

# MASTER OF SCIENCE IN NUCLEAR, PLASMA, AND RADIOLOGICAL ENGINEERING

The M.S. degree takes at least two semesters and a summer session to complete and normally takes three semesters and a summer session. The curriculum requires courses covering the fundamentals of nuclear engineering and radiation interaction with matter, plus two or more courses in an area of concentration chosen by the student in consultation with an advisor. Typical areas are:

- fission engineering including reactor physics and radiation transport
- reactor analysis, thermal hydraulics, and reactor safety
- fuel cycles, radiation effects, and radioactive waste management
- fusion engineering and technology
- plasma engineering and processing
- nuclear materials, corrosion, and irradiation damage
- neutron scattering
- nuclear nonproliferation and public policy issues
- radiation detector development and homeland security applications
- biomedical imaging, MRI applications, radiation protection, radiation-based therapy, and health physics
- reliability and risk analysis and probabilistic risk assessment
- computational methods including Lie Group, integral-differential equation, Monte Carlo, big data and fuzzy logic applications.

NPRE 599	Thesis Research (min-max applied toward degree)	4-8
NPRE 501 & NPRE 521	Fundamentals of Nuclear Engrg and Interact of Radiation w/Matter	8
NPRE 596	Seminar in Nuclear Sci & Engrg (registration for 1 hour every semester while in residence; credit does not apply toward the degree.)	0
Two or more NPRE courses in an area of concentration		8
Additional 500-level courses		8
Elective courses (subject to Other Requirements and Conditions below)		0-4
Total Hours		32

## Other Requirements and Conditions <sup>1</sup>

Other Requirements and Conditions may overlap

Credit in NPRE 402 or NPRE 446 does not count toward the degree.

Minimum GPA: 2.75

<sup>1</sup> For additional details and requirements refer to the department's printed handbook and the Graduate College Handbook (<http://grad.illinois.edu/gradhandbook>).