GEOG 1 EXAM 1 STUDY GUIDE (Chpts 1, 2 & 3)

**Know the vocabulary terms in your Course Notebook for all these chapters**

**Chpt 1: Intro to the Earth**

Know that Geography studies “Why what is where and why that matters”
Know that it’s a science with two major divisions: Human & Physical
Know the four “Environmental Spheres” (atmos-, litho-, hydro-, bio-) & what they include
Know the size (radius & circumference) of Earth & its shape: “oblate spheroid” – bulges at Equator
Know what latitude & /longitude are, how they are measured, & their ranges
Know the locations & significance of the important meridians & parallels we discussed
Know how to use latitude & longitude to find locations on a map & how to determine the lat/long of a location using a map grid. (See the “Practice Lat/Long” sheet that follows this section)
Know Earth’s basic movements (daily rotation on its axis & annual revolution around the Sun in elliptical orbit)
Know Earth’s rotation brings day & night to diff parts of planet & that Earth rotates 15º every hr
Know why Earth has seasons: (it’s 23.5º tilt from perpendicular to the plane of its orbit PLUS the fixed direction of tilt during its revolution around Sun (it’s “axial parallelism” or “polarity”)
Know dates of the Solstices & Equinoxes & where the subsolar point is on each of these special days --i.e. latitude where the Sun’s most direct rays are focused then
Know that “angles of incidence” control the intensity of energy received at different locations & that Earth’s curvature is responsible for some locations having higher angles than others
Know that the subsolar point ‘migrates’ 47º annually & that locations between the Tropics of Cancer & Capricorn are the only ones that ever receive the most direct sunlight (90º angle)
Understand how the Circle of Illumination shifts during the year so latitudes have differences in the length of their exposure to the Sun (shorter/longer days & nights during the year)
Know that those differences are greatest as you approach the poles and least at the equator (never any change in day length at equator)
Know that differences in angles of incidence combine with changes in day length to strengthen seasonal temperature differences
Standard Time: 24 Standard Time Zones (15º apart centered on ‘standard meridians). Be prepared to compute a time change between 2 time zones
Know that each new date originates at the International Date Line (180º long in middle of Pacific) & how it travels westward thru Asia & Europe before reaching the US
Know how we adjust the date when one crosses 180º meridian: (move date forward if traveling West; move it back if traveling East; (hour doesn’t change, just date)
Know why daylight savings time was invented & why locations in the Tropics have no use for it

**Chpt 2: Portraying Earth / Maps**

Know that maps are selective portrayal of locational & thematic data
Know the difference between large vs small scale maps, & the three ways map scale can be shown (as representational fraction, given verbally, or drawn graphically)
Know that only graphic scale remains true if one enlarges or reduces a map (e.g. thru xeroxing)
Know what map projections are: math methods for transferring info from 3-D Earth to 2-D surface
Know that in the process, it’s impossible to keep shapes, directions, areas, & scale all correct.
Result is that ALL maps have some inherent error –all are distorted in some way
Know the three major types of projections are conic, cylindrical, and plane & that they are each good for different things
Know that isolines are lines joining points of equal value on maps & that “contour lines” are isolines that join points of equal elevation on topographic maps

Know what Global Positioning Systems or “GPS” are (use satellites to find lat/long locations)

Know what remote sensing is: (gathering data with instruments that are not physically touching Earth’s surface)

Be somewhat familiar with the following remote sensing technologies:

- Aerial & Satellite Photography
- Color, Infrared & Thermal Infrared Sensing
- LANDSAT: multi-spectral scanning
- Radar, Sonar, & Lidar Imaging

Know that these technologies enable gathering huge amounts of info about the Earth—including info that is not visible to the human eye. (e.g. can get images of Earth that penetrate cloud cover & water, reveal if land is vegetated or not, & can tell what type vegetation)

Know what Geographic Information Systems “GIS” are (automated computer-based systems used to analyze spatial information). Know they typically involve map overlays that link spreadsheet info with maps. Know that GIS has numerous practical applications, including resource management, environmental monitoring, site selection

**Chpt 3: Intro to the Atmosphere**

Know that gravity is what keeps Earth’s atmosphere in place

Know that Earth’s atmosphere has changed dramatically over billions of years but has been stable for the last 500 million yrs.

Know the current composition of air in the troposphere:

- Main gases: nitrogen (78%), oxygen (21%), plus argon
- Trace gases: water vapor, carbon dioxide, & ozone (these are a very small % of the atmos but can have critical effects on climate

Know what particulates are (liquids & solid particles suspended in the atmos)

Know how particulates can affect weather (they are needed for cloud & rain formation & they can affect Earth temps by reflecting sunlight to or away from Earth). Know they also cause color effects in sky in the sky by scattering light either selectively or non-selectively

Know what air pressure is and that it decreases as one rises in the atmos

Know that the troposphere is the bottom-most layer of the atmos, that air is densest near the ground, & that temps fall w/ altitude here because Earth’s surface heats, then heats the air above it

Know the troposphere is the layer of the atmos where clouds, weather, & life occur

Know that ozone naturally collects in the stratosphere & forms a protective layer that converts dangerous UV radiation into harmless heat. Know the stratosphere is the layer just above the troposphere and that temps rise in this layer because of UV reactions w/ozone

Know all about ozone, ozone depletion & the role of CFC’s in this. Also know why ozone depletion is a problem & what has been done to solve it (worldwide ban on CFC’s beginning w/ Montreal Protocol in 1987. This is still a problem though because the CFC’s already released will continue to destroy ozone for years to come. Ozone layer will heal itself naturally over time though—Note this is NOT the same as Global Warming problem)

Know the difference between weather & climate

Know what the Coriolis Effect is & generally how it works

**BRING A SCANTRON #882), #2 PENCIL & ERASER**

**Come to class early for a pre-test review 😊**