ECO-AMBASSADORS
SESSION #1

Boston Campus
August 6, 2013
Please ask your partner...

- Name
- Office and school
- Years at Tufts
- What is your office currently doing to be “green”?
- What opportunities do you see for improvement?
Today’s Agenda

- Eco-Ambassador Program Overview
- Intro. to Sustainability & Sustainability at Tufts
- Waste & Recycling
- Behavior Change
- Climate Change
What does an Eco-Ambassador do?

- Model sustainable behaviors
- Act as a point of contact
- Take an active role in your office
- Create a healthy work environment
- Complete an office audit and other assignments
- Implement sustainability projects
- Make office sustainability fun!
Eco-Ambassadors

Help build a greener Tufts
Be a leader, influencer, and change-agent in your office
Enhance your professional development
Save money and resources

Join us for a condensed Eco-Ambassador program
(2 half-day sessions) on the Boston campus
on August 6 and August 13, 2013.

» Register now

What is the Eco-Ambassador program?
Staff and faculty play an important role in campus culture. They are often the stalwarts of their offices and thus are in the perfect position to practice and spread environmentally friendly behaviors. Through an education- and action-focused curriculum, the Eco-Ambassador (EA) program provides participants with the resources, skills, and knowledge necessary to effect change, serve as leaders, and promote sustainable practices among their peers.
What is Sustainability?
Economic

Social

Environmental

Sustainability
Sustainability Highlights at Tufts

- Tufts CLEAN!
- Env’l Policy
- Talloires Declaration
- New England Governors/Eastern Canadian Premiers Climate Action Plan
- Tufts Climate Initiative
- Kyoto Protocol
- Environmental Improvement Committee
- Energy Affairs Coordinator; Eco-Reps; Greening Grafton Committee
- Recycling Coordinator hired
- Chicago Climate Exchange
- Office of Sustainability formed
- Dental School Vertical Expansion receives LEED Silver Excellence in Energy Efficiency Award
- Sophia Gordon Hall – Tufts 1st LEED bldg opens
- Sustainability Council Report Released
- President Monaco establishes Council on Campus Sustainability
- Dental School 2nd Floor receives LEED Gold
- Sustainability incorporated into Administrative Excellence Plan
- Sustainability Highlights at Tufts 2013 Sustainability Council Report Released
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Timeline:
- 1990
- 1993
- 1999
- 2000
- 2001
- 2002
- 2004
- 2006
- 2008
- 2009
- 2012
- 2013
The **Waste Working Group** envisions the entire Tufts community playing an intentional role in fostering a cradle-to-cradle economy.

**Goal:**
- Reduce waste by 3 percent each year on average, through **source reduction, waste management strategies, and behavior change**.
Sustainability Council Report Highlights

**Water Working Group Goals:**

- Develop a plan to evaluate and prioritize targets to reduce consumption.
- Identify and (where appropriate) implement water re-use opportunities.
- Institutionalize policies and protocols to meet and exceed federal, state and local regulations related to storm and wastewater.
The **Energy and Emissions Working Group Goals:**

- Reduce energy consumption **5 to 7 percent per year** for 3 years starting in 2013.
- Reduce **greenhouse gas emissions** 10 to 25 percent below 1990 levels by 2020 and 75 to 85 percent below 2001 levels by 2050.
- Develop a **Renewable Portfolio Standard.**
- Begin the process of **Adaptation Planning.**
- Address **non-carbon greenhouse gas emissions.**
- Develop **transportation** initiatives to reduce the impacts of campus vehicles (fleet), commuting, and business travel.
Sustainability Council Report Highlights

Education and Behavior Change goals

Within five years the entire Tufts community will:

• Know how to **reduce energy consumption** as building occupants and use that knowledge to create less energy intensive habits.

• Understand how individual actions impact water usage and quality, why water conservation is important and how to **reduce use** and mitigate **negative impacts on the watershed**.

• Know how to **divert and reduce waste** and actively participate in waste reduction and diversion practices.
Throughout the process, certain issues emerged that were **common to all groups**. They are as follows:

- **Responsibility, accountability, and incentive** structures must be developed to support progress towards the new goals.
- Additional **proactive planning** regarding facilities renovations and construction is needed to identify important questions or issues early on in decision making processes.
- **Data, reporting and feedback loops** are necessary to track and measure progress.
- **Laboratory and hospital** facilities have some of the largest environmental impacts on each campus and warrant special attention.
- There is a desire to use the **campus as a ‘learning lab’** to tie together sustainability work on campus with academic research and teaching.
- A **culture shift** towards more sustainable behaviors across the Tufts community is necessary and must be addressed in an intentional way.
Dental School
Waste

http://www.abcteach.com/free/r/recycle02text_fix_rgb2.jpg
By the time a US baby reaches age 75, she/he will have…

- Used 3,375 barrels of oil
- Consumed 43 million gallons of water
- Produced 52 tons of garbage

28 5,000-gallon tanker trucks
65 Olympic-size swimming pools
104 10-yard Dumpsters
Do you know what these mean?

- Down-cycling
- Recycling
- Reusing
- Reducing ← strive for this choice!
What’s in America’s waste?

- 28.5% Paper & Paperboard
- 13.9% Food Scraps
- 13.4% Yard Trimmings
- 12.4% Plastics
- 9% Metals
- 8.4% Rubber, Leather, & Textiles
- 6.4% Wood
- 3.4% Other
- 4.6% Glass

Source: EPA 2010 MSW
Aluminum

• 1.3 billion cans thrown in landfills each year
  – 50% recycled
  – Can be recycled infinite times
• For every recycled aluminum can:
  – Energy saved can run a TV for 3 hours
  – 95% less energy
Glass

- Glass takes 4000+ years to decompose
  - 33% recycled
- For every recycled glass bottle:
  - Energy saved can run a CFL for 20 hours
  - 30% less energy
  - 20% less air pollution
  - 50% less water pollution
• 2 billion trees per year used to make paper/wood products
  – 72% recycled
• Recycling 1 ton of paper:
  – Saves 17 trees
  – 40% less energy
  – 50% less water
Plastic

- Americans generated 31 million tons of plastic waste in 2010
  - Only 8% recycled
- Recycling plastic:
  - 90% less energy
- Plastics usually down-cycled
In 2012, Tufts Boston recycled 26.7% of its waste – can we do better?
Boston Solid Waste Data

- Recycling Rate

- Paper & Cardboard Recycling
- Other Recycling (bottles, furniture, pallets, etc.)
- Trash

Switched to baler system from a trailer system in 2010.
What is recyclable at Tufts?

Tufts Recycling Guidelines

Recycle glass, plastic & metal
Recycle all clean glass, metal & plastics (including non-numbered) *

Recycle paper & cardboard
Most paper is recyclable!
(don't worry about staples, plastic windows, paper clips, or bindings)
files & folders cartons & aseptic packaging
white paper cardboards (please flatten)
envelopes notebooks
phone books newspapers
books glossy
color paper clean coffee cups
box board clean pizza boxes
(i.e. cereal box)
clean Coffee Cups

Trash only!
Do not recycle:
Paper plates Napkins & tissues
Plastic bags, wrap, film Dirty pizza boxes
*Bioplastics (they are compostable but not recyclable)

Lids & Plastic Recycling!
Empty paper coffee cups are recyclable.
Please rinse latte cups. No Styrofoam.
Recycling at the Dental School

Mixed Recycling

Cardboard
Paper
Glass
Metal
Plastic
All go in this bin

Not Recyclable:
Paper Plates
Plastic Bags & Film
Styrofoam
No Liquids
Dirty Pizza Boxes
Tissues
Dirty Coffee Cups!

Tufts gets green Boston
Tufts Recycles!
recycle@tufts.edu 617/627-3813
Don’t worry about trash in the recycling
Recycling batteries, ink cartridges, and phones is easy!

Recycle (all) batteries, ink cartridges and cellular phones:
Always tape the ends of batteries to reduce the risk of an accidental fire.

<table>
<thead>
<tr>
<th>Boston Campus Buildings</th>
<th>Battery Receptacle Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hirsch Health Sciences Library</td>
<td>On a counter to the left of the elevator and the stairs</td>
</tr>
<tr>
<td>Human Nutrition Research Center on Aging (HNRC)</td>
<td>Main entry</td>
</tr>
<tr>
<td>Jaharis Building</td>
<td>Main entry</td>
</tr>
<tr>
<td>M &amp; V, South Cove, and Arnold</td>
<td>M &amp; V entryway near police booth AND near the elevator next to security (two separate bins)</td>
</tr>
<tr>
<td>Posner Hall</td>
<td>Student entryway AND near the elevator next to Bursar's Office</td>
</tr>
<tr>
<td>Sackler Building</td>
<td>Next to the recycling bins in the elevator lobby</td>
</tr>
<tr>
<td>School of Dental Medicine</td>
<td>7th floor lounge</td>
</tr>
</tbody>
</table>
Furniture Disposal and Reuse

place a work order with Facilities!
Keurig vs. Brewed Coffee

Keurig Office Maker Pro

Brewed Coffee

How much waste does each generate?
Keurig vs. Brewed Coffee

Keurig Office Maker Pro

- ~ 10,000 K-Cups
- $5,677 per year

Brewed Coffee

- 222 empty 1-lb bags
- $1,200 per year

Based on an office that collectively drinks 40 cups per work day.
What can you do in your office?

**Reduce as much as possible**
- Buy only what your office needs, and go for durability
- Go electronic
- Share office supplies
- Default double-sided printing

**Reuse what you have**
- Set up an office reuse area
- Use reusable dinnerware in the office
- Buy used when possible
- Buy remanufactured toner cartridges from Roxbury Toner
- Go reusable in the lab

**Recycle the rest**
- Set up waste stations
- Recycle batteries, ink cartridges, phones, furniture, and electronics
Questions about waste or recycling? Ask:
Dawn Quirk
Tufts’ Waste Reduction Manager
dawn.quirk@tufts.edu
sites.tufts.edu/tuftsrecycles/
Behavior Change
# Benefits of Behavior Change

<table>
<thead>
<tr>
<th>Action</th>
<th>Individual Annual Savings</th>
<th>Campus Annual Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turn off computer or enable power management</td>
<td>$38</td>
<td>$61,000 (quantity = 1600)</td>
</tr>
<tr>
<td>Turn off copiers at night/weekend – use power management</td>
<td>$160</td>
<td>$12,800 (quantity = 80)</td>
</tr>
<tr>
<td>Shut off lights every time</td>
<td>$100-$400</td>
<td>$10,000+</td>
</tr>
<tr>
<td>Shut fume hood sash</td>
<td>$500 +</td>
<td>$170,000+ (quantity = 340)</td>
</tr>
</tbody>
</table>
Basics of Behavior Change

• Many factors influence behaviors
• Education → behavior change
• Address beliefs, values, and attitudes
• Learn your coworkers’ barriers to change
• Look for the good in your colleagues
Community-Based Social Marketing

1. Select Behavior
   a. What problem do you want to solve?
   b. What behavior change is needed?
   c. Whose behavior needs to change?

Stages of Change Model
Community-Based Social Marketing

2. Identify Barriers and Benefits
   - Find through observations, group discussions, surveys
   - Different barriers/benefits for different value modes
     - Settlers
     - Prospectors
     - Pioneers
       - Tailor messages to all 3 value modes
   - Change strategies should decrease barriers and increase benefits
Community-Based Social Marketing

3. Develop Strategies
   - Enhanced products or services
   - Convenience
   - Commitment
     - Make voluntary, written, and public
   - Social Diffusion
   - Prompts
   - Incentives
• Social Norms
  – Descriptive (what people do)
  – Injunctive (what people approve/disapprove of)

<table>
<thead>
<tr>
<th>Message</th>
<th>Reuse rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protect Environment</td>
<td>38%</td>
</tr>
<tr>
<td>Cooperate to protect environment</td>
<td>36%</td>
</tr>
<tr>
<td>Descriptive norms</td>
<td>48%</td>
</tr>
</tbody>
</table>
Community-Based Social Marketing

Develop Strategies

• Omega Strategies
  – Reactance → stories
  – Skepticism → change comparison
  – Inertia → disrupt and reframe

• Reduce scarcity
• Liking principle
• Frame your message attractively
Community-Based Social Marketing

1. Select behaviors
2. Identify barriers and benefits
3. Develop strategies
4. Pilot
5. Broad Scale Implementation
6. Evaluation
How do you effect long-term change?

- “Small steps” as a great starting point, but follow up with larger steps
- Tailor your message to value modes
- For real, long-lasting change, appeal to pro-environmental values
- Focus on the behavior you want people to engage in
- Focus your attention in the right places
Behavior Change Challenge!

- What problem do you want to solve?
- What behavior change is needed?
- What are the barriers that you face?
- What are the benefits of making the behavior change?
- What are the strategies or tools you will use to institute your behavior change?
Climate Change
ACCORDING TO THE 1,325 SCIENTISTS ON THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE,

“Warming of the climate system is unequivocal.”

Source: 2007 IPCC Report
The 12 Hottest Years on Record
1880-2011

1998  2001  2002  2003  2004  2005
2006  2007  2009  2010  2011  2012

Source: NASA/GISS/NOAA
More intense storms...  
(Shelburne, 2011)

More frequent droughts...  
(Hingham, 2011)

More heavy precipitation events...  
(Boston, 2010)

Increased flooding...  
(Quincy, 2010)

More intense storms...  
(Shelburne, 2011)
How will climate change affect Boston?
High-Degree Days—Projections

Boston, MA

Days over 100°F

1961-1990: 1
2070-2099: 24

DAYS PER YEAR OVER 90°F

Source: A Climate of Progress: City of Boston Climate Action Plan Update 2011
Current 100 year flood zone
Projected 100 year flood zone (higher emissions scenario)

Source: Sparking Boston's Climate Revolution
Who are the 6 Americas?

Source: Yale/George Mason University
The image presents a chart that tracks public opinion on global warming from 2008 to 2011. It categorizes responses into six groups: Alarmed, Concerned, Cautious, Disengaged, Doubtful, and Dismissive.

- **2008 (n=2,129)**:
  - Alarmed: 18%
  - Concerned: 33%
  - Cautious: 19%
  - Disengaged: 12%
  - Doubtful: 11%
  - Dismissive: 7%

- **2010 (n=1,001)**:
  - Alarmed: 10%
  - Concerned: 29%
  - Cautious: 27%
  - Disengaged: 6%
  - Doubtful: 13%
  - Dismissive: 16%

- **May 2011 (n=981)**:
  - Alarmed: 12%
  - Concerned: 27%
  - Cautious: 25%
  - Disengaged: 10%
  - Doubtful: 15%
  - Dismissive: 10%

The chart indicates a reduction in the percentage of individuals classified as Alarmed and Concerned over time, while the percentage of those who are Cautious increases. The categories of Disengaged, Doubtful, and Dismissive show some fluctuations but generally maintain a consistent presence in the data.

Source: Yale/George Mason University
Wrap Up

For next week:

1. Introduce yourself as an Eco-Ambassador to your coworkers
2. Implement your behavior change challenge!
3. Do Recycling Survey and Audit

Questions? Email Betsy at betsy.byrum@tufts.edu.
Tufts gets green

http://sustainability.tufts.edu