

**PROPOSAL**  
**DOCTOR OF MEDICAL SCIENCE (DMSc)**

**Background**

Northeastern University Department of Medical Sciences in the Bouvé College of Health Sciences proposes a Doctor in Medical Science (DMSc) in Healthcare Leadership. This degree addresses the growing need for medical professionals to advance their education and expand their career opportunities in the areas of healthcare leadership, medical education, and community engagement and advocacy. This program would be established in addition to our current Master of Science Physician Assistant degree and our dual degree programs Master of Science in Physician Assistant Studies/Master of Public Health and Master of Science in Physician Assistant/Master of Science in Health Informatics.

As medical professionals, including Physician Assistants, Nurse Practitioners, Pharmacists, Physical and Occupational Therapists, Behavioral Therapists, and many others, expand upon their roles as clinicians and establish a gradually increasing presence in healthcare leadership and administration, the need for additional education in these areas, as well as in healthcare systems, management, and advocacy, becomes increasingly important. Northeastern University has been a pioneer in medical and clinical instruction for many years and, as such, is uniquely placed to continue its advancement of these professions.

**Competitive Analysis**

Several programs providing education towards a clinical doctorate currently exist in the United States. While most of these programs are not in the New England area, the Massachusetts College of Pharmacy and Health Sciences University (MCPHS) recently began offering a 24 credit Doctor of Medical Science for Physician Assistants. Bay Path University in Springfield, Massachusetts also offers a Doctor of Health Science degree that, while not specific to Physician Assistants, attracts a similar demographic. The recent appearance of these degrees, as well as robust nation-wide growth, not only indicate the expanding role of the medical professionals in today's healthcare environment but also the desire and need for such advanced degrees as it becomes increasingly more apparent that escalation of multiple medical professions to the doctoral level may be inevitable.

Northeastern University's Doctor of Medical Science program will be differentiated from similar programs at other institutions by its appeal to professions other than only the Physician Assistant career. This will expand the potential applicant pool and will cement Northeastern as leader in healthcare education for all specialties. In addition, the degree, and concentrations we are proposing have been specifically developed in cooperation with leaders in various healthcare roles throughout the community and will provide uniquely marketable skills that are designed to prepare students with the technical proficiency to enter leadership roles.

The Doctor of Medical Science degree from Northeastern University would also be the first degree of this type to be offered by a R1 research institution, provided the University of Pittsburg's current similar

efforts do not supersede ours. The imprimatur of an R1 research institution supporting this degree would not only attract high-quality students but would also lend credence to this type of degree nationally.

Finally, the proposed format of core courses in healthcare leadership and administration with the option of specialized concentrations allows for a flexibility and potential for expansion not offered in other programs. As the many fields of healthcare change and develop, the Doctor of Medical Science can easily be adapted through the addition of new concentrations designed to address new challenges and technologies as they appear and to respond to market needs and workforce development opportunities.

### Program Learning Outcomes

- Demonstrate skills relating to different leadership practices, including decision making, communication, interpersonal interactions, conflict resolution, and motivation.
- Employ leadership and management techniques that result in the improvement in overall quality of care for patients on both the individual and public health levels.
- Promote advocacy, equity, and inclusion for both patients and healthcare workers in the healthcare environment through collaboration with federal, state, local, and private agencies.
- Apply learned and effective leadership techniques as agents of strategic change, educators, collaborators, and healthcare advisors.
- Assess and evaluate healthcare systems and policies through a scholarly inquiry process.
- Promote and advocate for meaningful change within the healthcare system through scholarly inquiry.

### Concentration Learning Outcomes:

- **Public Health:** Promote the health of diverse urban communities in collaboration with community organizations; federal, state, and local agencies; and the private sector
- **Health Law:** Develop conceptually informed recommendations to make or change healthcare policy structures and processes at a variety of scales and in different policy domains
- **Business Management for Healthcare:** Employ business and management skills to become agents for positive change in the healthcare industry.
- **Health Informatics (Practical):** Employ information technology and information management concepts and methods to improve healthcare delivery and outcomes
- **Health Informatics Research:** Employ information technology and scholarly inquiry concepts and methods to improve healthcare delivery and outcomes

- **Pharmacy and Health Systems Science:** Employ concepts, theories, methods, and models within pharmaceutical development and marketing to analyze and address specific healthcare issues.
- **Interdisciplinary Healthcare:** Apply advanced and specialized knowledge in areas of individual concentrations to improve individual, local, and global health and to improve the healthcare system in general

## Program Description

The DMSc is designed to appeal to a variety of students with differing career goals but who share an interest in healthcare leadership and administration. For that reason, the DMSc program will comprise a series of core courses centered upon developing facility with healthcare systems and leadership. Once students have completed these initial core courses, they may progress into one of several concentrations, each designed to hone knowledge and skills specific to their individual interests and career goals. Finally, each student will be required to complete 3 courses in research methods in preparation for a final problem-based thesis project that will address a healthcare issue and its relationship to their chosen area of concentration.



At present, there are six proposed concentrations. These have been developed in cooperation with other programs and colleges, making this a truly interdisciplinary collaboration. The courses that are listed are those suggested by each respective program.

The concentrations are:

- Health Informatics
- Health Informatics Research
- Health
- Business Management
- Public Health
- Pharmacy and Health Systems Science
- Interdisciplinary Healthcare

Further concentrations can easily be created in cooperation with other departments, thereby expanding the options available to future students and increasing their career options.

## Program Requirements

All DMSc candidates must earn at least 33 credits by completing core courses and research courses and by selecting a concentration. DMSc students may take additional electives and directed study courses, as needed, in consultation with their faculty advisors.

- Students must maintain a minimum 3.0 overall GPA.
- A grade of B- or higher is required in each course.
- Not more than two courses or 6 semester hours of credit, whichever is greater, may be repeated to satisfy the requirements for the degree. The last grade earned in each of these repeated courses is counted in the calculation of the cumulative GPA.

<http://catalog.northeastern.edu/graduate/academic-policies-procedures/records-transcripts/>

## Audience

The DMSc program is designed for professionals working in a healthcare-related field and who have previously completed a degree in their respective field. Healthcare-related fields that may apply to the DMSc program include, but are not limited to:

- Applied Behavioral Analysts
- Behavioral/Couples/Family Therapists
- Genetics Counselors
- Healthcare Administrators
- Medical Laboratory Scientists
- Nurses
- Nurse Practitioners
- Occupational Therapists
- Pharmacists
- Physical Therapists
- Physicians
- Physician Assistants
- Registered Dietitians

## Student Demand & Labor Market Analysis

In July of 2020, Hanover Research assessed the demand for a Doctor of Medical Science degree for Boston University, specifically highlighting demand trends within the New England Region.<sup>1</sup> While the comprehensive student demand assessment was not yet available, as almost all doctorate-level Physician Assistant programs in the United States are too new to have reported any conferrals, the provisional 2019 data is promising. IPEDS shows only one doctorate-level Physician Assistant program in the nation between 2014 and 2017, a program at Baylor University exclusively for active-duty military. In 2018, the University of Lynchburg began reporting its DMSc program to IPEDS but did not yet report any conferrals. In a provisional 2019 data release, Lynchburg reported 137 conferrals, and MCPHS reported eight conferrals. The Baylor program reported 21 conferrals. The number of advanced degrees in this

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<sup>1</sup> Hanover Research, Market Analysis Doctor of Medical Science, Prepared for Northeastern University, July 2020.

area, along with the fact that master's level programs for physician assistants continues to grow robustly nationwide, indicate general continued demand for graduate programming for PAs.

Completions of master's-level Physician Assistant programs experienced strong growth at all geographic levels between 2014 and 2018. Master's-level completions can serve as an indirect proxy for doctorate-level student demand. The strong growth at the master's level (double the average rate in the region and triple the average rate in the state and the nation) indicates that general demand for Physician Assistant degrees remains strong and growing.

The research concluded that benefits to PAs of obtaining a doctorate-level degree generally outnumber the disadvantages. The most obvious benefit to a PA completing a doctorate degree is that they will acquire advanced knowledge about their field, potentially including knowledge about leadership and administration. Other benefits include assurance of insurance reimbursement, enhanced research, and employment opportunities, and "keeping pace" with the other health sciences. For PA educators, additional benefits include expanded academic opportunities seeing as "Within most institutions, a doctoral degree is necessary to hold various roles, such as director of graduate studies, department chair, or division chief."

Labor demand for relevant positions is projected to grow dramatically at all geographic levels through 2026/2028. In New England, demand for these positions is projected to grow 25.6 percent between 2016 and 2026, more than four times the projected rate of growth across all occupations in the region. Additionally, the Bureau of Labor Statistics reports that, as of 2018, 17.9 percent of current physician assistants nation-wide hold doctoral degrees. According to Jobs EQ, job postings for physician assistants have increased since the beginning of the COVID-19 pandemic as compared with the same time period in 2019. Between mid-February and mid-June of 2019, the New England region saw 904 job postings for physician assistants. During this same span in 2020, the region saw 1,305 postings, an increase of 44.4 percent. This is perhaps an unsurprising fact, given the projected growth of this occupation and its position as part of the healthcare industry. Nonetheless, it is worth noting both the stability and the necessity of this occupation.

Some view the escalation of the terminal PA degree to the doctorate level as inevitable. Among PA educators, this transition appears to have already begun. Among PA clinicians, the transition may be necessary to bring the profession in line with other allied health professions. Labor demand for relevant positions is projected to grow dramatically at all geographic levels through 2026/2028. Furthermore, job postings for physician assistants have increased since the beginning of the COVID-19 pandemic, pointing to the stability and durability of the occupation.

Approximately 25 percent of job postings for PA-related occupations request or prefer a doctorate degree. Meanwhile, real-time job postings intelligence from Jobs EQ indicates that (non-educator) PA positions do not yet request or prefer doctorate degrees. Almost all current professional PA doctorate programs are primarily offered online.

### **Admission Requirements**

The program is open to students with the following:

- Degree Requirements:

- a. Master’s degree from an accredited institution in a healthcare-related field  
OR
  - b. Bachelor’s Degree from an accredited institution in a healthcare-related field PLUS at least 3 years of experience in a healthcare-related field
- Cumulative GPA of 3.0 in the accredited program
  - Current licensure/certification or possess an Emeritus status in their respective field

**Program Details**

In order to appeal to the widest range of potential applicants, the DMSc Program will be able to be completed completely online. This will allow the program to appeal to applicants from across the United States and will allow students outside of the greater Boston metropolitan area and Massachusetts to take advantage of this opportunity.

The proposed DMSc curriculum:

<b>Doctorate of Medical Science (DMSc) Curriculum</b>		
<b>CORE COURSES</b>		
<b>Healthcare Leadership (12 Credits)</b>		
<b>Course No.</b>	<b>Course Name</b>	<b>Credit Hours</b>
MSCI 6001	Principles of Healthcare Advocacy	3
MSCI 6002	Workforce Metrics: Measuring, Comparing, and Privileging Your Interprofessional Healthcare Team	3
MSCI 6003	Healthcare Leadership Seminar	3
PHTH 6204	Society, Behavior, and Health	3
<b>Research (9 Credits)</b>		
HLTH 5410	Introduction to Statistics in Health and Behavioral Science	3
MSCI 6900	Research Methods and Design	3
MSCI 7990	Thesis Seminar	3
MSCI 7994	Thesis Continuation	0
<b>CONCENTRATION COURSES</b>		
<b>Health Informatics Concentrations</b>		
<b>Health Informatics (Practice Based) (12 Credits)</b>		
HINF 6220	Database Design, Access, Modeling and Security	3
HINF 6400	Introduction to Health Data Analytics	3
HINF 5101	Introduction to Health Informatics Systems	3
<b>AND ONE OF THE FOLLOWING</b>		
HINF 6205	Creation and Application of Medical Knowledge (selective)	3
HINF 5407	Business Application of Decision Support in Healthcare (selective)	3
<b>Health Informatics Research (12 Credits)</b>		
HINF 6220	Database Design, Access, Modeling and Security	3
HINF 6400	Introduction to Health Data Analytics	3

HINF 5200	Theoretical Foundations in Personal Health Informatics	3
<b>AND ONE OF THE FOLLOWING</b>		
HINF 5300	Personal Health Interface Design and Development	3
CS 6350	Empirical Research Methods	3
<b>Health Law Concentration</b>		
<b>Health Law (12 Credits)</b>		
LS 6102	Introduction to Legal Studies II	3
<b>AND THREE OF THE FOLLOWING</b>		
LS 6180	Health Law Survey	3
LS 6181	Healthcare Regulation and Compliance	3
LS 6182	Patient Records, Privacy and Security	3
LS 6110	Law of Information & Records	3
HRM 6030	Employee Rights & Employer Obligations	3
LS 6150	Law & Organizational Management	3
<b>Public Health Concentration</b>		
<b>Public Health (12 Credits)</b>		
PHTH 6200*	Principles and History of Urban Health*	3
PHTH 6208	Urban Community Health Assessment	3
PHTH 5212	Public Health Administration and Policy	3
PHTH 5120	Race, Ethnicity, and Health in the US	3
<b>Business Management Concentration</b>		
<b>Business Management for Healthcare (12-15 credits based on need for prerequisite)</b>		
FINA 6201	Financial Theory and Policy	3
FINA 6220	Healthcare Finance (*Requires Prerequisite)	3
<b>AND 2 OF THE FOLLOWING</b>		
MGMT 6222	Healthcare Industry	3
MGMT 6223	Strategic Decision-Making for Healthcare Professional/Leaderships	3
MGSC 6221	Introduction to Health Informatics and Health Information Systems	3
<b>Interdisciplinary Healthcare Concentration</b>		
<b>Interdisciplinary Healthcare (12 Credits)</b>		
Student will select courses totaling 12 credits from available concentrations to meet their professional goals.		
Course selection will be done in consultation with their academic advisor and will prepare the student for their thesis project to address a current healthcare problem of practice.		

## Tuition

Currently, online graduate courses offered through the Bouvé College of Health Sciences incur a tuition cost of \$1622 per credit hour (*Northeastern University Course Catalog 2020-2021*). Therefore, at

between 30 and 33 total credit hours, the DMSc program is estimated to incur a total tuition cost of between \$48,660 and \$53,526 (not including any additional fees).

As 12-15 credits of the program will be concentration courses taken in other Departments and Colleges, each of which have varying tuition rates, this value will need to be adjusted based upon individual program rates and upon rates determined through cooperation between Departments. However, the overall total will be approximately equivalent.

For comparison, we have reviewed programs offered across the United States with similar curricula and degrees. The table (below) lists nine of the programs, their location, the total number of credits required for completion, the cost per credit hour, and total tuition.

Program	Degree	Location	Total Credits	Cost/Credit	Total Tuition
ATSU	Doctor of Medical Science (DMSc)	Arizona	36	\$600/cr +  (\$32/hr student technology fee)	<b>\$22,752</b>
Rocky Mountain College	Doctor of Medical Science (DMSc)	Colorado	36	\$7500 + \$95 lab fee + \$105 Student Technology Fee/Quarter	<b>\$30,000</b> tuition + <b>\$800</b> fees = <b>\$30,800 total</b>
Touro University	Doctor of Health Science (DHSc)	CA/HI (online)	42 (can transfer in 6 credits)	\$700/cr	<b>\$29,400</b>
Rocky Mountain University	Doctor of Medical Science (DMSc)	Colorado	36 (prior Masters)  42 (BA/BS)	\$761/cr + \$32/cr University Resource Fee = 793/cr	<b>\$27,396</b> tuition + \$1,152 Fees = <b>\$28,548 total</b> (36 credit option)
MCPHS University	Doctor of Science (DSc)	Massachusetts	24 (transfer credits are not accepted)	\$1,020/cr	<b>\$22,480</b>
Lynchburg University	Doctor of Medical Science (DMSc)	Virginia	37	\$616/cr	<b>\$22,789</b>
Butler University	Doctor of Medical Science (DMS)	Indiana	50	\$700/cr	<b>\$35,0000</b>
Bay Path University	Doctor of Health Science (DHSc)	Massachusetts	48 (multiple concentrations)	\$995/cr	<b>\$47,760</b>
Baylor University	Doctor of Science (DSc)	Texas	16 Didactic sections  20 clinical rotations		
<b>Note:</b> All listed programs are online except Baylor University					

It is important to note that cost/credit ranges from \$600/credit to \$1,020/credit and that total tuition ranges from a minimum of \$22,752 (36 credits) to a maximum of \$47,760 (48 credits). The Bouvé College of Health Sciences' current tuition is a minimum of approximately \$600 more expensive than the most expensive comparable program (our closest competitor, MCPHS). It will be important to further evaluate any proposed tuition for the DMSc program to remain financially competitive with other programs.

**Proposed Program launch date**

Fall 2022

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Department of Medical Sciences

### Department Vote

A Departmental Vote was conducted on 9/23/2021 and the motion to approve was passed  
Department Vote on the motion to:

Approve the proposed Doctor of Medical Science degree including the new course proposals:

- MSCI 6001 Principles of Healthcare Advocacy
- MSCI 6002 Workforce Metrics
- MSCI 6003 Healthcare Leadership
- MSCI 6900 Research Methods and Design
- MSCI 7990 Thesis Seminar
- MSCI 7994 Thesis Continuation



■ Yes (in support of the motion/approve the proposal) (100%, 7) ■ No (against the motion/do not approve the proposal) (0%, 0) ■ Abstain (0%, 0)

Motion approved; Vote Summary: Approve (7), Not Approve (0), Abstain (0), Absent (1)