M.S. in Pharmaceutical Chemistry

The Master of Science in Pharmaceutical Chemistry provides advanced graduate training in the pharmaceutical and health sciences. The program provides professional training in quantitative methods that prepares graduates for careers in the medical, pharmaceutical, environmental, and biotechnology industries.

The M.S. in Pharmaceutical Chemistry requires 30 credits and includes 15 credit hours of core technical courses and 15 credit hours of technical electives. Co-op work experience and independent research may be used in place of certain technical electives, pending advisor approval.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 605</td>
<td>Prin of Bioscience Processing</td>
<td>3</td>
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<tr>
<td>CHEM 605</td>
<td>Advanced Organic Chemistry I: Structure</td>
<td>3</td>
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<tr>
<td>CHEM 673</td>
<td>Biochemistry</td>
<td>3</td>
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<td>CHEM 714</td>
<td>Pharmaceutical Analysis</td>
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<td>CHEM 777</td>
<td>Principles Pharm Chemistry</td>
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Select five of the following: 15

- BIOL 606 App Bioproc & Immun Based Ther
- CHEM 610 Advanced Inorganic Chemistry
- CHEM 658 Advanced Physical Chemistry
- CHEM 661 Instrumental Analysis Laboratory
- CHEM 716 Integrated Drug Dev & Discover
- CHEM 719 Drug Delivery Systems
- CHEM 737 Applications of Computational Chemistry and Molecular Modeling
- CHEM 748 Nanomaterials
- EVSC 616 Toxicology
- MATH 663 Introduction to Biostatistics
- MATH 664 Methods for Statistical Consulting
- PHEN 500 Pharmaceutical Engineering Fundamentals I
- PHEN 601 Principles of Pharmaceutical Engineering
- PHEN 604 Validation and Regulatory Issues in the Pharmaceutical Industry
- PHEN 618 Principles of Pharmacokinetics and Drug Delivery
- R120 572 Concepts in Pharm Drug Dev
- R160 515 Chem Struct Determin
- RBHS course - PATH N5209 Business of Science: Drug Development from Molecules to Medicines
- RBHS course - PHPY N5021 Fundamentals of Pharmacology

Total Credits 30

M.S. in Pharmaceutical Chemistry PSM (Professional Science Master's) Biotechnology Option

This program option is affiliated with the National PSM Office. The objective of the option is to create leaders with strong communication and management skills in addition to strong technical knowledge in biotechnology in order to meet the needs of the rapidly changing biopharmaceutical industry. This option is designed for working professionals or students who already have acquired some professional experience.

This option requires 30 credits and includes 15 credit hours of core technical courses, 9 credit hours of professional courses (technical and professional communications, project management, intellectual property, or organizational behavior), 3 credit hours of co-op internship, and 3 credit hours of a technical elective.

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**Required Professional Courses**

Select three of the following: 9
- EM 631: Legal Aspects in Environmental Engineering
- EM 633: Legal Aspects of Health and Safety
- EM 634: Legal, Ethical and Intellectual Property Issues for Engineering Managers
- EM 636: Project Management
- EVSC 613: Environmental Problem Solving
- EVSC 614: Quantitative Environmental Risk Assessment
- EVSC 623: Environmental Health
- IE 615: Industrial Hygiene and Occupational Health
- HRM 601: Organizational Behavior
- MGMT 620: Management of Technology
- PTC 601: Advanced Professional and Technical Communication
- PTC 620: Proposal Writing
- PTC 725: Independent Study in Professional and Technical Communication

**Required Experiential Capstone**

- CHEM 590: Graduate Co-Op Work Exper I

**Elective Courses**

Select one of the following: 3
- CHEM 658: Advanced Physical Chemistry
- CHEM 661: Instrumental Analysis Laboratory
- CHEM 700B: Masters Project
- CHEM 714: Pharmaceutical Analysis
- CHEM 716: Integrated Drug Dev & Discover
- CHEM 719: Drug Delivery Systems
- CHEM 737: Applications of Computational Chemistry and Molecular Modeling
- CHEM 748: Nanomaterials
- EVSC 616: Toxicology
- MATH 663: Introduction to Biostatistics
- PHB 610: Biotechnology-Biopharmaceutical, Processes and Products
- PHB 615: Bioseparation Processes
- PHEN 500: Pharmaceutical Engineering Fundamentals I
- PHEN 604: Validation and Regulatory Issues in the Pharmaceutical Industry
- PHEN 618: Principles of Pharmacokinetics and Drug Delivery
- R120 572: Concepts in Pharm Drug Dev
- R160 515: Chem Struct Determin

RBHS course - PATH N5209 Business of Science:Drug Dev from Molecules to Medicine
RBHS course - PHPY N5021 Fundamentals of Pharmacology

**Total Credits** 27