

ES106 Lab Quiz 1 Study Guide
(Lab 1 Properties of Water, Lab 2 Heat and Temperature, Lab 3 Intro to Oceans, Lab 4 Seafloor)

RECOMMENDED STUDY TECHNIQUES

- 1) Use lab manual, text book and internet resources to define key terms below
- 2) use the concepts below as a guide to help you focus on key terms
- 3) memorize terms and concepts (make flash cards, rewrite definitions 100 times, etc.)
- 4) go back over the labs and make sure you can do the math tricks / skills
- 5) review some of the important figures in your lab manual and text
- 6) review your lab questions and answer sheets
- 7) Visit the ES106 Lab Resources Section of class web site, review Youtube instructional videos, go over answer keys to labs and problem sets
- 8) study until you're sick of it, then study some more until you pass out
- 9) drink plenty of water; **STUDY A MINIMUM OF 2-3 HOURS to ensure success...**

Key Concepts and Problem Solving Skills

Can you convert from English to metric system units?

Can you do unit algebra?

Do you know the difference between mass, volume, length, time, velocity, density?

Can you re-arrange an equation to solve for the unknown variable?

Can you calculate concentrations in mass percent, ppt

Can you explain all of the processes involved with the phase change of water from solid to liquid to gas?

Can you sketch the water molecule and explain the chemical bonding involved?

Do you know the types of heat transfer mechanisms?

Can you list 4 or 5 unique properties of water?

Do you know the basic composition of seawater?

Can you list the 4 most abundant ions contained in seawater?

do you know the approximate concentration of salts in the ocean?

Do you know the mechanisms by which ocean currents are formed?

Can you determine the depth to the seafloor if given the velocity of sound and travel time?

Can you draw a profile sketch of the seafloor from on the continent to offshore in the abyssal plain?

Can you draw a sketch of a mid-ocean ridge?

Do you understand magnetic reversals and seafloor stripes?

Key Words

Lab 1 Water

Density
Dipolar Molecule
Surface Tension
Specific Heat
Temperature
Fahrenheit
Celsius
Unit conversion
Unit algebra
pH-acid-base
solid-liquid-gas
dissolution
evaporation
boiling
condensation
scientific notation
metric system
metric unit conversion
hydrogen bonds
polar covalent bonds

Lab 2 Heat & Temperature

Temperature
Heat
Thermal Energy
Conduction
Convection
Radiation
heat gain
heat loss
Celsius
Fahrenheit
Kelvin
degree F
degree C
degree K
Phase Changes
Solid-Liquid-Gas
Melting
Evaporation
Condensation

Boiling
Absolute "0"
Absorption
Reflection
Heat conductor
Density-mass-volume
Gram – cubic cm
Density calculation
Unit algebra
Thermal expansion
Heat of vaporation
heat - volume expansion
cooling-volume contraction
volume-density relationships

Lab 3 Intro to Oceans

Salinity
Thermohaline circulation
Density currents
Latitude
Longitude
%
o/oo
pph vs. ppt
concentration
solute
solvent
oceans-seas-bays
land area vs. ocean area
global ocean geography
percent land cover
NaCl sodium chloride
Ocean temperature
Rising water
Sinking water
Cold + High Saline = sink
Warm + Low Saline = rise
Ocean circulation
Temperature-Density Relations
Salinity-Density Relations
Ocean conveyor belt
Polar vs. tropical vs. subtropical
Equatorial

Lab 4 Dynamic Ocean Floor

lithosphere
inner core
outer core
mantle
crust
plate tectonics
seafloor
seafloor volcanism
seafloor basalt
seafloor spreading
ocean crust
mid-ocean ridge system
divergent plate boundary
paleomagnetism
magnetic anomalies
normal polarity
reverse polarity
seafloor stripes
deep ocean trench
magnetic reversals
magnetic minerals
bathymetry
continental shelf
continental slope
continental rise
abyssal plain
seamount
deep sea canyons
submarine fans
hydrothermal vent
hotspot tracks
pillow lavas
guoyots
passive margins
active margins
plate spreading rates
map scale
fractional scale
bar scale
unit conversions
unit algebra
longitude-latitude
geologic time "M.Y."