**NEON PDSI**

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**Course Information**

Department: Biology

Level: for both **Lower & Upper Undergraduates**

Course type: **Lecture**

Students: **Biology & Health Sciences Majors**

Number of Students: 7

**Focus:** Users manipulate and interpret historical drought data. Along the way, they will review / interpret metadata and data headers, subset data on dates, screen data for missing values, understand how missing data are coded, and separate them from meaningful data values. Users also plot data over time.

**Overview:** This lesson will lead students through working with a portion of a data set that is collected by the National Climatic Data Center at a system of monitoring locations across the US. The data include drought indices that represent a biologically relevant and important ecological variable. Upon completion of the lesson, students will be prepared to design their own data exploration projects, which involve obtaining data from a source online (typically from a repository) and asking their own questions of the data.

**Learning objectives:** Specifically, students will:

• Review / interpret metadata and data headers

• Screen data for missing values, understand how they’re coded, and separate them from meaningful data values

• Plot data over time

• Interpret the data and form new questions for future analyses

**Lesson sequence:**

1. Consult metadata to interpret the data file
2. Convert dates
3. Plot data (with NA values)
4. Screen data
5. Replot data (w/ NA values cleared)

**Implementation notes:** The intention of this lesson was to get students familiar with manipulating and visualizing ecological data that is new to them. I also wanted them to see that this data repository would be a good source of data for developing independent data analysis projects.