

# Economic Geology and Mineral Exploration

University of Texas at El Paso  
Lecture room TBD (404/308)

Spring 2022 • GEOL 4315/5315/6315  
Time Friday 10:30-13:20

Instructors: Antonio Arribas and Phil Goodell  
Offices: 302 and 223 Geological Sciences  
E-mail: [aarribas@utep.edu](mailto:aarribas@utep.edu), [goodell@utep.edu](mailto:goodell@utep.edu)

CRN: 25281/27512/28341  
Office Hours: Arribas, Wed. 3:30-5:30pm  
Goodell, TBA

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## Course Goals and Objectives

The objective of this class is for the student to gain an understanding of:

1. the mineral deposits that supply Society with the metals we need to function
2. the main physical and chemical processes that lead to the formation of mineral deposits on Earth,
3. the main types of mineral deposits and their classification from a point of view of economic as well as scientific significance
4. the topic of critical or strategic metals or minerals and the economic, geopolitical, engineering and market-related issues involved
5. the world of mineral exploration that leads to search and discovery of mineral resources

The course will include an overview and practical analysis of the economic geology profession, including its societal context, to help understand mineral exploration and how its practice reflects the evolution of scientific thinking (i.e., geological studies), technological/engineering developments, and the all-important environmental and socio-economic issues.

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## Textbook

No text is required. Supplemental material will be made available.

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## Grading (subject to revision)

Grades will be calculated through a combination of attendance to lectures, assignments, and exams, as follows:

- Attendance/class quizzes: 30%
- 3-4 tests or assignments: 40% (total)
- Final exam and/or Student presentation: 30%

Letter grade: A = 90-100, B=80 – 89.9, C = 70-79.9, D = 60-69.9, F = less than 60

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## CASS / Student Concerns

If you have a disability or if you are experiencing learning disabilities and need classroom accommodations, please contact the Center for Accommodations and Support Services (CASS) at 747-5148, or by email to [cass@utep.edu](mailto:cass@utep.edu), or visit their office located in UTEP Union East, Rm 106. For additional information, please visit [www.sa.utep.edu/cass](http://www.sa.utep.edu/cass).

If you are struggling with this class or experiencing difficulties at the university, please reach out to your instructor or teaching assistant. If they are unable to help you, then please contact the Dean of Students Office at [DOS@utep.edu](mailto:DOS@utep.edu) or phone (915) 747-5648.\

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## Schedule (subject to change)

Week	Date	Topic
Week 1	Jan. 21	Introduction. Minerals and/or Society
Week 2	Jan. 28	Ore Forming Processes, Ore Deposit Types and Classification
Week 3	Feb. 4	Magmatic Deposits, Magmatic-hydrothermal Deposits I
Week 4	Feb. 11	Magmatic Hydrothermal Deposits II
Week 5	Feb. 18	Ore Deposits in a Plate Tectonic Setting
Week 6	Feb. 25	Rift-related Deposits
Week 7	Mar. 4	Ore Deposits in Intracontinental Basins I
Week 8	Mar. 11	Ore Deposits in Intracontinental Basins II / Other
Week 9	Mar. 18	Spring Break – No classes
Week 10	Mar. 25	Critical/Strategic Minerals and associated issues
Week 11	Apr. 1	Adam Simon Mar. 28-29 Seminar and SEG Student Chapter lecture
Week 12	Apr. 8	Economic Geology Research Tools and Methods
Week 13	Apr. 15	Mineral Exploration Intro
Week 14	Apr. 22	Mineral Exploration I
Week 15	Apr. 29	Mineral Exploration II
Week 16	May 6	Course Review
Week 17	May 13	Final Exam and/or Student Presentation