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 (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 (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 (coursework at the 500-level or above).
- A minimum of 24 credit hours must be taken at Rice University.
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A 3-6 month 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 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/degeworks/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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MSBHP Degree</td>
<td>39-40</td>
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</table>

### Degree Requirements

#### Core Requirements

Core Science Courses

Select 4 courses (12 credit hours) from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>BIOC 524</td>
<td>MICROBIOLOGY &amp; BIOTECHNOLOGY</td>
<td></td>
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<tr>
<td>BIOC 525</td>
<td>PLANT MOLECULAR GENETICS AND DEVELOPMENT</td>
<td></td>
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<tr>
<td>BIOC 540 / CHBE 640</td>
<td>METABOLIC ENGINEERING</td>
<td></td>
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<tr>
<td>BIOC 544</td>
<td>DEVELOPMENTAL NEUROBIOLOGY</td>
<td></td>
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<tr>
<td>BIOC 545</td>
<td>ADVANCED MOLECULAR BIOLOGY AND GENETICS</td>
<td></td>
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<tr>
<td>BIOC 547</td>
<td>EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE</td>
<td></td>
</tr>
<tr>
<td>BIOC 550</td>
<td>VIRUSES AND INFECTIOUS DISEASES</td>
<td></td>
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<tr>
<td>BIOC 555</td>
<td>COMPUTATIONAL SYNTHETIC BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOC 560 / BIE 560</td>
<td>CANCER BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOC 570</td>
<td>COMPUTATION WITH BIOLOGICAL DATA</td>
<td></td>
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<tr>
<td>BIOC 573</td>
<td>IMMUNOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOC 580 / BIE 580 / CHBE 580</td>
<td>PROTEIN ENGINEERING</td>
<td></td>
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<tr>
<td>BIOC 585</td>
<td>FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE</td>
<td></td>
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<tr>
<td>EBIO 523</td>
<td>CONSERVATION BIOLOGY</td>
<td></td>
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<tr>
<td>EBIO 524</td>
<td>CONSERVATION BIOLOGY LAB</td>
<td></td>
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<tr>
<td>EBIO 525</td>
<td>ECOLOGY</td>
<td></td>
</tr>
<tr>
<td>EBIO 540</td>
<td>GLOBAL BIOGEOCHEMICAL CYCLES</td>
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Cohort Courses

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSCI 501</td>
<td>PROFESSIONAL MASTER'S SEMINAR (2 semesters required, 1st semester)</td>
<td>1</td>
</tr>
<tr>
<td>NSCI 501</td>
<td>PROFESSIONAL MASTER'S SEMINAR (2 semesters required, 2nd semester)</td>
<td>1</td>
</tr>
<tr>
<td>NSCI 511</td>
<td>SCIENCE POLICY, AND ETHICS</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 512</td>
<td>PROFESSIONAL MASTER'S PROJECT</td>
<td>1</td>
</tr>
<tr>
<td>NSCI 610 / ENGI 610</td>
<td>MANAGEMENT FOR SCIENCE AND ENGINEERING</td>
<td>3</td>
</tr>
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Analytical Competency Requirement

A. Statistics or Data Analytics - Select 1 course (3-4 credit hours) from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>BIOE 552 / SSPB 502</td>
<td>INTRO COMPUTATIONAL SYSTEMS BIOLOGY, MODELING &amp; DESIGN PRINCIPLES OF BIOCHEM NETWORKS</td>
<td>3-4</td>
</tr>
<tr>
<td>ESCI 571</td>
<td>DATA SCIENCE METHODS AND DATA MANAGEMENT</td>
<td></td>
</tr>
<tr>
<td>ESCI 654</td>
<td>GEOGRAPHIC INFORMATION SCIENCE</td>
<td></td>
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<tr>
<td>STAT 553</td>
<td>BIOSTATISTICS</td>
<td></td>
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</tbody>
</table>
Select a minimum of 2 courses (minimum of 6 credit hours) from Elective Requirements

B. Finance or Economics - Select a minimum of 1 course (minimum of 3 credit hours) from the following:

- MGMT 678: BUSINESS OF HEALTHCARE
- MGMT 690: HEALTHCARE STRATEGY
- MGMT 793: CREATING THE DATA DRIVEN BUSINESS
- PH 3910: INTRODUCTION TO HEALTH ECONOMICS

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

- ANTH 581: MEDICAL ANTHROPOLOGY
- ANTH 643: ANTHROPOLOGY OF RACE, ETHNICITY AND HEALTH
- HEAL 580: DISPARITIES IN HEALTH IN AMERICA
- MGMT 690: HEALTHCARE STRATEGY
- MGMT 691: BREAKTHROUGH NEGOTIATIONS IN A HEALTH CARE CONTEXT
- NSCI 530: THE SHAPING OF HEALTH POLICY
- SOCI 525: POPULATION HEALTH SEMINAR

**Three to Six Month Internship**

A three to six month internship is required.

**Elective Requirements**

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

- 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
- HURC 506: HEALTH AND HUMANITIES MASTER CLASS
- MGMT 623: EARLY DEVELOPMENT AND ENTREPRENEURSHIP IN A BIOTECH/ MEDTECH STARTUP
- MGMT 633 / BIOE 633: ROLES OF PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA’S IN HIGH-TECH STARTUPS
- 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

**Footnotes and Additional Information**

1. 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.

2. 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, PH3910 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.

3. Practical experience is offered via a three to six month 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/2019_20/Professional_Science_Masters_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 (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.
Opportunities for the MSBHP Degree
Fifth-Year Master's Degree Option for Rice Undergraduate Students

Rice students have an option to pursue the Master of Science in Bioscience and Health Policy (MSBHP) degree by adding an additional fifth year to their four undergraduate years of science studies.

Advanced Rice undergraduate students in good academic standing may apply to the MSBHP 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 advisor, the Professional Science Master’s (PSM) program director, and the MSBHP 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 (ga.rice.edu/undergraduate-students/academic-opportunities/undergraduate-graduate-concurrent-enrollment).

Additional Information
For additional information, please see the Bioscience and Health Policy website: https://profms.rice.edu/