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| C:\Users\bjaco\AppData\Local\Microsoft\Windows\INetCache\Content.Word\SLS-Teaching-Toolkit-Logo_Stacked-Initials.jpg | Calculating Your Carbon Footprint |
| **Discipline:** Earth & Atmospheric Sciences; Mechanical Engineering | **Type:** Take-home assignment; In-class exercise | **Time Commitment:** 15-30 mins | **Category:** Using Data |
| **Big Ideas:** [Ecological Footprint](http://serve-learn-sustain.gatech.edu/big-idea/ecological-footprint) |
| **OVERVIEW:**This tool enables students to learn more about individual contributions to overall carbon emissions. The assignment also allows students to formulate possible strategies for reducing personal carbon emissions and share their ideas with a greater audience through social media. In addition, consider showing [this presentation](http://sls.gatech.edu/sites/default/files/documents/Toolkit-Docs/energy_and_climate_change_mitigation_lecture.pdf) on Energy and Climate Change Mitigation to help contextualize their work.This tool was contributed by Jennifer Glass. |
| **INSTRUCTIONS:** This assignment includes a take-home worksheet, in class discussion, and social media post. See below for detailed instructions.  |
| **SLS STUDENT LEARNING OUTCOMES & ASSESSMENT:**The Serve-Learn-Sustain toolkit teaching tools are designed to help students achieve not only SLS student learning outcomes (SLOs), but the unique learning outcomes for your own courses. Reflection, concept maps, rubrics, and other assessment methods are shown to improve student learning. For resources on how to assess your students’ work, please review our [Assessment Tools](http://serve-learn-sustain.gatech.edu/tool-category/assessment). **This tool achieves SLOs 1 &2 See the end of this tool for further details.**  |

**Want Help?**

Jennifer Glass is the contact for this tool. You can reach her at jennifer.glass@eas.gatech.edu

Calculating Your Carbon Footprint

This short online activity and optional social media post enables students to learn more about individual contributions to overall carbon emissions. The assignment also allows students to formulate possible strategies for reducing personal carbon emissions and share their ideas with a greater audience through social media.

1. Assign the Calculating Your Carbon Footprint Worksheet below as homework. The Worksheet asks students to use an online carbon calculator; if it is appropriate for your class/discipline, you can ask students to discover or write the analytical equations for calculating their footprints themselves. (The Worksheet would need some editing in this case.)
2. Optional: Present [this PowerPoint](http://sls.gatech.edu/sites/default/files/documents/Toolkit-Docs/energy_and_climate_change_mitigation_lecture.pdf) on Energy and Climate Change Mitigation. Feel free to edit the presentation as appropriate for your course.
3. During class, students submit the results of their worksheets, allowing the class to see the general trend in carbon emission values among their classmates. You can use various methods to aggregate their answers:
4. If the class already utilizes a clicker system, have them enter their values in-class.
5. There are several websites that allow students to answer online questions, such as [Piazza](https://piazza.com/), [TopHat](https://tophat.com/), or [Learning Catalytics](https://www.pearson.com/us/higher-education/products-services-teaching/learning-engagement-tools/learning-catalytics.html).
6. If the class doesn't or can't use the above options, students can simply submit their values with their small written assignments.
7. Based on their individual values, ask students to formulate a statement of what they can do to reduce their carbon footprint. Students can submit this statement using one of these methods:
8. Social media, such as Twitter, Instagram, or Facebook. This option spreads the message of reduced carbon emissions to a wider audience.
9. Piazza post.
10. Canvas assignment.

Calculating Your Carbon Footprint Worksheet

Calculate your carbon footprint activity using [The Carbon Calculator](http://carbonfootprint.c2es.org/%22%20%5Ct%20%22_blank). Follow the instructions below to identify the different components of your carbon footprint. Then, briefly answer the questions below. Record your results for class discussion.

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| **Row** | **Steps**  | **Results**  |
| **1** | **lbs/yr CO2 from home energy use:** Enter your zip code, household size, housing type, fuel type, and air conditioning (if any). Record the "my footprint" value shown at the top of the screen. Use residence where you reside during the school year. |  |
| **2** | **lbs/yr CO2 from driving:** Using the "add vehicle" button, enter the type and annual mileage for each car you drive (if any). Subtract the Results in Row 1 from your new "my footprint" value. Enter that number to the right.  |  |
| **3** | **lbs/yr CO2 from public transport:** Enter the number of miles you travel on each type of public transport **PER WEEK**. Add up the results from Rows 1 & 2, then subtract them from your new "my footprint" value. Enter that number to the right. |  |
| **4** | **lbs/yr CO2 from flying:** Enter the number of short, medium and long airplane flights you take each year (if any). Add up the results from Rows 1-3, and subtract them from your new "my footprint" value. Enter that number to the right  |  |
| **5** | **total lbs/yr CO2:** Record the total "my footprint" value at the top of the screen after completing all the fields. |  |

**Questions**

1. Do any of these results surprise you?
2. Where does the majority of your carbon footprint come from?
3. Play around with the values in the different categories. Identify a couple of ways that you could reduce your current carbon footprint.
4. How could your major contribute to lowering individuals’ carbon footprints? What are some things you have discussed in this particular class that could make a difference?

SLS Student Learning Outcomes

1. Identify relationships among ecological, social, and economic systems.
2. Demonstrate skills needed to work effectively in different types of communities.
3. Evaluate how decisions impact the sustainability of communities.
4. Describe how to use their discipline to make communities more sustainable.\*

\* *Note:* SLO 4 is intended to be used by upper division, project-based courses such as Capstone.