

**GEOLOGY 457 / 657
STRUCTURAL GEOLOGY
FALL SEMESTER, 2006**

Professor: D.P. Schwert (FLC 314E; Tel.: 231-7496; e-mail: donald.schwert@ndsu.edu)

Lab Assistant: Todd Morken; e-mail: todd.morken.1@ndsu.edu

Office Hours: Open. Appointments are welcome; simply phone, e-mail, or let me know otherwise when you want to visit.

Class Time and Place: 8:00 - 9:50 a.m., Stevens Hall Rm 136.

Exceptions are noted on class schedule below:

* = Class begins at 8:30 a.m.

** = Class begins at 9:00 a.m.

Text: "Structural Geology" by Davis and Reynolds, 2nd edition.

Instructional Web Site: www.ndsu.edu/instruct/schwert/geosci/g457/

Tentative Lecture and Exam Schedule, Reading Assignments:

W	Aug	23	LEC: Introduction / Definitions	(pp. 626-665)
F		25	QUIZ ON ATTITUDE TERMINOLOGY LAB: Linear and planar structures I	(pp. 687-691)
M		28	NO CLASS: Geology 450	
W		30	NO CLASS: Geology 450	
F	Sept	1	NO CLASS: Geology 450	
M		4	NO CLASS: Labor Day	
W		6	LAB: Linear and planar structures II	
F		8	LEC: Introduction to rock mechanics	(Chap. 3, pp. 98-105)
M		11	LEC: Uniaxial stress	(Chap. 3, pp. 105-115)
W		13	LAB: Analyses of geologic maps I: thickness	(pp. 684-687)
F		15	LEC: Biaxial and triaxial stress	(Chap. 3, pp. 116-118, 122-126)
M*		18	LEC: Mohr's Circle I	(Chap. 3, pp. 118-122)
W*		20	LEC: Mohr's Circle II	
F**		22	LAB: Analyses of geologic maps II: map projections	
M		25	LEC: Strain	(Chap. 2, pp. pp. 67-end Chap. 3, pp. 134-149)
W		27	LECTURE EXAM #1	
F		29	LEC: Faults I	(Chap. 6, pp. 269-303)
M	Oct	2	LAB: Translational faults I	
W*		4	LEC: Faults II	
F		6	NO CLASS: NIH, Bethesda, MD	

M	9	LAB: Translational faults II	<i>(Class starts at 8 a.m.!)</i>
W*	11	LEC: Fault mechanics I	
F**	13	LEC: Fault mechanics II	
Su	15	7 pm: Optional review session for lab midterm	
M	16	LAB MIDTERM EXAM	
W**	28	LEC: Mohr envelope	(Chap. 6, pp. 304-319)
F*	20	LEC: Mohr-Coulomb Law	
M	23	Tentative: No class?, so as to help accommodate any students attending GSA	
W*	25	LEC: Role of fluid pressure	(Chap. 6, pp. 319-339)
F	27	LEC: Folds: a review	(Chap. 7)
M**	30	LAB: Arc method of concentric fold projection	
W*	Nov 1	LEC: Concentric and similar folds	
F	3	LAB: Introduction to stereographic analyses	(pp. 691-704)
M	6	LECTURE EXAM #2	
W*	8	LEC: Minor folds	
F	10	NO CLASS: Veterans' Day	
M	13	LAB: Stereographic rotations	(pp. 708-714)
W	15	NO CLASS: SSSA Meetings, Indianapolis	
F*	17	LEC: Cross-folds; down-plunge method	(pp. 676-677)
M*	20	LEC: Stereographic fold projections I	(pp. pp. 704-708)
W*	22	LAB: Oriented structures	
F	24	NO CLASS: Thanksgiving	
M	27	LEC: Stereographic fold projections II	<i>(Class starts at 8 a.m.!)</i>
W*	29	LEC: Stereographic folds projections III	
F*	Dec 1	LAB: Regional structure	
M*	4	LEC: Minor structures in regional analyses	
W*	6	LAB: Lab final exam review	
F	8	LAB FINAL EXAM	<i>(Exam starts at 8 a.m.!)</i>
T	Dec 12	LECTURE FINAL EXAM (1 to 3 p.m.)	

Homework:

Homework will be assigned at most class sessions. Because this course rapidly shifts from topic-to-topic and presumes the steady acquisition of knowledge of structural techniques, homework will be due *at the beginning of classtime on the date indicated*. We will be making every effort to return your graded homework as soon as possible. Any homework submitted after we have marked and returned those same assignments to one's classmates will not be accepted, and a "zero" will be recorded; this is often the same day as the homeworks are due.

As a general rule, homeworks will be marked on the basis of precision, completeness, and esthetics. Since much of this coursework has economic applications, a good "rule-of-thumb" to ask yourself this question: "*Would you be proud to submit this work to your employer?*" If the answer is "no," then you'd better start over.

Each problem solution should present detailed geometric or stereographic projections, complete, neat, and labeled thoroughly. This includes (when applicable) a written statement of the answer.

Although you are welcome to work with others in the class, you should *present your own work in your own (correctly spelled!) words*. Don't rely on others to "pull you through" ==> they won't be there during times of exams.

Todd is available for special evening sessions, only. Please refer all questions outside of that time to me. If you need help, see me BEFORE THE MORNING THAT AN ASSIGNMENT IS DUE.

Exams:

Full attendance at all lectures and labs is an expectation of this course. Quizzes on lecture/lab materials may be given at any time. See syllabus for lecture and lab exam schedules.

Grades:

Each homework or exam will be assigned a certain number of "points" based on relative difficulty. Roughly (and tentatively), the breakdown of your work in terms of points is as follows:

- 350 Homework
- 100 Lab midterm
- 200 Lecture hour exams (2)
- 110 Lecture final + quizzes
- 100 Lab final

Graduate Students:

See separate handout for additional course requirements.

Special Needs:

Any students who require special accommodations for learning or who have special needs should share those concerns or requests with the instructor as soon as possible.

Academic Responsibility:

All work in this course must be completed in a manner consistent with NDSU University Senate Policy, Section 335: Code of Academic Responsibility and Conduct (www.ndsu.nodak.edu/policy/335.htm).

Catalog Description:

Dynamics of rock deformation and analyses of earth structure. Prereq.: Geology 105, 105L, geometry, and trigonometry.

Other: Where is FLC 314E?:

From the elevator on the third floor of Family Life Center, turn right and then take your first right – into a small hallway. I'm at the second door to your left along this hallway.