

Advanced Topics Organic Chem(CHEM-4328 CRN: 26931)**(Course is unavailable to students until Wednesday, January 10, 2024)** Syllabus

Syllabus

Attached Files

 [GeoforensicsSyllabus.docx](#) (918.622 KB)[Alignments](#)**CHEM 4328****Geoforensics****Spring 2024 Syllabus**

Course Description

Geologic materials provide important evidence in many criminal cases. This course will introduce students to the nature of geologic evidence, scientific protocols for the collection and examination of this evidence and selected techniques for identification of geologic materials. Students will develop an understanding of the geologic processes and contexts which form various geologic materials. With a firm grounding in the scientific basis for the use of geologic materials as evidence, students will apply this knowledge in a variety of case studies and representative scenarios.

Textbook: Introduction to Forensic Geoscience, Elisa Bergslien, 2nd edition, ISBN: 978-1-118-22795-4 (hardcover), ISBN: 978-1-6054-4 (paperback), or Google Books (e-edition)

Optional text: Evidence from the Earth, Raymond Murray, 2nd edition, ISBN: 978-0-87842-577-8

Other Required Material: internet access via laptop, tablet, or phone for use in class. You will need to be able to read .pdf files, use a word processor, watch videos, and download/install software such as Google Maps.

Course Objectives

- **Recall, describe** and **explain** geoforensics language, principles and methods.
- **Recall, describe** and **compare** Earth's components and how they can be used in criminal investigations.
- **Recall** and **explain** how a forensic geologist uses evidence and principles to support a conclusion. This includes the evidence used that lead up to past and current theories.
- **Perform** tests and collect data to **analyze** and **classify** geological materials, features, and processes both qualitatively and quantitatively. This includes reading and extracting basic information from maps, classifying minerals, igneous, sedimentary and metamorphic rocks and explaining the environment of formation, composition, textures, and characteristic properties.
- **Acquire** and **communicate** scientific data, ideas, and interpretations through written, oral, and visual means. This includes creating and describing graphs, maps and photos.
- **Apply** critical thinking skills such as inductive, deductive, and mathematical reasoning to solve geologic forensic problems using the scientific method. This includes the interpreting graphs, maps & photos.
- **Acquire** and **communicate** scientific data, ideas, and interpretations through written, oral, or visual means. Examples may include creating and describing graphs, maps, and photos.
- **Apply** critical thinking skills such as inductive, deductive, and mathematical reasoning to solve geoforensic problems.

Course Expectations

This course is 100% in person. I incorporate active learning in my classroom. Active learning is different than sitting in a classroom listening to a lecture. Active learning may require a more intensive effort on the part of the student because you will have to gather information on your own as directed by the instructor instead of listening to a lecture.

Coursework is laid out in Learning Modules and should be accessed via the Learning Module link. The Module page includes not only links to each individual module and graded work but also to the module introduction as well as additional instructions related to that particular module. You correspond with the instructor and with other students via the Email link when not in class. Your e-mail message will only go to those people you designate. In contrast, postings using the Discussion link are posted so that everyone in the class can read the posting and respond.

The Discussion tool will be used for some assignments. Feel free to initiate discussions if you have questions or see something of interest to the class as a whole. I may edit and organize discussion postings as needed. If you have questions, there are several means in which to get an answer: send the instructor a message, or, if you are having technical difficulties, contact the Help Desk.

We will be taking advantage of internet resources and software in this course, so expect to download and install needed software and to use programs such as Excel, your computer imaging processing program (such as Paint or Preview), take digital photographs, use Google Maps and phone apps. If you aren't comfortable with your computer please expect the activities to take extra time while you are learning. Don't hesitate to contact the Help Desk for technical assistance. They are trained in answering those types of questions. The computer labs in the library and UGLC have the latest software and browser plugins.

Assessment

Grades will be based on the following criteria and will be assigned using the scale:

- A = 90- 100%
- B = 80-89%
- C = 70-79%
- D = 60-69%
- F = < 60%

Procedures/Policies

- Class work will be posted and should be accessed under the **Learning Modules** tab. Each Learning Module will include: an introduction to the topic, and class activities. Due dates are given on the schedule. **It is important to come to class and to log in every week.**
- I will typically visit the electronic classroom daily and will try to acknowledge all e-mails within 2-4 hours during the workweek until 5pm. Questions and messages posted after 5 pm or over the weekend may not be acknowledged until the following day or during class time.
- Extra credit, if/when offered, is offered to the entire class, not to individuals.
- For technical difficulties please contact the Help Desk. I may also be able to help

- you trouble-shoot.
- I make every attempt to present this class free of errors, but they do happen. If you see an error (due date, etc.) please email me and let me know so I can fix it ASAP.
 - **Late Work policy:** Late work will be accepted up until midnight the night specified, but before the next activity is due unless otherwise noted. Check the schedule for the dates.
 - Computer problems are NOT an excuse for late work. It is good practice to complete work as it is assigned. Also plan to have a back-up computer or internet access location (library, computer lab, etc.) in case something happens at your primary location.
 - **Incompletes.** The grade of I is given for passable work that could not be completed due to circumstances beyond the student's control that occurs after the last day to withdraw from the course.
 - **Class Conduct.** Professionalism in class will be expected at all times. Disrespectful or rude comments will not be tolerated and could lead to removal from access to class.
 - **Attendance.** Your attendance is based on your participation in class and submitting work on time. Please review the late policy carefully. There are no exceptions.

Course Outline

Topic Description	Reading	Activities & Due Dates
Learning Module 1 Jan 16- Jan 21		Review Syllabus In-class Discussion 1: Initial post: Jan 16, replies: Jan 17 Assignment 1: How Science Works: due Jan 19, available until Jan 21
Learning Module 2 Jan 23-Jan 26	Chapter 1—Brief History of Forensic Science and Crime Scene Basics	Assignment 2: The Checks Lab: due Jan 24, available until Jan 26 Discussion 2: History of Forensic Science Timeline: Initial post Jan 25, replies Jan 26

<p>Learning Module 3</p> <p>Jan 30 - Feb 7</p>	<p>Chapters 2 & 6—Minerals and Gemstones</p>	<p>Assignment 3: Physical Properties of Minerals: due Jan 31, available until Feb 1</p> <p>Assignment 4: Moh's Hardness Puzzle: due Feb 2, Available until Feb 4</p> <p>Discussion 3: Birthstones: initial post due Feb 5, replies by Feb 6</p> <p>Assignment 5: Photographing Minerals: due Feb 7</p>
<p>Learning Module 4</p> <p>Feb 8- 28</p>	<p>Chapter 3—Rocks</p>	<p>Discussion 4: Rock Cycle. Initial post: Feb 8, 2 replies by Feb 9</p> <p>Assignment 6: Igneous Rocks: Feb 14</p> <p>Assignment 7: Sedimentary & Metamorphic Rocks: Feb 16</p> <p>Assignment 8: Texture of Sand Grains: Feb 23</p> <p>Discussion 5: Rock Collection: initial post due Feb 26, replies by Feb 27</p> <p>Assignment 9: Rock Chart: Feb 28</p>
<p>Learning Module 5</p> <p>Feb 29-Mar 8</p>	<p>Chapter 4—Maps</p> <p>Chapter 5—Sand</p> <p>Chapter 7—Soil</p>	<p>Discussion 6: What3Words: initial post Feb 29, replies by Mar 1</p> <p>Assignment 10: Topographic Maps: Mar 6</p> <p>Discussion 7: Scott Peterson Case: Mar 7/Mar 8</p> <p>Shoe-Lock Holmes 1: Mar 8</p>
<p>Learning Module 6</p> <p>Mar 19-29</p>	<p>Chapter 8—Geology of Art</p>	<p>Assignment 11: Pigments: Mar 20</p> <p>Discussion 8: Art Forgers. Initial post due Mar 21, replies (2) Mar 22</p> <p>Assignment 12: Color Wheel: Mar 25</p> <p>Shoe-lock Holmes 2: Mar 29</p>
<p>Learning Module 7</p> <p>Apr 2-5</p>	<p>Chapter 9—Fossils</p>	<p>Assignment 13: Biostratigraphy: Apr 3</p> <p>Discussion 9: Big Al. Initial post due Apr 4, replies (2) Apr 5</p>
<p>Learning Module 8</p> <p>Apr 9-19</p>	<p>Chapter 10—Geology & People</p>	<p>Assignment 14: Height & Body Proportions: Apr 10</p> <p>Assignment 15: GPR: Apr 12</p> <p>Shoe-lock Holmes 3: Apr 19</p>
<p>Learning Module 9</p> <p>Apr 23-26</p>	<p>Chapter 11—Environmental Forensics</p>	<p>Assignment 16: due Apr 24</p> <p>Discussion 10: My Water. initial post due Apr 25, replies by Apr 26</p>

Class Project Final	Shoe-lock Holmes	May 3
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NOTE: This schedule is subject to change based on the needs of the class. You will be notified of all changes through email in Blackboard and in class.

Assessment & Grading Criteria

Assignments: 40%

Assignments will be graded on a 10 point scale. The grade will be based both on content and on completeness of the response (see below).

9-10	The activity is complete and correct. It shows insight and careful reflection on the topic. It is well written with complete sentences that respond to the questions.
8-9	The activity is essentially complete. The learner shows understanding of the topic although there are minor errors they are not conceptual in nature.
7-8	The activity is missing one or two answers or there are complete or there are errors in the work that reflect a misconception or lack of understanding.
6-7	The activity is lacking more than one answer. Work is poorly done or displayed and does not demonstrate understanding of topics.
<6	Does not effectively address the activity, major portions are missing.

Class Participation & Discussions: 40%

Discussions will provide you with an opportunity to:

- discuss topics and issues with classmates,
- ask questions of the instructor or fellow classmates, and
- will be used by the instructor to assess your attendance and participation.

Soils Map: 20%

You will contribute 10 soils to the class soils map. The soils will be fully described and photographed at different scales. There will be mini-deadlines showing progress throughout the course.

UTEP Policies for Students

<p>Informed Consent: Some individuals may choose to disclose personal information during class. Therefore, it is important that all classmates agree not to discuss or write about what others have discussed in class.</p>
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Disability Statement: Services for students with disabilities are provided through the Academic Support Center's Disability Services Office. Some examples of the assistance provided are: audio materials for the blind or dyslexic, note takers, readers, campus guides, audio recorders, a quiet testing area, and undergraduate academic tutors. In order to qualify for these services, documentation must be provided by qualified professionals on an annual basis. Disability Services forms are available in the Academic Support Center.

Military Statement: If you are a military student with the potential of being called into military service and/or training during the course of the semester you are encouraged to contact the instructor regarding these matters.

Professionalism :Students are learning professional skills and are expected to engage in classroom discussions, complete reading assignments and turn in assignments in a timely fashion as befitting professional behavior.

Scholarly Writing: Use clear college level writing with correct spelling and grammar for all assignments. If you need help in writing, check with the UTEP Writing Center.

Integrated Use of Technology: Because this is a course that makes use of the internet, I am making the assumption that you are comfortable utilizing a computer, and navigating various software programs like Microsoft Word, Powerpoint. If you have any questions about computer requirements see the *Student Resources* in Blackboard.

Need Help?

1. Post a question to the Discussion Board. There is no such thing as a dumb question.
2. Post a question as a Blackboard email to your instructor.
3. Click on the Help button in Blackboard.
4. If the Blackboard system goes down or you have other technical questions, contact the UTEP Help Desk

Academic Integrity Policy and Procedures: Each student shall observe standards of honesty and integrity in academic work completed at UTEP. Students may be penalized for violations of the Academic Integrity policy. Please refer to the Academic Integrity section in the current UTEP Catalog. (Clearly specify what you consider to be violations of academic honesty.)

Caveats: The schedule and procedures in this course are subject to change in the event of extenuating circumstances.

Code of Civility: In order to promote a positive, professional atmosphere among students, faculty and staff, the following Code of Civility has been developed:

- **Respect:** Treat all students, faculty, staff and property with respect and in a courteous and professional manner. This includes all communications, whether verbal or written. Let your actions reflect pride in yourself, your university, and your profession.
- **Kindness:** A kind word and gentle voice go a long way. Refrain from using profanity, insulting slang remarks, or making disparaging comments. Consider another person's feelings. Be nice.
- **Truth:** Exhibit honesty and integrity in your dealings with fellow students, faculty and staff members. Don't lie, don't cheat, and don't steal.
- **Responsibility:** Take responsibility for your actions. This includes gracefully accepting the consequences of your behavior.
- **Cooperation:** Exhibit a cooperative manner when dealing with students, faculty and staff so we may all work towards our common goals and mission.
- **Acceptance:** Accept differences in others, as they accept differences in you. This includes diversity in opinions, beliefs and ideas and everything else that makes us

unique individuals.

- **Professionalism:** Always conduct yourself in a manner that will bring pride to your profession, to the University of Texas at El Paso, and, most importantly, to yourself.