

CSci 350 Assignment 2

Due Tuesday Febr 10th **before class**

The goal of this assignment is to implement a **multiply** operation on a grid dataset. Your program will read the input grid from file, print out basic information about the grid, multiply the elevations by a given constant, and write the resulting grid to a file. Your program should be invoked as follows:

```
>mult maine.asc maine-5.asc 5
```

The arguments, in order, are:

1. the name of the input grid dataset
2. the name of the output (rescaled) grid dataset
3. the rescale factor

The input and output datasets are assumed to be in the current directory (you do not need to worry about paths). If your program correctly handles arbitrary path names you will get extra credit. When invoked with a wrong number of arguments your program should display a help message just like a standard unix command:

```
> mult set1.asc
usage: mult  in-grid out-grid rescale-factor
```

Your program should correctly handle the situations when the input file does not exist and other common error scenarios. Your code should include four functions (at least), one to read the grid from a file into an array, one to print info about a grid, one to write the grid from an array to a file, and one to do the actual rescaling. You should design the interface of your code carefully since you will be using it for the next projects. For instance, you may want to define a grid structure to hold all the information about a grid dataset (name, dimensions, data).

To test your program use the grid datasets in `ltoma/geodata/DEM/`. They are in **arcascii** format. You will be able to figure out what it is, but you can always **google** for help. Note the **NODATA** value. Your program should not multiply **NODATA** values. Some of the datasets are big, so to save space, do not copy them in your directory, but link them. (`>ln -s ltoma/geodata/DEM/hawaii.asc .`).

To submit your code, make a tar file and email it to me by the due date (`>man tar`).