Georgia Tech

• #1 in engineering doctoral degrees awarded to African-Americans (Diverse Issues in Higher Education)

• 150 labs, centers and affiliate programs involving students in research.

• Fall 2018 engineering enrollment topped 14,000 making us the largest College of Engineering in the country.

• The Georgia Tech College of Engineering is the largest producer of engineering degrees awarded to women and underrepresented minority students according to the American Society of Engineering Education (ASEE) and Diverse: Issues in Higher Education.
Georgia Tech

• 30% of undergraduate students participate in the co-op program, which is the largest voluntary co-op program in the nation.

• First year retention rate at Georgia Tech is 97%.

• All undergraduate programs and graduate programs are ranked in the top 10 by U.S. News.
Georgia Tech Mission Statement

“Through relentless innovation in pedagogy, research, and institutional practices, the College of Engineering empowers students and researchers to be interdependent learners who are fearless in the face of complex problems and eminent contributors in their fields.”
Diversity at Georgia Tech

• **American Society for Engineering Education (ASEE)** as number one in bachelor’s degrees awarded to women

• **Diverse: Issues in Higher Education** as:
  - No. 1 in engineering doctoral degrees awarded overall to minorities
  - No. 1 in engineering doctoral degrees awarded to African American students
  - No. 1 in engineering doctoral degrees awarded to Asian American students
  - No. 2 in engineering undergraduate degrees awarded overall to minorities
  - No. 2 in engineering undergraduate degrees awarded to African American students
Global Citizenship

• 54% of B.S. recipients study or intern abroad prior to graduation. National rate is 15%

• 96.7% six-year graduation rate for those who study abroad. For those who do not, 76.1%

• Out of the total number of Tech students studying abroad, engineers make up 62%
Innovation Culture on Campus
Nuclear and Radiological Engineering

• Program focus includes:
  • Nuclear Power
    • Fission
    • Fusion
  • Radiological Engineering
    • Radiation detection
    • Nuclear forensics
    • Nuclear analytical methods
    • Radiation methods in Industry
  • Medical Physics
    • Nuclear imaging
    • Radiation therapy
Georgia Tech NRE Graduate Employment

• About 20% of our NRE graduates go on to graduate school.

• Of the students entering the workforce, about half start their careers with companies that they intern or co-op with.

• Students obtain jobs across the US and internationally.
Internships/Co-Op

➢ Nuclear Power Industry
  ▪ Southern Nuclear
  ▪ SCANA
  ▪ TVA
  ▪ Entergy
  ▪ Exelon
  ▪ Duke Energy
  ▪ GE Nuclear
  ▪ Progress Energy
  ▪ Westinghouse
  ▪ AREVA

➢ National Laboratories
  ▪ LANL
  ▪ LLNL
  ▪ ANL
  ▪ SRS
  ▪ SRS
  ▪ ORNL
  ▪ BNL
  ▪ SNL
Curriculum - BSNRE (126 hours)

- Broad-based curriculum emphasizing both NE and RE
- Prepares students for entry level jobs in industry or graduate school
- Allows students to co-op
- 1<sup>st</sup> four semesters include modern physics + 2 NRE introductory courses
- Next four semesters include an advanced math + 9 NRE courses:
  - Radiation physics, detection & lab + reactor physics, reactor engineering + radiation protection, radiation sources & application + capstone NRE design
  - Six electives: criticality safety, fusion, LWR technology, nuclear chemical engineering, radiation imaging, radiological assessment & waste management
- Course offering – NRE courses are offered once a year
For more information please contact
Dr. Steven Biegalski
Steven.Biegalski@me.gatech.edu

www.nremp.gatech.edu
Curriculum - BSNRE (126 hours)

<table>
<thead>
<tr>
<th>1st Year Fall</th>
<th>1st Year Spring</th>
<th>2nd Year Fall</th>
<th>2nd Year Spring</th>
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<tbody>
<tr>
<td>CHEM 1310 General Chemistry (See Note 2)</td>
<td>MATH 1551 Differential Calculus (Minimum Grade C)</td>
<td>MATH 1552 Multivariable Calculus (Minimum Grade C)</td>
<td>ECE 3710 Circuits &amp; Electronics</td>
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<tr>
<td>PHYS 2211 Physics 1</td>
<td>MATH 1552 Multivariable Calculus (Minimum Grade C)</td>
<td>NRE 2120 Elements of Nuclear &amp; Rad. Engineering</td>
<td>MATH 2552 Differential Equations (Minimum Grade C)</td>
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<td>MATH 1551, MATH 1553*</td>
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<td>PHYS 2212 Physics 2</td>
<td>MATH 2551 Multivariable Calculus (Minimum Grade C)</td>
<td>COE 2001 Statics</td>
<td>NRE 3301 Radiation Physics</td>
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<td>MATH 1552*, NRE 2120*, PHYS 2211</td>
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<td>MATH 2552 Differential Equations (Minimum Grade C)</td>
<td>NRE 3301 Radiation Physics</td>
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<td>MATH 2552, MATH 1553</td>
<td>MATH 1552*, NRE 2120*, PHYS 2211</td>
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Legislative
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

Social Science Elective (See Note 6)
3-0-3

Economics
ECON 2100, 2101, 2105, or 2106 (See Note 4)
3-0-3

Humanities Elective (See Note 6)
3-0-3

Total Hours:
16 hours + 17 hours + 16 hours + 15 hours + 16 hours = 78 hours
# Curriculum - BSNRE (126 hours)

<table>
<thead>
<tr>
<th>3rd Year</th>
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<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
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<tr>
<td>NRE 3112 Radiation Detection (See Note 1, No W's) 2-3-3</td>
<td>Concentration NE: NRE 4210 RSE: Con. Elect. (See Note 5) 3-0-3</td>
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<tr>
<td>NRE 3208 Nuclear Reactor Physics 3-0-3</td>
<td>Concentration NE: NRE 4214 RSE: NRE 4328 (See Note 5) 3-0-3</td>
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<tr>
<td>ME 3340 Fluid Mechanics (See Note 7) 3-0-3</td>
<td>NRE 4350 NRE Design Methods &amp; Tools 3-0-3</td>
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<tr>
<td>ME 3322 Thermo-dynamics 3-0-3</td>
<td>Free Elective 2000 Level or Above (See Note 3) 3-0-3</td>
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<td>ECE 3741 Instrument &amp; Electronics Lab 0-3-1</td>
<td>Engineering Elective 2000 Level or Above (See Note 3) 3-0-3</td>
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<td>Humanities Elective (See Note 6) 3-0-3</td>
<td>Math Elective 2000 Level or Above (See Note 3) 3-0-3</td>
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<table>
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<tr>
<th><strong>Fall</strong></th>
<th><strong>Spring</strong></th>
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<tbody>
<tr>
<td>NRE 3026 Experimental Nucl. Reactor Physics (See Note 1, No W's) 2-3-3</td>
<td>Social Science Elective (See Note 6) 3-0-3</td>
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<td>NRE 3316 Radiation Protection Engineering 3-0-3</td>
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<td>MATH 3670 Statistics &amp; Applications 3-0-3</td>
<td>Free Elective 2000 Level or Above (See Note 3) 3-0-3</td>
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<td>ISYE 3025 Engineering Economics 1-0-1</td>
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<tr>
<td>ECON 2100, 2101, 2105 or 2106</td>
<td>= 16 hours</td>
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</table>

**Total Hours:** 126
BS/MS Program

• Who should apply
  Apply if completed 30 credit hours (before 75 hours)
  Shown appropriate progress in your degree program
  Obtained a GPA of 3.5 or higher

• How to apply:
  A one-page application form
  One recommendation letter from a GT faculty
  A short biographical essay

• Why now (benefits)?
  No application fee
  No GRE
  May be supported in your fifth year
  Will obtain both BS and MS degrees in five years

• Degree Combinations:
  BS/MS in NRE, BSNRE/MSMP

• Advising
  Steven Biegalski
## Minor in Nuclear and Radiological Engineering

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>NRE 2120</td>
<td>Elements of Nuclear and Radiological Engineering</td>
<td>3</td>
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<tr>
<td>NRE 3301</td>
<td>Radiation Physics</td>
<td>3</td>
</tr>
<tr>
<td>NRE Electives</td>
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<td>Total</td>
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## Certificate in Nuclear and Radiological Engineering

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>NRE 3301</td>
<td>Radiation Physics</td>
<td>3</td>
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<tr>
<td>NRE 3208</td>
<td>Nuclear Reactor Physics</td>
<td>3</td>
</tr>
<tr>
<td>NRE 3316</td>
<td>Radiation Protection Engineering</td>
<td>3</td>
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<tr>
<td>NRE Elective</td>
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<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>
Scholarships

• Department of Energy NEUP Scholarships
  • $5000 per year
  • Applications typically due mid-February (look for e-mail announcements)
  • www.neup.gov

• National Academy for Nuclear Training (NANT) Scholarship
  • www.nei.org/nantscholarships/
  • $2500 per year
  • Apply by 2/1

• American Nuclear Society Scholarships
  • http://www.ans.org/honors/scholarships/
  • Range of $$$ and eligibility requirements
  • Entering Freshmen Scholarships Available

• Nuclear Regulatory Commission Scholarships
  • $10,000 per year
  • Must make commitment to enter nuclear employment after graduation (can be deferred by attending graduate school)
  • GPA > 3.0

• Georgia Tech NRE scholarships
  • Typically $2000 per year (mostly for entering freshman & sophomores) depending on the availability of funds – selected by the Chair
Student Activities

• NRE/MP Student Advisory Committee
• ANS Student Chapter
  • Faculty advisor: Dr. Dan Kotlyar
  • Website: [http://gtans.gatech.edu/site/](http://gtans.gatech.edu/site/)
  • Chapter Officer
    • President: Reed Herner
• INMM Student Chapter
• GT Energy Club