

COSC150: Laboratory 3 (28 September 2021)

Collaborative, Guided Discovery

What makes a “wildfire” wild?

Emphasizing the EXPECTATION, OBSERVATION, REFLECTION cycle of scientific investigations, we will work together to divide a very large amount of work among all of us, but only after generating evidence that we can trust each other enough for each to do their share of the work. We will revisit the concepts of AVERAGE, VARIANCE, STANDARD DEVIATION, and STANDARD ERROR in the process. We will also compare multiple representations (tabular, graphical, and functional).

I. Introduction and Background

The Charleston Fire: <http://www.firerescuemagazine.com/articles/print/volume-6/issue-11/technology/using-fire-models-to-understand-fire-behavior.html>

Percolation (First Paragraph only):

<http://www1.coe.neu.edu/~emelas/apps.htm>

Fire Modeling (abstract only):

https://www.researchgate.net/publication/228925788_Fire_modeling_in_forest_fire_management

II. Simplified Forest Fire Modeling

To understand basic forest fires, the experts at Clemson tell us there are two simple rules:

1. Fires spread in the simplest models to NEAREST NEIGHBORS only.
2. As the burning probability increases, the percent of the forest burned should also increase.

These are the relevant links:

<http://www.shodor.org/interactivate/activities/fire1> (the simplest fire model)

<http://www.shodor.org/interactivate/activities/SimplePlot> (a simple, comparative graphing tool)

<http://www.shodor.org/interactivate/activities/MultiFunctionDataFly> (data and functions tool)

<http://www.tinyurl.com/COSC150SharedFire> (google Sheet file to collect class data)

Your individual write up of today’s explorations should be simplified but more complete, using the Expectation, Observation, Reflection cycle as your guide.