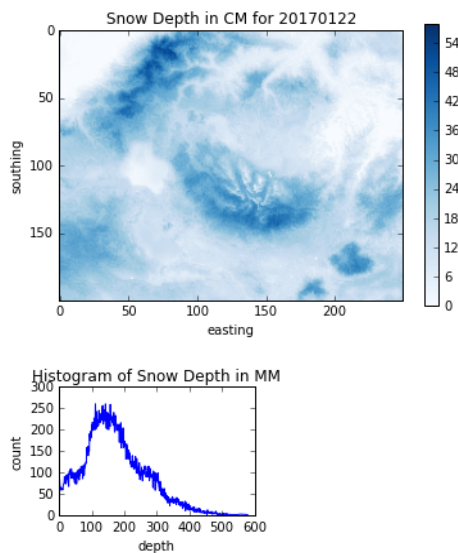


# Advanced GIS: Python Programming and Geospatial Analysis

## Geog 4/591 - Winter 2017

```
In [8]: ### now make a function to open the snowdepth for the date, filter no data values, a  
### draws a plot of the snow depth, and a histogram of depth values  
def readsnow(dat_date):  
    newtif = gdal.Open('us_ssmv11034tS__T0001TTNATS{}05HP001.tif'.format(dat_date))  
    print('us_ssmv11034tS__T0001TTNATS{}05HP001.tif'.format(dat_date))  
  
    tifArray = newtif.ReadAsArray()  
    newMasked = np.ma.masked_where(tifArray == -9999, tifArray)
```

Out[8]: 20170122



### Course Description and Learning Outcomes

This class introduces students to the automation of geospatial data collection, analysis, and presentation through the use of programming languages and graphic modeling. These tools have become key components of modern geographic analysis and data management, and provide a powerful means to collect and analyze geographic information. The “Python” scripting language, an open-source tool commonly used for data science tasks, is used in the class.

***No prior programming experience is required.***

Class lectures are held in 41 Library, an ‘active learning’ classroom designed for small group work. Students are encouraged to load Python onto their own computers and bring these to class for exercises during lecture. Lab sessions are held in SSIL, and focus on applied use of Python and ArcGIS for spatial data management and analysis.

In the class students will: gain experience writing Python scripts (to download, create, interact with and analyse geospatial data in ArcGIS and other software packages); understand the basic concepts behind object-oriented scripting and computing languages; and be able to create graphic models and custom tools for spatial analysis projects.

**Instructor:** Dr. Nick Kohler; [nicholas@uoregon.edu](mailto:nicholas@uoregon.edu)

**Office Hours:** TBA, or by appointment

**Lecture:** MW 9 -9:50am in 41 Library (Knight Library - Proctor Room)

**Lab:** M or W 1-2:50 in 442 McKenzie (SSIL Large Lab)

### Class Website

Lecture notes, class handouts and information, and grades will be available through the Canvas system located on the web at "[canvas.uoregon.edu](https://canvas.uoregon.edu)".