

# MASTER OF SCIENCE IN NUCLEAR ENGINEERING

The graduate program in nuclear and radiological engineering/medical physics leads to the degrees of

- Master of Science in Nuclear Engineering,
- Master of Science in Medical Physics,
- Master of Science, and
- Doctor of Philosophy.

In nuclear and radiological engineering, students with a bachelor's degree in engineering pursue the Master of Science in Nuclear Engineering degree, while students with a Bachelor of Science degree in other fields enroll for the Master of Science degree. Depending on the career objectives of the student, the Woodruff School may encourage a thesis as part of the Master of Science program. Nuclear and radiological engineering students must earn a graduate grade-point average of at least 3.0 and satisfy all remaining requirements to be certified for the master's degree.

## Non-Thesis requirements

| Code                      | Title                               | Credit Hours |
|---------------------------|-------------------------------------|--------------|
| NRE 6101                  | Transport Fundamentals              | 3            |
| NRE 6756                  | Radiation Physics                   | 3            |
| NRE 6401                  | Advanced Nuclear Engineering Design | 3            |
| Select one:               |                                     | 3            |
| NRE 6102                  | Plasma Physics                      |              |
| NRE 6201                  | Reactor Physics                     |              |
| NRE 6301                  | Reactor Engineering                 |              |
| NRE 6757                  | Radiation Detection                 |              |
| NRE Elective              |                                     | 3            |
| Math Elective             |                                     | 3            |
| Electives                 |                                     | 12           |
| <b>Total Credit Hours</b> |                                     | <b>30</b>    |

## Thesis requirements

| Code                      | Title                  | Credit Hours |
|---------------------------|------------------------|--------------|
| NRE 6101                  | Transport Fundamentals | 3            |
| NRE 6756                  | Radiation Physics      | 3            |
| Select one:               |                        | 3            |
| NRE 6102                  | Plasma Physics         |              |
| NRE 6201                  | Reactor Physics        |              |
| NRE 6301                  | Reactor Engineering    |              |
| NRE 6757                  | Radiation Detection    |              |
| NRE Elective              |                        | 3            |
| Math Elective             |                        | 3            |
| Electives                 |                        | 6            |
| NRE 7000                  | Master's Thesis        | 9            |
| <b>Total Credit Hours</b> |                        | <b>30</b>    |

## Nuclear Enterprise Management option (Non-thesis)

| Code                                      | Title  | Credit Hours |
|---|--|--------------|
| NRE 6101                                  | Transport Fundamentals                       | 3            |
| NRE 6401                                  | Advanced Nuclear Engineering Design          | 3            |
| NRE 6756                                  | Radiation Physics                            | 3            |
| Select one:                               |  | 3            |
| NRE 6102                                  | Plasma Physics                               |              |
| NRE 6201                                  | Reactor Physics                              |              |
| NRE 6301                                  | Reactor Engineering                          |              |
| NRE 6757                                  | Radiation Detection                          |              |
| Math Elective:                            |  | 3            |
| NRE 6103                                  | Computational Methods of Radiation Transport |              |
| NRE/ME 6758                               | Numerical Methods in Mechanical Engineering  |              |
| NRE 6504                                  | Management of the Nuclear Enterprise         | 3            |
| ME/MGT 6753                               | Principles of Management for Engineers       | 3            |
| NEM Elective:                             |  | 3            |
| Any ISYE, MGT 6000-level or higher course |  |              |
| Electives                                 |  | 6            |
| <b>Total Credit Hours</b>                 |  | <b>30</b>    |

## Nuclear Enterprise Management option (Thesis)

| Code                                     | Title  | Credit Hours |
|--|--|--------------|
| NRE 6101                                 | Transport Fundamentals                       | 3            |
| NRE 6756                                 | Radiation Physics                            | 3            |
| Select one:                              |  | 3            |
| NRE 6102                                 | Plasma Physics                               |              |
| NRE 6201                                 | Reactor Physics                              |              |
| NRE 6301                                 | Reactor Engineering                          |              |
| NRE 6757                                 | Radiation Detection                          |              |
| Math Elective:                           |  | 3            |
| NRE 6103                                 | Computational Methods of Radiation Transport |              |
| NRE/ME 6758                              | Numerical Methods in Mechanical Engineering  |              |
| NRE 6504                                 | Management of the Nuclear Enterprise         | 3            |
| ME/MGT 6753                              | Principles of Management for Engineers       | 3            |
| NEM Elective:                            |  | 3            |
| Any ISYE, MGT 6000-level or higher class |  |              |
| NRE 7000                                 | Master's Thesis                              | 9            |
| <b>Total Credit Hours</b>                |  | <b>30</b>    |