

# NRE Undergraduate Curriculum (Catalog: 2013 - 2014)

<b>Freshman</b>	<b>Fall</b>	<b>CHEM 1310</b> General Chemistry (See Note 2) 3-3-4	<b>MATH 1501</b> Calculus 1 (Minimum Grade C) 4-0-4	<b>US Perspective</b> HIST 2111, HIST 2112, POL 1101, INTA 1200, or PUBP 3000 [ Social Science ] 3-0-3	<b>Wellness</b> APPH 1040, APPH 1050 or HPS 1040 2-0-2	<b>ENGL 1101</b> English Composition 1 3-0-3	<b>= 16 hours</b>
	<b>Spring</b>	<b>PHYS 2211</b> Physics 1 3-3-4 <small>MATH 1501</small>	<b>MATH 1502</b> Calculus 2 (Minimum Grade C) 4-0-4 <small>MATH 1501</small>	<b>CS 1371</b> Introduction to Computing 3-0-3	<b>NRE 2110</b> Introduction to Nuclear & Rad. Engineering 2-0-2	<b>ENGL 1102</b> English Composition 2 3-0-3 <small>ENGL 1101</small>	
<b>Sophomore</b>	<b>Fall</b>	<b>PHYS 2212</b> Physics 2 3-3-4 <small>PHYS 2211</small>	<b>MATH 2401</b> Calculus 3 (Minimum Grade C) 4-0-4 <small>MATH 1502</small>	<b>COE 2001</b> Statics 2-0-2 <small>MATH 1502, PHYS 2211</small>	<b>Economics</b> ECON 2100, 2101, 2105 or 2106 (See Note 4) 3-0-3	<b>Social Science Elective</b> (See Note 5) 3-0-3	<b>= 16 hours</b>
	<b>Spring</b>	<b>PHYS 2213</b> Introduction to Modern Physics 3-0-3 <small>PHYS 2212</small>	<b>MATH 2403</b> Differential Equations (Minimum Grade C) 4-0-4 <small>MATH 1502</small>	<b>NRE 3301</b> Radiation Physics 3-0-3 <small>MATH 1502, PHYS 2211</small>	<b>MSE 2001</b> Engineering Materials 3-0-3 <small>CHEM 1310</small>	<b>ECE 3710</b> Circuits & Electronics 2-0-2 <small>PHYS 2212</small>	
<b>Junior</b>	<b>Fall</b>	<b>NRE 3112</b> Nuc. Radiation Detection (See Note 1, No W's) 2-3-3 <small>NRE 3301</small>	<b>ME 3322</b> Thermo- dynamics 3-0-3 <small>PHYS 2211, MATH 2403</small>	<b>ME 3340</b> Fluid Mechanics (See Note 7) 3-0-3 <small>COE 2001, ME 3322* MATH 2401, MATH 2403, ME 2202 (See Note 7)</small>	<b>ECE 3025</b> Electro- magnetics 3-0-3 <small>ECE 3710, MATH 2401 MATH 2403, NRE 2110</small>	<b>ECE 3741</b> Instrument & Electronics Lab 0-3-1 <small>ECE 3710</small>	<b>Humanities Elective</b> (See note 5) 3-0-3
	<b>Spring</b>	<b>NRE 3208</b> Nuclear Reactor Physics I 3-0-3 <small>NRE 3301, MATH 2403</small>	<b>NRE 3316</b> Radiation Protection Engineering 3-0-3 <small>NRE 3301, MATH 2403</small>	<b>COE 3001</b> Mechanics of Deformable Bodies 3-0-3 <small>COE 2001, MATH 2403*</small>	<b>ME 3345</b> Heat Transfer 3-0-3 <small>ME 3322, ME 3340, MATH 2403</small>	<b>ISYE 3025</b> Engineering Economics 1-0-1 <small>(ECON 2100, 2105 or 2106)</small>	<b>MATH/ISYE 3770</b> Statistics (Minimum Grade C) 3-0-3 <small>MATH 2401</small>
<b>Senior</b>	<b>Fall</b>	<b>NRE 4208</b> Nuclear Reactor Physics II 4-0-4 <small>NRE 3208, MATH 2403</small>	<b>NRE 4214</b> Reactor Engineering 3-0-3 <small>ME 3322, ME 3340, ME 3345</small>	<b>NRE 4328</b> Radiation Sources & Applications 3-0-3 <small>NRE 3301, NRE 3316</small>	<b>Technical Elective</b> (See Note 3) 3-0-3	<b>Social Science Elective</b> (See Note 5) 3-0-3	<b>= 16 hours</b>
	<b>Spring</b>	<b>NRE 4206</b> Radiation Physics Lab (See Note 1, No W's) 1-3-2 <small>NRE 3112, NRE 4208</small>	<b>NRE 4232</b> NRE Design (See Note 1, No W's) 1-9-4 <small>NRE 4328, NRE 4208</small>	<b>Technical Elective</b> (See Note 3) 3-0-3	<b>Technical Elective</b> (See Note 3) 3-0-3	<b>Humanities Elective</b> (See Note 5) 3-0-3	<b>= 15 hours</b>

**NOTES:** \* Class co-requisites have an asterisk (\*) after it. These classes can be taken prior to or at the same time.

1. NRE 3112, 4206 & 4232 cannot be dropped after registration ends without documented medical reasons.
2. **CHEM 1310:** CHEM 1211K can substitute for CHEM 1310. CHEM 1211K & 1212K are recommended for pre-health students.
3. **Technical Electives** are any 3000 level courses or above from the Colleges of Engineering, Science or Computing that do not duplicate any other class used for the BSNRE degree. See back for more information.
4. **Economics:** Students can receive credit for only one of ECON 2100, ECON 2101, ECON 2105 & ECON 2106. The only exception is that students can receive 6 hours credit for both ECON 2105 and ECON 2106.
5. **Humanities Electives and Social Science Electives:** See page 2 for a link to the list of classes.
6. **Overlay Areas: Global Perspective and Ethics** must both be taken as parts of the curriculum. They can be used as humanities electives, economics or social science electives. See page 2 for details.
7. NRE students do not take ME 2202, so NRE 3301 or NRE 2110 will satisfy the pre-req for registration.

**126 Total Hours**

**Required Overlay Areas**

**Ethics**

PHIL 3105, PHIL 3109,  
PHIL 3127, PHIL 4176,  
HTS 2084 or INTA 2030

See Note 6  
3-0-3

**Global  
Perspective**

See Note 6  
3-0-3

# Undergraduate Curriculum Sheet Explained

## Understanding the Curriculum Guide

**Class Number** → NRE 4206

**Notes about** → Radiation Physics Lab

**Lecture Hours (per week)** → 1-3-2

**Pre-Requisites & Co-Requisites\*** → NRE 3112, NRE 4208

**Class** → NRE 4206

**Lab Hours** → Radiation Physics Lab

**Total Credit** → 1-3-2

**Included in Major GPA if filled in with dark color** → 1-3-2

**Pre-requisites:** These classes must be completed before you can take the class.

**\*Co-requisites:** These classes can be taken at the same time or before the class. You must register for the co-req first to avoid registration errors.

## GPA & Grade Requirements

- All classes taken for the BSNRE degree must be taken LETTER GRADE. This includes all electives.
- Overall GPA:**
  - Must be 2.00 or above (truncated) at graduation.
- Required Grades:**
  - Minimum grade of a D or better is required for each class except as noted.
  - C or better is required for MATH 1501, MATH 1502, MATH 2401, MATH 2403 and ISYE/MATH 3770
- Major GPA:**
  - All NRE classes are used to calculate the major GPA. Technical electives are used if they are NRE classes.
  - Must be 2.00 or above (truncated) at graduation.

## Technical Electives

- Technical Electives may be selected from any course offered in the College of Engineering, Science or Computing at the 3000 level or above, excluding Psychology (PSYC) and Applied Physiology (APPH).
- Technical electives cannot overlap any other course which you intend to use for your BSNRE.
- Students with a 3.2 GPA or above may use graduate level NRE classes as Technical Electives.
- Research:** Students may use 4 hours maximum of 4699 or 4903 for technical elective credit. Research does not have to be NRE specific research; it can be from the colleges of engineering, science or computing.

## Humanities, Social Science and Overlay Requirements (Ethics & Global Perspective)

- Humanities Electives:** A current list is at <http://www.catalog.gatech.edu/students/ugrad/core/corec.php>
- Social Science Electives:** A current list is at <http://www.catalog.gatech.edu/students/ugrad/core/coree.php>
- Ethics Overlay:** Ethics must be one of PHIL 3105, PHIL 3109, PHIL 3127, PHIL 4176, HTS 2084 or INTA 2030. Ethics can be used for a humanities elective or a social science elective as long as it meets the respective requirements.  
*Humanities Versions of Ethics:* PHIL 3105, PHIL 3109, PHIL 3127 or PHIL 4176  
*Social Science Versions of Ethics:* HTS 2084 or INTA 2030
- Global Perspective (GP) Overlay:** A current list is at <http://www.catalog.gatech.edu/students/ugrad/core/gp.php>  
 GP can be used as economics, humanities or a social science elective as long as it meets the respective requirements.

## Frequency of Class Offerings

Class	Semesters Available
NRE 2110	Spring Only
NRE 3112	Fall Only
NRE 3208	Spring Only
NRE 3301	Spring Only
NRE 3316	Spring Only
NRE 4206	Spring Only
NRE 4208	Fall Only
NRE 4214	Fall Only
NRE 4232	Spring Only
NRE 4328	Fall Only
COE 2001	Summer, Fall, Spring *
COE 3001	Summer, Fall, Spring *
ECE 3025	Summer, Fall, Spring *
ISYE/MATH 3770	Summer, Fall, Spring *
ME 3322	Summer, Fall, Spring *
ME 3340	Summer, Fall, Spring *
ME 3345	Summer, Fall, Spring *

\* Summer classes may be cancelled due to low enrollments.