

BACHELOR OF SCIENCE IN NUCLEAR AND RADIOLOGICAL ENGINEERING - RADIOLOGICAL SCIENCE AND ENGINEERING CONCENTRATION

Code	Title	Credit Hours
Wellness		
APPH 1040	Scientific Foundations of Health or APPH 10 The Science of Physical Activity and Health or APPH 10 Flourishing: Strategies for Well-being and Resilience	2
Core A - Essential Skills		
ENGL 1101	English Composition I	3
ENGL 1102	English Composition II	3
MATH 1552	Integral Calculus ¹	4
Core B - Institutional Options		
CS 1371	Computing for Engineers	3
Core C - Humanities		
Any HUM ²		6
Core D - Science, Math, & Technology		
PHYS 2211	Introductory Physics I	4
PHYS 2212	Introductory Physics II	4
MATH 1551	Differential Calculus ¹	2
MATH 1553	Introduction to Linear Algebra ¹ or MATH 1554 Linear Algebra or MATH 1554 Linear Algebra with Abstract Vector Spaces	2
Core E - Social Sciences		
Select one of the following: ³		3
HIST 2111	The United States to 1877	
HIST 2112	The United States since 1877	
INTA 1200	American Government in Comparative Perspective	
POL 1101	Government of the United States	
PUBP 3000	American Constitutional Issues	
Select one of the following:		3
ECON 2100	Economic Analysis and Policy Problems	
ECON 2101	The Global Economy	
ECON 2105	Principles of Macroeconomics	
ECON 2106	Principles of Microeconomics	
Any SS ²		6
Core F - Courses Related to Major		
CHEM 1310	General Chemistry ⁴	4
MATH 2551	Multivariable Calculus ¹	4
MATH 2552	Differential Equations ¹	4
MSE 2001	Principles and Applications of Engineering Materials	3

NRE 2120	Elements of Nuclear and Radiological Engineering	3
Ethics Requirement ²		
Major Requirements		
NRE 3026	Experimental Nuclear Reactor Physics	3
NRE 3112	Nuclear Radiation Detection	3
NRE 3208	Nuclear Reactor Phys I	3
NRE 3301	Radiation Physics	3
NRE 3316	Radiation Protection Engineering	3
NRE 4350	Design Methods & Tools	3
NRE 4351	Design of Nuclear and Radiological Systems	3
Non-NRE Requirements		
COE 2001	Statics	2
ECE 3710	Circuits and Electronics	2
ECE 3741	Instrumentation and Electronics Lab	1
ISYE 3025	Essentials of Engineering Economy	1
ME 3322	Thermodynamics	3
ME 3340	Fluid Mechanics	3
MATH 3670	Probability and Statistics with Applications	3
Radiological Science and Engineering Concentration requirements ⁵		
NRE 4328	Radiation Sources and Applications	3
Select two courses:		6
NRE 4407	Introduction to Radiobiology and Oncology	
NRE 4750	Diagnostic Imaging Physics	
NRE 4803	Nuclear Safeguards	
Math/Science Elective ⁶		3
Engineering Elective ⁷		3
Free Electives		
Free Electives (1000-level or higher) ⁸		3
Free Electives (2000-level or higher) ⁹		9
Total Credit Hours		126

No Pass-Fail courses allowed

Students must earn a minimum Major GPA of 2.0 (truncated). Major GPA includes all required NRE and ME classes plus classes used for the concentration. If a class is repeated, only the last grade is included in the calculation.

¹ Minimum grade C

² Ethics Overlay may be Humanities or Social Sciences and can be any course from the GT-approved list: <http://www.catalog.gatech.edu/academics/undergraduate/core-curriculum/ethics/>.

³ Students can receive credit for only one of ECON 2100, ECON 2101, ECON 2105 and ECON 2106. The only exception is that students can receive 6 hours credit for both ECON 2105 and ECON 2106.

⁴ CHEM 1211K can substitute for CHEM 1310. CHEM 1211K and CHEM 1212K are recommended for pre-health students.

⁵ Students must satisfy the requirements of EITHER the Nuclear Engineering (NE) Concentration or the Radiological Science and Engineering (RSE) Concentration. NE Concentration requires ME 3345, NRE 4210, and NRE 4214; RSE Concentration requires NRE 4328 and two courses from the following list: NRE 4750, NRE 4803 (Nuclear Safeguards), and NRE 4407. Students may complete both Concentrations using free or engineering electives.

⁶ Any Math or Science at 2000 level or higher with the exception of selected 1000-level courses: BIOS 1107/BIOS 1107L, BIOS 1108/BIOS 1108L, and CHEM 1212K.

⁷ Engineering Elective is any class from the College of Engineering at the 2000-level or higher excluding: ME 3141, ME 3700, ME 3720, ME 3743, ME 3744, ME 4741, ME 4742, and ME 4753. Also excludes project-type courses such as VIP, and 2699, 2903, 4699, 4903 classes. Cannot duplicate any other material used to satisfy the BSNRE degree requirements.

⁸ Free 1XXX: Cannot duplicate any other material used to satisfy the BSNRE degree requirements.

⁹ Free 2XXX: At least 9 hours of free electives must be at the 2000 level or above with the exception of 4 hours that may be satisfied with one of the following: BIOS 1107/BIOS 1107L, BIOS 1108/BIOS 1108L, or CHEM 1212K. Cannot duplicate any other material used to satisfy the BSNRE degree requirements