \$0 | \$0 | \$0 | \$0 |
| 4. Other Sources | \$0 | \$0 | \$0 | \$0 | \$0 |
| TOTAL (Add 1 – 4) | \$425,250 | \$722,250 | \$1,030,050 | \$1,210,800 | \$1,222,800 |

Revenue Narrative

- The enrollment assumptions for years 1 through 5 are 30, 50, 70, 80, and 80 new students, respectively, as shown in section C3.
- Tuition rates reflect the per credit rate for FY21 in Year 1, and 2% increases each year for Years 2-5.
- There is a flat University Fee of \$275/trimester.
- Students will complete 15 credits per year, based on the program design.
- There are no reallocated funds, grants, contracts, or other internal or external sources of revenue associated with the program.

2. Table 2: Program Expenditures and Narrative Rationale

| Table 2: EXPENDITURES | | | | | |
|--|----------|----------|----------|----------|----------|
| Expenditure Categories | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| 1. Total Faculty Expenses (b + c below) | \$21,600 | \$44,064 | \$53,748 | \$82,242 | \$83,862 |
| a. #FTE NOTE: #Credit Course Assignments (adjunct and salaried) | 15 | 15 | 15 | 15 | 15 |
| b. Total Salary NOTE: Based on MUIH starting mid-point adjunct compensation rate. | \$21,600 | \$44,064 | \$53,748 | \$82,242 | \$83,862 |
| c. Total Benefits | \$0 | \$0 | \$0 | \$0 | \$0 |
| 22. Total Administrative Staff Expenses (b + c below) | \$9,000 | \$9,180 | \$9,364 | \$9,551 | \$9,742 |
| a. # FTE | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| b. Total Salary | \$7,500 | \$7,650 | \$7,803 | \$7,959 | \$8,118 |
| c. Total Benefits | \$1,500 | \$1,530 | \$1,561 | \$1,592 | \$1,624 |

| | | | | | |
|---|-----------------|-----------------|-----------------|------------------|------------------|
| 3. Total Support Staff Expenses (b + c below) | \$7,440 | \$7,589 | \$7,740 | \$7,895 | \$8,052 |
| a. # FTE | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| b. Total Salary | \$6,200 | \$6,324 | \$6,450 | \$6,579 | \$6,710 |
| c. Total Benefits | \$1,240 | \$1,265 | \$1,290 | \$1,316 | \$1,342 |
| 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) | \$34,510 | \$21,458 | \$23,963 | \$34,922 | \$40,414 |
| TOTAL (Add 1 - 7) | \$72,550 | \$82,291 | \$94,815 | \$134,610 | \$142,070 |

Expenditures Narrative

- Faculty will teach 15 credits per year plus the 0 credit MUIH550 course, based on the program design.
- Faculty salaries are based on MUIH's starting mid-point adjunct per credit compensation rate.
- There are no benefits paid to adjunct faculty.
- Direct administrative staff are projected to spend 10% of their time dedicated to this program. The salary and benefits reflect prorated annual amounts.
- Direct support staff are projected to spend 10% of their time dedicated to this program. The salary and benefits reflect prorated annual amounts.
- New library resources will be accommodated in the current Library budget through a reallocation of funds.
- There are no new or renovated equipment or space expenditures associated with this program.
- Other expenses include:
 - New course development:
 - Year 1: 5 courses (\$15,000)
 - Course revision:
 - Year 4: 1 course (\$3,000)
 - Year 5: 2 courses (\$6,000)
 - Academic Program Review: \$1,000 in Year 5
 - Marketing: \$5,000 per year, for all five years
 - Overhead: 25% on all direct expenses

M. Adequacy of Provisions for Evaluation of Program

Assessment System: Assessment and evaluation of programs is conducted through a multi-faceted approach. The academic departments, programs, and curriculum committees, subject matter experts (SMEs), and faculty responsible for designing, delivering, and assessing learning outcomes are the primary drivers of assessment and evaluation of the program. They are supported by the University Curriculum Committee which serves to guide and facilitate academic assessment initiatives. Additional support is provided by the Assistant Provost for Academic Assessment and Accreditation, Dean of Academic Affairs, Provost, and Institutional Assessment Committee in gathering, interpreting, documenting, and using assessment results.

Academic Assessment Processes: Student learning outcomes assessment is governed by each programs' comprehensive Academic Assessment Plan. Such plans include program and course learning outcomes established during the initial development of the program and courses, respectively. These outcomes, the methods and timeline for their assessment, and use of assessment results for program and course improvement are part of the program's comprehensive assessment plan. The Annual Assessment Reports prepared by each program and the comprehensive five-year Academic Program Review process include an analysis of student learning outcomes assessment and how such results have been used to improve the curriculum and instruction. Academic Assessment Plans, Annual Assessment Reports, and Academic Program Reviews are developed and executed by the faculty in each program, and reviewed by the Provost, Dean of Academic Affairs, and the Institutional Assessment Committee as a part of institutional assessment and planning activities.

Course Design: Centralized course design and development is guided by the Quality Matters rubric to ensure alignment of the stated course learning outcomes, assessments, activities, and instructional materials and resources. (Further details on assessment and evaluation in online courses are provided in Appendix D.) Faculty use an institutional master Syllabus Template to prepare their classes each trimester, and this template includes course learning outcomes and the alignment framework.

Student Retention: Student retention rates are calculated, monitored, and reported on an ongoing basis using an automated reporting system developed by the IT unit drawing upon course completion and student status stored in the Student Information System. This information is reviewed on a regular and periodic basis by the Provost, Dean of Academic Affairs, Associate Provost for Student and Alumni Affairs, Retention Committee, and Enrollment Management Committee.

Student Satisfaction: First, the IDEA Student Rating of Instruction tool and Campus Labs online platform are used by students to evaluate courses and faculty at the end of every trimester. 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 Learning Outcomes Assessment Team. 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. Second, the Provost holds program-specific Open Forums for enrolled students throughout the academic year. The feedback gathered during these sessions is used by the academic departments and faculty to make improvements in curriculum, instruction, and program administration. Third, periodic customer service surveys are conducted centrally for student-facing units such as the Library, Registrar's office, advising, Career Center, and Student Success Center.

Faculty Feedback and Evaluation: Faculty are evaluated annually by their department chair. Salaried faculty are evaluated against the annual teaching, research/scholarship, and service requirements specified in institutional policy. Adjunct faculty are evaluated based on teaching activities only. The results of IDEA course evaluations are used as a measure of teaching effectiveness. A Faculty Peer Review system provides salaried and adjunct faculty with formative and constructive feedback to improve their pedagogy. Faculty satisfaction and needs analysis are assessed through the annual Employee Satisfaction Survey and the periodic Faculty Professional Development Survey.

Cost-Effectiveness: The revenue-to-expense ratio of each academic program and academic service department is calculated at the end of each trimester. These ratios are reviewed by the President, Vice President for Finance and Administration, Provost, Dean of Academic Affairs, and academic department chairs and used to manage current year academic department budgets and plan for future years' budgets.

N. 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.

O. Relationship to Low Productivity Programs Identified by the Commission

Not applicable to this program.

P. Adequacy of Distance Education Programs

At MUIH, online courses are considered to be those in which 100% of instruction is conducted at a distance, while hybrid 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. The proposed program will be offered completely 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 and comply with C-RAC's guidelines. These principles and practices will be incorporated into the design and delivery of the MS Clinical Herbal Medicine program.

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

Appendix A

Course Descriptions

HRB 610 The Endocannabinoid System and Phytocannabinoids (3 cr)

Understanding the endocannabinoid system provides a foundation for rational cannabis therapeutics and formulation. Learn the role and mechanisms of the endocannabinoid system in regulating biological functions in health and disease. Gain an understanding of the basic components of the endocannabinoid system including different types of cannabinoids and cannabinoid receptors. Explore endogenous cannabinoids made by the body as well as the modulatory effects of phytocannabinoids (e.g., THC and CBD) from cannabis and other medicinal plants.

HRB 611 Cannabis Therapeutics (3 cr)

Identify balanced research summaries for pharmacological, toxicological, and clinical research on cannabis with attention to different cannabis chemotypes and phytochemicals. Describe the evidence base for cannabis as a therapeutic intervention for disease and illness and as a tool for promoting health and well-being. Examine evidence and research gaps regarding both benefits and risks of cannabis use. Utilize current evidence to identify safe and effective cannabis-based therapies and inform decision making in case studies.

HRB 612 Cannabis Dispensary Practices (3 cr)

This course combines the rigor of quality control with whole-system operational policies and procedures in a retail context. Learn best practices in dispensary operations to provide a range of safe and effective high-quality cannabis-based products to meet community needs. Use an ethical and legal framework to communicate professionally about cannabis, and help individuals identify preferred products.

HRB 613 Formulating Herbal Products using Cannabis (3 cr)

Explore the opportunities for combining cannabis with other medicinal plants to optimize cannabis' benefits and reduce risks. Review pharmacological, toxicological and clinical research as well as the traditional use of candidate medicinal plants. Apply this information to evaluate cannabis-containing herbal products already on the market as well as to design new products. Learn to formulate a cannabis-containing multi-herb blend for a specific purpose and to explain the rationale behind the product. Emphasis is placed on designing CBD-dominant, hemp-based dietary supplements and wellness products.

HRB 614 Quality Assurance in Cannabis Products (3 cr)

Identify and evaluate the authenticity and quality of cannabis raw material, to interpret assays and specification sheets required to produce good manufacturing practice (GMP) compliant products. Learn to apply procedures associated with GMP compliance relevant to cannabis manufacturing and dispensaries to ensure the purity, strength, composition and the contamination limits to prevent adulteration.

MUIH550 Academic Research and Scholarship (0 cr)

This course is designed to prepare students to engage in graduate-level research and scholarship with a focus on the utilization of resources available at or through MUIH's Sherman Cohn Library. Modules cover the Association of College and Research Libraries information literacy threshold concepts in higher education. These concepts are: Scholarship as Conversation, Research as Inquiry, Authority is Constructed and Contextual, Information Creation as a Process, Searching as Strategic Exploration, and Information Has Value.

Appendix B Curriculum Map

| Program Outcomes | | | | | | |
|---|---------|--------|--------|--------|--------|---------|
| | HRB610 | HRB611 | HRB612 | HRB613 | HRB614 | MUIH550 |
| 1. Explain the endocannabinoid system and its role in the body's response to cannabis and other medicinal plants. | I, D, A | M, A | | | | |
| 2. Apply foundational knowledge of herbal pharmacology, clinical research, and traditional use to design and evaluate safe and effective cannabis-containing herbal supplements that support health and well-being. | I | D | | M, A | | |
| 3. Utilize pharmacological and clinical research on cannabis to inform safe and effective therapeutic choices. | I | M, A | | | | |
| 4. Apply an ethical framework, along with regulatory and industry standards, to provide cannabis education and access to high-quality cannabis products in dispensaries and other retail environments. | I | D | M, A | | | |
| 5. Apply best practices in quality assurance to develop quality control practices and assess cannabis-based products. | | | I | | M, A | |

| University Learning Outcomes | | | | | | |
|--|--------|--------|--------|--------|--------|---------|
| | HRB610 | HRB611 | HRB612 | HRB613 | HRB614 | MUIH550 |
| 1. Discernment: Graduates analyze information from a variety of perspectives to make a reasoned judgment based on evidence and reflection. | I | D | | M, A | | I |
| 2. Skillfulness: Graduates demonstrate proficiency in their field of study, integrating the knowledge and theories of their discipline into sound practice. | | I | | D | M, A | |
| 3. Ethics: Graduates apply ethical principles and standards in alignment with the guidelines of their profession to make decisions and take actions. | | I | M, A | | | |
| 4. Relationship-Centeredness: Graduates demonstrate awareness of self, individuals, and the community to develop shared goals, identify opportunities and barriers, and facilitate meaningful change. | | | | | | |
| 5. Resilience: Graduates utilize personal assets, external resources, and positive coping strategies to adapt and thrive in changing environments. | | | | | | |
| 6. Research Literacy: Graduates access, evaluate, and apply the best available evidence to answer questions and inform decisions. | | D | | M, A | | I |
| 7. Business/Practice Management: Graduates apply best principles and practices in business management to sustain their livelihood while providing in-demand quality services to patients and clients. | | | | | | |
| 8. Interprofessionalism: Graduates work with individuals of other professions to address healthcare needs and maintain a climate of mutual respect and shared values. | | | | | | |
| 9. Scientific Principles: Graduates use knowledge of scientific concepts as part of analysis and decision-making in health and health care. | I | D | | M, A | | |
| 10. Healing Presence: Graduates demonstrate compassion, mindfulness, and listening skills that support the innate wholeness of individuals and their inherent capacity to self-heal. | | | | | | |
| 11. Intercultural Competency: Graduates distinguish the impact of Race/Ethnicity, Gender, Age, Sexual Orientation, Disability, Religion, Socio-Economic Status, Veteran/Military and Political Ideology on individuals, groups, and communities and are proficient in establishing relationships across different cultures to impact health perspectives and outcomes. | | | | | | |

I = Introduce. D = Develop. M = Master. A = Assess.

Appendix C Program Faculty

1. Academic Department Chair and Program Director

Kathleen Warner

- Department Chair and Professor, Nutrition and Herbal Medicine
- Ph.D. Biochemistry

Michael Tims

- Program Director, Herbal Product Design and Manufacture
- Instructor, Herbal Medicine
- Ph.D. Cell Biology and Molecular Genetics

2. Ranked/Salaried Faculty

Mark Davis

- Instructor, Integrative Health Studies
- Doctor of Naturopathic Medicine (N.D.)

Camille Freeman

- Professor, Nutrition and Herbal Medicine
- Doctor of Clinical Nutrition (May, 2020)
- M.S. Herbal Medicine
- M.S. Biophysics
- Certified Nutrition Specialist (C.N.S.)

Randy Gastwirt

- Instructor, Nutrition and Herbal Medicine
- Doctor of Naturopathic Medicine (N.D.)
- Ph.D. Biomedical Sciences

Carissa Hernandez

- Head Librarian
- Master of Library and Information Science (M.L.I.S.)

Claudia Wingo

- Department Chair, Health Promotion
- Masters of Public Health (M.P.H.)
- Post Graduate Diploma, Tropical Medicine
- Registered Nurse (RN)
- Fellow, Naturopaths and Herbalists Association of Australia (FNHAA)

3. Adjunct Faculty

Joanne Givens

- Adjunct Faculty, Herbal Medicine
- M.S. Therapeutic Herbalism
- P.M.C. Clinical Herbalism
- M.A. Gastronomy

Ryan Kneessi

- Adjunct Faculty, Nutrition and Herbal Medicine
- Doctor of Naturopathic Medicine (N.D.)

Kevin Spelman

- Adjunct Faculty, Herbal Medicine
- Ph.D. Molecular Biology
- Certified Nutrition Specialist (C.N.S.)
- Member College of Practitioners of Phytotherapy (M.C.P.P.)

| | HRB610 | HRB611 | HRB612 | HRB613 | HRB614 | MUIH550 |
|---|--------|--------|--------|--------|--------|---------|
| Ranked/Salaried Faculty | | | | | | |
| Mark Davis | X | X | | | | |
| Camille Freeman | X | | | | | |
| Randy Gastwirt | X | X | | | | |
| Carissa Hernandez | | | | | | X |
| Michael Tims | | | | X | X | |
| Claudia Wingo | | X | | | | |
| Adjunct Faculty | | | | | | |
| Joanne Givens | | | X | | X | |
| Ryan Kneessi | X | X | | | | |
| Kevin Spelman | | X | | | | |
| Additional potential current adjunct faculty have been identified | | | | X | X | |
| Additional potential new adjunct faculty have been identified | | | X | | | |

Appendix D

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 Coaching 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

(i) 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 environment 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.