GEOS 3317 – WATER RESOURCES OF THE SOUTHWEST

Instructor: *Dr. Nathan R. Miller*, Office: FO 2.220, Office Hours: almost anytime by appointment, (972) 883-6852, miller@utdallas.edu.

Textbooks:

- Reisner, Marc, 1986, Cadillac Desert – the American West and its Disappearing Water, Penguin Books, 582p.
- Glennon, Robert, 2003, Water Follies – Groundwater Pumping and the Fate of America's Fresh Waters, Island Press, 314p.

Description: Given the trends in global warming, with greater incidence of drought, and rapid metropolitan population growth, there is clearly a need for greater understanding of water resource issues. This course examines the water cycle and the role that water has played in the environment and development of the southwestern USA. The dynamic water cycle in Texas and associated water management issues are examined initially. The course emphasis then shifts to an evaluation of the history of water development with population growth in the southwest US. Impact of dams, reservoirs, and groundwater withdrawals are critically assessed. The course concludes with a global view of the current state of water resources.

Grading: Grades will be based on a mid-term (20%) and final (20%) exam, participation in group activities and discussion (20%), 4 short papers (20%), and one extended paper (20%). You are expected to do original work on time.

Date	#	Lectures/Topics	Assignments/Due Dates
Aug 22	1	Intro	
Aug 24	2	Nature of Water & Water Cycle	
Aug 29	3	Resource Management: Texas 50-year water plan	Water Follies – Discussion Topic 1 due
Aug 31	4	Atmospheric Water: sources, climate, weather, rain	
Sept 7	5	Rainfall and Topography: where does water go	SWA 1: Regional water plan paper due
Sept 12	6	Groundwater: infiltration and the water table;	Water Follies – Discussion Topic 2 due
Sept 14	7	Groundwater and water quality issues	
Sept 19	8	Groundwater movement and geology: aquifers	Water Follies – Discussion Topic 3 due
Sept 21	9	Barton Springs Project - Computer Lab	Watch Barton Springs web cast on own
Sept 26	10	Groundwater: Ogallala Aquifer	Water Follies – Discussion Topic 4 due
Sept 28	11	Groundwater: Edwards Aquifer	SWA 2: Barton Springs web cast paper
Oct 3	12	Surface Water: Lake Texoma	
Oct 5	13	DVD – Water in Texas	Water Follies – Discussion Topic 5 due
Oct 10	14	Groundwater: Gulf Coast Aquifer	Cadillac Desert Paper Ideas Due
Oct 12	15	Surface Water: The bounding rivers: Red/	Mid-term review
Oct 17	16	**Mid-term test**	Mid-Term
Oct 19	17	Surface Water: The bounding rivers: Rio Grande	
Oct 24	18	Surface Water: Water Quality Controls – 1	Cadillac Desert Paper Outline Due
Oct 26	19	Surface Water: Water Quality Controls – 2	
Oct 31	20	Evaporation/Transpiration; completing the cycle	
Nov 2	21	Resource Management: Groundwater discharge; regulation of groundwater as a resource	SWA 3: Brush control paper due
Nov 7	22	Resource Management/Engineering: Guest Lecture	SWA 4: Mesa Water paper due

Nov 9	23	Future of Texas Water Cycle	
Nov 14	24	Cadillac Desert I: Mullholland's Dream	
Nov 16	25	Cadillac Desert II: An American Nile	Cadillac Desert Rough Draft Due
Nov 21	26	Cadillac Desert III: The Mercy of Nature	
Nov 23	27	Cadillac Desert IV: Last Oasis	
Nov 25		Thanksgiving Break	
Nov 28	28	Cadillac Desert Discussion/ Review for Final	
Nov 30	29	**Final Exam** - 8:00 AM – yup early!	Final Exam

Policy on Scholastic Dishonesty: Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from The University. Since such dishonesty harms the individual, all students and the integrity of The University, policies on scholastic dishonesty will be strictly enforced

Courteous behavior is expected in class – this includes arriving on time and remaining in class for the duration. Please turn cell phones off and refrain from text-messaging. I am happy to answer questions during class time, so feel free to raise your hand. Please refrain from talking with your neighbor – it's distracting to me and to other students.