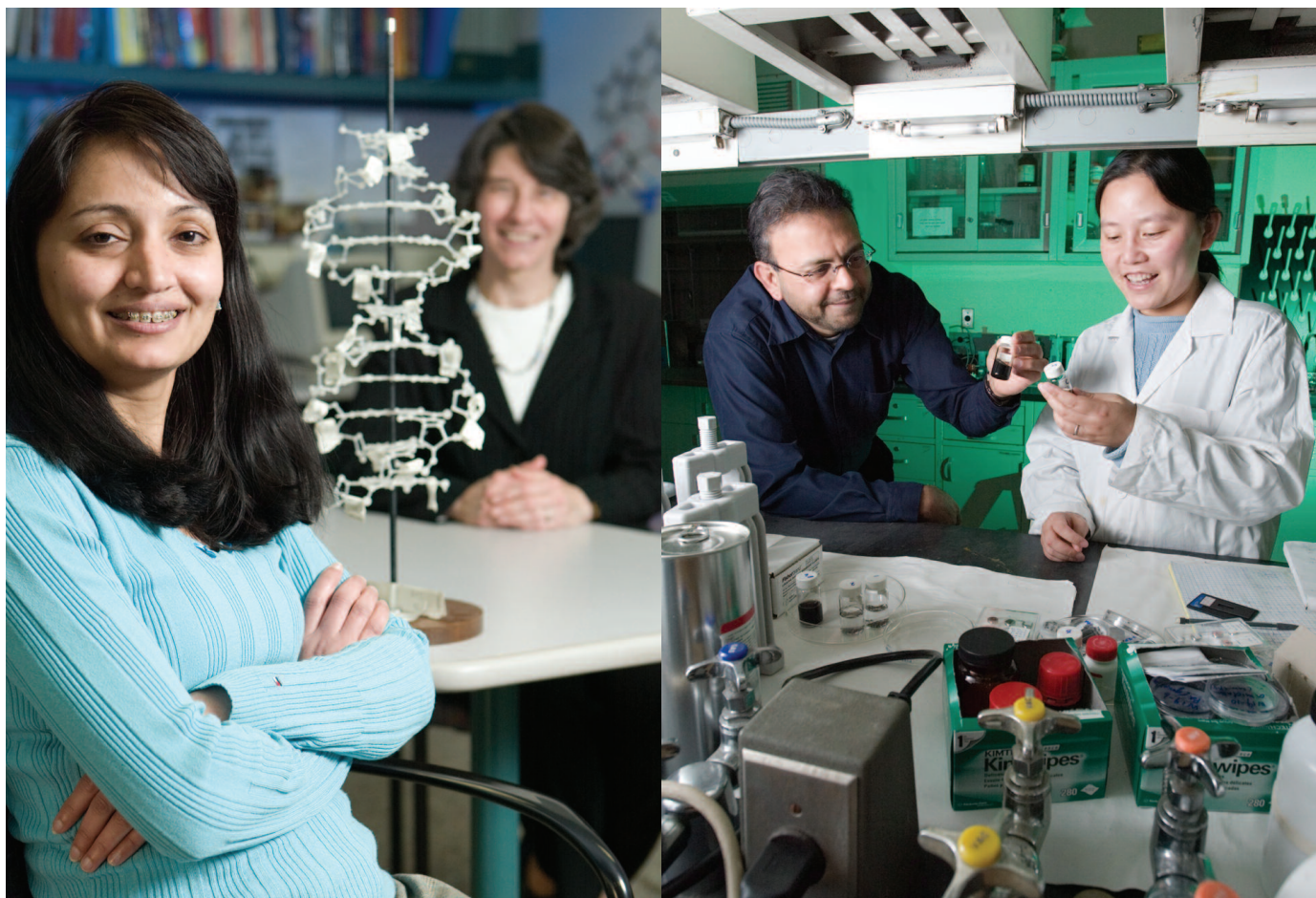


The Master of Science in Pharmaceutical Chemistry



Department of Chemistry and Environmental Science
College of Science and Liberal Arts

New Jersey Institute of Technology

WHY PURSUE AN MS DEGREE IN PHARMACEUTICAL CHEMISTRY?

Pharmaceutical chemistry is a discipline at the intersection of chemistry and pharmacology involved with designing, synthesizing and developing new chemical entities suitable for therapeutic use. It also includes the study of existing drugs, their biological properties, and their quantitative structure-activity relationships, as well as quality aspects of medicines and to assure fitness for the purpose of medicinal products. Spurred by an explosion in new medical knowledge and an aging population, the pharmaceutical industry is one of the strongest and most exciting sectors of the economy. In 2007, US-based biopharmaceutical research companies invested \$58.8 billion to discover new drugs, fight disease, and enable people to live longer, happier lives. More than \$1 billion is typically spent on research and development for each new drug or biologic.

WHY STUDY PHARMACEUTICAL CHEMISTRY AT NJIT?

New Jersey is geographically at the heart of the nation's pharmaceutical industry and home to more of the world's leading pharmaceutical companies than any other state, and NJIT is at the national epicenter of this concentration of industrial pharmaceutical research and development. New Jersey has 32 public biotech companies that generated approximately \$3.2 billion in revenue in 2007. This number represents a 113% increase from 2005. According to the Biopharmaceutical Industry Contributions of State and U.S. Economies published in 2004 by the Milken Institute, New Jersey's biopharmaceutical industry created 264,600 jobs in the state. It is projected that New Jersey, New York, Indiana and Illinois will collectively be responsible for 18,300 new jobs by 2014. As the state's science and technology university, NJIT has strong ties with the pharmaceutical industry and works directly with industry advisors to ensure that the curriculum is relevant to industry needs.

WHO SHOULD ENROLL IN THE MS DEGREE IN PHARMACEUTICAL CHEMISTRY?

Students who wish to specialize in pharmaceutical chemistry and drug discovery, as well as professionals working in the pharmaceutical industry or related fields.

IS PART-TIME STUDY AVAILABLE?

The program can be pursued on a full- or part-time basis. Evening and late afternoon classes accommodate working professionals.

WHO TEACHES THE COURSES?

Distinguished faculty from the Department of Chemistry and Environmental Science, as well as industry experts from New Jersey-based pharmaceutical companies.

WHAT COURSES ARE OFFERED?

Required Core Courses (15 credits):

CHEM 605: Advanced Organic Chemistry: Structures
CHEM 673: Biochemistry
CHEM 777: Principles of Medicinal Chemistry
CHEM 714: Pharmaceutical Analysis
PHEN 601: Principles of Pharmaceutical Engineering

Elective Courses (15 credits):

CHEM 661: Instrumental Analysis Laboratory
CHEM 664: Advanced Analytical Chemistry
CHEM 737: Computational Chemistry & Molecular Modeling
CHEM 610: Advanced Inorganic Chemistry
CHEM 736: Inorganic Biological Chemistry
CHEM 658: Advanced Physical Chemistry
CHEM 748: Nanomaterials
EVSC 616: Toxicology for Scientists & Engineers
MATH 663: Introduction to Biostatistics
MATH 664: Regression Analysis
PHEN 500: Pharmaceutical Engineering Fundamentals I (fundamentals of calculus, differential equations, probability and statistics, and finance business mathematics)

PHEN 604: Validation & Regulatory Issues in the Pharmaceutical Industry
PHEN 618: Principles of Pharmacokinetics & Drug Delivery
PHEN 635/EM635: Management of Pharmaceutical Technology R & D (*)
26:120:572: Concepts in Pharmaceutical Drug Development (Rutgers)
26:120:584: Enzyme Kinetics & Mechanism (Rutgers)
26:160:515: Chemical Structure Determination (Rutgers)
PATH-N5209: Business of Science: From Molecules to Medicine (UMD)
GSND-N5310: Clinical Trials Overview: Methodology & Practices (UMD)
PHPY-N5021: Principles of Pharmacology (UMD)
CHEM 700B: Masters Project (3 credits)
CHEM 701C: Masters Thesis (6 credits)

ARE THERE OPPORTUNITIES FOR REAL-WORLD EXPERIENCE?

There are abundant co-op and internship opportunities and exciting research assistantships exploring cutting-edge science and technology.

ARE THERE OPPORTUNITIES FOR RESEARCH EXPERIENCE?

Students can work alongside faculty in cutting edge research in such areas as computational chemistry and molecular modeling, quantum pharmacology, nanotechnology and enzyme design.

IS PART TIME STUDY AVAILABLE?

Evening and weekend courses accommodate the working professional, who may pursue the degree part time.

IS FINANCIAL AID AVAILABLE?

Financial support for full-time students in the MS program is extremely limited. Full-time domestic and international students may be eligible to receive the Provost Fellowship. For further information on financial aid, visit www.njit.edu/financialaid/graduate/index.php

FOR FURTHER INFORMATION

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TO APPLY:

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www.njit.edu/admissions/graduate/howtoapply/