Green Devil in the Classroom

LIVING SUSTAINABLY IS EASIER THAN YOU THINK.
EDUCATE YOURSELF

E.O. WILSON
Biol ogist,
Pulitzer Prize Winning Author

Casey Roe
Outreach Coordinator

Charlotte Clark
Faculty Director of Sustainability
What is Sustainability?

“Meeting all the needs of the present without compromising the ability of future generations to meet their own needs”
What’s for dinner?

Cost
Health
Fair wages
Pesticides
Taste
Local economy
Animal treatment
Labor conditions
Convenience
Water & fossil fuels
Sharing a meal with friends
Land use
Fair wages
Local economy
Animal treatment
Labor conditions

What could sustainability look like?
Sustainability at Duke
“We commit our institution to . . . initiate the development of a comprehensive plan to achieve climate neutrality as soon as possible.”
FY13 GHG Update - University

Baseline

<table>
<thead>
<tr>
<th>Year</th>
<th>MTCO2e</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>338,828</td>
</tr>
<tr>
<td>2008</td>
<td>338,883</td>
</tr>
<tr>
<td>2009</td>
<td>322,355</td>
</tr>
<tr>
<td>2010</td>
<td>308,310</td>
</tr>
<tr>
<td>2011</td>
<td>301,758</td>
</tr>
<tr>
<td>2012</td>
<td>285,580</td>
</tr>
<tr>
<td>2013*</td>
<td>243,026</td>
</tr>
</tbody>
</table>

*Adjusted Air Travel in 2013

6113 cars removed from the road for year

*2013 without methodology change = ↓ 18%
Duke has committed to take actions that will make “…climate neutrality and sustainability a part of the education and other curricular experience of all students.”
Green Classroom Certification

- Began Spring 2013
  - 143 certified courses
  - ~3,250 students
  - ~60/semester

- Complete checklist
  - Green Teaching guide
  - Resource links
  - Flexibility

- Earn
  - Logo
  - Recognition

- Easy to re-certify
Paper Consumption

• Reducing handouts
  – Sakai
  – Double-sided printing

• Reading assignments
  – Post articles electronically
  – eBooks
  – Used books

• Electronic assignments & testing
  – Electronic grading
  – Online exams

• Scrap paper
• Laptops
• Also encouraged through ePrint quota
• Turn off lights & electronics
• Adjust heat/AC when possible
Transportation

- Office hours before or after class
- Carpooling for field trips
- Virtual guest speakers
- Phone or video conference meetings
• Reusable mugs & water bottles
• Locate nearby recycling (& compost!)
Education & Participation

- Green Classroom in syllabus
- Share personal actions
- Connect students to environmental organizations
- Extra credit
  - Pledge & carbon calculator
Complicated Choices

• Print or digital?
  – Life cycle of devices
    • Materials
    • Energy & water
    • End of use impacts
  – Source of energy

• Amount of use
  – Laptops & tablets used for many functions

• Intangibles
  – Heavy bag of books, aesthetic of hard copy
Complicated Choices

• Books vs. e-reader
  – Energy, water & raw materials equals 40-50 books
  – Emissions equal if you read 100 books
  – Emissions halved if you read 200 books

* Just one study, more research in this field is needed
Complicated Choices

• Education is highest priority
• Not at odds with sustainability
• Creativity & new technology
Events & Workplace

Green Event Certification
HELLO
My name is:
Sustainability
Bleed Blue. Live Green.

Duke Green Workplace
Bleed Blue. Live Green.

Funding available
Faculty: Trillium Fellows

Jan 2015, 5th annual

Outcomes

- be able to: understand human, individual life in its connectedness/relationship with ecosystems, communities, etc.
- describe the life-cycle (materials, energy, social capital, waste ...) of a given product or thing (full-cost accounting, scope of considerability in debate)
- assume + advocate for a citizen in the developing world (i.e. what is the scope of care + sympathy?)

Evidence

- list in graphical connections
- public speaking + debate
- written expression
Duke will take actions to make “...sustainability and environmental literacy a part of the curriculum and other educational experience for all students.”

- All?? Really?? How??
Duke: To achieve sustainability literacy, a student should:

1. Know about the interconnections and interdependency of ecological, social, and economic systems. They should demonstrate understanding of how the health of these systems determines the sustainability of natural and human communities and cultures at local, regional, national, and global levels. (Knowledge)

2. Be engaged in inquiry and systems thinking and use information gained through learning experiences in, about, and for the environment to understand the structure, components, and processes of natural and human-built environment (Translation)

3. Be prepared to use the above knowledge and skills to apply them in the service of society in solving climate and environmental issues and to incorporate these principles in their professional and civic life. (Application)
How might Duke Assess?

• All students take a class (College of the Atlantic; Furman University)
• All students take a test (Duke-Spanish)
• Survey/sample all students (Duke-Ethical Inquiry)
• E-portfolio (Green Mountain College)
AASHE STARS

• Universities can earn a STARS rating from the Association for the Advancement in Sustainability in Higher Education (AASHE)

• STARS credit 6: Did the university conduct
  – an assessment of student sustainability literacy
  – A follow-up assessment of the same cohort
• 48 institutions claimed credit for meeting Credit 13
  – Only 1 truly asked about only literacy (not values, behavior, attitude)
  – 25 asked NO questions about knowledge
  – 16 should not have earned points (Barnes)

Most institutions (43) relied on surveys

- Wide disparity in proportion of students surveyed and types of questions asked
- Some administered only once, others as entrance/exit (graduation)
- Majority focused on environmental dimensions of sustainability, omitting economic and social aspects, or any consideration of all three together.

3 institutions used interviews

1 used an e-portfolio approach

International Sustainability Literacy Test

• Multiple choice questionnaire
• Random selection of questions about
  – basic knowledge of sustainable development
  – Individual and organizational responsibility
• 2/3 supra/international level
• 1/3 national/regional level
Senior Advisory Board

- United Nations Development Program
- United Nations Environment Program
- UN Department of Economic and Social Affairs
- UNESCO (UN Educational, Scientific, and Cultural Organization)
- University Leaders for a Sustainable Future
- Mediterranean Education Initiative for Environment and Sustainability
- CEEMAN
- GRLI
- Alliance of Ibero American Networks of Universities for Sustainability and Environment
- Association Mondiale pour la Formation Hoteliere et Tourisme
- World Federation of Colleges and Polytechnics
- Higher Education Associations Sustainability Consortium
- Global Universities Partnership on Environment and Sustainability
- Institute for Sustainable Development and International Relations
Regional/National Expert Committees
US Expert Committee

• Association for the Advancement of Sustainability in Higher Education AASHE
• Disciplinary Associations Network for Sustainability
### Example results

<table>
<thead>
<tr>
<th>STUDENT ID</th>
<th>TOTAL / 50</th>
<th>Total Inter/ supra national /30</th>
<th>Total Local /20</th>
<th>Founding principles of sustainable development</th>
<th>Environment : Trends and key figures of global/local issues</th>
<th>Social : Trends and key figures of global/local issues</th>
<th>Economy : Trends and key figures of global/local issues</th>
<th>Organizational governance</th>
<th>Human rights &amp; Community involvement and development</th>
<th>Environment</th>
<th>Fair operating practices &amp; Labour practices &amp; Consumer issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>law45</td>
<td>56%</td>
<td>56.67%</td>
<td>55%</td>
<td>85.71%</td>
<td>43.75%</td>
<td>53.85%</td>
<td>50%</td>
<td>100%</td>
<td>33.33%</td>
<td>40%</td>
<td>71.43%</td>
</tr>
<tr>
<td>shc28</td>
<td>62%</td>
<td>46.67%</td>
<td>85%</td>
<td>100%</td>
<td>50%</td>
<td>61.54%</td>
<td>75%</td>
<td>50%</td>
<td>33.33%</td>
<td>80%</td>
<td>57.14%</td>
</tr>
<tr>
<td>dbd4</td>
<td>68%</td>
<td>53.33%</td>
<td>90%</td>
<td>71.43%</td>
<td>68.75%</td>
<td>53.85%</td>
<td>100%</td>
<td>50%</td>
<td>66.67%</td>
<td>60%</td>
<td>71.43%</td>
</tr>
<tr>
<td>1768490</td>
<td>72%</td>
<td>66.67%</td>
<td>80%</td>
<td>71.43%</td>
<td>68.75%</td>
<td>76.92%</td>
<td>75%</td>
<td>100%</td>
<td>66.67%</td>
<td>80%</td>
<td>57.14%</td>
</tr>
<tr>
<td>amc109</td>
<td>64%</td>
<td>53.33%</td>
<td>80%</td>
<td>100%</td>
<td>68.75%</td>
<td>38.46%</td>
<td>75%</td>
<td>50%</td>
<td>50%</td>
<td>80%</td>
<td>57.14%</td>
</tr>
</tbody>
</table>
Proposed Type II Sustainability Engagement Certificate

• Hosted by Nicholas School
• Planning/advisory committee is across campus faculty and staff
• 4 classes, 2 thematically-related experiences
• Campus sustainability work counts for experience
• Assessment by e-portfolio
Questions?

Visit sustainability.duke.edu

Casey Roe
Sustainable Duke
Casey.roe@duke.edu

Charlotte Clark
Faculty Director of Sustainability
charlotte.clark@duke.edu