### NRE Undergraduate Curriculum (Catalog: 2014 - 2015)

#### Freshman

**Fall**
- **CHEM 1310**
  - General Chemistry
  - (See Note 2)
  - 3-3-4
- **MATH 1501**
  - Calculus 1
  - (Minimum Grade C)
  - 4-0-4
- **US Perspective**
  - HIST 2111, HIST 2112, POL 1101, INTA 1200, or PUBP 3000
  - [Social Science]
  - 3-0-3
- **Wellness**
  - APPH 1040 or APPH 1050
  - 2-0-2
- **ENGL 1101**
  - English Composition 1
  - 3-0-3

**Spring**
- **PHYS 2211**
  - Physics 1
  - 3-3-4
- **MATH 1502**
  - Calculus 2
  - (Minimum Grade C)
  - 4-0-4
- **CS 1371**
  - Introduction to Computing
  - 3-0-3
- **NRE 2110**
  - Introduction to Nuclear & Radiological Engineering
  - 2-0-2
- **ENGL 1102**
  - English Composition 2
  - 3-0-3

#### Sophomore

**Fall**
- **PHYS 2212**
  - Physics 2
  - 3-3-4
- **MATH 2401**
  - Calculus 3
  - (Minimum Grade C)
  - 4-0-4
- **COE 2001**
  - Statics
  - 2-0-2
- **Economics**
  - ECON 2100, 2101, 2105 or 2106
  - (See Note 4)
  - 3-0-3
- **Social Science Elective**
  - (See Note 5)
  - 3-0-3

**Spring**
- **PHYS 2213**
  - Introduction to Modern Physics
  - 3-0-3
- **MATH 2403**
  - Differential Equations
  - (Minimum Grade C)
  - 4-0-4
- **NRE 3301**
  - Radiation Physics
  - 3-0-3
- **MSE 2001**
  - Engineering Materials
  - 3-0-3
- **ECE 3710**
  - Circuits & Electronics
  - 2-0-2

#### Junior

**Fall**
- **NRE 3112**
  - Nuc. Radiation Detection
  - (See Note 1, No W's)
  - 2-3-3
- **ME 3322**
  - Thermodynamics
  - 3-0-3
- **ME 3340**
  - Fluid Mechanics
  - (See Note 7)
  - 3-0-3
- **ECE 3025**
  - Electromagnetics
  - 3-0-3
- **ECE 3741**
  - Instrument & Electronics Lab
  - 0-3-1

**Spring**
- **NRE 3208**
  - Nuclear Reactor Physics I
  - 3-0-3
- **NRE 3316**
  - Radiation Protection Engineering
  - 3-0-3
- **ME 3301**
  - Mechanics of Deformable Bodies
  - 3-0-3
- **ME 3345**
  - Heat Transfer
  - 3-0-3
- **ISYE 3025**
  - Engineering Economics
  - 1-0-1

**Fall**
- **NRE 4208**
  - Nuclear Reactor Physics II
  - 4-0-4
- **NRE 4214**
  - Reactor Engineering
  - 3-0-3
- **NRE 4328**
  - Radiation Sources & Applications
  - 3-0-3
- **Technical Elective**
  - (See Note 3)
  - 3-0-3
- **Social Science Elective**
  - (See Note 5)
  - 3-0-3

**Spring**
- **NRE 4206**
  - Radiation Physics Lab
  - (See Note 1, No W's)
  - 1-3-2
- **NRE 4232**
  - NRE Design
  - (See Note 1, No W's)
  - 1-9-4
- **Technical Elective**
  - (See Note 3)
  - 3-0-3
- **Technical Elective**
  - (See Note 3)
  - 3-0-3
- **Humanities Elective**
  - (See Note 5)
  - 3-0-3

### Required Overlay Areas

- **Ethics**
  - PHIL 3105, PHIL 3109, PHIL 3127, PHIL 4176, HTS 2084+-INTA 2030
  - See Note 6
  - 3-0-3
- **Global Perspective**
  - See Note 6
  - 3-0-3

### Notes:

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 Required Overlay Areas.
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.

**Total Hours:** 126
# Undergraduate Curriculum Sheet Explained

## Understanding the Curriculum Guide

<table>
<thead>
<tr>
<th>Class Number</th>
<th>Notes about</th>
<th>Lecture Hours</th>
<th>Lab Hours</th>
<th>Total Credit</th>
<th>Pre-Requisites &amp; Co-Requisites*</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRE 4206</td>
<td>Radiation Physics Lab</td>
<td>1-3-2</td>
<td></td>
<td></td>
<td>NRE 3112, NRE 4208</td>
</tr>
</tbody>
</table>

*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

1. **All classes taken for the BSNRE degree must be taken LETTER GRADE. This includes all electives.**

2. **Overall GPA:**
   
   - Must be 2.00 or above (truncated) at graduation.

3. **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 MATH 3670

4. **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

1. 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).

2. Technical electives cannot overlap any other course which you intend to use for your BSNRE.

3. Students with a 3.2 GPA or above may use graduate level NRE classes as Technical Electives.

4. **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)

1. **Humanities Electives:** A current list is at [http://www.catalog.gatech.edu/students/ugrad/core/corec.php](http://www.catalog.gatech.edu/students/ugrad/core/corec.php)

2. **Social Science Electives:** A current list is at [http://www.catalog.gatech.edu/students/ugrad/core/coree.php](http://www.catalog.gatech.edu/students/ugrad/core/coree.php)

3. **Ethics Overlay:** Ethics must be one of PHIL 3105, PHIL 3109, PHIL 3127, PHIL 4176, HTS 2084 or INTA 2030. Ethics can be an 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

4. **Global Perspective (GP) Overlay:** A current list is at [http://www.catalog.gatech.edu/students/ugrad/core/gp.php](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

<table>
<thead>
<tr>
<th>Class</th>
<th>Semesters Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRE 2110</td>
<td>Spring Only</td>
</tr>
<tr>
<td>NRE 3112</td>
<td>Fall Only</td>
</tr>
<tr>
<td>NRE 3208</td>
<td>Spring Only</td>
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<tr>
<td>NRE 3301</td>
<td>Spring Only</td>
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<td>NRE 3316</td>
<td>Spring Only</td>
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<tr>
<td>NRE 4206</td>
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<tr>
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<tr>
<td>NRE 4214</td>
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<tr>
<td>NRE 4232</td>
<td>Spring Only</td>
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<tr>
<td>NRE 4328</td>
<td>Fall Only</td>
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<tr>
<td>COE 2001</td>
<td>Summer, Fall, Spring *</td>
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<td>COE 3001</td>
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<tr>
<td>ME 3322</td>
<td>Summer, Fall, Spring *</td>
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<tr>
<td>ME 3340</td>
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<tr>
<td>ME 3345</td>
<td>Summer, Fall, Spring *</td>
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</tbody>
</table>

* Summer classes may be cancelled due to low enrollments.

[www.me.gatech.edu/files/ug/program_of_study_nre1415.pdf](http://www.me.gatech.edu/files/ug/program_of_study_nre1415.pdf)