

**GEO. 420K - INTRODUCTION TO FIELD AND STRATIGRAPHIC METHODS**  
**MONDAY/WEDNESDAY SECTIONS, SPRING 2019**

**LECTURE:** Monday and Wednesday, 2:00 - 3:00 p.m.; JGB 2.218  
**LAB:** Friday 2:00 - 5:00 p.m. in EPS 2.104 (#26715), EPS 2.136 (#26720), EPS 4.104 (#26725)

**INSTRUCTORS:** Dr. Mark Helper, JGB 4.112  
helper@jsg.utexas.edu  
Phone: Office: 512- 471-1009  
Mobile: 512-924-2526  
Dr. Zach Sickmann, TBA  
[ztsickmann@gmail.com](mailto:ztsickmann@gmail.com)  
Phone: (210) 573-6633

**TEACHING ASSISTANTS:**  
EPS 2.104  
EPS 2.136  
EPS 4.104

**OFFICE HOURS:** Helper: M, W, F 1-2 and whenever my door is open.  
Sickmann: M, W 3-4

**GRADING:** Field Projects..... 55% There will be no makeup  
Labs ..... 15% exams or projects.  
Lab Exam(s) ..... 15%  
Class Exam(s) ..... 15%

**PREREQUISITES:** A grade of C or better in Geo. 416K, 426P, and 416M (Geo. 426P may be taken concurrently with 420K) for B.S. Geology, or C or better in Geo. 416M and Geo. 416K for G.E.H., Geophysics, Hydrogeology and B.A. Geology. If you do not have these prerequisites and have not already done so, see one of us immediately.

**OTHER ITEMS:** By registering for Geo. 420K, students agree to be available for field trips on at least **6 (six)** weekends. See the following pages for the field trip dates. In addition some Friday labs will be conducted off campus, but during normally scheduled lab hours.

**Announcements, information pertinent to field trips, labs, etc. will be posted on the 420K Canvas site. Check it often for information about materials for upcoming labs and field trips.**

Academic dishonesty will not be tolerated. Anyone in violation of University policy (see Student Handbook) will receive a failing grade and is subject to additional punitive measures, which may include expulsion from the University.

**REQUIRED TEXT:** Coe, A. L., Geological Field Techniques. Wiley-Blackwell, 323 pp.

Geo420K Lecture, Lab and Field Trip Manual, available from UT Copy Center in the McComb School of Business.

**WEB SITE:** UT Canvas site for Geo420K

**REQUIRED ITEMS:** See Attached list. These items are available in a supply packet at the University Coop Art Supply store.

**GEO. 420K - INTRODUCTION TO FIELD AND STRATIGRAPHIC METHODS**  
**TUESDAY/THURSDAY SECTIONS, SPRING 2019**

**LECTURE:** Tuesday and Thursday, 2:00 - 3:00 p.m.; JGB 3.120

**LAB:** Friday 2:00 - 5:00 p.m. in JGB 2.308 (#26730), JGB 3.116 (#26735), JGB 3.204 (#26740)

**INSTRUCTORS:** Dr. Daniel Stockli, JGB 5.224  
stockli@jsg.utexas.edu  
Phone: 512-964-8771

Dr. Brian Horton, JGB 5.220a  
horton@jsg.utexas.edu  
Phone: 512-470-0796

**TEACHING ASSISTANTS:**  
JGB 2.308  
JGB 3.116  
JGB 3.204

**OFFICE HOURS:** Stockli: T, Th: 3-4 PM or by appointment  
Horton: T, Th: 10-11 or by appointment

**GRADING:** Field Projects..... 55%      There will be no makeup  
Labs ..... 15%                    exams or projects.  
Lab Exam(s) ..... 15%  
Class Exam(s) ..... 15%

**PREREQUISITES:** A grade of C or better in Geo. 416K, 426P, and 416M (Geo. 426P may be taken concurrently with 420K) for B.S. Geology, or C or better in Geo. 416M and Geo. 416K for G.E.H., Geophysics, Hydrogeology and B.A. Geology. If you do not have these prerequisites and have not already done so, see one of us immediately.

**OTHER ITEMS:** By registering for Geo. 420K, students agree to be available for field trips on at least **6 (six)** weekends. See the following pages for the field trip dates. In addition, some Friday labs may be conducted off campus, but during normally scheduled lab hours.

**Announcements, information pertinent to field trips, labs, etc. will be posted on the 420K Canvas site. Check it often for information about materials for upcoming labs and field trips.**

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**REQUIRED TEXT:** Coe, A. L., Geological Field Techniques. Wiley-Blackwell, 323 pp.  
Geo420K Lecture, Lab and Field Trip Manual, available from UT Copy Center in the McComb School of Business.

**WEB SITE:** UT Canvas site for Geo420K

**REQUIRED ITEMS:** See Attached list. These items are available in a supply packet at the University Coop Art Supply store.

**GEO420K – FIELD TRIP DATES  
SPRING 2019**

By registering for GEO 420K, you agree to be available for field trips on at least six weekends. The six field trip weekends this semester for are:

- Trip 1: February 2 AND 3 – Drs. Helper & Stockli
- Trip 2: February 16 OR 17– Dr. Helper or Dr. Stockli
- Trip 3: March 2 OR 3 – Dr. Helper or Dr. Stockli
- Trip 4: March 30 OR 31 – Dr. Sickmann or Dr. Horton
- Trip 5: April 13 OR 14 – Dr. Sickmann or Dr. Horton
- Trip 6: April 27 OR 28 – Dr. Sickmann or Dr. Horton

These dates are provided now so that you can plan your weekend activities accordingly. Unlike other courses, the field trips are not supplementary to the classroom work; *they are 55% of your grade*. **Your attendance and participation in all field exercises are required for a passing grade, without exceptions.** Specific information for each trip, *including which days you are expected to attend*, will be posted on the class Canvas site and can be found in the Lab/Field Trip Manual.

A list of materials needed for the field exercises, all contained in the **required** course packet available from the Co-Op Art Supply store, is attached.



LECTURE AND LAB SCHEDULE - GEO. 420K, MW Sections, 2019

<u>Date</u>	<u>Lecture</u>	<u>Lab</u>
1/23	Overview and Introduction (M.H.) The Geologic Compass – Strike/Dip, Bearing/Plunge (M. H.)	1. Compass/Pace and Compass Map*
1/28	Base Maps, Grids and Location Methods (M. H.)	2. Topographic Maps & GPS*
1/30	Field Trip 1 Prep. & Cenozoic Geology of Central Texas (M.H.) <b>Field Trip 1: Mapping Project 1 (2/2 AND 2/3)</b>	
2/4	The Global Positioning System (M. H.)	3. Geologic Maps I
2/6	Geologic Map Patterns; Strike Lines, Dip & Unit Thickness (M. H.)	
2/11	Introduction to Faults (M. H.)	4. Geologic Maps II
2/13	Field Trip 1 Debrief; Trip 2 Prep.; Paleozoic of Llano Uplift (M. H.) <b>Field Trip 2: Mapping Project 2 (2/16 or 2/17)</b>	
2/18	Introduction to Folds (M. H.)	5. Geologic Maps III/ Folds and Faults
2/20	Down Plunge Viewing/Geologic Maps as Cross Sections (M. H.)	
2/25	Metamorphic Rocks: Textures and Fabrics in Tectonites (M. H.)	6. Describing & Measuring Metamorphic Rocks
2/27	Field Trip 2 Debrief; Trip 3 Preparation (M.H.) <b>Field Trip 3: Sketching and Measuring in pC Rocks (3/2 or 3/3)</b>	
3/4	Precambrian Geology of the Llano Uplift (M. H.)	7. Cross Sections
3/6	Cross Section Construction (M. H.)	
3/11	Digital Mapping Tools and Techniques (M. H.)	8. No Lab
3/13	Field Trip 3 Debrief (M. H.)	
3/16 - 3/24 SPRING BREAK		
3/25	Sedimentary Rock & Unit Descriptions (Z.S.)	9. Rock and Rock Unit Descriptions
3/27	Logging Clastic Successions, Cenozoic GOM History, Trip 4 Prep. (Z.S.) <b>Field Trip 4: Tertiary Clastics (3/30 or 3/31)</b>	
4/1	Clastic Successions: Depositional Systems (Z.S.)	10. Sequence Strat./ Correlation
4/3	Stratigraphy & Subsurface Analysis (Z.S.)	
4/8	Cyclicality & Stratigraphic Sequences (Z.S.)	11. Net Sand Isopach Mapping
4/10	Trip 4 Debrief & Trip 5 Prep. (Z.S.) <b>Field Trip 5: Cretaceous Carbonate Section Correlation (4/13 or 4/14)</b>	
4/15	Carbonates: Descriptions & Depositional Systems (Z.S.)	12. Unconformities: x-sections & map reading
4/17	Phanerozoic Stratigraphy of Central Texas (Z.S.)	
4/22	Sedimentary Structures, Paleocurrents, Trace Fossils, Fauna (Z.S.)	13. Maps, time-stratigraphic relations & geologic reconstructions
4/24	Trip 5 Debrief & Trip 6 Prep. (Z.S.) <b>Field Trip 6: Measuring Features in Sedimentary Rocks (4/27 or 4/28)</b>	
4/29	Biostratigraphy, Lithostratigraphy, Chronostratigraphy (Z.S.)	
5/1	Sedimentary Basin Analysis, Tectonics, Sediment Provenance (Z.S.)	14. Exam Review
5/6	Trip 6 Debrief (Z.S.)	15. Lab Final
5/8	Course Evaluation and Review (Z.S.)	
TBA	<b>Final Exam</b>	

\* Lab conducted outdoors, prepare accordingly.  
(M.H.) - Dr. Mark Heper  
(Z.S.) – Dr. Zack Sickmann

LECTURE AND LAB SCHEDULE - GEO. 420K, TTH Sections, 2019

<u>Date</u>	<u>Lecture</u>	<u>Lab</u>
1/22	Overview and Introduction (D.S. et al.)	1. Compass/Pace and Compass Map*
1/25	The Geologic Compass – Strike/Dip, Bearing/Plunge (D. S.)	
1/29	Base Maps, Grids and Location Methods (D.S.)	2. Topographic Maps & GPS*
1/31	Field Trip 1 Prep. & Cenozoic Geology of Central Texas (D.S.) <b>Field Trip 1: Mapping Project 1 (2/2 AND 2/3)</b>	
2/5	The Global Positioning System (D.S.)	3. Geologic Maps I
2/7	Geologic Map Patterns; Strike Lines, Dip & Unit Thickness (D.S.)	
2/12	Introduction to Faults (D.S.)	4. Geologic Maps II
2/14	Field Trip 1 Debrief; Trip 2 Prep.; Paleozoic of Llano Uplift (D.S.) <b>Field Trip 2: Mapping Project 2 (2/16 or 2/17)</b>	
2/19	Introduction to Folds (D.S.)	5. Geologic Maps III/ Folds and Faults
2/21	Down Plunge Viewing/Geologic Maps as Cross Sections (D.S.)	
2/26	Metamorphic Rocks: Textures and Fabrics in Tectonites (D.S.)	6. Describing & Measuring Metamorphic Rocks
2/28	Field Trip 2 Debrief; Trip 3 Preparation (D.S.) <b>Field Trip 3: Sketching and Measuring in pC Rocks (3/2 or 3/3)</b>	
3/5	Precambrian Geology of the Llano Uplift (D.S.)	7. Cross Sections Rocks
3/7	Cross Section Construction (D.S.)	
3/12	Digital Mapping Tools and Techniques (D.S.)	8. No Lab
3/14	Field Trip 3 Debrief (D.S.)	
3/16 - 3/24 SPRING BREAK		
3/26	Sedimentary Rock & Unit Descriptions (B.H.)	9. Rock and Rock Unit Descriptions
3/28	Logging Clastic Successions Cenozoic GOM history, Trip 4 Prep. (B.H.) <b>Field Trip 4: Tertiary Clastics (3/30 or 3/31)</b>	
4/2	Clastic Successions: Depositional Systems (B.H.)	10. Sequence Strat./ Correlation
4/4	Stratigraphy & Subsurface Analysis (B.H.)	
4/9	Cyclicity & Stratigraphic Sequences (B.H.)	11. Net Sand Isopach Mapping
4/11	Trip 4 Debrief & Trip 5 Prep. (B.H.) <b>Field Trip 5: Cretaceous Carbonate Section Correlation (4/13 or 4/14)</b>	
4/16	Carbonates: Description and Depositional Systems (B.H.)	12. Unconformities: x-sections & map reading
4/18	Phanerozoic Stratigraphy of Central Texas (B.H.)	
4/23	Sedimentary Structures, Paleocurrents, Trace Fossils, Fauna (B.H.)	13. Maps, time-stratigraphic relations & geologic reconstructions
4/25	Trip 5 Debrief & Trip 6 Prep. (B.H.) <b>Field Trip 6: Measuring Features in Sedimentary Rocks (4/27 or 4/28)</b>	
4/30	Biostratigraphy, Lithostratigraphy, Chronostratigraphy (B.H.)	14. Exam Review
5/2	S (B.H.)	
5/7	Trip 6 Debrief (B.H.)	15. Lab Final
5/9	Course Evaluation and Review (B.H.)	
TBA	<b>Final Exam</b>	

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\* Lab conducted outdoors, prepare accordingly.  
(D. S.) – Dr. Daniel Stockli  
(B. H.) – Dr. Brian Horton

GEO 420K - EQUIPMENT LIST

**THESE MATERIALS ARE REQUIRED** and most are available in a single course packet for sale at the UT Co-Op Art Supply store. This packet contains the least expensive versions of the items that YOU WILL NEED for the class. **PLEASE PURCHASE THE COURSE PACKET** and *don't shop for alternatives*.

**REQUIRED MATERIALS (\* denotes in course packet)**

\*Protractor Ruler 6"

\*Metric Protractor Ruler 6"

\*Field notebook

\*Hand Lens

Compass – please install the Clino App on your smart phone; see Dr. Helper if you don't have one

Estwing Rock Hammer – not in course packet

Covered clipboard – will construct during Lab 1 or 2

\*12ct. Crayola Coloring Pencils

\*0.5mm Mechanical Pencil

\*F Lead (12ct.)

\*Pentel Pen .3

\*Pentel Pen .6

\*Sharpie Fine pt (2)

\*Sharpie Ultra Fine pt.

1oz. Bottle

Erasers/liquid paper

Canteen (1 or 2 one-quart canteens)

Watch

Knapsack or carrying bag

Grain size scale card – available in the JSG undergraduate office

**DESIRABLE MATERIALS:**

Rainwear

Aspirin, chapstick, bandaids, sunscreen or tanning lotion, insect repellent, etc.

Toilet paper

**PROHIBITED ITEMS:**

Firearms

Alcoholic beverages in University vehicles

Controlled substances and narcotics