# Determine soil dry weight and water content gravimetrically

## Authorship

Nick Youngblut (2015)

## References

* [cfr.washington.edu protocol](http://www.cfr.washington.edu/classes.esrm.410/moisture.htm)
* [Berkley protocol](http://nature.berkeley.edu/soilmicro/methods/Soil%20moisture%20content.pdf)

## Supplies

* Soil samples (sieved)
* Weigh boats
* A milligram-scale

## Method

* Write unique labels on each weigh boat.
  + 1 weigh boat needed per measurement.
* Weigh each weigh boat and write the weight on the boat.
  + This is needed to determine the dry weight.
* Place a pre-weighed weigh boat on the scale and tare (zero the scale).
* Place 10 g of soil on the weigh boat.
  + It doesn't have to be exactly 10.0 g of soil, just **MAKE SURE:** to record the exact weight of the soil
    - measurement = "soil wet weight"
* Repeat weighings for all soil samples
* Dry soil samples in a drying oven for ~24 hrs.
* Re-weigh the samples (soil + weigh boat).
* Place the soils back in the drying oven for a few hours, then re-weigh.
  + Make sure that weight is stable.
* Subtract out the weight of the weigh boat
  + Resulting value = "soil dry weight"
* Water\_content\_(g) = soil\_wet\_weight\_(g) - soil\_dry\_weight\_(g)
* Water\_content\_(%) = water\_content\_(g) / soil\_wet\_weight
  + % as wet-weight basis; range is 0-100%