**EAS 150: Introduction to Geology**

**Lab 2 – Topographic Maps**

Instructor Notes:

This is the second in a sequence of 12-13 lab exercises completed over the entire semester. The course generally meets every MWF for lecture and then labs are split up on Tuesdays and Thursdays. This lab was originally designed by Dr. David Kendrick at Hobart and William Smith Colleges in Geneva, NY. It has been adapted to include the regional geology local to western Pennsylvania but also to represent the differences from one area to the next. It lends itself to modification in this manner, and also based on what an institution has available. The main purpose of the lab is to introduce the ideas of (1) contour lines and (2) different types of topography and topographic maps.

In setting up this lab, I provide each “table” with a set of topo maps and rulers. Students should be encouraged to use pencil for the exercise. It is fairly common to have students try to do the contouring in ink so I suggest having backup maps on hand. I generally spend a fair amount of time at the beginning of lab introducing contouring and interpolation. Some students will have done this before and finish their map in less than 10 minutes. Others will struggle mightily. The most important things to remind them are the “Topo Rules” regarding lines that are crossing, ending, etc. The other problem I often encounter are students that contour based on the numbers they see or making a contour line for EVERY number. In other words, students see a 12 and think they need to have a 12 m contour line; or they make a contour line for 10, 11, 12, 13 m, etc. This map is best completed using 5 m contour lines.

For the second part of the lab, using real USGS topo maps, this attached assignment includes only two examples. In my own class, I may use three or four different maps. It really depends on the amount of time you have. Our lab periods are 1:45 in length. The first map, for which no name is given, is accompanied by more general questions which could be applied to any topo map. The second map shows some more specific questions that could be used. I like to include questions that demonstrate to the students that they probably already have a sense for what the topo map is telling them. For example, the question about the ski hill’s steepness is hardly ever answered incorrectly because they recognize immediately that one side is MUCH steeper than the other.