ECO-AMBASSADORS
SESSION #2

Boston Campus
January 22, 2014

Tufts University
Eco-Ambassadors
From last week...

- How did your office introduction go?
- Personal Behavior Change Challenge – Challenges? Successes?
Today’s Agenda

- Water
- Transportation
- Waste & Recycling
- Purchasing
- Events & Meetings
Water
WHERE IS ALL THE WATER?

SALTWATER DOMINATES EARTH'S SUPPLY:

97.5% SALTWATER

2.5% FRESHWATER

MOST FRESHWATER IS UNATTAINABLE:

70% IS FROZEN IN POLAR ICECAPS

30% LIES UNDERGROUND (most of which is too expensive to tap into and filter)

LESS THAN 1% of the world's freshwater is available for human consumption

Source: http://awesomegood.is.s3.amazonaws.com/transparency/web/1106/clean-water/flat.html
Average Water Use Per Person Per Day


65 Olympic-size swimming pools
How many gallons of water does it take to make...

- 35 - 53 Gallons
- 4,000 - 18,000 Gallons
- 1.85 Gallons
- 41,000 Gallons
Typical office water use

- Sanitary (40%)
- Cooling/Heating (26%)
- Irrigation (22%)
- Miscellaneous (9%)
- Single Pass Cooling (1%)
- Kitchen (1%)

Source: http://www.epa.gov/oaintrnt/water/lab_vs_office.htm
Typical lab water use

- Cooling Tower Make-up (42%)
- Laboratory Processes (25%)
- Single Pass Cooling Water (5%)
- Sanitary (12%)
- Irrigation (4%)
- Sterilizer (3%)
- Boiler Feed (2%)
- Reverse Osmosis Reject (2%)
- Misc. HVAC Mechanical Room (5%)

Source: http://www.epa.gov/oaintrnt/water/lab_vs_office.htm
Where does Tufts’ water come from?
Water Consumption by Campus

Gallons x 1,000,000

Fiscal Year

2006 2007 2008 2009 2010 2011 2012

Grafton
Boston
Medford

Legend:
- Grafton
- Boston
- Medford
Water Reduction Projects at Tufts

- Low flow toilets and urinals
- Dual flush toilets
- Faucet flow restrictors
- Metered faucets
The FACTS about BOTTLED WATER

$0.0015 / gal  $10.00 / gal
The price of bottled water is up to 10,000 times the cost of tap water

Annually, Americans consume 8.6 billion gallons of bottled water

Source: http://www.onlineeducation.net/bottled_water
The facts about bottled water:

40% of all bottled water is taken from municipal water sources (a.k.a. tap water).

22% of tested bottled water brands contained chemical contaminants at levels above strict state health limits.

Source: http://www.onlineeducation.net/bottled_water
The FACTS about BOTTLED WATER

17 Million barrels of oil are used in the production of water bottles yearly...

...enough to fuel 1 Million cars for a year

Source: http://www.onlineeducation.net/bottled_water
# Cost of 750 gallons of water*

<table>
<thead>
<tr>
<th></th>
<th>Individual Bottles</th>
<th>Poland Springs 5 gal bottles</th>
<th>Poland Springs water filter</th>
<th>Brita Filter pitcher</th>
<th>Tap water</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$762</td>
<td>$565</td>
<td>$264</td>
<td>$232</td>
<td>$13</td>
</tr>
</tbody>
</table>

*750 gallons provides 1 liter of water per day to each person in a 12 person office for one year (work days only).

**Example** (Tisch College):

- Bottled Water = $720
- Filtration System = $384
- Savings per year = about $336, almost 50%
What can you do in your office?

- Use tap or filtered water, not bottles
  - Contact: Scott DeFeo (Nestle Waters N. America)
    (978) 970-5656 x 3031, scott.defeo@waters.nestle.com

- Explain to your colleagues the water-saving features in your office (and how to use them)

- Don’t leave the water running

- Have a water survey for your office

- Hold a water tasting
Transportation
Transportation Facts

- Americans spend **4.2 billion hours** stuck in traffic each year.
- On average, Americans spend nearly **20% of their household budgets** on transportation.
- Transportation is responsible for **28% of greenhouse gas emissions** in the US.
- Between 1995 and 2011, public transportation ridership **increased by 34%**.
- In 2011, Americans took **10.4 billion trips** on public transportation.
### Getting Around: Fuel Use of Various Modes of Transportation

#### How Many Gallons of Fuel Per Passenger Does It Take to Cover a Distance of 300 Miles?

<table>
<thead>
<tr>
<th>Mode</th>
<th>Capacity</th>
<th>Miles per gallon</th>
<th>Gallons per mile</th>
<th>Time to travel 300 miles at X mph</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cruise Ship</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,109</td>
<td>121</td>
<td>10:56</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Amtrak</strong></td>
<td>300</td>
<td>0.48</td>
<td>1.7</td>
<td>04:22</td>
</tr>
<tr>
<td><strong>Boeing 737</strong></td>
<td>175</td>
<td>0.42</td>
<td>2.4</td>
<td>00:30</td>
</tr>
<tr>
<td><strong>Motor Coach</strong></td>
<td>50</td>
<td>5</td>
<td>0.2</td>
<td>05:50</td>
</tr>
<tr>
<td><strong>Average SUV</strong></td>
<td>5</td>
<td>21</td>
<td>0.048</td>
<td>05:50</td>
</tr>
<tr>
<td><strong>Average Sedan</strong></td>
<td>4</td>
<td>27</td>
<td>0.037</td>
<td>05:50</td>
</tr>
<tr>
<td><strong>Average Hybrid</strong></td>
<td>4</td>
<td>46</td>
<td>0.022</td>
<td>05:50</td>
</tr>
<tr>
<td><strong>Motorcycle</strong></td>
<td>1</td>
<td>56</td>
<td>0.017</td>
<td>05:50</td>
</tr>
<tr>
<td><strong>Bicycle</strong></td>
<td>1</td>
<td>912</td>
<td>0.001</td>
<td>23:28</td>
</tr>
<tr>
<td><strong>Walking</strong></td>
<td>1</td>
<td>211</td>
<td>0.005</td>
<td>10:00</td>
</tr>
</tbody>
</table>

**Note:** Throughout the infographic, each gallon of fuel costs $3. For tables and figures, note that the cost is $3 per gallon. All calculations are based on standard fuel efficiencies and travel times. Efficiency and costs may vary depending on usage, geographical location, and fuel price fluctuations.

**WHIFFER:** with cheese is 770 calories. 
**GOOD:** Either endorses or demotes the consumption of Whoppers.

**WE ARE EFFICIENT:** One gallon of gas equals approximately 31,000 calories. We only need about 2,000 calories a day.

**Cyclist:** A 125-pound rider, biking 15 miles per hour, and burning, 0.40 calories per pound per minute.

**Walker:** A 125-pound pedestrian, walking at 3.5 miles per hour, and burning, 0.035 calories per pound per minute.

**Notes:** Capacity, fuel economy, and speed numbers are in some cases, averages or estimates. 

**Good:** Transparency

Amount of space needed to transport the same number of passengers by...

Car  Bus  Bicycle
Tufts’ 2010 Emissions (all campuses)

- Heating, 74%
- Electricity, 22%
- Transportation, 4%
- Agriculture, 0.10%
How do Tufts Boston employees get to work?

- Subway: 41%
- Automobile (Drive Alone): 16%
- Commuter Rail: 7%
- Bus: 6%
- Automobile (Carpool): 5%
- Walk: 3%
- Bicycle: 3%
App Showcase

Where's the T? New apps built by independent developers let you know where your bus or train is and when it will arrive. Check them out below!

App Disclaimer
These apps are not made by MBTA, and MBTA does not sell or license the apps. They are written by third parties unless otherwise noted. MBTA shall not be held responsible for the content of third party websites or any issue arising from the use of third party applications. MBTA neither endorses any third party products listed here nor makes any guarantees or representations as to accuracy or reliability. Proceed with care and understand any usage charges that may apply to you. MBTA reserves the right to remove/add applications listings without notice.

Real Time Apps

MBTA mTicket
Buy a ticket anywhere, anytime, in seconds. The Official MBTA mTicket App is like a ticket office in your pocket. The MBTA mTicket app is now available for all Apple and Android devices.

See Say App
If you see something say something for smart phones Using this app, riders can send the MBTA Transit Police pictures, text messages, and locations of unattended bags.

Transit - Boston
Find the nearest bus, train, subway or ferry stations with scheduled stops and view upcoming departures with just two quick taps.

Are you a Developer?
Check out the MassDOT Developers page here to gain access to our data.

Want to be included on this page?
Please send a listing to developer@mbta.com with the App Title, Developer Name, Platform, and an image that is 150 x 225 pixels.
- Tufts membership for $25/year
- $9+/hr., including gas and insurance

More information:
www.zipcar.com/tufts (Tufts employees)
• New bike-sharing system that began in 2011
• 1,000+ bikes at 100+ stations
  – Rent by the hour, day, or year
More information: www.thehubway.com
Ideas for your office

• Walk, bike, take the T or bus, or carpool
  – Share information with others
  – Calculate commuter cost - http://www.commute.com/commuters/calculator

• Encourage office videoconferencing

• Take the stairs for exercise

• Start an office challenge

• Car-free Week, Bay State Bike Week
Purchasing
Green Claims – “Green” or Greenwashing?

Between 2009 and 2010, the number of “green” products increased 73%.

Source: TerraChoice
Green (Reliable)

- EPEAT
- Recycled Content (25% Post)
- ENERGY STAR
- SCS Certified
- Greenguard Certified
- Fair Trade Certified
- Rainforest Alliance Certified
- USDA Organic
- Certified Humane Raised & Handled
- Cruelty Free

Greenwashing (Unreliable)

- Sustainable Forestry Initiative
- Greenlist™
- 100% Natural
- United Egg Producers Certified

Recycled Content (40% Pre)

100% Recyclable
What can you do in your office?

- Reduce and reuse first
- When you buy, buy sustainable
  - “Buy green, buy fair, buy local, buy used, and most importantly, buy less.” – Story of Stuff
- Talk with co-workers, purchasing staff, and suppliers
Meetings & Events
How could you “Green” these events?

#1 - You are organizing a staff meeting for your office. You need to provide participants with both an agenda and several documents for discussion, and lunch will be provided.

#2 - You are coordinating a large guest lecture for students, staff and faculty from all three Tufts campuses. You need to know how many people are participating in the event and will also have to decorate the lecture hall.
Green Event Checklist

Small In-Office Meetings – Examples include: staff meetings, project meetings, or small office parties

<table>
<thead>
<tr>
<th>Topic</th>
<th>Individual Responsible</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials</td>
<td>Send out invitations and reminders via email.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E-mail out presentations and meeting agendas instead of printing them.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Write the agenda on a white (or black) board or flip chart instead of printing out hard copies for each person</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If handouts are unavoidable, enlarge the margins and print them double-sided. Print in black and white to save money</td>
<td></td>
</tr>
<tr>
<td>Food (if provided)</td>
<td>Provide reusable dishware or ask individuals to bring their own cups, mugs, (maybe even plates and silverware!) to the meeting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If disposables are used, provide compostable* or recyclable* plates and utensils</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use napkins made from recycled content paper</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If you are providing cups, offer hot cups or plastic cups as they are both recyclable (cold paper cups are not). Provide a marker so that individuals can label their cups for reuse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use serving utensils from previous catered events or bring some from home for the day</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If you provide drinks, avoid single-serving beverages by offering drinks in two liter bottles or pitchers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avoid excess packaging by providing pitchers or cartons of milk, creamer and sweeteners</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Put out surplus food for students and colleagues and/or remind individuals ahead of time to bring containers to take food home with them</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provide a compost bin for individuals to compost food waste and designate an individual to bring it to a compost station on campus</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If clean-up is necessary, use green cleaners to clean-up meeting space</td>
<td></td>
</tr>
<tr>
<td>Waste</td>
<td>Make sure there are recycling bins in the room</td>
<td></td>
</tr>
</tbody>
</table>

Green Event Links and Resources

Tufts Specific
- Tufts Green Event Planning Checklists
- Policies and planning guides from other places
  - Green Event Guideline – Hosting Green Events for COP17 in Durban – excellent, easy to read PDF
  - Eco-Logo Green Event Standard
  - BlueGreen Meetings – has a list of 10 easy tips for creating a green event
  - The EPA-developed Guide to Planning Environmentally Friendly Events
- EPA press release with link to 14-point checklist to use when assessing event locations.
- The US Environmental Protection Agency’s One Stop Information Source for Green Meetings
- MeetGreen is a conference management, consulting and training firm that works with associations and corporate organizations. We are dedicated to making your conference a premiere industry event while using our unique environmentally friendly approach to your advantage.
- Meeting Strategies Useful Links
- MIT’s Zero Waste Event Planning Wiki

Hotels
- “Green” Hotels Association’s® purpose is to bring together hotels interested in environmental issues. From adding “Drinking water served on request only” to the menu to installing new HVAC systems, and with every measure in between, “Green” Hotels Association® encourages, promotes and supports the “greening” of the lodging industry. Includes list of hotels
- Ceres’ Green Hotel Initiative (GHI) is designed to increase and demonstrate market demand for environmentally responsible hotel services. The GHI leverages purchasing power to increase the supply of green hotels available to businesses and individual travelers.
- GreenSeal’s list of certified green hotels. Not very extensive, but a start.
- TerraChoice list of green hotels: also not extensive
- Green Resorts: Uno Lodge, Copper Canyon, Mexico Papoose Creek Lodge, Cameron Montana Canopy Tower Soberania National Park, Panama
- Bucuti – has complete list of green practices

Restaurants and Food
- Green Restaurant Guide
- Seafood Watch List
- Decoding Food Labels
- OLSF Guidelines for lunch providers

Waste
- Tufts Recycles!
- Lifecycle analysis of compostable plates vs. ceramic plates (2008) – see page 32 for summary
- Lifecycle analysis of plastic, paper, glass and ceramic cups (1994)

Boston Specific
- Boston Green Tourism – encourages visitor-industry professionals to green their operations. They promote Greater Boston as a green destination and help meeting planners achieve their environmental objectives.
Communication & Collaboration

Conferencing Tools

Desktop Video Conferencing (Jabber Video)
Desktop video conferencing allows individuals at multiple locations to interact or share applications via simultaneous video and audio transmissions.

Telephone Conferencing
Telephone conferencing (Conferencing Bridge) provides the ability to connect geographically dispersed meeting participants (6-150) on a single phone call.

Video Conferencing Rooms
Technology Services maintains conference room format video conferencing capability on all three campuses. Currently these units are available for meetings, distance learning, and education projects.

Web Conferencing (Adobe Connect)
A web video conference uses a combination of video and audio telephony technologies to allow two or more users (or locations) to connect, meet, and collaborate via the Internet.
Some final thoughts

• Share the results of the Green Office Survey with a supervisor
• In a lab? Visit http://www.greencampus.harvard.edu/labs or http://www.labs21century.gov/ for some tips
• Educate your colleagues
• Start an office (or building, or floor) green team
• Get to know your fellow Eco-Ambassadors
• Don’t forget OOS!
What does an Eco-Ambassador do?

1. Act as a point of contact and resource

2. Model sustainable behaviors

3. Implement office sustainability initiatives and foster behavior change
Looking ahead

Assignments:

• Create draft social marketing plan
  - Due February 28

• Meet with supervisor or existing Eco-Ambassador team
Social Marketing Plan

Step 1: Select Behaviors

Step 2: Identify Barriers and Benefits

Step 3: Develop Strategies

Step 4: Pilot

Step 5: Broad scale implementation & Evaluation
Thanks for participating!

Tufts gets green

http://sustainability.tufts.edu