GEOL 3443: Structural Geology  
Course Syllabus  
Fall 2016

Basic Course Information:

Course number: GEOL 3443-001

Time:
- Lecture MWF 9:00 – 9:50 AM
- Lab 1: M 10:00 – 12:50 PM
- Lab 2: W 10:00 – 12:50 PM

Location:
- Lecture: GS 104
- Lab: GS 233

Primary Text:

Students are required to purchase lecture and laboratory textbooks. A supplementary text which is still in draft form will also be used extensively, but this will be provided free of charge to students.
- Lab & Supplementary Text: Richard W. Allmendinger, *Modern Structural Practice* (free online pdf – see Blackboard or go to this [web link](http://example.com))

Instructor Information:

- **Instructor**: Dr. W. Ashley Griffith
  - Faculty Profile: [http://www.uta.edu/profiles/william-griffith](http://www.uta.edu/profiles/william-griffith)
  - Office: GS 233A
  - Office hours: Mon 1:30AM-3:30PM, Wed 1:30PM-3:30PM or by email appointment*
  - Phone: 817-272-9666
  - Email: wagriff@uta.edu
- **TA**: Rene St Julien
  - Office: GS 132
  - Office hours: T 12:30pm - 2:00pm, TH 12:30pm - 2:00pm or by email appointment*
  - Email: rene.stjulien@mavs.uta.edu

*We work hard to be helpful and approachable outside of class; however please be considerate and send us an email to schedule time for help if you need it outside of the scheduled office hours.

Course Description:

Structural geology is the study of deformation in the earth’s crust. This deformation is heterogeneous: it happens at various scales, locations, and times; this deformation produces identifiable structures in the crust such as fractures and folds. An appreciation of earth structures has both enormous practical value and profound intellectual implications for how we view this planet. We start out with an introduction to classical *descriptive* structural geology which is concerned with constructing *geometric models* of structures and then we proceed with an
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introduction to physics-based methods to analyze the mechanical processes involved in the formation of geologic structures. Due to the difficulty of the material, we will follow a less-is-more strategy. Students will learn to critically observe, map, and describe rock structures, including folds, fractures, and shear zones at the scales ranging from microscopic to tectonic scales. Special emphasis will be given to critical thinking and quantitative analysis. Laboratory exercises will include practice of geologic mapping skills, an introduction to structural analysis at various scales, and basic mechanical modeling using computers.

Course goals/Student learning outcomes:
At the conclusion of this class, students should be able to:

- quantitatively describe the three dimensional structure of rocks in the earth’s crust using geologic maps and/or outcrop data
- Reconstruct the deformation history (chronology of events) of deformed rocks based on fabrics and geometric relationships
- Differentiate between recoverable (elastic) and non-recoverable (brittle, plastic, or viscous) deformation
- Quantitatively describe strain and stress transformations
- Relate strains to stresses through constitutive equations
- Use Matlab© to conduct and visualize rigid body translations and rotations, perform strain and stress transformations, and to perform basic mechanical analyses using theories of elasticity and brittle failure
- Critically read and communicate technical literature in the field of Structural Geology.

Required Equipment:
1. Each of the following pieces of equipment should be brought to all lectures & labs:
   - Mechanical pencil Colored pencils
   - Ruler with cm units or inch measured in tenths DO NOT buy a ruler that marks off 32nd of inch.
   - Protractor - A really good tool which combines a protractor and a good ruler in one is the C-Thru W-5 Standard/Metric Protractor Ruler 6" X 1.5"
   - Tracing Paper (can use white copier paper)
   - Textbook
   - Calculator

2. Beginning in Lab 6, we will use the program Matlab extensively. Students are encouraged to download and install Matlab on their personal laptops. Instructions for downloading and installing the University Site-Licensed Matlab software can be found at: http://www.uta.edu/oit/cs/software/mathworks/matlab-r2015b-win/index.php (scroll down to instructions for “Student Use on a personally owned device). If you would prefer to use Matlab on your own device, please install it well-before lab 6 (try it this evening!). We will provide a few laptops in lab periods for students who do not have their own. Matlab is also available in several computer labs across campus, including the Engineering Lab Building, Room 256 and the University Center (upstairs).
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Grading Policy (see below for description of individual categories):
Students are expected to keep track of their performance throughout the semester and seek
guidance from available sources (including the instructor) if their performance drops below
satisfactory levels. Grades will be determined quantitatively using the following formula. Final
grades are not “curved” in this class.

- Exam I: 10%
- Exam II: 15%
- Final Exam: 20%
- Friday Quizzes: 5%
- Lab exercises/Problem Sets: 40% (Can drop lowest lab grade, with some exceptions)
- Field Trip: 5%
- Presentations & Participation: 5%

Late Policy:
For Problem Sets & Field Trip Report, one letter grade off for each academic day late.
Presentations will be counted as zero if not ready on assigned date.

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.

Attendance:
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. As the instructor of this section,
I have established the following policy: Attendance in lab is mandatory. Lack of attendance
without prior approval will result in a zero for that lab assignment. Attendance in lecture is up
to you, but if you miss class, you are responsible for learning the material. I will not take extra
time to teach you things you should have learned by coming to class.

Labs:
Laboratory exercises and associated problem sets constitute the largest part of your grade.
This reflects the importance I place on them, the time I expect, on average, you will need to spend
on them, and the care with which you will complete them. Generally, the in-class portion of the lab
will be part of what you turn in. Occasionally, additional problems related to lecture material may
be assigned as part of the weekly problem set. All lab/ problem set assignments are due at the
beginning of class, one week from their assignment. Attendance in the lab section you are signed
up for is mandatory. Failure to show without making prior arrangements will result in a zero for
that lab. If you are more than 15 minutes late you will be counted as absent. You may drop your
lowest lab/problem set score, except for Labs 5 and the final lab, both of which are un-droppable.
Also, while you may not “switch” lab sections at your convenience, you may, if you wish, attend
both lab sections to reinforce material. Lab materials will be allocated preferentially to student
attending their assigned section, however.
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Lab Quizzes:
In lieu of a lab final at the end of the semester, there will be lab quizzes starting in the third lab period. Each quiz will focus on material from two labs prior; however the quizzes will be cumulative. For example, in lab three, the quiz will focus on lab one. In lab four, the quiz will focus on lab two, but some material from lab one may show up. No quiz will be given for the final lab of the semester.

Exams: There are three in-class exams in this class. The first will cover material through October 1st, the second will cover material through November 5th, and the final exam will cover everything, including labs. Please note that the second and final exam will be cumulative. Structural geology is like math, the stuff you do in the beginning is a building block for the stuff you do later.

Friday Quizzes
Quizzes will be given on Fridays throughout the semester specifically on the material covered during the corresponding week, including all reading for the week. These will consist of a few very simple questions, the goal of which is to demonstrate you have done the reading and have internalized information covered in class. Like the labs, you may drop your lowest quiz score.

Presentations:
Instead of a final project, students will present, IN GROUPS OF TWO or THREE, a PowerPoint-based presentation and lead a discussion related to a paper from the literature in class. These presentations will be on pre-determined technical papers selected from the structural geology literature (see list below), and they will be scattered throughout the semester as indicated in the course schedule (next page). The papers are listed below, and the dates they will be presented have been chosen because the papers are directly related to the material we are covering in the class at those times. The purpose of these presentations is threefold: (1) to supplement course material; (2) to give you a break from listening to me; (3) to give you a chance to see what real structural geology research is being done beyond the classroom; and (4) to give you experience giving technical presentations to your peers. Presenters will be expected to provide adequate background for the audience to understand what questions/hypotheses the authors are trying to address, adequate description of the methods the authors used, the results that the authors report, and an adequate discussion/synthesis of the results. Typically, I would expect a presentation should last 15 minutes, with at least 5 minutes of background material. After the presentation, presenters should be prepared to guide a ~10 minute discussion. A good way to do this may be to end the presentation with a series of “guiding questions” highlighting some of the important points of the paper.

Presenters will be provided with a Dropbox folder containing some helpful information pertinent to their paper, including a set of guiding questions intended to help them focus on the main points of the paper while reading the paper and making the presentation. Presenters are also strongly encouraged to meet with the instructor at least one week before your presentation to go through important concepts that should be covered. YOU SHOULD SIGN UP FOR YOUR PAPER ON BLACKBOARD within the first two weeks of class. Presenters should have already read the paper before this meeting. It is up to presenters to schedule this meeting with the instructor.
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All students are expected to read each paper, and will be held responsible for the main points on exams. Part of your grade is to participate in each discussion by asking questions, making comments, etc. Please note the papers are not necessarily in the correct order on Blackboard.


**Field Trip:**

There will be a MANDATORY 1-day field trip to the Arbuckle Mountains tentatively scheduled **Saturday October 8-Sunday October 9**. The field trip is critical, since there is very little structural geology to be observed in the immediate DFW area. The material covered in the field trip will be fair game for the final exam. There will be a slightly less attractive alternative for students who have unsurmountable obstacles to attending. **YOU MUST SIGN UP FOR THE FIELDTRIP OR THE ALTERNATIVE on Blackboard by September 7!**
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/ao/faq/).

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). Only those students who have officially documented a need for an accommodation will have their request honored. 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 or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.

Counseling and Psychological Services, (CAPS) www.uta.edu/caps/ or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

Non-Discrimination Policy: 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.

Title IX Policy: The University of Texas at Arlington (“University”) is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. For information regarding Title IX, visit www.uta.edu/titleIX or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or jmhood@uta.edu.

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.
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UT Arlington faculty members may employ the Honor Code in their courses by 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. Additional information is available at https://www.uta.edu/conduct/.

Lab Safety Training: [Required for laboratory courses in the Colleges of Engineering and Science where students may be working with chemicals, biological material, radiological material or lasers] 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., Fall through Summer II) 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.

Campus Carry: Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit http://www.uta.edu/news/info/campus-carry/.

Student Feedback Survey: At the end of each term, students enrolled in face-to-face and online classes categorized as “lecture,” “seminar,” or “laboratory” are 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 via the SFS database is aggregated with that of other students enrolled in the course. Students’ anonymity will be protected to the extent that the law allows. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit http://www.uta.edu/sfs.

Final Review Week: for semester-long courses, 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: [Required for face-to-face courses; should be omitted for online courses] 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
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Students in the past have found themselves extremely confused, for example, by watching YouTube videos of nice British ladies showing them how to solve structural geology problems. If you need a different perspective on something I cover in class, or if you are simply interested, please try one of the following videos of nice British ladies showing them how to solve structural geology problems. If you need a different perspective on something I cover in class, or if you are simply interested, please try one of the following videos of nice British ladies showing them how to solve structural geology problems.

As a general rule, I advise students to avoid the use of internet search engines for completing exercises in this course. This for two reasons. First, beyond scholarly articles and textbooks, most information on the web is NOT peer-reviewed. There is no guarantee that the information you are looking at is correct. Second, even if the information you are looking at is valid, terminology and related methods vary significantly in different places. Students in the past have found themselves extremely confused, for example, by watching YouTube videos of nice British ladies showing them how to solve structural geology problems.

If you need a different perspective on something I cover in class, or if you are simply interested, please try one of the following texts instead of Google:

- Twiss and Moores, *Structural Geology* (the most complete structural geology book)
- Allmendinger, Cardozo, and Fischer, *Structural Geology Algorithms: Vectors and Tensors*
- Lisle and Leyshon, *Stereographic Projection Techniques for Geologists and Civil Engineers*
- Means, W.D., *Stress and Strain, Basic Concepts of Continuum Mechanics for Geologists*
- Park, R. G., *Foundations of Structural Geology*
- Passchier and Trouw, *Microtectonics*
- Pollard and Fletcher, *Fundamentals of Structural Geology*
- Ramsay and Huber, *The Techniques of Modern Structural Geology, Volume 1: Folds and Fractures*
- Ramsay and Huber, *The Techniques of Modern Structural Geology, Volume 2: Strain Analysis*
- Turcotte and Schubert, *Geodynamics*

If you need a different perspective on something I cover in class, or if you are simply interested, please try one of the following texts instead of Google:

The IDEAS Center (2nd Floor of Central Library) offers free tutoring to all students with a focus on transfer students, sophomores, and others undergoing a transition to UT Arlington. To schedule an appointment with a peer tutor or mentor email IDEAS@uta.edu or call (817) 272-6593.

Other Suggested Texts:

Students in the past have found themselves extremely confused, for example, by watching YouTube videos of nice British ladies showing them how to solve structural geology problems. If you need a different perspective on something I cover in class, or if you are simply interested, please try one of the following texts instead of Google:

- Twiss and Moores, *Structural Geology* (the most complete structural geology book)
- Allmendinger, Cardozo, and Fischer, *Structural Geology Algorithms: Vectors and Tensors*
- Lisle and Leyshon, *Stereographic Projection Techniques for Geologists and Civil Engineers*
- Means, W.D., *Stress and Strain, Basic Concepts of Continuum Mechanics for Geologists*
- Park, R. G., *Foundations of Structural Geology*
- Passchier and Trouw, *Microtectonics*
- Pollard and Fletcher, *Fundamentals of Structural Geology*
- Ramsay and Huber, *The Techniques of Modern Structural Geology, Volume 1: Folds and Fractures*
- Ramsay and Huber, *The Techniques of Modern Structural Geology, Volume 2: Strain Analysis*
- Turcotte and Schubert, *Geodynamics*
Lecture Schedule:
*Book Abbreviations: Davis, Reynolds, Kluth (DRK), Allmendinger(A)

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Associated Reading</th>
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</thead>
<tbody>
<tr>
<td>26-Aug</td>
<td>Introduction</td>
<td>Primary: DRK: Chp. 1</td>
</tr>
<tr>
<td>29-Aug</td>
<td>Descriptive, Kinematic, Dynamic Analysis</td>
<td>Primary: DRK: Chp. 1</td>
</tr>
<tr>
<td>31-Aug</td>
<td>Stereographic Projections</td>
<td>Primary: DRK: Appendix: p. 734-744</td>
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<tr>
<td>2-Sep</td>
<td>Introduction to Descriptive Analysis</td>
<td>Primary: DRK: Appendix: p. 684-705</td>
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<tr>
<td>5-Sep</td>
<td>NO CLASS – Labor Day</td>
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<tr>
<td>7-Sep</td>
<td>Introduction to Kinematic Analysis – Displacements and Strains</td>
<td>Primary: DRK: p. 34-63</td>
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<tr>
<td>9-Sep</td>
<td>Introduction to Dynamic Analysis – Forces, Stress, Constitutive Behavior</td>
<td>Primary: DRK: p. 90-108</td>
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<tr>
<td>12-Sep</td>
<td>An example of complete Structural Analysis</td>
<td>Griffith et al., JSG, 2008</td>
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<tr>
<td>14-Sep</td>
<td>Joints</td>
<td>Primary: DRK: Chp. 5, p. 193-215</td>
</tr>
<tr>
<td>16-Sep</td>
<td>Faults</td>
<td>Primary: DRK: Chp. 6, p. 249-277</td>
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<tr>
<td>19-Sep</td>
<td>Paper 1 Presentation, Fault rocks and sense of shear</td>
<td>Primary: DRK: Chp. 6, p. 260-285</td>
</tr>
<tr>
<td>21-Sep</td>
<td>Fault rocks and sense of shear</td>
<td>Shaw et al., Science, 1999</td>
</tr>
<tr>
<td>23-Sep</td>
<td>Paper 2 Presentation &amp; Paper 3 Presentation</td>
<td>Segall &amp; Pollard JGR, 1983; Booth, 1982</td>
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<tr>
<td>26-Sep</td>
<td>NO CLASS – Geological Society of America Meeting</td>
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<tr>
<td>28-Sep</td>
<td>NO CLASS – Geological Society of America Meeting</td>
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<tr>
<td>30-Sep</td>
<td>Folds I</td>
<td>Primary: DRK: Chp. 7</td>
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<tr>
<td>3-Oct</td>
<td>Folds II</td>
<td>Primary: DRK: Chp. 7</td>
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<tr>
<td>5-Oct</td>
<td>Scalars, Vectors, &amp; Matrices</td>
<td>Primary: A: Chp 2</td>
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<tr>
<td>7-Oct</td>
<td>Basic Matrix-Vector manipulation</td>
<td>Primary: A: Chp 5, p. 87-92</td>
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<td>Paper 4 Presentation</td>
<td>Bergbauer &amp; Pollard JSG, 2004</td>
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<tr>
<td>10-Oct</td>
<td>Coordinate Transformations</td>
<td>Primary: A: Chp 4</td>
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<tr>
<td>12-Oct</td>
<td>EXAM I</td>
<td></td>
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<tr>
<td>14-Oct</td>
<td>Deformation and strain in one and two dimensions</td>
<td>Primary: DRK: Chp. 2, p. 60-75</td>
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<tr>
<td>17-Oct</td>
<td>Advanced topics in strain</td>
<td>Primary: DRK: Chp. 2, p. 75-89</td>
</tr>
<tr>
<td>19-Oct</td>
<td>Paper 5 Presentation</td>
<td>Hossain, Tectonophysics, 1979</td>
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<tr>
<td>21-Oct</td>
<td>Foliations and Lineations as recorders of flow in rocks</td>
<td>Primary: DRK: Chp. 9</td>
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<tr>
<td>24-Oct</td>
<td>Force and tractions</td>
<td>Primary: DRK: Chp 3: p. 91-103</td>
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<tr>
<td>26-Oct</td>
<td>State of stress at a point/the stress tensor</td>
<td>Primary: DRK: Chp 3: p. 106-113</td>
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<td></td>
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<td>Supplementary: A: Chp. 6, p. 99-102</td>
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<tr>
<td>2-Nov</td>
<td>Mechanics of Faulting in the Crust</td>
<td>Primary: DRK: Chp 6: p. 301-343</td>
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<tr>
<td>Date</td>
<td>Assignment</td>
<td>Readings</td>
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<tr>
<td>9-Nov</td>
<td><strong>Paper 8 &amp; Paper 9 Presentation</strong></td>
<td>Secor, <em>AJS, 1965</em>; Maerten et al., <em>JSN, 2002</em></td>
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<tr>
<td>11-Nov</td>
<td><strong>Exam II</strong></td>
<td><strong>Handout</strong></td>
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<tr>
<td>14-Nov</td>
<td>Elastic Constitutive Behavior</td>
<td>Primary: DRK: Chp. 3, p. 120-126</td>
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<tr>
<td>16-Nov</td>
<td>Applications of elastic behavior to understanding stress in the crust</td>
<td>Handout</td>
</tr>
<tr>
<td>18-Nov</td>
<td>Viscous and Plastic Constitutive Relations</td>
<td>Primary: DRK: Chp. 3, p. 125-138</td>
</tr>
<tr>
<td>21-Nov</td>
<td>The strength and constitutive behavior of the lithosphere</td>
<td>Supplementary: A: Chp. 9, p. 175-178</td>
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<tr>
<td>23-Nov</td>
<td><strong>Paper presentations 10</strong></td>
<td>Primary: DRK: Chp. 3, p. 138-147</td>
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<tr>
<td>25-Nov</td>
<td>NO CLASS: Thanksgiving Holiday</td>
<td><strong>Handout</strong></td>
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<tr>
<td>27-Nov</td>
<td>NO CLASS: Thanksgiving Holiday</td>
<td><strong>Handout</strong></td>
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<tr>
<td>30-Nov</td>
<td>Deformation Mechanisms I</td>
<td>Primary: DRK: Chp. 4</td>
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<tr>
<td>5-Dec</td>
<td><strong>Paper 13 Presentation</strong></td>
<td>Griffith et al., <em>JGR, 2010</em></td>
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<td>7-Dec</td>
<td>Bringing it all together: A roadmap for structural analyses,</td>
<td>Excerpt from Pollard &amp; Fletcher, 2005</td>
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<tr>
<td>14-Dec</td>
<td>Final Exam, regular classroom, 8AM-10:30AM</td>
<td>Everything</td>
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<tr>
<td>(Wed)</td>
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<tr>
<td>Date</td>
<td>Topic</td>
<td>Associated Reading</td>
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<tr>
<td>Week 1 (25-26 Aug)</td>
<td>No Lab – Only Thursday &amp; Friday Classes held this week</td>
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<tr>
<td>Week 2 (29 Aug-2 Sep)</td>
<td>Lab 1: Measurements of Geologic Structures &amp; Fabrics (Due week of Lab 2)</td>
<td>Primary: DRK: Appendix, p. 684-711, p. 735-744&lt;br&gt;Supplementary: A: Chp 1, p. 1-8, p. 17-21</td>
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<tr>
<td>Week 3 (5-9 Sep)</td>
<td>No Lab – Labor Day Week (no class on Monday)</td>
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<tr>
<td>Week 4 (12-16 Sep)</td>
<td>Lab 2: Geologic Contacts in Maps and Cross-Sections (Lab 1 Due today)</td>
<td>Primary: DRK: Appendix, p. 718-735, p. 745-747&lt;br&gt;Supplementary: A: Chp. 3</td>
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<tr>
<td>Week 6 (26-30 Sep)</td>
<td>NO Lab – Geological Society of America Meeting</td>
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<tr>
<td>Week 7 (3 – 7 Oct)</td>
<td>Lab 4: Faults &amp; Folds in Geologic Maps</td>
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<td>Week 8 (10-14 Oct)</td>
<td>Lab 5: Advanced Geologic Map Analysis</td>
<td>Primary: Review previous lab readings, Lab 5 Handout</td>
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<tr>
<td>Week 9 (17-21 Oct)</td>
<td>Lab 6: Introduction to MATLAB (Due week of Lab 6)</td>
<td>Primary: Lab 6 Handout</td>
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<td>Week 10 (24-28 Oct)</td>
<td>Lab 7: Coordinate transformations (Lab 6 Due)</td>
<td>Primary: Lab 7 Handout</td>
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<td>Week 11 (31 Oct – 4 Nov)</td>
<td>Lab 8: Strain Analysis</td>
<td>Primary: Lab 8 Handout</td>
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<td>Week 12 (7-11 Nov)</td>
<td>Lab 9: Stress Analysis: Mohr Circle &amp; Tensors</td>
<td>Primary: Lab 9 Handout</td>
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<td>Week 13 (14-18 Nov)</td>
<td>Lab 10: Laboratory Rock Mechanics &amp; Elasticity (GRC)</td>
<td>Primary: Lab 10 Handout</td>
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<td>Week 14 (21-25 Nov)</td>
<td>No Lab – Thanksgiving Holiday</td>
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<td>Week 15 (28 Nov-2 Dec)</td>
<td>Lab 11: Elastic Models of Dikes</td>
<td>Primary: Lab 11 Handout</td>
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<td>Week 16 (5 -7 Dec)</td>
<td>No Lab – Last week of classes</td>
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