Goals of the project:
The goal of the ecological footprint project is to obtain a greater understanding of the human impact on the earth – particularly the impact of the Guilford College community. The ecological footprint concept requires an in-depth study of all resources and other materials consumed by students/faculty/staff at Guilford College and looks at the provenance and costs of creating, transporting, and processing all of these resources and materials.

Students will work in small groups, and each group will study a particular facet of Guilford's ecology. Topics might include food service, electricity and energy, purchasing, trash disposal and recycling, water use and sewage, and the campus carbon budget (see topics described below). Some of the projects will likely overlap with regard to some of the data collected and campus organizations contacted. Be aware of this, and think about sharing resources and data with other groups.

Each group will be required to produce a detailed numeric analysis of the subject they choose, which will require extensive research and communication with the relevant parts of the community. Students will present their research and recommendations in a written report and then to the Guilford community with a public presentation and a webpage presentation.

Research Guidelines:
We recommend both Internet and library research to obtain a broad understanding of the issue or activity of your focus. It will then be necessary to identify and interview campus personnel to obtain campus-relevant data. It may also be necessary to travel off campus to obtain relevant data and meet with broader members of the community. This will require a substantial amount of patience, planning, flexibility and creativity. Any environmental work requires communication and research skills, and all projects of this type will hit snags and require creative solutions.

Teamwork:
A successful project requires careful group coordination, teamwork, and a clear division of responsibilities. This project will require extensive work outside the classroom, and course instructors will meet with groups periodically to provide support and advice in this regard. Consider using roles as a way to divide tasks and ensure individual accountability, but keep in mind that all of you will need to be flexible and perform multiple tasks to help the group. You will all need to be researchers, writers, interviewers, webmasters, and facilitators, but your group may decide to let its members focus on their individual strengths.
Be aware that the direction of your project may deviate from your plans as you uncover new information and propose solutions. Individual grades will be based on your overall group written project and presentation and an assessment of your individual contribution based on feedback from group members.

**Written report and presentation:**
It will be important to clearly outline the activity or issue of your focus and explain the current literature and research on that subject. It is then critical that you present the data you have collected pertinent to Guilford College in a clear and accessible manner. Be careful in your investigation and be vigilant in your research. Create your own measures as necessary, but please base them on good science, standard practice, and sound statistical techniques. Rely on other institutions or case studies as base of comparison or as possible suggestions for reform. Cite all your sources in a detailed bibliography.

*Your written report will be graded on your content and organization.* Have you defined the issue? Have you identified the problem? Have you considered all the relevant factors? Have you collected and presented your data in a meaningful way? Have you made reasonable suggestions for reform?

*Your presentations will be graded on content and form.* Your community presentation should be professional and informative. It is expected that all group members will participate equally in the written work and the presentations. We will consider questions such as: Is your oral presentation clear and comprehensible? Do you adhere to the allotted time? How effectively did you handle audience questions and concerns? Is your webpage easy to navigate? Is the information presented in a meaningful manner?

This project will be an ongoing one -- student reports will be archived and will serve as references for future class’s footprint teams.

**Timetable for project:** The following timetable will guide students in through their projects. You will be evaluated in your final outcome as well as the process – so please pay attention to deadline dates and keep your project on track.

<table>
<thead>
<tr>
<th>Date</th>
<th>Task</th>
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<tbody>
<tr>
<td>Wednesday, February 28</td>
<td>Progress report #1 - Submit a brief outline of group roles and responsibilities and your plan of action in stages</td>
</tr>
<tr>
<td>Monday, March 19</td>
<td>Progress report #2 - Submit a report of the data collected, including a rough draft of Data and Management sections (see outline below)</td>
</tr>
<tr>
<td>Monday, March 26</td>
<td>Progress report #3 - Submit rough draft of Analysis section (see outline below)</td>
</tr>
<tr>
<td>Monday, April 2</td>
<td>Progress report #4 - Submit rough draft of project web site</td>
</tr>
<tr>
<td>Monday, April 9</td>
<td>Submit FINAL DRAFT of written report</td>
</tr>
<tr>
<td>April 9, 11, 16</td>
<td>Submit FINAL DRAFT of project web site</td>
</tr>
<tr>
<td></td>
<td>Present project to the class</td>
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**Ecological Footprint Project Topics**

### Team 1: Campus Procurement

Products purchased by Guilford College can have profound impacts on the environment during their production, use, and disposal. Your task is to uncover procurement policies at Guilford College and report their ecological footprint. How are purchasing decisions made on this campus? Does the college have procurement guidelines with regard to recycled products? Investigate Guilford College’s procurement policies and their environmental impact, including the purchase of, use, and disposal of office supplies, campus food service supplies, furniture, cleaning products, etc. To what extent can environmentally sound products be obtained locally? Explore cost differentials. How can Guilford College make their procurement policies more “green”?

### Team 2: Campus Food

The production, use, and disposal of food products is a considerable issue on college campuses. Your task is to uncover campus food polices at Guilford College and report their ecological footprint. Who operates our campus food services? Who is responsible for making food purchasing decisions and identifying food vendors on our campus? Investigate Guilford College’s campus food policies, including purchase of, use, and disposal of food in the cafeteria, student dorms, and student apartments. To what extent can environmentally sound products be obtained locally? Explore cost differentials. How can Guilford College make their campus food policies more “green”?

### Team 3: Recycling in Residential Life

Recycling in student residential building can contribute in a significant reduction in solid waste ending up at our local landfill. Your task is to uncover recycling the residential life at Guilford College and report their ecological footprint. How much solid waste does Guilford College generate? What are the college procedures to manage waste and recycling? Where does campus garbage go? Investigate Guilford College’s residential life recycling program, including it history, administration, success, etc. To what extent can environmentally sound products be obtained locally? Explore cost differentials. How can Guilford College make their residential life recycling program more “green”?

### Team 4: Recycling Paper

Paper use is a significant factor on college campuses. Your task is to uncover recycling paper policies at Guilford College and report their ecological footprint. How much paper is used on our campus? What are the college’s procedures concerning paper purchases and disposal? Investigate Guilford College’s paper recycling policies, including photocopying, printing, publications, purchases, disposal, etc. To what extent can environmentally sound products be obtained locally? Explore cost differentials. How can Guilford College make their recycling paper program more “green”?
Team 5: Energy

Guilford uses energy in many ways, from powering lights and computers to heating and cooling buildings to fueling vehicles. Your task is to create a comprehensive analysis and accounting of how Guilford uses energy. How do we get our electricity and from what sources (hydroelectric, gas, coal, nuclear, solar, wind)? How do we heat and air condition our buildings? How efficient are our machines and our buildings? How does our power use compare to our community? To our nation? What vehicles does the campus maintain and rent, and how much fuel do they use? You should also explore how we might become more efficient and sustainable (e.g. the solar panels on Alumni Gym). What are the costs associated with these changes? How can Guilford College make their energy consumption more “green”?

Team 6: Grounds

Land use is a primary factor (often THE primary factor) in most environmental issues and disputes. Your task is to explore what land Guilford owns and how Guilford manages that land. You will make a comprehensive study of the campus and create a map showing land use classifications (e.g. pavement, buildings, mowed grass, unmowed meadow, forest). You should also explore the long-term plans for development and new projects on campus (e.g. new fitness center proposals, uses for meadows that are under consideration) and assess the environmental and human impact of these projects. You will also make a detailed analysis of our land stewardship, answering questions such as: How much fertilizer and pesticide do we use? What do we plant, and how do we maintain that planting? How can Guilford College make their land management more "green"?

Team 7: Water

Water is absolutely essential to life. Polluted or impure drinking water is one of the most serious public health and environmental problems worldwide. Consumption of water in North America has grown exponentially this century. Your task is to provide a detailed measurement and analysis of how Guilford uses water. Explore and quantify all the various ways in which students and the institution uses water (drinking, showers, laundry, toilets, cleaning, food preparation, landscaping/irrigation). Where does our water come from, locally and regionally, and how is Guilford and Greensboro planning for future consumption? How do Guilford's per capita consumption and categories of use compare to the Greensboro community, North Carolina, the United States, and the world. You should look for historical data and measure changes in Guilford water use over time. How safe is Greensboro's water supply? How safe is the water coming from Guilford's taps? What changes could Guilford make to reduce water consumption? What are the costs and benefits of these changes? How can Guilford College make their water consumption more "green"?
Team 8: Transportation

Transportation is a vital part of life in 21st century America. Most of our modes of transport involve burning fossil fuels, and many lead to air and noise pollution. Your task is to analyze and quantify how Guilford satisfies its need for transportation, both as an institution and as individual community members. How many students own cars? How many faculty? How many miles do they drive in a week? What is the fuel economy of their cars? What other methods of transport do they employ? How many flights per year do they take, and how many miles do they fly? How does this compare to local and national averages? How does Guilford handle mass transport and institutional vehicles for field trips, athletic events, and other college business? How many deliveries and shipments does Guilford accept or produce, and how are those paid for and managed? How much CO₂ and other gases do Guilford's transportation activities produce? What alternate methods of transportation (e.g. carpooling, high-speed rail, ultra-high fuel efficiency cars, fuel cells, electric/hybrid cars) would students or the institution be willing to pay for and use? What improvements in mass transit and support for alternate transport methods (e.g. bike trails, walking paths, etc.) should Greensboro implement? How likely are these policies to be implemented? How can Guilford College make their transportation systems more "green"?

Team 9: Personal Consumption

Personal consumption is the fundamental engine that drives most environmental problems, either directly or indirectly. Your task is to analyze and quantify the use of consumer goods and services by Guilford students, faculty, and staff. You should include in your analysis non-Marriott food and snacks, personal products, household products, school materials, and consumer goods such as stereos, computers, and cars. For disposable goods like food and toiletries, you should pay special attention to the packaging of these materials. What is the weight of packaging relative to the weight of product? How long is the packaging used after purchase of the item? How much of the packaging is recyclable? How much of the product is wasted or not used? For products that use power, how much power is used, and how much of the day is the product in use? What controls student purchasing - price, recyclable packaging, environmentally friendly products? You should also study the Subway restaurant on campus, campus vending machines, and other food deliveries to campus (e.g. pizza). How are these items packaged? How are they prepared? How far have they been shipped? Finally, consider how the Guilford community might change consumption habits to become more environmentally responsible. How can Guilford College make their personal consumption more "green"?
General Project Outline - Include these baseline components in your study. Your particular topic will require other analysis and data unique to your area, but this outline can serve as a starting point.

Introduction -

♦ Why is this type of consumption central to in the ecological footprint of Guilford?
♦ How is this type of consumption normally studied?
♦ Give examples of such studies from the published literature
♦ Are there any historical data, records or studies from Guilford?

Data and Research -

♦ What are the resources being used?
♦ What is the value of these resources?
♦ What is the cost of these resources?
♦ What is the benefit to Guilford of using these resources?
♦ How efficiently are the resources being used?
♦ Where do the materials/resources come from?
♦ What is the cost of getting them to campus and distributing them on campus?

➤ You must include an analysis of the impact of your study area on the global carbon dioxide budget

Management -

♦ Who decides which resources are acquired and how they are used?
♦ How are decisions made on the resources in question?
♦ What oversight/reporting is there of this process?
♦ How could this process be changed?

Analysis and Conclusions -

♦ What are the alternatives to these resources?
♦ What changes do you propose in this area of the College?
♦ What are the costs and benefits of these changes?

Required Components:

♦ Progress reports as scheduled (one per group)
♦ Final written paper (one per group; minimum 5-7 pages of double-spaced typed text plus numerous tables and charts)
♦ Community presentation (as a group; 20 minutes; include visual elements)
♦ Project web site (one per group; should include a summary of the project and be well organized, visually appealing, and full of information)