**GS 5369 SEQUENCE STRATIGRAPHY**

**Spring 2016**

**Instructor(s):** JOHN E. DAMUTH PhD and NARESH KUMAR PhD

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 <https://www.ig.utexas.edu/staff/john-e-jed-damuth/>

**Office Hours:** John Damuth: Any time I am in my office which is normally from 1-4:30 pm M-F. Dr. Kumar: By appointment.

**Section Information:** GS 5369

**Time and Place of Class Meetings:** GS 220 MONDAY 4:00-6:40 pm

**Description of Course Content:** Basic principles of sequence stratigraphy as practiced in the geological profession. Each class will consist of approximately one third lecture and two-thirds hands-on exercises. The exercises will allow students to learn how to interpret seismic profiles and well-logs in a sequence stratigraphic context. The main emphasis of the course will be on seismic sequence and well-log sequence stratigraphy. Outcrop sequence stratigraphy will be emphasized to a lesser extent.

**Student Learning Outcomes:** Students should receive both theoretical and practical hands-on knowledge of sequence stratigraphic methods that will be applicable if they are employed in industry or in academic research. They will learn basic interpretation methods of seismic and well-log sequence stratigraphic interpretation and should acquire sufficient knowledge to begin applying these methods in the workplace.

**Required Textbooks and Other Course Materials:** No textbooks are required. All required readings will be a variety of articles from peer-reviewed scientific journals and books and will be supplied by the instructors. All exercise materials will also be supplied. Students will not be required to purchase any reading or other materials.

**Descriptions of major assignments and examinations:** The exercises will be graded based on whether they are completed and turned in or not. There will be a mid-term exam and a final exam. There will also be a term paper project required.

**Attendance:** University policy will apply. Students are expected to attend all class meetings, to arrive at classroom on time, and not to leave class before dismissal. At The University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students’ academic performance, which includes establishing course-specific policies on attendance. We will take attendance at each class but will not factor class attendance into the final grade. An exception to this policy is the field trip, where attendance will be mandatory. Students who do not attend the trip on April 2 will have 3 points deducted from their final grade (see Grading section below).

**Grading**: Mid-Term Exam = 30%; Final Exam = 30%; Class Exercises and Field Trip = 25%; Individual Class Project = 15%.

**Expectations for Out-of-Class Study**: Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 9 hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

**Grade Grievances**: Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog. For undergraduate courses, see <http://catalog.uta.edu/academicregulations/grades/#undergraduatetext>.

**Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/aao/fao/>).

**Disability Accommodations: UT** Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act.* All instructors at UT Arlington are required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the **Office for Students with Disabilities (OSD).** Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

**The Office for Students with Disabilities, (OSD)** [www.uta.edu/disability](http://www.uta.edu/disability) or calling 817-272-3364.

**Counseling and Psychological Services, (CAPS)** [www.uta.edu/caps/](http://www.uta.edu/caps/) or calling 817-272-3671.

Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

**Title IX:** *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit*[*uta.edu/eos*](http://www.uta.edu/hr/eos/index.php)*. For information regarding Title IX, visit* [www.uta.edu/titleIX](http://www.uta.edu/titleIX).

**Academic Integrity:** Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents’ Rule* 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University.

**Lab Safety Training: Students registered for this course must complete all required lab safety training prior to entering the lab and undertaking any activities.** Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e., through the following August) and must be completed anew in subsequent years. There are no exceptions to this University policy. Failure to complete the required training will preclude participation in any lab activities, including those for which a grade is assigned.

**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

**Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as “lecture,” “seminar,” or “laboratory” shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

**Final Review Week:** A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Emergency Exit Procedures:** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located [insert a description of the nearest exit/emergency exit]. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

 ([http://www.uta.edu/police/Evacuation Procedures.pdf](http://www.uta.edu/police/Evacuation%20Procedures.pdf))

**Student Support Services**:UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at http://www.uta.edu/universitycollege/resources/index.php

**General Course Schedule**

*As the instructors for this course, we reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course—John Damuth & Naresh Kumar.*

Lecture Topics

Week 1 Jan 25: Introduction, seismic data, definitions and methodology

Week 2 Feb 2: Sequences & systems tracts within a depositional sequence.

Week 3 Feb 8: Development of the Vail-Exxon sea-level model and the cycle chart.

Week 4 Feb 15: Seismic facies classification and interpretation.

Week 5 Feb 22: Deep-water depositional processes & sequence stratigraphy 1

Week 6 Feb 29: Deep-water depositional processes & sequence stratigraphy 2

**Spring Break Mar 9**

Week 7 Mar 7: - Basics of logging & well-log sequence stratigraphy

Week 8 Mar 21: **Mid-term Exam** (No lecture or lab)

Week 9 Mar 28: Shallow-water processes (fluvial/shelf) & sequence stratigraphy 1.

 April 2: Field trip to BEG/UTIG at Univ. of Texas in Austin

Week 10 Apr 4: Shallow water processes (deltas) & sequence stratigraphy 2.

Week 11 Apr 11: Sequence stratigraphic framework in carbonates.

Week 12 Apr 18: Case study: Alaska North Slope

Week 13 Apr 25: Case study: Brazil

Week 14 May 2: Wrap-up/review. Student presentations on projects (10-15 min each)

Week 15 May 11: **Final Exam**

EXERCISE TOPICS

Week 1: Recognition and interpretation of stratal boundaries.

Week 2: Interpretation of depositional systems tracts.

Week 3: Construction of a chronostratigraphic diagram and interpretation.

Week 4: Identification and interpretation of seismic facies on seismic lines.

Week 5:.Sequence stratigraphic interpretation of MCS line

Week 6: Interpret deep-water depositional processes from seismic facies.

**Spring Break**

Week 7 Interpret facies on grid of seismic lines and construct map.

Week 8: No exercise – Mid Term Exam

Week 9: Trinity-Brazos GOM deep-water interpretation exercise.

Week 10: Interpret seismic data from a delta in the Gulf of Mexico..

Week 11: Well-log sequence stratigraphy exercise.

Week 12: Outcrop facies interpretation exercise (SEPM).

Week 13: No exercise—work on term paper project.

Week 14: Term paper project oral presentations.

**Emergency Phone Numbers**: In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. Non-emergency number 817-272-3381

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