MASTER OF SCIENCE IN NANOSCALE SCIENCE (MSNS) DEGREE

Program Learning Outcomes for the MSNS Degree

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

1. Develop knowledge of quantum theory and its application to nano- and mesoscale devices.
2. Demonstrate written, oral, and visual communication skills to bridge the gaps between science and business.
3. Develop business and management skills, and obtain practical skills valuable to nanotechnology-related companies.

Requirements for the MSNS Degree

Nanoscale Science is not accepting new students into the degree program for Fall 2018.

The MSNS 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 MSNS degree must complete:

• A minimum of 14 courses (40-41 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 Seminar. 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.
• A minimum GPA of 2.67 in required coursework.

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].) Students and their academic advisors should identify and clearly document the courses to be taken.
Nano-Bio
BIOE 442 TISSUE ENGINEERING LAB MODULE
CHEM 547 SUPRAMOLECULAR CHEMISTRY
ELEC 568 LASER SPECTROSCOPY
ELEC 571 IMAGING AT THE NANOSCALE
PHYS 539 CHARACTERIZATION AND FABRICATION AT THE NANOSCALE

Management and Entrepreneurship
BUSI 463 ENTREPRENEURIAL STRATEGY
MGMT 625 DESIGN THINKING
MGMT 629 BUSINESS PLAN DEVELOPMENT
MGMT 670 OPERATIONS STRATEGY
MGMT 676 SOCIAL ENTREPRISE
MGMT 724 SOCIAL ENTREPRENEURSHIP – PRACTICAL BUSINESS PLANNING
MGMT 734 TECHNOLOGY ENTREPRENEURSHIP

Other Electives
ENGI 614 LEARNING HOW TO INNOVATE?
MGMT 574 OPERATIONS MANAGEMENT
MGMT 609 MANAGING ENERGY TRANSITIONS
MGMT 661 INTERNATIONAL BUSINESS LAW
MGMT 669 BUSINESS STRATEGY IN THE ENERGY INDUSTRY
MGMT 670 OPERATIONS STRATEGY

Total Credit Hours 40-41

Footnotes and Additional Information
1 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 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.

2 To fulfill the remaining requirements for the Nanoscale Science degree program, students must complete a total of 18 credit hours as elective coursework from areas of specialization listed above, of which at least 6 credit hours must be science/engineering courses at the 500-level or above. Examples of courses and specializations that may be used as electives are listed above.

3 Each of these electives is not offered every year, and some courses may have prerequisites or require instructor permission. Most courses with the MGMT subject code carry 1.5 credit hours and last half of a semester.

Policies for the MSNS Degree
Nanoscale Science Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, Nanoscale Science publishes a graduate program handbook, which can be found here: http://gradhandbooks.rice.edu/2018_19/Professional_Science_Masters_Handbook.pdf

Admission
Admission to graduate study in nanoscale science is open to qualified students holding a bachelor’s degree in physics, electrical engineering, or a related field that includes intermediate level work in mathematics, electrodynamics, and quantum physics. Department faculty evaluate the previous academic record and credentials of each applicant individually.

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.

Additional Information
For additional information, please see the Nanoscale Science website: https://profms.rice.edu/

Opportunities for the MSNS Degree
Fifth-Year Master’s Degree Option for Rice Undergraduate Students
Rice students have an option to pursue the Master of Science in Nanoscale Science (MSNS) 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 MSNS 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 MSNS 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
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