**MSc Mining & Civil Engineering**

**List of courses offered in English in the framework of the Master programme Earth Science and Environment**

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| **Semester** | **Cours** | **ECTS** |
| **S8 - SPRING**  15 January 2019 – 6 July 2019 | Mining Field Trip | 2,5 |
| Mineral Processing and Mining Congress | 2 |
| Applied GIS and Remote Sensing | 2 |
| Foundations | 1,5 |
| Modeling | 1,5 |
| Ground support and earth berms | 1,5 |
| Case study, geotechnics and engineering geology | 1,5 |
| Offshore Geohazards and Geotechnics | 1 |
| French as Foreign Language | 2 |
| **TOTAL** | **15,5** |
| **S9 FALL**  3 September 2018 –  14 January 2019 | Mineral exploration concepts | 2 |
| Field School Mineral Exploration | 3 |
| Mining Modeling SURPAC | 2 |
| Ore deposits, In-depth Metallogeny versus Geometallurgy | 2 |
| Mineral Processing | 1,5 |
| Geophysics for geotechnical applications | 1 |
| Practical geotechnics | 4 |
| Geotechnical Works | 2 |
| Team Project Geotechnics | 12 |
| Team Project Mineral Resources | 12 |
| French as Foreign Language | 2 |
| **TOTAL** | **31,5** |

NB: The prerequisites in the course syllabi mention the courses at UniLaSalle. Courses with equivalent content taken at the partner university are accepted.

Last update : 17/02/2020

Course syllabi

[**Mining Field Trip** 3](#_Toc513191659)

[**Mineral processing & Mining Congress** 4](#_Toc513191660)

[**Applied GIS and Remote sensing** 5](#_Toc513191661)

[**Foundations** 6](#_Toc513191662)

[**Modeling** 7](#_Toc513191663)

[**Ground support and earth berms** 8](#_Toc513191664)

[**Case study geotechnics and engineering geology** 9](#_Toc513191665)

[**Geohazards and offshore geotechnics** 10](#_Toc513191666)

[**French as Foreign Language** 11](#_Toc513191667)

[**Mineral exploration concepts** 13](#_Toc513191668)

[**Field School Mineral Exploration** 14](#_Toc513191669)

[**Mining Modeling SURPAC** 15](#_Toc513191670)

[**Metallogeny** 16](#_Toc513191671)

[**Mineral Processing** 17](#_Toc513191672)

[**Geophysics for geotechnical applications** 18](#_Toc513191673)

[**Practical geotechnics** 19](#_Toc513191674)

[**Geotechnical Works** 20](#_Toc513191675)

[**Team Project Geotechnics** 21](#_Toc513191676)

[**Team Project Mineral Resources** 22](#_Toc513191677)

[**French as Foreign Language** 23](#_Toc513191678)

# **Mining Field Trip**

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# **Mineral processing & Mining Congress**

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# **Applied GIS and Remote sensing**

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# **Foundations**

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# **Modeling**

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# **Ground support and earth berms**

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# **Case study geotechnics and engineering geology**

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# **Geohazards and offshore geotechnics**

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# **French as Foreign Language**

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| **Geosciences**  **French as a Foreign Language 1** | | | **2018-2019** |
| **Faculty: Dr. Martine REY et al.** | **Module:**  **Beginning French** | **Time :**  **24 contact hrs. & interactive assignments**  **HW: 12 hrs.**  **Exam: 2 hrs.** | **2 ECTS credits**  **1 US credit** |
| **Numerus clausus : 20** | | | |
| **Prerequisite:** none | | | |
| **Objective:** Students will acquire the basic skills to use French in everyday situations | | | |
| **Description:**. This language course aims at providing students with the necessary language tools to interact successfully in a variety of situations and settings, for example at a farmers’ market or while traveling. Students will continue to learn French outside the classroom by practicing their acquired skills and adding new ones, for example by reading product labels in French, or asking questions during campus events, at a restaurant or in local businesses.. Interactive assignments will therefore complement classroom instruction. Students will be expected to participate actively, using the language skills they are learning inside and outside the classroom.  **Course content** :   * Basics of French language; “*when in France*” – culturally appropriate does and don’ts * Describe, narrate, and ask/answer questions in the foreign language in the present time about a variety of topics related to family, daily activities, eating, and traveling. * Comprehend the foreign language with sufficient ability to grasp the main idea in short conversations pertaining to the topics mentioned above. * Read and understand the main idea and some details of materials related to daily life and travel (maps, classified ads,) * Write sentences and short paragraphs on familiar topics relating to personal interests and practical needs. (e.g. postcards)   **Course material** includes:   * Music (e.g. Nino Ferrer, Charles Aznavour) * Food art * Excerpts from French literature (e.g Emile Zola, *Le Ventre de Paris*) * Films & video (e.g. *After Winter, Spring; Demain (Tomorrow); Nos enfants nous accuserons (Food Beware)*), * Menus and descriptions of regional French products. | | | |
| **Instructor:**  Martine Rey, Associate Professor of Languages and Cultural Studies et al. | | | |
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| **Geosciences**  **French as a Foreign Language 2** | | | **2018-2019** |
| **Faculty: Dr. Martine REY et al.** | **Module:**  **Intermediate French** | **Time :**  **24 contact hrs. & interactive assignments**  **HW: 12 hrs.**  **Exam: 2 hrs.** | **2 ECTS credits**  **1 US credit** |
| **Numerus clausus : 20** | | | |
| **Prerequisite:** French 102 or equivalent | | | |
| **Objective:** this course is designed for students at an intermediate level. The goal is to consolidate and improve skills previously acquired in French (101/102, or equivalent). | | | |
| **Description:**. This language course allows students to explore French language and culture in a variety of situations and settings. Students will continue to learn French outside the classroom by practicing their acquired skills and adding new ones, for example by actively participating in campus events, or interacting in everyday life. Interactive assignments will therefore complement classroom instruction. Students will review grammar and phonetics to improve their communication skills. Classes are conducted entirely in French.  **Course content** :   * Speak the foreign language well enough to communicate on a variety of topics important in the foreign language culture that go beyond needed to “survive” in the foreign culture. * Read and understand the main idea and most details in material about a variety of topics. * Write longer paragraphs that show more cohesion than at the elementary level. * Review of the most basic grammar structures   **Course material** includes:   * Music (e.g. George Brassens, Nino Ferrer) * Magazines and newspapers * Films & video (e.g. *After Winter, Spring; Demain (Tomorrow); Nos enfants nous accuserons (Food Beware)*), | | | |
| **Instructor:**  Martine Rey, Associate Professor of Languages and Cultural Studies | | | |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Assessment:**   |  |  |  |  | | --- | --- | --- | --- | | **Assignments:** | **Method:** | **Time limit (for supervised tests):** | **Weighting:** | | Class participation | Preparation for class and class discussion | N/A | 30% | | Communication tasks | Interactive, real life assignments using French | N/A | 30% | | Final Exam | Oral and written exam |  | 40% | | | | | |

# **Mineral exploration concepts**

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# **Field School Mineral Exploration**

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| |  | | --- | | **Geology** | | |  | | --- | | **5th Year Geology Semester 9** | | | |  | | --- | | Catalog version 15/11/2017 10:20:29 | |
| |  | | --- | | **Program information** | | | | |  | | --- | | **GG5126** | |
| |  | | --- | | **Field camp: Mineral Exploration & Mineral Processing)** | | | | |  | | --- | | **2017-2018** | |
| **(Field camp: Mineral Exploration & Mineral Processing) Department: G.E.O.S.** | | |  |
| |  | | --- | | **Coordinator: M.NASRAOUI** | | |  | | --- | | **Teaching method :  Common core** | | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Distribution of teaching methods:** | | | | | | | | | | **CM** | **EXA** | **TD** | **TP** | **AFP** | **AFNP** | **CC** | **EXT** | **TTE** | | **0h** | **0h** | **0h** | **0h** | **0h** | **0h** | **0h** | **36h** | **18h** | | |  | | --- | | **ECTS credits:** 3 | |
|  | **Key:** CM = Lecture, EXA = Exam, TD = Tutorial, TP = Practical work, AFP = Scheduled self-study, AFNP = Unscheduled self-study, CC = Ongoing assessment, EXT = Curriculum related excursion, TTE = Homework | | |
| **Pre-requisites (module title(s)):** | | Crystallography and Mineralogy I & II (Year 1, Year 2), Mines and Quarries (Year 3), Ore Deposit Classification/Metallogeny (Year 4), Exploration and Mineral Processing (Year 4), Applied Geophysics (Year 4) | |
| **By the end of the module, students will be able to (objectives):** | | | |
| • Apply specific geological survey field techniques to ore deposits • Produce metallogenic maps using geological and mineralogical information • Implement tactical/strategic exploration approaches • Demonstrate the interpersonal skills needed to work in a multi-cultural setting  • Establish correlations between geological and geophysical data, and mineral processing | | | |
| **Content:** | | | |
| This field camp is based in the central part of Morocco and covers exploration/exploitation and mineral processing of a copper (gold) ore deposit. Key aspects of the field camp include:  • Different scale mapping techniques in mineralized areas: both underground and surface mapping • In-depth understanding of the links between mineralization processes, lithology, tectonic and 3D mineral distribution. • Mapping and sampling of altered zones (hydrothermal & supergene alteration processes) • Field geophysical data acquisition & interpretation • Drilling location and implementation • Ore deposit targeting  • Mineral processing optimization | | | |
| **Teaching staff:** | M. NASRAOUI | | |
| **Assessment (procedures and weightings):** | | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | Number of assessments | Procedures | Length of assessment | Weighting of each assessment | Assessment title | | Assessment 1 | Report | 0h | 100% |  | | | | |

# **Mining Modeling SURPAC**

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# **Ore deposits, In-depth Metallogeny versus Geometallurgy**

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It includes:  • Ore characterization studies: metallographic observation and reflection polarizing optical microscope identification of the principal metallic minerals • Scanning electron microscope examination of bearer minerals and their textural relations to establish a paragenetic evolution model  • Assessment of the impact of textural relations on ore processing procedures  **Case studies:**  Resolution of problems involved in refractory ore valuation: - Alluvial gold deposit  - Vein-type copper and gold-bearing deposit - Laterite deposit containing niobium, tantalum and rare earths  - Underground and open pit mine surveying studies and geometric/reading implications, interpretation and correlation of borehole surveying/geochemical and mineralogical data | | | | | **Teaching staff:** | M. NASRAOUI | | | | **Assessment (procedures and weightings):** | | | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Number of assessments | Procedures | Length of assessment | Weighting of each assessment | Assessment title | | Assessment 1 | Practical report | 0h | 50% |  | | Assessment 2 | Exam | 1h | 50% |  | | | | | | | |

# **Mineral Processing**

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# **Geophysics for geotechnical applications**

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# **Practical geotechnics**

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# **Geotechnical Works**

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# **Team Project Geotechnics**

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Examples include a literature review, a report on using a software application, monitoring a drilling campaign, etc. The subject of this preparatory internship may be used as a basis for the project. This approach enables the student to remain in contact with the company during semester 9 and serves as a bridge between the preparatory internship and the engineering internship. | | | | | **Teaching staff:** | B.BARAKAT, J.VERNHES | | | | **Assessment (procedures and weightings):** | | | | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Number of assessments | Procedures | Length of assessment | Weighting of each assessment | Assessment title | | Assessment 1 | Report | 0h | 50% |  | | Assessment 2 | Oral | 0h | 50% |  | | | | | | | |

# **Team Project Mineral Resources**

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# **French as Foreign Language**

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| **Geosciences**  **French as a Foreign Language 1** | | | **2018-2019** |
| **Faculty: Dr. Martine REY et al.** | **Module:**  **Beginning French** | **Time :**  **24 contact hrs. & interactive assignments**  **HW: 12 hrs.**  **Exam: 2 hrs.** | **2 ECTS credits**  **1 US credit** |
| **Numerus clausus : 20** | | | |
| **Prerequisite:** none | | | |
| **Objective:** Students will acquire the basic skills to use French in everyday situations | | | |
| **Description:**. This language course aims at providing students with the necessary language tools to interact successfully in a variety of situations and settings, for example at a farmers’ market or while traveling. Students will continue to learn French outside the classroom by practicing their acquired skills and adding new ones, for example by reading product labels in French, or asking questions during campus events, at a restaurant or in local businesses.. Interactive assignments will therefore complement classroom instruction. Students will be expected to participate actively, using the language skills they are learning inside and outside the classroom.  **Course content** :   * Basics of French language; “*when in France*” – culturally appropriate does and don’ts * Describe, narrate, and ask/answer questions in the foreign language in the present time about a variety of topics related to family, daily activities, eating, and traveling. * Comprehend the foreign language with sufficient ability to grasp the main idea in short conversations pertaining to the topics mentioned above. * Read and understand the main idea and some details of materials related to daily life and travel (maps, classified ads,) * Write sentences and short paragraphs on familiar topics relating to personal interests and practical needs. (e.g. postcards)   **Course material** includes:   * Music (e.g. Nino Ferrer, Charles Aznavour) * Food art * Excerpts from French literature (e.g Emile Zola, *Le Ventre de Paris*) * Films & video (e.g. *After Winter, Spring; Demain (Tomorrow); Nos enfants nous accuserons (Food Beware)*), * Menus and descriptions of regional French products. | | | |
| **Instructor:**  Martine Rey, Associate Professor of Languages and Cultural Studies et al. | | | |
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| **Geosciences**  **French as a Foreign Language 2** | | | **2018-2019** |
| **Faculty: Dr. Martine REY et al.** | **Module:**  **Intermediate French** | **Time :**  **24 contact hrs. & interactive assignments**  **HW: 12 hrs.**  **Exam: 2 hrs.** | **2 ECTS credits**  **1 US credit** |
| **Numerus clausus : 20** | | | |
| **Prerequisite:** French 102 or equivalent | | | |
| **Objective:** this course is designed for students at an intermediate level. The goal is to consolidate and improve skills previously acquired in French (101/102, or equivalent). | | | |
| **Description:**. This language course allows students to explore French language and culture in a variety of situations and settings. Students will continue to learn French outside the classroom by practicing their acquired skills and adding new ones, for example by actively participating in campus events, or interacting in everyday life. Interactive assignments will therefore complement classroom instruction. Students will review grammar and phonetics to improve their communication skills. Classes are conducted entirely in French.  **Course content** :   * Speak the foreign language well enough to communicate on a variety of topics important in the foreign language culture that go beyond needed to “survive” in the foreign culture. * Read and understand the main idea and most details in material about a variety of topics. * Write longer paragraphs that show more cohesion than at the elementary level. * Review of the most basic grammar structures   **Course material** includes:   * Music (e.g. George Brassens, Nino Ferrer) * Magazines and newspapers * Films & video (e.g. *After Winter, Spring; Demain (Tomorrow); Nos enfants nous accuserons (Food Beware)*), | | | |
| **Instructor:**  Martine Rey, Associate Professor of Languages and Cultural Studies | | | |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Assessment:**   |  |  |  |  | | --- | --- | --- | --- | | **Assignments:** | **Method:** | **Time limit (for supervised tests):** | **Weighting:** | | Class participation | Preparation for class and class discussion | N/A | 30% | | Communication tasks | Interactive, real life assignments using French | N/A | 30% | | Final Exam | Oral and written exam |  | 40% | | | | | |