

Marine Geology and Geophysics Field Course

GEO 348K / 391

Unique ID 26784 / 27013

2012 Maymester (May 16 – June 4)

Course Description

This course is designed to provide hands-on instruction for graduate and upper-level undergraduate students in the collection and processing of marine geological and geophysical (MG&G) data. The course will cover high-resolution air gun and streamer seismic reflection, CHIRP seismic reflection, multibeam bathymetry, sidescan sonar, sediment coring, grab sampling and the sedimentology of resulting seabed samples (e.g., core description, grain size analysis, x-radiography, etc.). Scientific and technical experts in each of the techniques will first provide students classroom instruction. The class will then travel to Port Aransas for 7 days of at-sea fieldwork as well as on-shore lab work in facilities to be set up in rental houses. Two small research vessels will be used concurrently: one for multibeam and sidescan, and the other for seismic reflection and sediment sampling. Students will rotate daily between the two vessels and lab work. Upon returning to Austin, students, working in teams, will be expected to integrate the techniques into a final project that will examine the geologic history and/or sedimentary processes as typified by a small area of the Gulf Coast continental shelf. Students will present their interpretations formally to the class and course sponsors (private and corporate).

Instructors

Sean Gulick, ROC 3.248, 512-471-0483, sean@ig.utexas.edu

Mead Allison, ROC 3.260, 512-471-6156, mallison@mail.utexas.edu

John Goff, ROC, 3.252, 512-471-0476, goff@ig.utexas.edu

Teaching Assistants

Steffen Saustrup, ROC 3.238, 512-471-0442, steffen@ig.utexas.edu

Dan Duncan, ROC 3.107, 512-471-0490, dduncan@ig.utexas.edu

Marcy Davis, ROC 3.208, 512-471-0425, marcy@ig.utexas.edu

Grading

Lab Assignments 20%, Class Participation 40%, Final Project 40%

Course Plan

Students will be divided into four teams to work with throughout the class

Wednesday, May 16 – Introduction to Field Area (Allison) ROC 2.201 10 am

Grain Size Analysis Lab (Allison, Duncan) Sed Lab 1 pm

Assist with Mobilization

Thursday, May 17 – Multichannel Seismic & CHIRP Techniques (Gulick) ROC 2.201 10 am

Seismic Lab (Saustrup, Gulick) ROC 3.262/3.246 1 pm

Assist with Mobilization

Friday, May 18 – Multibeam Bathymetry, Sidescan & CHIRP Sonar Techniques (Goff) ROC 2.201 10am
Multibeam/Sidescan Lab (Davis, Duncan) ROC 2.201 1 pm
Assist with Mobilization

Saturday, May 19– UT Commencement
Saustrup, Davis, and 1 student drive equipment truck to Port Aransas (Assemble PRC 10am)

Sunday, May 20 – Manta mobilization
Allison, Duncan, Gulick and Goff drive R/V Itasca and suburbans to Port Aransas with remaining students (Assemble PRC 8:30 am)

Monday, May 21 – Team 4 R/V Itasca (Allison/Duncan)
Team 1, 2, and 3 R/V Manta (Gulick/Saustrup/Davis)
Shore detail: Goff

Tuesday, May 22 – Team 2 R/V Itasca (Goff/Duncan)
Team 1 and 4 R/V Manta (Allison/Saustrup)
Team 3 Beach Lab Processing (Gulick/Davis)

Wednesday, May 23 – Team 3 R/V Itasca (Gulick/Duncan)
Team 2 and 4 R/V Manta (Goff/Saustrup)
Team 1 Beach Lab Processing (Allison/Davis)

Thursday, May 24 – Team 1 R/V Itasca (Allison/Davis)
Team 2 and 3 R/V Manta (Gulick/Saustrup)
Team 4 Beach Lab Processing (Goff, Duncan)

Friday, May 25 – Team 4 R/V Itasca to (Goff/Saustrup)
Team 1 and 3 R/V Manta (Allison/Duncan)
Team 2 Beach Lab Processing (Gulick/Davis)
Manta Demobilization

Saturday, May 26 – Itasca Demobilization and Finish Geophysical and Sediment Processing

Sunday, May 27 – All vehicles, instructors, TAs, and students return to Austin (Leave ~8 am)
Assist with Unpacking at PRC; free to leave around 2 pm

Monday, May 28– Students Day Off, Data Import Day for TAs/Lecturers **
**This day off contingent upon processing being finished

Tuesday, May 29 – Introduction to Seismic Interpretation (Gulick) ROC 2.201 10 am
Seismic Interpretation Lab (Saustrup/Gulick) ROC 3.262/3.246 1 pm

Wednesday, May 30 – Multibeam Visualization/Mapmaking and Data Integration (Davis) ROC 2.201 10 am Lab (Davis) ROC 3.262/3.246 1 pm

Thursday, May 31 – Sediment Analysis (Allison) and Submarine Geologic Interpretation Round Table (Goff) ROC 2.201 10 am

Friday, June 1- Sunday, June 3 – Teams work on final projects

Monday, June 4 – Teams present final projects in first floor conference room ROC 1.603 at 10am. Course sponsors will attend. We will have coffee/bagels/fruit available at 9:30 and lunch following presentations.

Field table (DRAFT)

Field Day: May	Team 1	Team 2	Team 3	Team 4
23 rd	M/SG	M/SG	M/SG	I/MA
24 th	M/MA	I/JG	L/SG	M/MA
25 th	L/MA	M/JG	I/SG	M/JG
26 th	I/MA	M/SG	M/SG	L/JG
27 th	M/MA	L/SG	M/MA	I/JG

M: Manta; I: Itasca; L: Lab

MA: Mead Allison; JG: John Goff; SG: Sean Gulick

To bring for field trip:

- Sunscreen
- Mosquito repellent
- Swim suit and towel
- Close-toed shoes for boats (sandals fine on shore)
- Sea-sickness medicine of choice
- Personal entertainment (ipods, books, etc.)
- Laptop or other note taking devices
- Water bottle
- Sunglasses
- Hat
- Bath Towel and Beach Towel
- Coffee cup
- Snacks/personal food items
- Sleeping bag/pillow
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