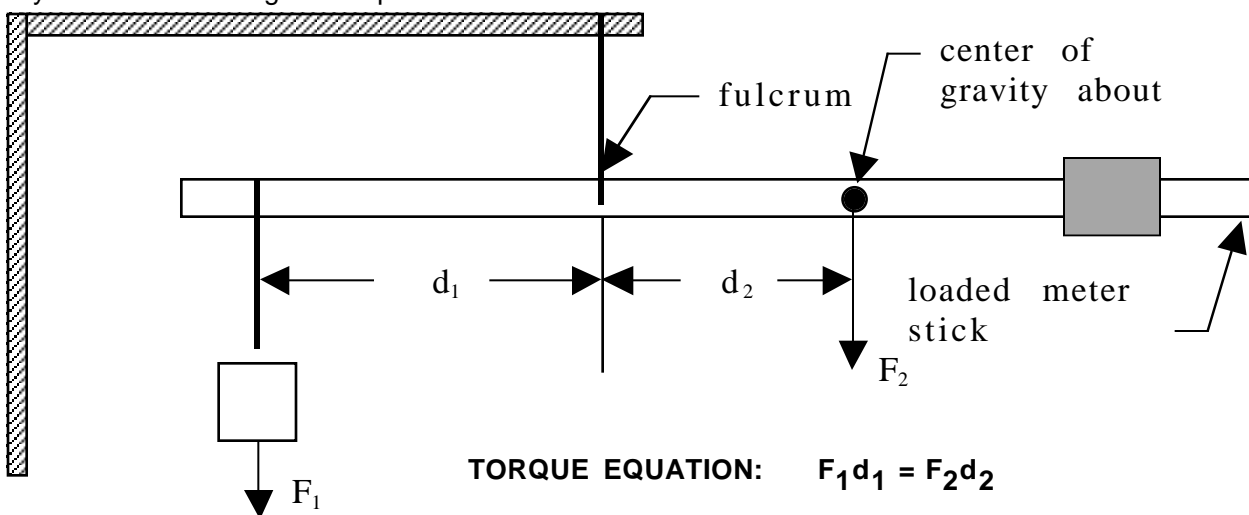


PHYSICS
LAB: EQUILIBRIUM, TORQUE AND CENTER OF GRAVITY

Procedure:

The figure and torque equation below, and the pre-lab discussion in class, are necessary references for your understanding of the procedure.



NOTE: SHOW ALL CENTIMETER MEASUREMENTS AND CALCULATIONS BELOW TO NEAREST TENTH OF A CENTIMETER (NEAREST 0.1 cm). RECORD NEWTONS TO NEAREST HUNDREDTH OF A NEWTON (0.01 N).

1. Weigh the loaded meter stick. Record in space in table provided.
2. Suspend the meter stick, and hang a known weight, F_1 (use 1 or 2 N), at a random point near the unloaded end.
3. Slide the fulcrum along the stick until the stick balances.
4. Record Value of F_1 , Position of F_1 , and Position of Fulcrum for Trial 1 in the table provided.
5. Use simple subtraction to calculate d_1 (Distance from F_1 to Fulcrum) for Trial 1. Record in table.
6. Use the torque equation to calculate d_2 (Distance from Center of Gravity to Fulcrum) for Trial 1. Record in table.
7. Use simple addition to calculate Position of Center of Gravity for Trial 1. Record in table.
8. Repeat steps 1-7 for a different position of the same load, or a different load entirely. Record data and calculations as Trial 2.
9. Repeat steps 1-7 for still another location and/or value of the load, and record data and calculations as Trial 3.
10. Find the average calculated position of the center of gravity for the three trials, and record. Use this average value when finding the % Error.
11. Determine the actual center of gravity of the meter stick by balancing it directly. Record in space provided in table. Use this value when finding the % Error.