Photoelectric Effect and Measurement of Planck's Constant Report

1) Write the conservation of energy equation governing the interaction of a photon of energy *hf* liberating an electron of energy *Ee* in a metal of work function *W*.

2) Write the equation governing the stopping voltage *Vs* for the most energetic electrons.

3) Identify the slope and intercept the of a frequency vs voltage graph (y vs x).

Slope = Inetercept =

3) Record your stopping voltages and frequencies in the table.

FiLTER	**Frequency (Hz)**	**V_S(Volts)**
RED		
GREEN		
BLUE		

4) What slope and intercept did you measure?

Slope = _____ +/-_____

Intercept = _____ +/-_____

5) What value for Planck's constant and associated error did you measure? Find the percent difference between your measurement and the accepted value.

h (eV-sec)= _____ +/-_____

6) What value for the work function W did you measure (eV) and associated error did you measure? What metal might the photocathode be?

W(eV) = _____ +/-_____

Metal = _____