Freestyle project: a ballistics calculator for small arms.

There are many factors that may affect a bullets flight through air such as the caliber, bullet grain, muzzle velocity, air density, the bullets drag coefficient, and, of course, wind. Before starting this project I knew all of these things effected the bullets path, but I didn’t know how exactly they impacted them. I enjoyed this project because I was able to see the force equations behind the bullets path and learn how the variable interacted with each other. I had to use the force equation I found on the internet to find an equation for the velocity. Once I found the velocity equation I derived it by hand to find the distance equation. If I were to do the project again I would have integrated using matlab, but at the time I did the project my matlab skills were not advanced enough to solve that tricky integration. As far as the actual coding goes, this was the first complex problem that I solved using matlab and it took me the several weeks to slowly refine the project until it was accurate and ran smoothly. Along with expanding my matlab skills, I realized how much time and effort can go into coding a seemingly simple task. If nothing else, it made me appreciate the virtual world we now rely on so much for so many different things. Every time I use program, app, website, or even a calculator my head starts to spin thinking about all of the time and energy that when in to those projects.

Data management: estimation of Florida deer population

I surprised myself with this project, because I didn’t think I was going to be able to create a project out of just a few columns of data. Although there was some data related to deer population, there wasn’t as much as what was used in some of my classmates projects. Nonetheless, I used me smarts to redefine the project to better fit my data. Instead of just analyzing the data, I created new columns by estimating deer population based on the increase in percent yield. By doing this, I learned how to use while loops to run a function over and over again and sequentially replace empty cells with estimated data. These while loops made up the bulk of my project as I calculated values and replaced empty cells. Before this project I had not used any of these skills as well as imported data or made my own data table. This project forced me to become familiar with skills that I was initially not thrilled about learning. Despite my initial reservations about this project, I ended up finding it interesting and feeling satisfied with my results. When I finally graphed some of my results including the estimated percent of the heard cultivated per year, I noticed that the line made a flat 18% for almost every year. It surprised me that the FWC were able to manage the heard so well. I always assumed that they were making rough estimates instead of precisely managing the heard. After this project, I have a new found appreciation for the FWC.

Homework problems

With the homework problems I think the most important lesson I learned here was the power of the internet. You can pretty much learn anything from the internet and coding matlab is one of them. More often than not, I had to search the web for specific functions and taught myself tricks of the matlab trade. For almost any question I had, somebody had asked it before me. And after spending a lot of time bumbling my way through forum after forum of fancy matlab jargon, I began to find what I needed much master. Although learning how to google more efficiently is a good skill, so is learning how to struggle and code. Even with the help of the web, I did my fair share of struggling while I muddled through these homework problems. After I would find the particular function that I needed for a set of problems, I often found myself being hung up on small errors in my code. This was good for me because it forced me to slow down and go through a methodical process to find the errors. I also exercised a lot of patience while learning this new skill. I think all of these skills will help me to learn on my own in college when I find myself confused in a large lecture setting and needing to do some independent learning to better understand material.