**GEOG 300: Ecological Footprint Assignment**

The Ecological Footprint Calculator will allow you to get an idea of how “costly” your current lifestyle is in terms of resource use. This is a highly generalized footprint calculator, but by calculating your personal “overshoot day” you will be able to see how many Earths it takes to sustain a person with your lifestyle. Work your way through the questions, taking some notes as you move along, so you can use this material when you write the final report.

Some of the questions asked to calculate the results will not apply to students living in dorms. However, not currently staying in a house or apartment does NOT exempt you from this assignment. Call Mom, call Uncle Eddie, your significant other, etc., to get the information you’ll need to complete this assignment.

**Instructions**

1. Go to this website: <http://www.footprintcalculator.org/>
2. Click on “Take the First Step”
3. Log in via Facebook or as a Guest
4. Make sure to click on “ADD DETAILS TO IMPROVE ACCURACY” every time this is applicable

**Final Write Up**

Answer the following questions to generate a write up of 250-350 words. Don’t just answer the questions in place, write cohesive and short paragraphs to “report” your findings, using the following format:

Paragraph 1:

* Do some research: What does “overshoot day” mean?
* When was your personal “overshoot day” this year? And what does this mean?
* How many planets does it take to sustain your current lifestyle?
* Do you feel that this number is accurate or do you think it's a bit exaggerated? *Why* do you think that?

Paragraph 2:

* Finally, [review the nice list below (starting on second page) of things you can do to reduce your footprint.](http://www.geo.oregonstate.edu/classes/geo300/CarbonFootprintList.doc) It's ostensibly for Canadians, but CO2 weighs the same everywhere. Make a list of things that you can reasonably do to reduce your CO2 footprint by 2 tons. Tell us, what are these actions??

\*\*\* *Include a screen shot of your ecological footprint results at the end of your write-up.* Feel free to add any other comments you want to make about your results.

**Submitting this assignment:** Bring a hard copy of your write-up to your first recitation. Title it "Ecological Footprint Exercise." At the top of the page, include: 1) your first and last name, 2) the date, 3) the day and time of your recitation, and 4) your T.A. name (if you don’t know this, write it in class).

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| **Challenge for Canadians** |

**YOUR CHOICES MAKE A DIFFERENCE**

Most of the energy we use each day produces greenhouse gas (GHG) emissions from the burning of fossil fuels. On average, each Canadian generates just over five tons of greenhouse gases per year by driving vehicles, heating and cooling homes, washing and drying clothes and using other appliances. By making choices that reduce our GHG emissions, we are doing our part to address climate change.

There are many practical things you can do right away to reduce greenhouse gas emissions at home and on the road. Drive less often. Take the bus to work. Plant a tree in your yard. Use a push mower instead of a power mower. Make recycling a priority. Let your friends and family know what they can do. Simple things can make a big difference.

"Canadian motorists idle their vehicles an average of five to 10 minutes per day," said a Natural Resources news release. "A recent study suggests that in the peak of winter, Canadians voluntarily idle their vehicles for a combined total of more than 75 million minutes a day - equivalent to one vehicle idling for 144 years."

If idling was avoided - most cars are ready to go after 15 to 30 seconds - Canadians would save 1.8-million litres of fuel per day, preventing 4,500 tons of greenhouse-gas emissions from entering the atmosphere. Natural Resources Canada goes on to argue that, beside wasting money, fuel and contributing to pollution, idling damages an engine. That's because an idling engine runs at a cool temperature and does not burn all the fuel that leaves residue on the cylinder walls and can cause damage.

Furthermore, idling an engine does nothing to warm up other parts of the car. Other "myths" include the suggestion that starting and stopping a car causes wear and tear and that it uses up more fuel. "Believe it or not, more than 10 seconds of idling uses more fuel that restarting the engine," Natural Resources found. More frequent use of the starter and battery adds $10 a year to the maintenance of a car, far less than the money saved by using less fuel.

**Carbon Footprint Challenge!**

It is important for the future of our Earth to attempt to curb the impacts of climate change and reduce the amount of GHG emissions that each of us produces throughout our daily activities. The Carbon Footprint Challenge works to encourage, assist and provide information to individual Canadian’s to participate in concrete action items and ways to reduce their annual greenhouse gas (GHG) emissions and help address Climate Change. How? Use less energy. Conserve water and resources. Reduce waste. Fewer emissions means protecting our climate and having cleaner air and healthier communities for all Canadians and saving energy puts more money in your pocket! There are quick and easy ways your family can reduce greenhouse gas emissions! Remember, every little bit counts.

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| **Actions you can take to reduce GHG emissions:**  |  **Saves/year in CO2** |
| • Travel to work using Public transit• Reduce driving by 10 %  | 0.50 T  0.50 T |
| • Improve insulation at home | 0.20 T |
| • Compost organic kitchen wastes | 0.20 T |
| • Install energy efficient furnace  | 0.40 T |
| • Install storm windows | 0.10 T |
| • Use a block heater on a timer |  0.20 T |
| • Use vehicle air conditioner less |  0.20 T |
| • Give up second vehicle |  0.50 T |
| • Keep vehicle tuned |  0.20 T |
| • Use ethanol blended gas/ biodiesel |  0.20 T |
| • Remove roof racks |  0.10 T |
| • Buy fuel efficient vehicle |  0.50 T |
| • Perform regular appliance maintenance | 0.20 T |
| • Use dish washer’s no heat drying | 0.10 T |
| • Avoid over drying clothes | 0.10 T |
| • Put outdoor lights on a timer | 0.10 T |
| • Set energy savers on computers | 0.10 T |
| • Reduce paper usage | 0.10 T |
| • Upgrade your insulation | 0.50 T |
| • Catch rain water | 0.10 T |
| • Stop bagging grass cuttings | 0.20 T |
| • Avoid chemical pesticide and fertilizer use | 0.10 T |
| • Plant trees as wind breaks around the house | 0.10 T |
| • Get an energy efficient water heater | 0.20 T |
| • Insulate hot water pipes | 0.10 T |
| • Turn off water while brushing teeth | 0.10 T |
| • Buy goods with less packaging | 0.10 T |
| • Unplug the second refrigerator | 0.20 T |
| • Get an energy star refrigerator | 0.20 T |

**Other tips:**

* Replace your 60 and 100 watt incandescent bulbs with compact fluoros and save up to 75% on your energy consumption for lights
* Install a AAA rated shower rose and use 9 litres a minute, instead of up to 20 or 25 litres a minute
* Eat locally produced food to reduce food miles. Check the ingredients of your food to ensure it is locally grown and produced
* For every 1 degree you turn down your thermostat, you can save between 5 and 10% of the energy required to run it
* Do without heating, by orienting your living spaces to incorporate passive solar design. Let the sun warm your home for free!
* Choose gas heating, as it produces only one-third the amount of greenhouse emissions of standard electric heaters.
* Set your thermostat for around 20 degrees or less. For every 1 degree you turn down your thermostat, you can save between 5 and 10% of the energy required to heat your home.
* Heat only those rooms you are using. Close off unused rooms, so you don't heat them unnecessarily. Turn off heating at night and when you are out.
* Draughts and air leaks in your home can increase your energy use by up to 25%, so it's worth sealing around windows and door jambs.
* Check your wall and ceiling insulation, and ensure it has a high "R" rating.
* Wear more clothes inside!
* Maintain your heaters as per manufacturer's instructions and keep them clean.
* Keep the sun out. Use eaves, shutters and vegetation to shade windows and walls.
* Will a fan suffice? Fans are cheap and use hardly any energy to run.
* Ventilate your home at night to let warm air out. A home with cross-flow ventilation will also help keep your home cool in the day.
* If you must use an air conditioner, make sure it's the correct size for your needs. Set the thermostat to 25 degrees or higher. For every 1 degree warmer, you save up to 10% on running costs.
* **Transport – Cars travel about 15,000 km a year, creating six tonnes of greenhouse gases. You can cut greenhouse gas emissions now, by using your vehicle less.**
* Drive less. Reduce the number of car journeys you make, by planning ahead. Can you do without your car? Live close to your workplace, use public transport, cycle, walk, car pool or use a taxi. They are all options for helping take vehicles off the road.
* Use alternative fuels. Diesel vehicles can run on biodiesel. Convert your petrol vehicle to gas. If you are buying a new vehicle, choose one which is fuel efficient. The [Green Vehicle Guide](http://www.greenvehicleguide.gov.au/GVGPublicUI/ApplicationFirstStartTaskWebForm.aspx) will help you with your selection.
* Keep your car serviced and in good working order. Check your tires. Keeping tires at the correct pressure can save up to 3% on your fuel use.
* **Air travel is one of the most greenhouse gas intensive ways to get around.**
* Holiday locally.
* Organise videoconferencing instead of flying to business meetings.
* Avoid long-distance relationships – they burn aviation fuel and are very frustrating...
* Air travel is a huge producer of greenhouse gas. Carefully consider each flight you take – is it unavoidable/totally necessary?
* **Hot water accounts for an average of 25% of household energy use, or 2 tonnes of greenhouse gases a year. In some areas, hot water is as high as 35% of the home energy**
* Install a AAA rated shower rose and use 9 litres a minute, instead of up to 20 or 25 litres a minute. NB: Many state and local governments offer rebates for water-efficient products.
* Take shorter showers.
* Use cold, rather than hot or warm, water to wash your clothes.
* Installing a solar water heater is one of the single best things you can do to save energy. Solar water heaters are efficient and can contribute more than 50% of your hot water.
* You may be eligible for a solar water heater rebate. Check with your local and Federal governments for details of other rebates.
* If you don't choose a solar water heater, use a gas one, rather than electricity. Make sure any water heater you buy has a high star rating.
* **White goods, household appliances. Your refrigerator operates continuously, and is therefore the largest energy-using appliance in most homes - often contributing 9% of energy use.**
* Keep your fridge clean and defrost regularly. Make sure it runs between 3 and 5 degrees Celsius. Don't leave the door open for long periods.
* Locate your fridge out of sunlight and in the coolest part of your house. Make sure it is away from heat sources, like ovens. It is also important the back of the fridge is well ventilated.
* Have only one fridge in your household. If you have a party fridge, turn it on the day before a party to cool drinks.
* Washing: use the clothes line to dry your clothing. Use cold water, and do full loads in your washing machine, to save on energy and water.
* If you need to replace or purchase a new appliance, make sure it's an efficient one - the more stars the more efficient it is. The [Appliance energy rating](http://www.energyrating.gov.au/) website will help you choose wisely.
* **Standby Power, or phantom loads, account for 10% of your electricity bill.**
* Many common household appliances like televisions, stereos, computers, printers, clock radios, fax machines and microwaves have standby loads. This is where they use energy even when they are not operating.
* Turn these off at the wall as much as possible to reduce unnecessary energy consumption.
* NB: One way of making sure you locate all of your standby loads is to turn off all appliances in your home, and then check your electricity meter. If it is stillshowing energy use - keep looking for phantom loads!

***\*All figures for greenhouse gas savings are estimate values for average Canadians.***