Principles of Mineralogy – GLY3200
Class 12472 (Mon lab); Class 12473 (Tues lab)
Fall, 2025

Instructor:	Dr. Jon Martin
Office:	382 Williamson Hall
Phone:	353-392-6219
Email:	jbmartin@ufl.edu
Office Hours:	2-3 PM Mon./Wed., or any other time when I'm in the office, except before class. Email to set up an appointment.
Meeting Place:	202 Williamson Hall
Meeting Time:	M W F, 3rd period (9:35 – 10:25 AM)
Required Text:	Nesse and Baird: *Introduction to Mineralogy, 4th edition.* You may purchase the 1st, 2nd or 3rd editions, but they differ slightly from the 4th edition, especially in page and figure numbering and in the addition of new figures. My reading assignments will be based on the 4th edition.
Useful Texts:	Deer, Howie, and Zussman: *An Introduction to the Rock Forming Minerals* Klein and Hurlbut, *Manual of Mineralogy, 21st edition revised* Nesse: *Introduction to Optical Mineralogy* A great web resource for optical mineralogy: https://optical.minpet.org/
TAs:	Mihn Pham and Zachary Davis
Lab times (section)	M, 8-9 (class: 12472 section 3012) T, 6-7 (class: 12473; section 5117)

Course objectives:

1) Introduce crystallography, crystal chemistry, and systematic mineralogy;
2) Relate the physical properties of minerals to their chemical compositions and crystal structures;
3) Introduce analytical methods used in mineralogy, particularly the polarizing microscope and X-ray diffractometer;
4) Learn mineral classification schemes;
5) In the lab, gain skills at identifying minerals and their properties in hand sample and thin section.

Pertinent information and helpful hints:

This course complies with all UF academic policies. Information on those polices and various student resources can be found here.

The following are some information and guidelines specific to this course. If university policies differ from any listed below, the university policy has priority.

1) Do not fall behind in your work – it will be impossible to catch up. For this reason, no late work will be accepted. This rule is particularly important for the Lab assignments and the Readiness Assurance Tests (RATs). A missed RAT cannot be made up. If you have a valid excuse, I will neglect that RAT in your final grade. If you do not have a valid excuse you will get a zero for that RAT.

2) Make up mid-term or final exams are highly discouraged, but will be granted for documented situations described in the university policies and potentially other situations (e.g., presenting research at a major scientific meeting). If you have a valid excuse for missing an exam, you will need to take it prior to the assigned final date.

3) I will use Canvas to post class information including the PowerPoint presentations along with other useful stuff. Please use it as a resource.

4) Attend all classes – much test material will come from in-class activities and lectures. Much, but not all, information presented in class will come from the text, but you will not be able to learn the non-text material without attending lectures.

5) Please always act professionally – for example, show up for class on time. I prefer that you don't use cell phones in class, but understand you may be looking up information. Discussion during class is welcome, but if you have a question or comment, please share with the entire class to help spur discussion. Avoid side conversations with your classmates that exclude the rest of the class.

6) Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. *See the "Get Started With the DRC" webpage on the Disability Resource Center site.* It is important for students to share their accommodation letter with me and discuss their access needs, as early as possible in the semester. Alternatively, feel free to come to me with your request and we can work out a plan for accommodations.

7) All students are expected to follow the University honor code: neither give nor receive unauthorized aid in doing any assignment. Not adhering to this policy will result in a failing grade for the class.

8) Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available here. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students here.

9) Information on current UF grading policies for assigning grade points can be found here.

10) Materials and supplies fees for this course are $74.59 per student. The fees cover replacement costs for laboratory supplies (e.g., microscopes, thin sections, mineral samples etc.). The supplies, especially microscopes, but also thin sections, are expensive. Please handle everything carefully to keep fees low. Accidents can happen, but the only penalty will be higher future fees.

Grading policy and scale:

Work Required	Value (%)	Total Value (%)
Laboratory	30	30
Take home/in class exercises	10	10
individual Readiness Assurance Tests (iRAT)	*	3
team Readiness Assurance Tests (tRAT)	*	12
Two Summative Peer Reviews	5 each	10
Mid-term exam	15	15
Final	20	20
Total		**100**

Grading scale: ≥93 = A; 90-92 = A-; 87-89 = B+; 83-86 = B; 80-82 = B-, 77-79 C+, 73-76 C, 72-70, C-, 67-69, D+, 63-66, D, ≤ 63 E. Decimal values will be rounded to the nearest whole number.

*Each iRAT score = n/3 and each tRAT score = n/12, where n is the number of RATs over the semester.

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Introduction:

Textbook edition	**4**
Introduction	Chap. 1

Crystallography

Symmetry and point groups	14-29
Crystal faces and miller indices	29-33
Zones, Forms, and Habits	34-51

Mineral studies

Introduction to optics and the microscope	150-157
Interference figures & Isotropic indicatrix	157-158
Intro and optics of anisotropic minerals	158-164
Optical Indicatrix	166-172
Interference figures	175-180
Color, pleochroism, extinction angle,	172-175

Crystal Chemistry

Basic chemistry	Chap. 3
Crystal structure and Pauling's Rules	73-83
Substitutions and Ternary Diagrams	83-91
Mineral Stability and Stability Diagrams	92-107
Twinning and Post Crystallization Processes	107-122
Mineral Evolution	122-127

Systematic mineralogy

Systematic mineralogy and intro to silicates	228-266

Neso- (ortho) silicates	Chapter 16
Soro- (di), and cyclo- (ring) silicates	Chapter 15
Ino (chain) and Phyllo (sheet) silicates	Chapters 13-14
Tecto (framework) silicates	Chapter 12
Carbonates, sulfides, phosphates	Chapter 17
Oxides, hydroxides, halides, native elements	Chapter 18-20
Rocks and minerals – intro to petrology	

Holidays

Labor Day	**Sept. 1**
Homecoming	**Oct. 17**
Thanksgiving	**Nov. 24, 26, 28**

- **Peer reviews due:** September 26 and November 7 (dates may change).
- **Field Methods:** Class may be canceled during Field Methods field trip.
- **Midterm exam:** October 10 (date may change).
- **Reading Days:** Dec. 4 and 5 – I am willing to provide a review one of these days.
- **Final exam:** Cumulative and mandatory: Thursday Dec. 10, 10:00 am to noon