NC State Undergraduate Physics
The Physics Undergraduate Program is Excellent by any Measure

2008 Graduating Class
– Median GPA of 3.6
– 12/22 with double major
– 7 Phi Beta Kappa
– Marshall Scholar
– NSF Graduate Fellowship

Michael Paesler  Brian Clarke  Kasey Phillips
Graduates are ready for the next step

• Graduate School
  – Cambridge, Ohio State, Boston College, Vanderbilt, Colorado

• Employment
  – NIST, Boeing, GE, Peace Corp, HS Teacher, Engineering Firms
Case Study 2000

The SPIN-UP Case Study in 2001 prompted a critical self-examination of the department that brought focus to the undergraduate program.

• Understanding our role on campus (and exploiting it!)
• Maintain the rigor of ‘traditional’ B.S. in Physics
• Started formal exit interviews with graduating seniors
• Promote continual assessment of Undergraduate Program
Case Study 2000

The department works extremely effectively to mentor undergraduate majors and *build community* within the department.

- Majors-only freshman physics sequence.
- Events to welcome new majors, SPS activities.
- Group projects to encourage students to work together.
- Faculty advisors work closely with majors.
- SPS room and resources for worthwhile projects (pizza)
- Undergraduates are hired to work for the department.
Case Study 2000

• Undergraduate curriculum is focused on rigorous traditional physics major.
• All majors are encouraged to participate in research.
• The senior laboratory has been revised to focus on individual projects
• The undergraduate director works closely with College admissions
• Students are encouraged to carry double majors
• Alumni Dinner brings together current students and recent graduates.
Case Study 2000

• Undergraduate curriculum is focused on rigorous traditional physics major.
• All majors are encouraged to participate in research. No open positions!
• The senior laboratory is still a major problem!
• The undergraduate director does no pro-active recruiting!
• Students are encouraged to carry double majors
• Alumni Dinner brings together current students and recent graduates.
Has anything changed?
Why is the Physics Program a Success?

- Quality Students
- Nurturing Environment
- Rigorous Curriculum
- Undergraduate Research
- Excellent Faculty

Turhan Carroll          Steve Reynolds
Physics is highly selective*

<table>
<thead>
<tr>
<th>Freshman Class</th>
<th>NCSU</th>
<th>PAMS</th>
<th>Physics</th>
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<tbody>
<tr>
<td>Mean GPA:</td>
<td>4.12</td>
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<td>Mean SATV:</td>
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<td>583</td>
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<td>Mean SATM:</td>
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<td>635</td>
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<td>Mean SAT total:</td>
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<td>1218</td>
<td>1250</td>
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<td>Number of students:</td>
<td>4791</td>
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Undergraduate Research

• Longest running REU
• Undergraduate Research Symposium
• McCormick Award (14 years)
• Physics UGR Colloquium
• NCSU UGR Awards
• Excellent Faculty Mentors

Ryan Neely III
A [self-selected] subset of physics faculty…

- teach physics majors
- advise physics majors (8-10 per advisor)
- mentor undergraduate researchers

These faculty are committed to teaching *and* leading research:
Where can we improve?

- Diversity
- Recruiting top NC high school students
- Improve retention; Smooth Junior wall
- Top seniors applying for NSF, awards
- Help students prepare for job market
  - Career Services
  - Alumni Dinner
  - Job Fair