PRINCIPIA COLLEGE Professor: Dr. Janis Treworgy

**Sedimentary Geology 330 – Course Schedule, Spring 2014**

GEOL 330, 4 semester hours Prerequisites: GEOL 111 and GEOL 242

Science Center Room 107 TuTh 1:30-4:10pm

Textbook: *Sedimentary Geology*, 2nd edition, 2003, by Donald R. Prothero and Fred Schwab

Office: Science Center 233, ext. 5294, email: janis.treworgy@principia.edu Hours: best by appointment

**This schedule is subject to change with adequate notice.**

**Homework is due the next class session unless otherwise stated.**

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| Wk 1  Day 1  1/21  **HW**  Day 2  **HW**  Wk 2  Day 3  1/28  **HW**  Day 4  **HW**  WK 3  Day 5  2/4  **HW**  Day 6  **HW**  WK 4  Day 7  2/11  **HW**  Day 8  **HW**  WK 5  Day 9  **HW**  2/18  Day 10  SAT.  WK 6  Day 11  **HW**  2/25  Day 12  **HW**  WK 7  Day 13  3/4  **HW**  Day 14  WK 8  WK 9  Day 15  **HW**  3/18  Day 16  **HW**  WK 10  Day 17  3/25  **HW**  Day 18  **HW**  WK 11  Day 19  4/1  **HW**  Day 20  **HW**  WK 12  Day 21  4/8  **HW**  Day 22  **HW**  WK 13  Day 23  4/15  **HW**  Day 24  **HW**  WK 14  Day 25  4/22  **HW**  Day 26  **HW**  WK 15  Day 27  **HW**  Day 28  **HW**  WK 16  Mon. | **I Sedimentary Processes and Products**  Pre-test of basic concepts from GEOL 111 and GEOL 242  Introduction to Sedimentary Rocks – chp. 1; Describing a Sedimentary Rock  Lab - sands  ***Read chp. 1 Introduction to Sedimentary Rocks (15p)***  ***Read chp. 2 Weathering and Soils (12p)***  Weathering and Soils – chp. 2  Clastic Transport and Fluid Flow – chp. 3  Lab - sands  ***Type answers to questions 1-3 for 2 assigned sands on Sands Lab***  ***Review chp. 3 Clastic Transport and Fluid Flow (24p)***  ***Read chp. 4 Sedimentary Structures (20p) – as you read, answer all questions and write explanations for the Sedimentary Structures Lab where identification is not required***  Sedimentary Structures – chp. 4  Lab – sedimentary structures  ***Read chp. 5b Sandstones (p. 76-97)***  **II Siliciclastic Sediments and Environments**  Sandstone – chp. 5b  Lab – finish sedimentary structures  Lab – petrography of sands and sandstones I  ***Read chp. 5a Conglomerate and Breccia (p. 66-76)***  ***Read chp. 6 Mudrocks (13p)***  Conglomerate and Breccia – chp. 5a  Mudrocks – chp. 6  Lab – petrography of sands and sandstones II  ***Read chp. 7 Siliciclastic Diagenesis (12p)***  ***Read chp. 8a Terrestrial Sedimentary Environments (p. 127-144 to Lacustrine Deposits)***  Siliciclastic Diagenesis – chp. 7  Lab – petrography of sands and sandstones III  ***Read chp. 8b Terrestrial Sedimentary Environments (p. 144-158)***  ***Read Box 15.1 p. 334-338 Measuring & Describing Stratigraphic Sections***  ***Take-Home Exam 1*** *– due Thursday*  Terrestrial Sedimentary Environments – chp. 8  Measuring & Describing Stratigraphic Sections in the Field  ***Take-Home Exam 1*** *– due Thursday*  Core lab I – describe Principia Cores #1 and #2  ***Read chp. 9 Coastal Environments (22p)***  Coastal Environments – chp. 9  Review siliciclastic thin sections  ***Take-Home Exam 2*** *– due Tuesday**of**Week 6*  Field Work I – Measure & describe Jerseyville Hollow stratigraphic section, Hwy 100, Grafton  ***Saturday* – all day Field Trip to Jackson County, IL, February 22nd**  Field Work II–Measure & describe Jerseyville Hollow stratigraphic section, Hwy 100, Grafton  ***Read chp. 10 Clastic Marine and Pelagic Environments (25p)***  Clastic Marine and Pelagic Environments – chp. 10  Core lab II  ***Read chp. 11 Carbonate Rocks (p. 212-234)***  **III Biogenic, Chemical, and Other Nonsiliciclastic Sedimentary Rocks**  Carbonate Rocks – chp. 11  Lab – review fossil ID  Lab – petrography of carbonates I  ***Read chp. 11b Carbonate Rocks (p. 226-234)***  Field Work III–Measure & describe Jerseyville Hollow stratigraphic section, Hwy 100, Grafton  **\*\*\*\*\*\*\*\*\*\*\*\*\*\* WEEK 8 SPRING BREAK \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***  Field Work IV–finish  ***Read chp. 12a Carbonate Environments (p.236-242 to Subtidal Shelf Carbonates)***  Carbonate Environments – chp. 12a  Lab – petrography of carbonates II  ***Read chp. 12b Carbonate Environments (p.242-261)***  ***Work on carbonate thin sections lab – describe #4-9***  Carbonate Environments – chp. 12b  Lab – petrography of carbonates III; finish describing t.s.; discuss dep. env. & diagenesis  ***Work on carbonate thin sections lab – answer questions for #3* (review chp. 12), due Tu.**  ***Read chp. 15a Lithostratigraphy (p. 302-322)***  **IV Stratigraphy**  Lithostratigraphy – chp. 15a  Lab – draw graphic log of Jerseyville Hollow neatly on graph paper or in a draw program  Lab – describe thin sections from Principia cores  Lab – correlations  ***Read chp. 15b Lithostratigraphy (p. 322-339)***  **Finish carbonate lab; answer questions for #5, 6, 8, 9**  Lithostratigraphy – chp. 15b  Discuss the Stratigraphic Code  Core Lab II – finish describing Principia cores & cf. to t.s. descriptions; draw graphic logs  ***Read chp. 16 Biostratigraphy (14p)***  ***Read chp. 17a Geophysical and Chemostratigraphic Correlation (p. 356-361)***  Biostratigraphy – chp. 16  Geophysical and Chemostratigraphic Correlation – chp. 17a  Lab –correlate Principia cores to Jerseyville Hollow Section  ***Take-Home Exam 3*** *– thin section descriptions due Tues. Wk. 12; questions due Tues. Wk. 13*  Lab – interpret wireline (geophysical) logs  Lab – draw cross sections with wireline logs  ***Read chp. 19a Sedimentary Rocks in Time and Space (p. 423-440)***  Sedimentary Rocks in Time and Space – chp. 19a  Lab – structure & other maps and cross sections  ***Read chp. 19b Sedimentary Rocks in Time and Space (p. 440-459)***  ***Mapping/Correlation assignment***  Sedimentary Rocks in Time and Space – chp. 19b  Lab – structure & other maps and cross sections  ***Read chp. 17b Geophysical and Chemostratigraphic Correlation (p.361-376)***  ***Read Sedimentary Record 10-1 article and answer questions***  Geophysical and Chemostratigraphic Correlation – chp. 17b  Work on Poster  ***Read chp. 13 Other Biogenic Sedimentary Rocks (11p)***  ***Mapping/Correlation assignment***  Other Biogenic Sedimentary Rocks – chp. 13  Lab – structure & other maps and cross sections  ***Read chp. 14 Chemical and Nonepiclastic Sedimentary Rocks (22p)***  ***Mapping/Correlation assignment***  Chemical and Nonepiclastic Sedimentary Rocks – chp. 14  Lab – poster of correlation of outcrop and core  ***Mapping/Correlation assignment***  Lab – structure & other maps and cross sections  Poster Session – **Monday evening 4/28**  ***Review for Exam 4***  Review in class for Exam 4  ***Take-Home Portion of Exam 4*** *– due at final’s time*  FINAL EXAM – **In-Class Portion of Exam 4** 1-3pm |