

Week 7: Static Equilibrium

In this lab experiment, you will have the chance to set up a teeter-totter in static equilibrium and investigate the forces and torques acting on it. Start by balancing the meter stick on the fulcrum.

1. Balance the meter stick on the fulcrum. Once the meter stick is balanced by itself, do not change the position of the clamp for parts 1. And 2.!
Attach two different weights to the meter stick, one on each side, such that the whole construction is balanced. Put your results for the weights and the distances from the fulcrum on the board.
2. Balance the meter stick by attaching one weight to one side and two weights to the other side, and put your results again on the board. From all the results on the board, can you determine what the “law of balancing” is?
3. Balance the meter stick by a single weight of 100g (including hanger). Write your result on the board. Is the “law of balancing” still valid?
4. Consider the “floating meter stick” that is set up on the instructor’s desk. Compute the net force acting on the bridge, and the net torque about one particular point. Is the condition for static equilibrium fulfilled?