

Sedimentary Depositional Environments **Fall 2015**

GEOL 5364-001 CRN 17425

GEOL 6315-5 CRN 17664

Geological Sciences Building, GS 302

Lecture: T 12:30-4:20PM; R 12:30-1:20PM

Instructor: Dr. Katherine Giles

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Office: 201A Geological Sciences; 747-7075

Office Hours: M-Th 11:00 - Noon

Suggested Texts

Sedimentary Environments: Processes, Facies and Stratigraphy, H. G.

Reading 2nd or 3rd edition, Blackwell Publishing. ISBN 978-0-6320-3627-1

Facies Models 4: Noel James and Robert Dalrymple, Geotext 6, Geological Association of Canada 2010. ISSN 1208-2260; 6); ISBN 978-1-897095-50-8

Grading

Fieldtrip November 7 & 8 40%

Quizzes and discussion participation 10%

Depositional environment presentation 50%

Fieldtrip

November 7 Indio Mountains: Alluvial Fan, Fluvial, Lacustrine and Shallow Marine Systems; Overnight at Indios Ranch House

November 8 Guadalupe Mountains Submarine Fan and Pelagic Systems

Quizzes and Discussion Participation

Weekly quizzes will be given covering the processes lecture material from the previous week. Participation in class discussions will be noted.

Depositional Environment Presentations

Each student will be responsible for presenting a lecture on a depositional environment and to produce a power point presentation on that topic.

Each lecture should include:

- General description of setting and important controlling processes
- Sediment types & characteristics - such as grain size, sorting, bedforms
- Sedimentary facies distribution (map view)- using modern example(s)
- Stratigraphic facies patterns (based on progradational system)- Ancient example(s) - preferably a "hydrocarbon reservoir" example
- Reference List- to include at least 10 references on the topic

Tentative Schedule

August 25	Class Overview; Introduction to Depositional Systems;
August 27	Process: Fluid flow types and bedforms
September 1	Process: Trace fossils, Subaerial exposure/dessication; Oxidic versus anoxic conditions: Water chemistry, Concretions
September 3	Process: Paleosol formation
September 8	Alluvial fans
September 10	<i>No class- Giles in Guadalupe Mountains</i>
September 15	Fluvial
September 17	<i>No class-Giles in Gypsum Valley</i>
September 22	Lacustrine
September 24	Process: Tides & tide-generated bedforms
September 29	Tidal Flats and Sabkhas
October 1	Process: Waves & wave-generated bedforms
October 6	Wave-Dominated Shorelines
October 8	Process: Hyperpycnal flows
October 13	<i>No Class – Giles Spain Research Trip</i>
October 15	<i>No Class – Giles Spain Research Trip</i>
October 20	Deltas
October 22	Process: Gravity Flows
October 27	Deep-Sea Fans
October 29	Process: Pelagic sedimentation
November 3	<i>No Class – GSA Annual Meeting in Baltimore</i>
November 5	<i>Planning meeting for fieldtrip</i>
November 7	Fieldtrip - Indio Mountains, West Texas; Camp overnight
November 8	Fieldtrip – Guadalupe Mountains, West Texas
November 10	Transgressive Shorelines/ Estuaries
November 12	TBD
November 17	Eolian
November 19	TBD
November 24	<i>No Class – Thanksgiving Break</i>
November 26	<i>No Class – Thanksgiving Break</i>
December 1	Glacial Systems