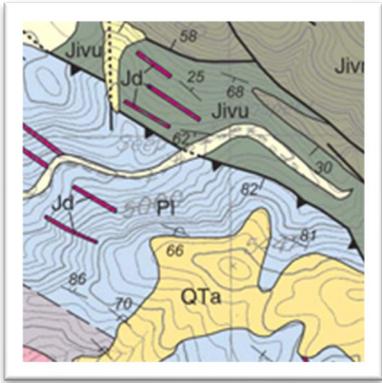


GEOL 3102: FIELD METHODS IN GEOLOGY, SPRING 2022, R-2:00



GEOL 3102. Field Methods in Geology. An introduction to geologic mapping techniques. Tools used include Brunton compass, aerial photographs, and field notebook. Techniques will be applied to construct a geologic map during a required field trip April 6-10 ~~over Spring Break~~. Should be taken immediately before taking Summer Field Camp (GEOL 3600).

Professors: Joe Satterfield and Stephen Shields

Offices: VIN 122, 135

Office phones: 325-486-6766 (Satterfield), 325-486-6934 (Shields)

Physics and Geosciences Department Office: 325-942-2242

E-mails: joseph.satterfield@angelo.edu , stephen.shields@angelo.edu

Office hours (Satterfield)

- Tuesday: 1:00 – 2:00 pm
- Wednesday: 10:00 am – 1:00 pm, 2:00 – 5:00 pm
- Or contact me to set up a convenient time to meet

Office hours (Shields)

- Monday: 11:00 am – 12:00 pm; 1:00 – 3:30 pm
- Tuesday: Available via email
- Wednesday: 11:00 am – 12:00 pm; 1:00 – 3:30 pm
- Thursday: Available via email
- Friday: 11:00 am – 12:00 pm
- Or contact me to set up a convenient time to meet

Required Textbooks

- Compton, R.R., 1985, *Geology in the Field*: paperback published by Earthspun Press (this is also the text used by ASU Field Camp and many others)
- Standard Geology Field Book. Purchase a Sokkia Field Book from Dr. Joe for \$9.00

Geologic Mapping Trip!

Required mapping trip to Indio Ranch, University of Texas at El Paso Research Station,

Wednesday – Sunday, April 6-10.

We will stay in bunkhouses near our mapping area. See photos at [Indio Ranch website](#)¹

Important: If you cannot participate in the April 6-10 mapping project, you must withdraw from the course. No exceptions!

Grading

- Lab Projects 1 - 7 (7% each)
- Lab Project 8: Indio Mountains Mapping Project: 51% (cross-sections 10%, field map 10%, field notes in field book (5%), stratigraphic column 5%, drafted map 11%, report 10%)
- Projects 1 – 7 should be fun and straightforward. Project 8 will be challenging and require much work, but will it not be a test and you will receive much guidance.

Schedule

Date	Location	Topics and Due Dates	Sections in Compton (1985) to Read
I: 1/20	ASU VIN 146	1: Topographic maps, stereo aerial photos Basics of base maps, aerial photos, field projects Review field equipment list for April Mapping trip	1) Using stereo aerial photos (7-1) 2) Topographic map details (6-1 – 6-3) 3) Philosophy and organization of a field study (1-1 – 1-7) 4) Determining and using your pace (2-8) (Numbers in parentheses are sections in Compton, 1985)
II: 1/27	Spillway Hill	2: Locating positions in the field The first important mapping question: Where exactly am I? Locating positions with topo maps, aerial photos, and compasses PROJECT 1 DUE	1) Setting declination on Brunton compass (2-4) 2) Taking bearings, triangulating (2-5, 6-3) 3) Using aerial photos in the field (7-1 – 7-8) 4) Brunton parts you need to know (2-4)
III: 2/3	ASU VIN 146	3: Constructing a Geologic Cross-section Testing and making predictions from your map: How does it work in 3 dimensions? PROJECT 2 DUE	1) Weird and wonderful geologic map symbols you have not seen before (Appendix 7 – 8) 2) Review how to distinguish 4 contact types 3) Review how to make a geologic cross-section (6-5)
IV: 2/10	Nasworthy Spillway below ASU Lake house	4: Measuring and plotting lines and planes Using a Brunton compass to measure strikes-and-dips and trends-and-plunges. The fun comes from plotting data in the field to solve problems. PROJECT 3 DUE	1) Review of strike and dip 2) How to use a Brunton compass to measure lines and planes (3-5, 3-6) 3) Rule of V's for interpreting dip (6-4)
V: 2/17	ASU VIN 146	5: Reconnaissance mapping on an Aerial photo Bring your laptop to lab. Mapping in the office will give you ideas to test before Day 1 in the field! Practice with Google Earth and stereo photos PROJECT 4 DUE	1) How to map on aerial photos (7-1 – 7-8)
VI: 2/24	River Bend Area, San Angelo State Park	6: Making a simple geologic map: River Bend Mapping Project, Day 1 Dress in field clothes and bring field gear! Geologic maps are made in the field. Field gear shakedown, First opportunity	1) Locating and drawing geologic contacts (5-2) 2) Writing usable field notes (3-1) 3) Describing sedimentary rocks (4-1- 4-3) 4) How to function in the field (excerpt from Davis and Reynolds, 2012)
VII: 3/3	ASU VIN 146	6: River Bend Area Mapping Project, Day 2 FIELD BOOKS DUE AT END OF FIELD DAY	
VIII: 3/10	ASU VIN 146	PROJECT 6 GEOLOGIC MAPS DUE	
IX: 3/14-18		SPRING BREAK: GET OUTSIDE! ASU RESEARCH MAPPING, HYDRO TRIP TO SANTA ELENA CANYON PROTECTED AREA, CHI.	
X: 3/24	ASU VIN 146	Project 6 Extended Abstract Due	Organization of geologic maps and reports (16-1 – 16-6)

XI: 3/31	ASU VIN 146	7: Final field equipment shakedown Bring all field gear on shakedown list Indio Mountains trip details, \$50 for food due Detailed Project 8 assignment distributed Field safety: avoiding, diagnosing, and treating	
XII: 4/6-10	Field trip to UTEP Research Station, Indio Mtns	Mapping Project FIELD MAP DUE 4/10	
4/14		4/14: GEOLOGIC MAP UNIT DESCRIPTIONS DUE	
4/21		4/21: DRAFTED GEOLOGIC MAP AND SECOND CROSS-SECTION DUE	1) Drafting techniques (16-2, 16-3)
4/28		4/28: FINAL REPORT DUE	

Late Assignment Policy

- Ten points deducted if assignment turned in after due date
- Late assignments not accepted after graded labs returned or key posted, typically the week after due date

Student learning outcomes

1. To learn and practice skills needed for summer field camp, GEOL 3600, a 5- or 6-week field geology course. Look at Sul Ross State University Field Camp, [Sul Ross Field Camp information](#)² or Indiana University Field Camp, [Indiana University Field Camp information](#)³
2. To learn how to solve problems in the field; not just collect data in the field and think about it later. This means you will practice how to solve problems when it its hot or cold, when your legs are sore and punctured by lechuguilla, when you are distracted by pretty scenery, when the rocks look confusing, and when you have deadlines looming.
3. To learn how to write a scientific report containing data you collected. Your Indio Ranch report will be a tiny version of a Master's thesis.
4. To learn about the geology of West Texas and to address unsolved problems that are subjects of current research. Problems include: timing of Laramide and Basin and Range mountain building, significance of strike-slip faulting, and whether unconformities are present at some formation contacts.
5. Learning outcomes will be evaluated by graded lab projects, especially the Indio Ranch mapping project.
6. Also read [University of Texas Field Methods course objectives](#)⁴ and [Field Camps Train the Next Generation of Petroleum Geologists](#)⁵ (reading assignment before classes!)

Course Webpages

The [Angelo State Blackboard site](#)⁶ contains PowerPoint slides, web links to scenic areas mentioned in class, practice problems, answers to lab assignments, and your official grades.

Field Gear and Camping Gear Sources

1. Happy Trails, San Angelo, [Happy Trails website](#)⁷
2. ASC Scientific, [Geology Equipment Website](#)⁸

Lab Expectations

- 1) You are expected to attend every lab meeting. Field projects are especially difficult to make-up.
- 2) Take the next big step: let's talk outside the lab about almost anything. My office, VIN 122, is a good place to find me or to see where I am. Topics I like to discuss: geology, hiking and backpacking trails, productive ways of learning geology, racquetball, Lord of the Rings, future careers, lame jokes, and more.
- 3) You will not distract yourself or others in the lab or in the field with electronic devices. You will put your phone away and you will not text in lab. You will step outside the lab if you have an emergency phone call.

Academic Integrity

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU. The College of Science and Engineering adheres to ASU's [Statement of Academic Integrity](#)⁹.

Plagiarism

Plagiarism is a serious topic covered in ASU's Academic Integrity policy in the Student Handbook. Plagiarism is the action or practice of taking someone else's work, idea, etc., and passing it off as one's own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list. Papers are subject to be evaluated for originality via Turnitin. Resources to help you understand this policy better are available at the [ASU Writing Center](#)¹⁰

Copyright Policy

Students officially enrolled in this course should make only one printed copy of the given articles and/or chapters. You are expressly prohibited from distributing or reproducing any portion of course readings in printed or electronic form without written permission from the copyright holders or publishers.

Accommodations for Students with Disabilities

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA), and subsequent legislation.

Student Disability Services is located in the Office of Student Affairs, and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student's responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at ADA@angelo.edu. For more information about the application process and requirements, visit the [Student Disability Services website](#).¹¹ The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dallas Swafford, Director of Student Disability Services, Office of Student Affairs

325-942-2047

dallas.swafford@angelo.edu

Houston Harte University Center, Room 112

Title IX

The University prohibits discrimination based on sex, which includes pregnancy, sexual orientation, gender identity, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination including: sexual assault, sex-based discrimination, sexual exploitation, sexual harassment, public indecency, interpersonal violence (domestic violence and/or dating violence), and stalking. As a faculty member, I am a Responsible Employee meaning that I am obligated by law and ASU policy to report any allegations I am notified of to the Office of Title IX Compliance.

Students are encouraged to report any incidents of sexual misconduct directly to ASU's Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator at:

Michelle Boone, J.D.

Director of Title IX Compliance/Title IX Coordinator

Mayer Administration Building, Room 210

325-942-2022

michelle.boone@angelo.edu

You may also file a report online 24/7 at [Title IX Incident Form](#)¹².

If you are wishing to speak to someone about an incident in confidence, you may contact the University Health Clinic and Counseling Center at 325-942-2173 or the ASU Crisis Helpline at 325-486-6345.

For more information about Title IX in general you may visit [ASU Title IX webpages](#)¹³.

Student Absence for Observance of Religious Holy Days

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See [ASU Operating Policy 10.19 Student Absence for Observance of Religious Holy Day](#)¹⁴ for more information

Incomplete Grade Policy

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See [ASU Operating Policy 10.11 Grading Procedures](#)¹⁵ for more information.

General Policies Related to This Course

All students are required to follow the policies and procedures presented in these documents:

- [Angelo State University Student Handbook](#)¹⁶
- [Angelo State University Catalog](#)¹⁷

¹ <http://www.utep.edu/indio/>

² <http://www.sulross.edu/geology-field-camp>

³ [http:// https://iugfs.indiana.edu/courses/index.html](http://https://iugfs.indiana.edu/courses/index.html)

⁴ http://www.geo.utexas.edu/courses/420k/Objectives_09.pdf

⁵ <http://specialpapers.gsapubs.org/content/461/25.abstract>

⁶ <https://blackboard.angelo.edu>

⁷ <http://www.happytrailsshop.com/>

⁸ <http://www.ascscientific.com/>

⁹ <https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php>

¹⁰ https://www.angelo.edu/dept/writing_center/academic_honesty.php

¹¹ <https://www.angelo.edu/services/disability-services/>

¹² www.angelo.edu/incident-form

¹³ www.angelo.edu/title-ix

¹⁴ <https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of>

¹⁵ <https://www.angelo.edu/content/files/14197-op-1011-grading-procedures>

¹⁶ <https://www.angelo.edu/student-handbook/>

¹⁷ <https://www.angelo.edu/catalogs/>