

# MASTER OF SCIENCE IN BIOSCIENCE AND HEALTH POLICY (MSBHP) DEGREE

## Program Learning Outcomes for the MSBHP Degree

Upon completing the MSBHP degree, students will be able to:

1. Become knowledgeable in current advanced bioscience and health policy topics affecting society.
2. Integrate science knowledge into policies and practices.
3. Demonstrate written, oral, and visual communication strategies required to work effectively across science, business, and government.

## Requirements for the MSBHP Degree

The MSBHP degree is a non-thesis master's degree. For general university requirements, please see [Non-Thesis Master's Degrees](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-non-thesis-masters-degrees/) (<https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-non-thesis-masters-degrees/>). For additional requirements, regulations, and procedures for all graduate programs, please see [All Graduate Students](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/) (<https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/>). Students pursuing the MSBHP degree must complete:

- A minimum of 14 courses (minimum of 39-40 credit hours, depending on course selection) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the [Policies](#) (p. 2) tab.
- A 3-6 month full-time internship. Instead of a thesis, at the conclusion of their internship, students must present their internship project in both oral and written form as part of the Professional Master's Project (NSCI 512). Part-time students who already work in their area of study may request approval to fulfill the internship requirement by working on a specific, pre-approved project with their current employer.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

**Note:** Some of the listed courses are not offered every year, and some may also have prerequisites or require instructor permission.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or

where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (<https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/>). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

## Summary

Code	Title	Credit Hours
Total Credit Hours Required for the MSBHP Degree		39-40

## Degree Requirements

Code	Title	Credit Hours
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### Core Requirements

Core Science Courses		
Select 4 courses (12 credit hours) from the following:		12
BIOS 520	MOLECULAR BASIS OF DISEASES	
BIOS 523	CONSERVATION BIOLOGY	
BIOS 524	MICROBIAL PHYSIOLOGY AND GENETICS	
BIOS 525	PLANT MOLECULAR GENETICS AND DEVELOPMENT	
BIOS 534	EVOLUTION	
BIOS 543	DEVELOPMENTAL NEUROBIOLOGY	
BIOS 547	EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE	
BIOS 549	ADVANCED CELL AND MOLECULAR NEUROSCIENCE	
BIOS 550	VIRUSES AND INFECTIOUS DISEASES	
BIOS 558	FUNDAMENTALS OF QUANTITATIVE ENVIRONMENTAL HEALTH RISK ASSESSMENT	
BIOS 560	CANCER BIOLOGY	
BIOS 570	COMPUTATION WITH BIOLOGICAL DATA	
BIOS 572	IMMUNOLOGY	
BIOS 585	CELLULAR AND MOLECULAR MECHANISMS OF THE NEURON	

Cohort Courses		
NSCI 501	PROFESSIONAL MASTER'S SEMINAR (2 semesters required, 1st semester)	1
NSCI 501	PROFESSIONAL MASTER'S SEMINAR (2 semesters required, 2nd semester)	1
NSCI 511	SCIENCE POLICY, AND ETHICS	3
NSCI 610 / ENGI 610	MANAGEMENT FOR SCIENCE AND ENGINEERING	3

### Analytical Competency Requirement

A. Statistics or Data Analytics - Select 1 course (3-4 credit hours) from the following:		3-4
BIOE 552 / SSPB 502	INTRO COMPUTATIONAL SYSTEMS BIOLOGY: MODELING & DESIGN PRINCIPLES OF BIOCHEM NETWORKS	
BIOS 538	ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA	

DSCI 535 / COMP 549	APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS
EEPS 586	DATA SCIENCE METHODS AND DATA MANAGEMENT
STAT 553	BIOSTATISTICS
STAT 605	R FOR DATA SCIENCE

*B. Finance or Economics - Select a minimum of 1 course (minimum of 3 credit hours) from the following:*<sup>1,2</sup> 3

MGMT 631	HEALTH INSURANCE IN THE U.S.: THE ESSENTIALS
MGMT 678	BUSINESS OF HEALTHCARE
MGMT 690	HEALTHCARE STRATEGY
MGMT 751	ECONOMICS OF HEALTH CARE SECTORS
MGMT 793	CREATING THE DATA DRIVEN BUSINESS
PH 3910	INTRODUCTION TO HEALTH ECONOMICS <sup>2</sup>

*C. Policy Courses - Select a minimum of 2 courses (minimum of 6 credit hours) from the following:* 6

ANTH 581	MEDICAL ANTHROPOLOGY
ANTH 643	ANTHROPOLOGY OF RACE, ETHNICITY AND HEALTH
HEAL 580	DISPARITIES IN HEALTH IN AMERICA
NSCI 530	THE SHAPING OF HEALTH POLICY
SOCI 525	POPULATION HEALTH SEMINAR

#### Elective Requirements

*Select a minimum of 2 courses (minimum of 6 credit hours) from the following:* 6

ASIA 556	GENOMIC GOVERNANCE IN ASIA
BIOS 670	CURRENT BIOSCIENCES AND HEALTH POLICY TOPICS
ENGI 515	LEADING TEAMS AND INNOVATION
ENGI 529 / CEVE 529	ETHICS AND ENGINEERING LEADERSHIP
ENGI 614	LEARNING HOW TO INNOVATE?
ENGI 615	LEADERSHIP COACHING FOR ENGINEERS
HEAL 507	EPIDEMIOLOGY
HEAL 560	PLANNING AND EVALUATION OF HEALTH PROMOTION AND EDUCATION
MGMT 623	EARLY DEVELOPMENT AND ENTREPRENEURSHIP IN A BIOTECH/ MEDTECH STARTUP
MGMT 631	HEALTH INSURANCE IN THE U.S.: THE ESSENTIALS
MGMT 633 / BIOE 633	ROLES OF PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA'S IN HIGH-TECH STARTUPS
MGMT 690	HEALTHCARE STRATEGY
MGMT 691	BREAKTHROUGH NEGOTIATIONS IN APPLIED CONTEXTS
MGMT 712	PROCESS MANAGEMENT AND QUALITY IMPROVEMENT
MGMT 721	BUSINESS LAW
MGMT 744	SERVICES OPERATIONS
MGMT 778	CUSTOMER EXPERIENCE MANAGEMENT
MGMT 793	CREATING THE DATA DRIVEN BUSINESS

MGMT 799	HEALTHCARE INNOVATION AND ENTREPRENEURSHIP
NSCI 515	FOUNDATIONS OF PROJECT AND PROGRAM MANAGEMENT
SOPE 506	APPLICATIONS OF PROGRAM EVALUATION – HEALTH

#### Three to Six Month Full-Time Internship

A three to six month full-time internship is required<sup>3</sup>

NSCI 512	PROFESSIONAL MASTER'S PROJECT	1
<b>Total Credit Hours</b>		<b>39-40</b>

#### Footnotes and Additional Information

<sup>1</sup> **Note:** Some of the listed courses are not offered every year, and other coursework may be offered that satisfies the stated requirements upon approval. Depending on the student's background or interest, course substitutions for any required or elective course may be approved by the program's academic advisor. Students should consult with their academic advisors before enrolling. For example, students can choose up to two electives from the UT Graduate School of Biomedical Science (GS), Informatics (HI), and/or Health Science Center (PH). See department for more details.

<sup>2</sup> PH 3910 is a course offered at the UTHealth School of Public Health and available to Rice students as part of an existing inter-institutional agreement between our two institutions. Once received as approved transfer credit, PH 3910 is eligible to be approved to meet the 3 credit hour requirement for Group B, Finance and Economics. Students are not permitted to take this inter-institutional course in their last semester at Rice.

<sup>3</sup> **Three to Six Month Full-Time Internship:** Practical experience is offered via a three to six month full-time work immersion. The internship will be under the guidance of a host company, government agency, or non-profit organization. At the conclusion of the internship, students must present a summary of their internship project in both oral and written form for the cohort course Professional Master's Project (NSCI 512). Part-time students who already work in their area of study may fulfill the internship requirements by working on an approved project with their current employer.

## Policies for the MSBHP Degree

### Professional Science Master's Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Professional Science Master's Program publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2023\\_24/Natural\\_Sciences\\_Professional\\_Masters\\_Graduate\\_Handbook.pdf](https://gradhandbooks.rice.edu/2023_24/Natural_Sciences_Professional_Masters_Graduate_Handbook.pdf)

### Admission

Admission to graduate study in Bioscience and Health Policy is open to qualified students holding a bachelor's degree in biology or a related field. Preparation in biology, chemistry, calculus and statistics is preferred. Scores from the general Graduate Record Examination (GRE) are required. Department faculty evaluate the previous academic record and credentials of each applicant individually and make admission decisions.

The Bioscience and Health Policy Professional Master's Program has distinct focus areas for students with primary interests in policy careers,

biomedical and health care related positions, or additional post-graduate training or education after degree conferral.

## Transfer Credit

For Rice University's policy regarding transfer credit, see [Transfer Credit](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/#transfer) (<https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/#transfer>). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

## Program Transfer Credit Guidelines

Students pursuing the MSBHP degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

## Additional Information

For additional information, please see the Bioscience and Health Policy website: <https://profms.rice.edu/> (<https://profms.rice.edu/bioscience-health-policy/overview/>).

## Opportunities for the MSBHP Degree

### Fifth-Year Master's Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master's degree programs, Rice students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master's degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master's degree program. A plan of study will need to be approved by the student's undergraduate major advisor and the master's degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor's degree and the master's degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this *Undergraduate - Graduate Concurrent Enrollment* opportunity, including specific information on the registration process can be found [here](https://ga.rice.edu/undergraduate-students/academic-opportunities/undergraduate-graduate-concurrent-enrollment/) (<https://ga.rice.edu/undergraduate-students/academic-opportunities/undergraduate-graduate-concurrent-enrollment/>).

Rice undergraduate students completing studies in science may have the option to pursue the Master of Science in Bioscience and Health Policy (MSBHP) degree. For additional information, students should contact

their undergraduate major advisor, the faculty MSBHP program director, and the Professional Science Master's (PSM) program director.

## Additional Information

For additional information, please see the Bioscience and Health Policy website: <https://profms.rice.edu/> (<https://profms.rice.edu/bioscience-health-policy/overview/>).