Nuclear Engineering
New Student Orientation
Sunday, August 24, 2014
Orientation Agenda

1. Nuclear Engineering Program Overview (5:00 – 6:00 PM)
   • Advising
   • Curriculum
   • Computing
   • Student Organizations

2. Picnic – Foundry Park (6:00 – 7:30 PM)
Welcome

Dr. Karen Thole
Professor of Mechanical Engineering
Department Head
Welcome

Arthur Motta
Professor and Chair of Nuclear Engineering Professor of Materials Science and Engineering
Students

• Nuclear Engineering
  – University Park
  – Commonwealth Campus
• Mechanical & Nuclear Engineering
<table>
<thead>
<tr>
<th>Nuclear Undergrad Ranking</th>
<th>Nuclear Graduate Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  MIT</td>
<td>1  Univ. of Michigan</td>
</tr>
<tr>
<td>2  Univ of Wisconsin</td>
<td>2  MIT</td>
</tr>
<tr>
<td>3  Texas A&amp;M</td>
<td>3  University of Wisconsin</td>
</tr>
<tr>
<td>4  Purdue</td>
<td>4  Texas A&amp;M</td>
</tr>
<tr>
<td>Univ of California - Berkeley</td>
<td>5  Penn State</td>
</tr>
<tr>
<td>Univ of Michigan</td>
<td>University of Tenneseeee</td>
</tr>
<tr>
<td>7  Penn State</td>
<td>7  UC Berkeley</td>
</tr>
<tr>
<td>8  Univ of Illinois</td>
<td>8  Georgia Tech</td>
</tr>
<tr>
<td>9  North Carolina State</td>
<td>9  NC State</td>
</tr>
<tr>
<td>10 Univ of Florida</td>
<td>10 University of Illinois</td>
</tr>
<tr>
<td>11 Georgia Tech</td>
<td>11 Oregon State</td>
</tr>
</tbody>
</table>

Source: US News and World Report
Note: Rankings are based only on academic scoring

Member of a prestigious, University, College, and Program!
What makes Penn State Great?

• Students and Faculty
  – Educational opportunities
  – Professional opportunities
Mechanical and Nuclear Engineering Faculty

http://www.mne.psu.edu/Directories/Faculty/
Internationally Recognized Faculty

Faculty mission
– Creation and dissemination of knowledge

Accomplished Faculty
– Distinguished researchers
– National and international society fellows
– Authors
– Teachers
  • 6 University teaching awards in 5 years!
Faculty Member Characteristics & Duties
“Creation and Dissemination of Knowledge”

- Ph.D. in ME, NucE, or related field
- Leaders
  - University, College & Department levels
  - Professional societies
    - Officers
    - Journal Editors
- **Knowledge Creation** - Research
  - Managing 3-4 Research Contracts
  - Supervise 5 graduate students
  - $25 M/year departmental expenditures
- **Knowledge Dissemination** - Teaching
  - 1 or 2 courses/semester
  - Graduate and undergraduate levels
- Advising
  - 25 undergraduates
Advisor

• All entering students have been assigned to an advisor
  – eLion

• Advise
  – Academic
  – Professional
Student-Advisor Meetings

Student Duties

• Treat as professional meeting
• Be prepared!
  • Bring Degree Audit - eLion
  • Know the curriculum manual
  • List of questions
• Updated Academic Plan
• Visit each semester
  • After 2nd week is best

Advisor Duties

• Know program requirements
  • Not all exceptions
  • Steer you in the right direction
• They can help you with ‘big picture’ issues
• Professional/career guidance
• When?
  • Scheduled Office Hours
  • Make an appointment
  • Do not assume you can ‘drop in’ at your convenience
Undergraduate Program Manual

  • In pdf
  • Answers to most of your questions
• Read and utilize!

• **DO NOT** use your freshman guide.
  • Graduation requirements defined when you enter the major - 2014
Department of Mechanical and Nuclear Engineering
Undergraduate Programs Office

- **Martin W. Trethewey** - Professor-in-Charge of Undergraduate Programs in Mechanical and Nuclear Engineering
  - Problematic advising/curricular matters
  - 3-2 Transfer and exchange student advising
  - Academic performance issues

- **Angie Lesko** - Undergraduate Programs Assistant
  - Scheduling classrooms for departmental student organizations
  - Monitor student eligibility of scholarship and post awards to student’s account
  - Assisting with problematic advising, curricular matters and scheduling

- **Lori Yarger** - Undergraduate Records Assistant
  - First point of contact for students coming to the office.
  - Processing of petitions for degree audit exceptions, registration transactions (drop/add, etc.)
  - Coordinates submission of Co-Op program reports
  - Coordinating High School visits
  - Assigns advisors, provides access to and maintains the undergraduate files
  - Certifies degree candidates for graduation by ensuring they have fulfilled all requirements

- **Ken Swidwa** Curriculum Adviser
  - Academic advising issues
  - Course Scheduling
  - Processing registration transactions (drop/add, etc.).
  - Coordinating the MNE Envoys
139/140 Reber Building

Two access doors
BSNucE Degrees Awarded

<table>
<thead>
<tr>
<th>Year</th>
<th>NUC E / All Other</th>
<th>ME / Nuc E</th>
<th>Nuc E</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>3</td>
<td>14</td>
<td>34</td>
</tr>
<tr>
<td>2009</td>
<td>11</td>
<td>28</td>
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<tr>
<td>2010</td>
<td>12</td>
<td>40</td>
<td>47</td>
</tr>
<tr>
<td>2011</td>
<td>21</td>
<td>28</td>
<td>54</td>
</tr>
<tr>
<td>2012</td>
<td>13</td>
<td>13</td>
<td>71</td>
</tr>
<tr>
<td>2013</td>
<td>2</td>
<td>71</td>
<td>77</td>
</tr>
<tr>
<td>2014</td>
<td>6</td>
<td>38</td>
<td>77</td>
</tr>
</tbody>
</table>
Nuclear B.S. Degrees Granted

- **2005/06**: NE+Other: 10, NE+ME: 10, NE Only: 10
- **2006/07**: NE+Other: 10, NE+ME: 10, NE Only: 10
- **2007/08**: NE+Other: 10, NE+ME: 10, NE Only: 10
- **2008/09**: NE+Other: 10, NE+ME: 10, NE Only: 10
- **2009/10**: NE+Other: 10, NE+ME: 10, NE Only: 10
- **2010/11**: NE+Other: 10, NE+ME: 10, NE Only: 10
- **2011/12**: NE+Other: 10, NE+ME: 40, NE Only: 40

*Note: Data for 2011/12 is estimated.*
You will be in good company!

13% of all BSc in NucE degrees in the country were awarded at Penn State in 2013.
Arts, Humanities, Social Sciences (AHS) Requirements

• Arts, Humanities, Social Sciences
  • 6 credits GA, 6 credits GH, 6 credits GS

• Alternately 9/6/3
  • Complete Degree Audit Reconciliation form

• Required - Econ 2 or 4
  • Social Sciences (GS)

• Two courses designated
  • One IL or GI - “Intercultural/International”
  • One US – “United States”
Technical Electives

• 9 credits of Technical Elective, your choice
  – 6 credits of NucE Technical Elective
  – 3 credits of General Technical Elective (GTE)
    • Any science, math, engineering beyond required level
    • 3 rotation Co-op
2015 Spring Semester

• Course Registration
  – Begins: September 2014

• Nominal 3\textsuperscript{rd} Year Engineering Student
  – 65 credits (Earned and Current)
Mechanical & Nuclear Engineering Concurrent Major

• Receive two BS degrees
  • Mechanical Engineering
  • Nuclear Engineering
• 23 credits beyond the ME degree
• Careful planning
  • NucE courses offered once a year.
• Nominal 9 semester program
  • If NucE courses in Fall of junior year.
Nuclear Engineering Research at Penn State

• Department of Mechanical and Nuclear Engineering offers PhD programs in ME and NucE. Nuclear Engineering research areas
  – Reactor Physics and Fuel Management (Profs. Ivanov, Watson and Avramova)
  – Reactor Thermal Hydraulics (Profs. Kim and Cheung)
  – Nuclear Materials (Prof. Motta)
  – Nuclear Science Applications (Profs. Jovanovic and Brenizer)
  – Neutron Beam Analysis (Prof. Unlu)
  – Reactor Controls (Prof. Ray)
  – Radiochemistry (Dr. Johnsen)

• 12 professors, 50 + graduate students
Departmental Computing

- Matthew Lindenberg, Computer Administrator
  - 201 Reber Building
- Open lab doors using student ID
  - Available 24/7
- Computer account application [http://mnelabs.mne.psu.edu](http://mnelabs.mne.psu.edu)
- Password available in 201D or 201C Reber after 9:00 AM the next business day
Professional Opportunities
Very Active ANS Student Chapter
What is Ahead Academically?

• Junior year
  • Most difficult in any engineering program
• Keep up with the coursework and assignments
  • Visit Faculty during office hours
  • Visit Graduate Teaching Assistants
  • Participate in study groups
  • Attend Help Sessions
What is Ahead Professionally?

• My dream job is …..!
What is Ahead Professionally?

• My dream job is .....!

• Start planning to get there!
  • Professional workforce
  • Graduate School
Real World Experiences
Co-ops, Internships, Study Abroad…

Over 20% of mechanical engineering students become co-op students
And many more in the internship program
Career Day

September 16-18, 2014.
  Sept. 16: Non-Technical Full-Time Recruiting Day,
  Sept. 17: Internship/Co-op Recruiting Day

Bryce Jordan Center
11:00 AM - 4:00 PM
  • A must to attend!
  • Coop and full time employment

http://www.fairs.sa.psu.edu/fall/employer/default.shtml#events
In Closing…

• Once again, welcome to Penn State’s Department of Mechanical and Nuclear Engineering

• Questions?
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