## sdmay19-37: Are Cross Country Courses Avoiding Hills?

# Report 9
April 14th - April 20th

### Team Members
Connor Smith  — *Ground Truth Engineer*
Thomas Chambers  — *Ground Truth Engineer*
Ryan Hilby  — *Data Handling Engineer*
Jacob Feldman  — *Data Handling Engineer*
David Kirshenbaum  — *Data Analysis Engineer*
Andrew Mumm  — *Data Analysis Engineer*

### Summary of Progress this Report
This past week was one that the team has been looking forward to for quite some time; we were finally able to test the overarching hypothesis of our project (that XC courses are getting less hilly). This milestone was reached thanks to Jacob's efforts at uploading the counties containing the courses that Connor and Thomas had selected for evaluation previously. The team traced 30 different courses and evaluated them using our energy cost computation, using the results to compute our final difficulty rating equation and officially finish the implementation of our design plan. After conducting t-statistic hypothesis testing on the courses we had before/after maps for, we were not able to affirm our project hypothesis. While this was a slightly underwhelming result, the software team was able to improve the UI of the website in the meantime, so we're all content with where we stand.

### Pending Issues
There are no pending obstacles to demoing our project - we consider ourselves finished with project work and are now turning our attention to preparing for the final presentation.

### Past Week Accomplishments
- Connor
    - Traced Story & Johnson County courses
    - Calibrated rating equation with all new surveyed course data
    - Conducted statistical hypothesis testing to determine project conclusions
- Thomas
    - Organized and traced courses, collected data, worked on poster.
- Ryan
    - Trace Polk, Black Hawk, and Marion County courses
    - Searched for new courses to trace
    - Worked on poster
- Jacob
    - Uploaded 5 more counties and helped Andrew fix our timeout issue.
- David
    - Updated drawing tool UI
- Andrew

- ○ Updated the backend and improved the UI.

## Plans for Upcoming Reporting Period
- Connor
  - ○ Test additional courses from NW Iowa
  - ○ Assemble final report
- Thomas
  - ○ Final materials, preparing for final report.
- Ryan
  - ○ Work on final report
- Jacob
  - ○ Document code and work on final paperwork
- David
  - ○ Help with final report and presentation. Also, do something about the erase feature on drawing tool.
- Andrew
  - ○ Documentation and final polishing of the site.

## Individual Contributions

| Team Member | Contribution | Weekly Hours | Total Hours |
|---|---|---|---|
| Connor Smith | Course tracing, rating calibration, and statistical analysis | 8 | 54 |
| Thomas Chambers | Course tracing and data collection | 6 | 40 |
| Ryan Hilby | Course tracing | 6 | 38 |
| Jacob Feldman | uploaded more counties and helped fix timeout issue | 8 | 78 |
| David Kirshenbaum | Website stuff | 4 | 52 |
| Andrew Mumm | Researched a solution to the backend issue and implemented the fix with Jacob. Made improvements to the UI of the website that will help with the user experience overall. | 12 | 81 |