G202 Quiz 2 Study Guide

Recommended Study Techniques

(1) go over pre-lab questions / study them
(2) review the "How to Study" sheet handed out at beginning of term
(3) use the concepts below as a guide to help you focus on your notes
(4) memorize terms and concepts
(5) go over your on-line homework questions / answers, make sure you know the answers
(6) go back over the labs and make sure you can do the tricks / skills
(7) review some of the important figures in your lab manual and text
(8) go to the lab and look at the lab answer keys, minerals and rocks, work with the samples in lab
(9) review the techniques for working with maps / air photos
(10) change your socks and drink plenty of water
(11) avoid acoholic beverages / parties the night before the quiz
(12) clean your room....

NOTE: I would spend a minimum of 4-5 hours studying for this quiz if I wanted to do well.

Part 1. Lecture Concepts

Key Words

Topo Map Review

topographic maps
north arrow
magnetic declination
map scale
fractional scale
graphical scale
longitude latitude
township-range-section
equator
prime meridian
parallels
angular measurement
7.5 min quadrangle
contour interval
index contour
law of V's / streams
air photos
stereovision

Rivers

Rivers / fluvial
stream gradient
channel
floodplain
oxbow lake
meandering
levees
cutoff
cutbank
floodplain
terrace
stream gradient
bedload
suspended load
dissolved load
braided
straight
normal discharge
flood discharge
capacity vs. competence
dendritic
trellis
radial
alluvial fans
deltas
base level
watershed
drainage divide

Hydrologic Cycle

hydrologic cycle
precipitation
evaporation
advection
convection
infiltration
evapotranspiration
condensation
vegetative interception
runoff
soil moisture
ground water
surface water
    rivers
    lakes
oceans
atmospheric moisture
glaciers / ice budget
biologic water
water properties
    heat capacity
    molecule shape
    heat capacity
    density

capillarity
fluid / liquid
solid,liquid,gas

Groundwater / Karst

Groundwater
connate water
meteoric water
juvenile water
porosity
permeability
Porosity Types
intergranular porosity
Fracture porosity
solution porosity
vesicular porosity
Basics of Darcy's Law
permeable / impermeable
Zone of Aeration
Vadose Zone
Zone of Saturation
Capillary Zone
Water Table
Groundwater Contours
Water Table Gradient
Cone of Depression
Hydraulic Gradient
well
confined aquifer
unconfined aquifer
spring / seep
perched aquifer
aquitard / aquiclude
potentiometric surface
artesian aquifer
free-flowing artesian aquifer
groundwater contamination
upgradient / downgradient
groundwater subsidence
karst
dissolution
limestone
evaporites
solution depressions
caves / caverns
sink holes
sinking streams
karst springs
karst collapse
fracture-control of caverns
solution sinkholes
collapse sinkholes
karst lakes / sink hole lakes
swallow holes
caves
cave deposits
stalactites
stalagmites

Glaciers

glaciers
snowfields
snow-firn-ice
global ice budget
alpine glaciers
continental glaciers
cirque glaciers
piedmont glaciers
ice sheets
ice shelf
temperate glacier
polar glacier
basal slip
internal ice flow
crevasse / fracture
transverse crevasse
longitudinal crevasse
glacial surging
snow line
zone of accumulation
zone of ablation
ice advance
ice retreat
static equilibrium
glacial erosion
plucking
abrasion
rock flour
glacial striations
u-shape valleys
v-shape valleys
hanging valleys
paternoster lakes
cirque
tarn
fjords
aretes
horn
col
roche moutenee
glacial pavement
drift
till
outwash
sorted / stratified
unsorted / unstratified
moraine
lateral moraine
medial moraine
end moraine
terminal moraine
recessional moraine
ground moraine
glacial erratics
outwash plain
kettles
drumlins
eskers
kames
glacial climate
interglacial climate
climate change
Pleistocene glaciation
Oxygen Isotope record
Laurentide Ice Sheet
Glacial / Pluvial Lakes
Milankovitch Theory

Questions for Thought

Do you know how to deal with maps?... profiles, map reading, directions, topography, contour lines, elevations?
Can you calculate a stream gradient? I.D. a channel pattern and drainage pattern. What about simple unit conversions?
What's the difference between a floodplain and a terrace?
What are drainage divides and how are watersheds defined?
What are the hazards associated with mass wasting and rivers?
Can you draw, label, and discuss the hydrologic cycle in detail?
Can you draw cross-sections of groundwater systems?
Can you calculate the porosity of an earth material given the data?
How does sediment texture affect the porosity and permeability of an earth material?
Do you know the basic porosity types associated with common earth materials (limestone, sand, etc.)?
How does solution porosity form?
How is porosity and permeability developed in volcanic rocks?
What are the degrees of permeability associated with common earth materials (limestone, sand, etc.)
How are porosity and permeability related?
What is the hydraulic difference between an unconfined and confined aquifer?
What are the environmental hazards associated with groundwater?
Why are groundwater resources important?
How do caves form? What chemical processes / geologic processes are involved?
what types of climate and geologic conditions are associated with karst?
Can you write the chemical equations that result in the dissolution of limestone?
How are sink hole lakes related to the water table?
How do stalactites and stalagmites form?
How do glaciers and glacial ice form?
Why do glaciers flow?
How does the global ice budget relate to sea level / vice versa? How does it relate to climate?
What are the physical differences between a temperate and polar glacier?
What are the erosional and depositional effects of glaciation at the earth's surface?
How does a fluvial-dominated landscape compare to a glacial-dominated landscape?
What are the diagnostic landforms associated with alpine glaciers vs. continental glaciers?
How has glaciation affected North America over the past 2 million years?
How are glaciations related to sea level fluctuations?

2. Lab Skills to Work On

Locate positions on a map?
I.D. contour interval, hills, valleys, etc?
Calculate stream gradient?
recognize steep vs. gentle topography?
azimuth vs. quadrant compass bearings?
Location by township, range, section?
Identify basic river features: e.g. floodplain, channel, oxbow, terrace, braided river, meandering river
How about seeing airphotos in 3-D?
Drawing groundwater contour lines and groundwater flow paths.
Drawing contour lines in general (interpoloating points of constant elevation).
Calculating gradients from maps.
Calculating groundwater gradients.

Measuring distances, directions, and scales on a topographic map.
Reading contour lines / elevations from a topographic map.
Determining gradients from a topographic map (slope gradients, stream gradients).
Calculating basic rates of process (change in process per unit time: e.g. rate of delta growth, rate of coastal erosion, rate of uplift, etc.)
Interpreting aerial photographs / seeing in stereoscopic vision.
Identifying actual landforms from slides / photos.
Identifying landforms and geomorphic processes on topographic maps (e.g. glacial forms, karst forms, river forms, desert forms, etc.).
Determining the direction of ice flow from drumlins, or from terminal / end moraine patterns.