

## Impact of the Piedmont Project

Lance A. Waller, Professor  
Department of Biostatistics, Rollins School of Public Health,  
Emory University

I participated in the 2005 Piedmont Project in order to revitalize my course on Geographic Information Systems (INFO 530), taught to Master's of Public Health students from departments throughout the Rollins School of Public Health, including majors in Environmental and Occupational Health, and the relatively new Master's of Global Environmental Health Program. I have taught the course several times before and hoped to further infuse ideas of sustainable development and environmental insight into the course. The input I received from the Piedmont Project Workshops helped move me forward in this goal by providing both a common theme of sustainability and specific information regarding the local environment of Emory. I am adding materials relating to sustainability to course lectures, raising broader questions in laboratory exercises, and linking exercises to provide a more interconnected and focused presentation of what had previously been a collection of loosely-connected topics. In addition, I am adding a hands-on laboratory exercise to the course involving the use of global positioning system (GPS) receivers wherein students will be required to obtain latitude and longitude coordinates for a series of specific locations around campus. Based on workshop discussions, I have strategically chosen locations that highlight both the environment around Emory and also Emory's place within that environment. By sending students out of the classroom and into Lullwater and Hahn Woods, they bring course topics to the physical environment and, as a result, bring insight from the physical environment back to the course topics.

## INFO 530 GIS and Public Health

### Lab 3 Fall 2005

#### GPS Units

**GOALS:** Use a handheld global positioning system (GPS) unit to obtain latitude and longitude for various landmarks around campus and plot these on a map using ArcView 9.1.

**KEY CONCEPTS:** Collecting GPS location data and putting it into a shapefile of point locations and trails.

#### LINKS TO LECTURE:

1. Satellites can provide location information.
2. ArcView can include GPS information.

**TEAM WORK:** Each student will be assigned to a team. Each team will be given a single GPS unit (Garmin eTrex Legend). *Your team is responsible for this unit until you return it to me.* (Replacement cost: approximately \$150). Each team member should collect data for some of the landmarks, but landmarks can be split among team members. Once all locations are stored in the unit, team members should download the information into a shapefile using the Minnesota Department of Natural Resources script for downloading Garmin data into shapefile formats.

**WHAT TO TURN IN:** Each team member should email a 1-2 page report addressing the following questions:

1. What was the hardest part of the exercise?
2. Which landmark was geolocated with the greatest accuracy? And which with the least accuracy? Why? (Give the accuracies stored by the unit).
3. Include a map showing your landmark locations. Include traces around the lake in Lullwater and the path in Hahn Woods. Add buffers corresponding to the accuracy reported by the unit to each landmark.
4. Email a shapefile containing your landmark locations. I will post these on the class data drive.
5. Download the locations via shapefiles from at least 3 other teams and add these to your map. Comment on any discrepancies.
6. Using the GPS unit see if you can identify the latitude and longitude of the middle of the roof of the Grace Crum Rollins Building without actually going up there. Have your team discuss this, agree on an approach, and try it out. Describe your approach, give the measurements you take, and give your approximation.

### **LANDMARKS TO GEOLOCATE:**

1. The flowerbed behind the Grace Crum Rollins Building.
2. The “Do Not Cross the Street Here” sign in front of the Grace Crum Rollins Building along Clifton Road.
3. Each of the skylights between the Grace Crum Rollins Building and the Medical Library.
4. The middle of the pedestrian bridge over the railroad tracks.
5. The Emory Clock Tower.
6. The statue of Robert Woodruff outside of the Woodruff Library.
7. The flagpole in the middle of the Quadrangle.
8. Just outside of the door to the Carlos Museum (be sure to record altitude).
9. The landing at the top of the outside stairs over the entrance to the Carlos Museum (be sure to record altitude).
10. The “Gravity Monument” behind the Math and Science Building.
11. The gate to Lullwater Park.
12. An approximation to the coastline of the lake in Lullwater Park.
13. The location of someone on your team’s favorite location in Lullwater Park.
14. The middle of the pedestrian bridge over Houston Mill Road, near the Alumni Center.
15. The millstone fountain in front of the Houston Mill House.
16. The parking lot at Hahn Woods.
17. A trace of the trail through Hahn Woods.
18. Each person on the team needs to record the location of her/his favorite place on campus.

### **OPERATING THE GARMIN eTREX GPS UNITS:**

1. Turn on the unit.