GRADUATE STUDIES

WILLIAM PATERSON UNIVERSITY

Will. Power.

Master of Science in Materials Chemistry

The MS in materials chemistry offers chemists, chemistry educators, and materials scientists a cutting-edge curriculum focused on the design and synthesis of next-generation materials. This program provides practical, employment-oriented training, and facilitates the advanced study of physical, chemical, optical, and electromagnetic properties of biomaterials, nanomaterials, polymers, and other modern materials.

ADMISSION REQUIREMENTS

- Baccalaureate degree in chemistry or related field.
- At least one year each of physics and mathematics (including two semesters of calculus). Students who do not fulfill this requirement can make up appropriate courses with permission of the graduate committee.
- Satisfactory score on the Graduate Record Examination (GRE) General Test. The GRE is waived for students who earned an ACS-approved or equivalent baccalaureate degree in chemistry or related field with at least a 3.00 cumulative GPA from US institutions.
- Two recommendation letters that attest to applicant's academic qualifications.
- Resume.

FOR MORE INFORMATION

Graduate Admissions
graduate@wpunj.edu

Professor Bhanu Chauhan
chauhanbps@wpunj.edu
973.720.2470

APPLY ONLINE

wpunjgrad.org/apply

Program Features

Students in our program learn technologically advanced techniques for characterization of new materials using state-of-the-art scanning and transmission electron microscopy, atomic force microscopy, infrared and Raman spectroscopy, thermal analysis, NMR, and GC-Mass spectrometry to name a few. The program also prepares students for competitive doctoral programs in chemistry and materials science and engineering.

Learning Outcomes

Through the program, students:

- Gain project development and management skills, including conception, planning, and pitching project ideas.
- Acquire a comprehensive knowledge of the chemistry of advanced materials and develop abilities to succeed in cutting-edge scientific industries and academic settings.
- Perform experiments on high end instruments and learn critical assessment of data analysis to address the research hypothesis.
- Learn to work in multidisciplinary team environment, assess relevant literature studies, and develop presentation skills for the dissemination of research findings.
- Develop problem solving, critical thinking and integrated instrumental analysis skills.

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Curriculum

(A) REQUIRED CORE COURSES (4 COURSES, 14 CREDITS)

CHEM 6001	General/Inorganic Chemistry of Materials	3
CHEM 6002	Organic Materials Chemistry	4
CHEM 6010	Analysis of Materials	4
CHEM 6004	Theoretical and Physical Methods Chemistry	3

(B) REQUIRED RESEARCH COURSES (4 COURSES, 12 CREDITS)*

CHEM 6000	Graduate Seminar: Research Methods and Literature Survey	3
CHEM 6011	Laboratory Research I	3
CHEM 6012	Laboratory Research II	3
CHEM 6013	Laboratory Research III	3

(C) ELECTIVE COURSES (ANY 2 COURSES, 6 OR 7 CREDITS)

CHEM 4300	Nanochem and Tech	4
CHEM 6008	Biomaterials and Polymers	3
CHEM 6009	Applications of Materials	3

* This program requires 32-33 total credits.

**One of the required research courses can be substituted with an industry internship