



## IDENTIFYING DATA

### Geology: Geology 1

|                     |   |                 |      |            |
|---------------------|---|-----------------|------|------------|
| Subject             | Geology: Geology 1  |                 |      |            |
| Code                | V10G061V01103   |                 |      |            |
| Study programme     | Grado en Ciencias del Mar   |                 |      |            |
| Descriptors         | ECTS Credits  | Choose          | Year | Quadmester |
|                     | 6   | Basic education | 1st  | 1st        |
| Teaching language   | #EnglishFriendly<br>Spanish<br>Galician   |                 |      |            |
| Department          |   |                 |      |            |
| Coordinator         | Nombela Castaño, Miguel Angel   |                 |      |            |
| Lecturers           | Alejo Flores, Irene<br>Diz Ferreiro, Paula<br>Francés Pedraz, Guillermo<br>García Gil, María Soledad<br>Nombela Castaño, Miguel Angel<br>Pérez Arlucea, Marta María   |                 |      |            |
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| General description | <p>The Geology I (Internal Geology) pretends that the student purchase in the first *cuatrimestre of the 1*er course of the Degree of Sciences of the Sea, the knowledges on the appearances related with the structure and internal composition of the Earth, as well as of the internal processes, with an approach from the field of the Tectonics of Plates and the Marine Geology.</p> <p>English Friendly subject: International students may request from the teachers:</p> <p>a) resources and bibliographic references in English, b) tutoring sessions in English, c) exams and assessments in English.</p> |                 |      |            |

## Training and Learning Results

|      |  |
|------|--|
| Code |  |
| A1   | Students have demonstrated knowledge and understanding in a field of study that builds upon their general secondary education, and is typically at a level that, whilst supported by advanced textbooks, includes some aspects that will be informed by knowledge of the forefront of their field of study |
| A2   | Students can apply their knowledge and understanding in a manner that indicates a professional approach to their work or vocation, and have competences typically demonstrated through devising and sustaining arguments and solving problems within their field of study                                  |
| B1   | Know and use vocabulary, concepts, principles and theories related to oceanography and apply everything learned in a professional and/or research environment.   |
| B4   | Manage, process and interpret the data and information obtained both in the field and in the laboratory.   |
| C12  | Acquire knowledge about processes and products related to internal and external geological cycles.   |
| D1   | Develop the search, analysis and synthesis of information skills oriented to the identification and resolution of problems.  |
| D5   | Sustainability and environmental commitment. Equitable, responsible and efficient use of resources.  |

## Expected results from this subject

| Expected results from this subject                                     | Training and Learning Results |    |     |    |
|--|-------------------------------|----|-----|----|
| 1. Know the internal structure and composition of the Earth            | A2                            | B1 |     |    |
| 2. Know and relate the internal processes with the Plate Tectonic.     | A1                            | B4 | C12 |    |
| 3. Recognise tectonic structures and the processes that generate them. | A1                            | B4 | C12 |    |
| 4. Handle of representation systems of deformation structures.         |                               | B1 |     | D5 |
|  |                               | B4 |     |    |
| 5. Know the interpreteison of geological maps.                         | A2                            | B1 |     | D1 |
|  |                               | B4 |     | D5 |

|   |    |     |                 |
|---|----|-----|-----------------|
| 6. Identify the main minerals and igneous metamorphic and rocks.  | A1 | C12 | D1<br>D5        |
| 7. Skill in the management of the geological information related with the inner geological processes, capacity of synthesis and team work | A1 | B4  | C12<br>D1<br>D5 |

## Contents

| Topic   |  |
|---|--|
| Presentation Geology I (Geological Processes Interns)   | The **subtemas correspond with the subjects. |
| Subject 1. Introduction: Origin of the Earth, Principles of the Geology and the Geological Time | The **subtemas correspond with the subjects. |
| Subject 2. Structure of the Earth and his materials: minerals and rocks                         | The **subtemas correspond with the subjects. |
| Subject 3. Units of the Terrestrial Relief-Oceanic Bottoms: types and origin of margins.        | The **subtemas correspond with the subjects. |
| Subject 4. Crust deformation: fragile and ductile   | The **subtemas correspond with the subjects. |
| Subject 5. Plate Tectonics: introduction and mechanisms   | The **subtemas correspond with the subjects. |
| Subject 6. Metamorphism, metasomatism, metamorphic rocks and Plate Tectonic.                    | The **subtemas correspond with the subjects. |
| Subject 7. Magmatism, Ígneous rocks and Plate Tectonic.   | The **subtemas correspond with the subjects. |
| Subject 8. Vulcanism and Plate Tectonic.  | The **subtemas correspond with the subjects. |
| Subject 9. Seismicity and Plate Tectonic.   | The **subtemas correspond with the subjects. |
| Subject 10. Synthesis: economic and environmental of the Inner Geological system.               | The **subtemas correspond with the subjects  |

## Planning

|   | Class hours | Hours outside the classroom | Total hours |
|---|-------------|-----------------------------|-------------|
| Introductory activities                               | 1           | 0.75                        | 1.75        |
| Lecturing   | 18          | 36                          | 54          |
| Seminars  | 6           | 24                          | 30          |
| Laboratory practical                                  | 13          | 22.75                       | 35.75       |
| Studies excursion                                     | 4.5         | 9                           | 13.5        |
| Problem and/or exercise solving                       | 1           | 4                           | 5           |
| Laboratory practice                                   | 2           | 3.5                         | 5.5         |
| Report of practices, practicum and external practices | 0.5         | 1                           | 1.5         |
| Objective questions exam                              | 1           | 2                           | 3           |

\*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

## Methodologies

|                         | Description   |
|-------------------------|---|
| Introductory activities | The student will be presented with the way in which the classes will be taught, the form of evaluation, the field trips, the practical classes and the seminars. The agenda will be distributed, as well as the necessary material for practical classes and seminars.                |
| Lecturing               | The student will be exposed to the theoretical contents that will be evaluated in a final exam.   |
| Seminars                | The stereographic projection will be used to represent data of geological structures. Practical work on types of deformations. Identification of large tectonic structures through geographic representation systems. Introduction to the field trip and use of a geological compass. |
| Laboratory practical    | You will learn to deal with topographic and geological maps, to order rocks and geological processes in time from geological sections. In addition, the student will learn to recognize the most common minerals and types of igneous and metamorphic rocks in nature.                |
| Studies excursion       | The student will learn to handle the geological compass, recognize rocks and geological structures in the field, their implications for internal processes, and their applied consequences.   |

## Personalized assistance

| Methodologies | Description   |
|---------------|---|
| Lecturing     | The student may be assisted both during master sessions, if it does not significantly affect their development, and during tutorial hours (Monday, Tuesday and Wednesday from 12:00 to 14:00). To optimize time, it is necessary for students to contact the teacher sufficiently in advance. |

|   |  |
|---|--|
| Introductory activities                               | The student may be assisted during the introductory activities, if it does not significantly affect their development, such as during tutorial hours (Monday, Tuesday and Wednesday from 12:00 to 14:00). To optimize time, it is necessary for students to contact the teacher sufficiently in advance. |
| Seminars  | The student may be assisted both during the seminars, if it does not significantly affect their development, and during tutorial hours (Monday, Tuesday and Wednesday from 12:00 to 14:00). To optimize time, it is necessary for students to contact the teacher sufficiently in advance.               |
| Laboratory practical                                  | The student may be assisted both during practices, if it does not significantly affect their development, and during tutorial hours (Monday, Tuesday and Wednesday from 12:00 to 14:00). To optimize time, it is necessary for students to contact the teacher sufficiently in advance.                  |
| Studies excursion                                     | The student may be assisted both during field practices, if it does not significantly affect their development, and during tutorial hours (Monday, Tuesday and Wednesday from 12:00 to 14:00). To optimize time, it is necessary for students to contact the teacher sufficiently in advance.            |
| <b>Tests</b>  | <b>Description</b>   |
| Problem and/or exercise solving                       | The student may be assisted both during the seminars, if it does not significantly affect their development, and during tutorial hours (Monday, Tuesday and Wednesday from 12:00 to 14:00). To optimize time, it is necessary for students to contact the teacher sufficiently in advance.               |
| Laboratory practice                                   | The student may be assisted both during practices, if it does not significantly affect their development, and during tutorial hours (Monday, Tuesday and Wednesday from 12:00 to 14:00). To optimize time, it is necessary for students to contact the teacher sufficiently in advance.                  |
| Report of practices, practicum and external practices | The student may be assisted both during field practices, if it does not significantly affect their development, and during tutorial hours (Monday, Tuesday and Wednesday from 12:00 to 14:00). To optimize time, it is necessary for students to contact the teacher sufficiently in advance.            |
| Objective questions exam                              | The student may be assisted both during master sessions, if it does not significantly affect their development, and during tutorial hours (Monday, Tuesday and Wednesday from 12:00 to 14:00). To optimize time, it is necessary for students to contact the teacher sufficiently in advance.            |

| <b>Assessment</b>                                     |   |               |                               |    |     |    |
|---|---|---------------|-------------------------------|----|-----|----|
|   | Description   | Qualification | Training and Learning Results |    |     |    |
| Lecturing   | Attendance to theoretical classes will be evaluated with up to 0.5/10 if at least 85% attend.   | 5             | A1                            | B1 | C12 | D5 |
| Problem and/or exercise solving                       | Given its experimental nature, attendance at the seminars is mandatory. Both the quality of the deliverables and the attitude (participation, involvement, etc.) will be evaluated. Deliverables will be made at the end of each seminar.   | 15            | A1                            | B4 |     | D1 |
| Laboratory practice                                   | Given its experimental nature, attendance at laboratory practices is mandatory. Both the quality of the deliverables and the attitude (participation, involvement, etc.) will be evaluated. The deliverables will be made at the end of each laboratory practice session.   | 30            | A2                            | B1 |     | D1 |
| Report of practices, practicum and external practices | Given the experimental nature, attendance at study outings is mandatory. Both the quality of the deliverable and the attitude (participation, involvement, etc.) will be evaluated. The deliverable will be made at the end of the study exit.  | 10            | A2                            | B1 | C12 |    |
| Objective questions exam                              | The knowledge acquired in the lectures will be evaluated with short questions, and/or multiple choice questions, and/or true/false type questions. In order to add the rest of the tests, in the exam you have to have at least a 3.5/10. In order to take the exam, attendance at theoretical classes must be at least 50% | 40            | A1                            | B1 | C12 | D5 |

### Other comments on the Evaluation

The course evaluation system will be continuous evaluation, in which the following items will be valued: class attendance (5%); seminars (15%); laboratory practices (30%); leaving studies (10%); exam (40%).

Given the experimental nature of the subject, it is considered that attendance at at least 80% of the practices, seminars and study trips is mandatory to acquire the learning results of the subject, whatever the opportunity (ordinary and extraordinary) and/or the system of study. assessment (continuous or global). Therefore, if said assistance is not met, the subject cannot be passed.

In order to average the exam grade, the minimum grade in Problem Solving and/or Exercises; Laboratory practices; and

Internship Report, Practicum and External Practices must be 5/10. In the same way, to be able to add the rest of the tests, in the exam you have to have at least a 3.5/10.

Students who have not passed the subject in the 22/23 academic year will not be obliged to repeat, during the 23/24 academic year, the laboratory practices, seminars and study trips, keeping the grade.

The application for the Global Assessment option must be submitted in the time and manner determined by the Center, which will be published prior to the academic start.

For communications with teachers, the use of the "messaging" of the MooVi platform is recommended, in addition to the use of the institutional email account (@alumnos.uvigo.es)

The students of the University Program for the Elderly of the University of Vigo who choose this subject within the Integration cycle in order to pass it will have to attend at least 80% of the master sessions as well as at least 80% of the rest of the methodologies employed (seminars, laboratory practices and field practices). On the other hand, the degree of integration with the students of the degree will be valued.

During classes, the use of mobile phones will not be allowed except for activities exclusively related to the subject.

### **Other considerations**

The date, time and place of the evaluation tests will be published on the official website of the Faculty of Marine Sciences:

<http://mar.uvigo.es/alumnado/examenes/>

*Students who take this subject are required to behave responsibly and honestly. Any form of fraud (copying or plagiarism) aimed at distorting the level of knowledge and skills achieved in any type of test, report or work will be considered inadmissible. Fraudulent conduct may mean failing the subject for a full course. An internal record of these actions will be kept so that, in case of recidivism, request the opening of a disciplinary file to the rector.*

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### **Sources of information**

#### **Basic Bibliography**

Leeder, M.R., Pérez Arlucea, M., **Physical processes in Earth and Environmental Sciences**, Blackwell Publishing, 321 pp,

Tarback, E.J., Lutgens, F.K., **Ciencias de la Tierra. Una introducción a la Geología Física**, 10th Edition. Prentice Hall. Madrid. 710 pp.,

Tarback, E.J., Lutgens, F.K., **Ciencias de la Tierra. Una introducción a la Geología Física**, 10th Edition 2013,

Frisch, W., Meschede, M. & Blakey, R.C., **Plate Tectonics: continental drift and mountain bulding.**, Springer Science & Business Media, 2010

#### **Complementary Bibliography**

Anguita, F., Moreno, F., **Procesos Geológicos Internos.**, Editorial Rueda.,232 pp,

Azañón, J.M., Azor, A., Alonso, F.M., Orozco, M., **Geología Física.**, Paraninfo & Thomson Learning, 302 pp,

Davies, G. H., Reynolds, S.J., **Structural Geology, of rocks and regions**, 3rd Edition. John Willey and Sons, Inc, New York, 776 pp,

Kearey, P., Vine, F., **Global Tectonics**, 3rd Edition. Blackwell Science, 333 pp,

Monroe, J.S., Wicander, R., Pozo, M., **Geología.Dinámica y evolución de la Tierra.**, Ed. Paraninfo, Madrid,

Wicander, R., Monroe, J.S., **Historical Geology. Evolution of Earth and Life Through Time**, 7th Edition.

Edit.Brooks/Cole, 580 pp,

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### **Recommendations**