# Course Syllabus

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| **1** | **Course title** | Petrology Lab |
| **2** | **Course number** | 0305212 |
| **3** | **Credit hours** | 1 practical |
| | **Contact hours (theory, practical)** | 3 practical hours |
| **4** | **Prerequisites/corequisites** | Co-requisite: 0305231 (Petrology) |
| **5** | **Program title** | Environmental and Applied Geology |
| **6** | **Program code** | |
| **7** | **Awarding institution** | The University of Jordan |
| **8** | **School** | School of Science |
| **9** | **Department** | Geology |
| **10** | **Course level** | 2nd |
| **11** | **Year of study and semester (s)** | Fall 2023 |
| **12** | **Other department (s) involved in teaching the course** | none |
| **13** | **Main teaching language** | English |
| **14** | **Delivery method** | ✓ Face to face learning ☐Blended ☐Fully online |
| **15** | **Online platforms(s)** | ✓ Moodle ☐Microsoft Teams ☐Skype ☐Zoom ☐Others…… |
| **16** | **Issuing/Revision Date** | Fall 2023 |

**17 Course Coordinator:**

Name: **Hind Ghanem** Contact hours: **Monday and Wednesday 12-1 pm; Tuesday 10:30-11:30; Sunday and Thursday by appointment.** Office number: Room # 215, Geology Building
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**18 Other instructors:**

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| None |

**19 Course Description:**

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| This lab deals with the identification of the three rock types: igneous, sedimentary, and metamorphic through systematic description of thin-sections (optical properties of forming minerals and their quantities). This course will also cover the principles of systematic rock classification through their mineral composition and textures to understand their petrogenesis. |

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## 20 Course aims and outcomes:

A- **Aims**:

1. To introduce the student to thin-section aspects of petrographic description
2. To introduce the student to common structures and textures found in igneous, sedimentary, and metamorphic rocks
3. To strengthen and expand the student's understanding of rock classification

B- **Students Learning Outcomes (SLOs):**

Upon successful completion of this course, students will be able to:

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| 1. To enhance the skill of using petrographic microscope. |
| 2. To be familiar with the systematic way and terminology of rock description. |
| 3. To recognize and identify textural features of igneous, metamorphic, and sedimentary rocks. |
| 4. To classify and name igneous rocks based on QAPF diagram using the petrographic microscope |
| 5. To classify common sedimentary rocks and identify the different types of clastic-rocks and limestones using the petrographic microscope. |
| 6. To classify metamorphic rocks (foliated and non-foliated) using the petrographic microscope; and use the concept of index minerals in metamorphic rocks to deduce the grade of metamorphism. |

| PLOs / SLOs of the course | PLO (1) | PLO (2) | PLO (3) | PLO (4) | PLO (5) | PLO (6) | PLO (7) | PLO (8) | PLO( 9) |
|---|---|---|---|---|---|---|---|---|---|
| To enhance the skill of using petrographic microscope. | | | X | | X | X | X | | |
| To be familiar with the systematic way and terminology of rock description. | | | X | | X | X | X | | |
| To recognize and identify textural features of igneous, metamorphic, and sedimentary rocks. | | | X | | X | X | X | | |
| To classify and name igneous rocks based on QAPF diagram using the petrographic microscope | | | X | | X | X | X | | |
| To classify common sedimentary rocks and identify the different types of clastic-rocks and limestones using the petrographic microscope. | | | X | | X | X | X | | |
| To classify metamorphic rocks (foliated and non-foliated) using the petrographic microscope; and use the concept of index minerals in metamorphic rocks to deduce the grade of metamorphism. | | | X | | X | X | X | | |

## 21. Topic Outline and Schedule:

| Week | Lab | Topic | SLOs | Learning Methods | Evaluation Methods | Reference |
|---|---|---|---|---|---|---|
| **Week** | **Lab** | **Topic** | **SLOs** | **Learning Methods** | **Evaluation Methods** | **Reference** |
| 27-2-2024 | 1 | Textures terminology for igneous rocks + introduction to QAPF diagrams | 1, 2, 3 | Face to face | Lab reports + Midterm and final exams + Quiz | Laboratory handout + resources available on Moodle |
| 5-3-2024 | 2 | Classification of ultramafic rocks | 1, 2, 3 | Face to face | Lab reports + Midterm and final exams + Quiz | Laboratory handout + resources available on Moodle |
| 12-3-2024 | 3 | Classification of mafic and intermediate rocks | 1,2,3,4 | Face to face | Lab reports + Midterm and final exams + Quiz | Laboratory handout + resources available on Moodle |
| 19-3-2024 | 4 | Classification of felsic rocks | 1,2,3,4 | Face to face | Lab reports + Midterm and final exams + Quiz | Laboratory handout + resources available on Moodle |
| 26-3-2024 | 5 | Classification of alkaline and silica undersaturated rocks | 1,2,3,4 | Face to face | Lab reports + Midterm and final exams + Quiz | Laboratory handout + resources available on Moodle |
| 2-4-2024 | - | **Midterm exam (labs 1-5)** | | | | |
| 9-4-2024 | - | (possibly Eid Al-fitr holiday) | | | | |
| 16-4-2024 | 6 | Sandstones and conglomerates | 1,2,3,5 | Face to face | Lab reports + Midterm and final exams + Quiz | Laboratory handout + resources available on Moodle |
| 23-4-2024 | 7 | Carbonates | 1,2,3,5 | Face to face | Lab reports + Midterm and final exams + Quiz | Laboratory handout + resources available on Moodle |
| 30-4-2024 | 8 | Phosphates and evaporites | 1,2,3,5 | Face to face | Lab reports + Midterm and final exams + Quiz | Laboratory handout + resources available on Moodle |
| 7-5-2024 | 9 | Introduction to Metamorphic facies + Regional metamorphism of mafic rocks | 1,2,3,6 | Face to face | Lab reports + Midterm and final exams + Quiz | Laboratory handout + resources available on Moodle |
| 14-5-2024 | 10 | Regional metamorphism of pelitic rocks | 1,2,3,6 | Face to face | Lab reports + Midterm and final exams + Quiz | Laboratory handout + resources available on Moodle |
| 21-5-2024 | 11 | Contact metamorphic rocks + Granulites | 1,2,3,6 | Face to face | Lab reports + Midterm and final exams + Quiz | Laboratory handout + resources available on Moodle |
| 28-5-2024 | | **Final exam** | | | | |

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## 22 Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:

| Evaluation Activity | Mark | Topic(s) | SLOs | Period (Week) | Platform |
|---|---|---|---|---|---|
| Midterm Exam | 30 | 1-5 | 1-4 | 7 | |
| Lab reports | 20 | 1-12 | 1-6 | Every week | |
| Final exam | 50 | 1-12 | 1-6 | 15 | |

## 23 Course Requirements

**Polarized microscopes + thin-sections**

## 24 Course Policies:

A- Attendance policies:

Following the UJ regulations. Missing two labs results in getting the grade F.

B- Absences from exams and submitting assignments on time:

Absence from exams results in getting grade zero unless an accepted excuse (as in the UJ regulations) is provided and accepted by the instructor.

C- Health and safety procedures:

- Do not enter the laboratory or use equipment without permission.
- Do not eat or drink in the laboratory.
- Be aware of safety signs and adhere to them.
- Pick up the thin section and bring it back to the pinch by yourself
- Be aware of the location of fire extinguishers/fire blankets; first aid box and eye wash station.
- Hands should be washed after laboratory practical work.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

**Following the UJ regulations**

D- Grading policy: This is the scale of last semester for guidance. The scale may change from a semester to another.

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| 40 - 44 D- | 55 – 59 C- | 70 - 74 B- | 85 - 89 A- |
| 45 – 49 D | 60 – 64 C | 75 – 79 B | 90- 100 A |
| 50 - 54 D+ | 65 – 69 C+ | 80 - 84 B+ | |

**25 References:**

A- Required book(s), assigned reading and audio-visuals:

*Laboratory handout*

B- Recommended books, materials, and media:

*Blatt, h., Tracy, R., and OWENS, B. Petrology, igneous, sedimentary, and Metamorphic. Third edition*

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## 26 Additional information:

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| Name of Course Coordinator: ----------Signature: ---------- Date: ---------- |
| Head of Curriculum Committee/Department: ---------- Signature: ---------- |
| Head of Department: ---------- Signature: ---------- |
| Head of Curriculum Committee/Faculty: ---------- Signature: ---------- ----------<br>Dean: ---------- Signature: ---------- |