Applied Geomorphology
Laboratory 1: Pace Count & Closed Traverse

Problem 1: The class will meet outside the Life Sciences building near the parking lot for orientation. You will determine your pace count (feet per stride) in this lab, along with statistics on accuracy. Next to the LSCB will be several stakes/flags set at 200 feet apart. Using these stakes measure the number of paces between the stakes 20 times. Use the below table to record the data. After recording the data use the worksheet to calculate:

1. Average (mean) pace count (feet/pace)
2. Standard deviation of pace count
3. Percent standard error of pace count

Problem 2: Marked on the property east of the LSCB are 8-9 stations consisting of painted trees (White or Yellow). Using a pocket transit you should locate each station with a closed traverse by pacing the distance between each station and measuring the azimuth direction as you walk from one station to the next. Make a map of the closed traverse at a scale of 1 inch = 100 feet on 8.5 x 11 inch graph paper. Plot the original course as a solid line, and the error-adjusted closed traverse as a dashed line on a single page. Use the error adjustment technique described in lecture. Include a north arrow and a scale on your map.

Applied Geomorphology
Laboratory 1: Pace Count & Closed Traverse
Pace Count Data Sheet

Column 1: Trial	Column 2: # Paces for trial	Column 3: Distance (feet)	Column 4: Pace Count $_i$ (feet/pace)	Column 5: Deviation^2 = (Pace Count $_i$ - Average)^2
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
			∑=	∑=

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Average (mean) Pace Count Calculation (feet/pace):

$$Pace\ Count_{Avg} = \frac{\sum_{i=1}^{N} Pace\ Count_i}{N} = \_\_\_\_\_$$

Standard Deviation Calculation:

$$\text{Pace Count Stnd. Dev.} = \sqrt{\frac{\sum_{i=1}^{N}(Pace\ Count_i - Pace\ Count_{Avg})^2}{(N-1)}} = \_\_\_\_\_$$

Percent Standard Error Calculation:

$$\frac{\text{2 x Pace Count Standard Deviation}}{\text{Pace Count Average}} \times 100 = \_\_\_\_\_ \%$$

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Traverse Data Sheet

Station	to Station	Paces	Distance	Azimuth/ Bearing	Notes