# Universida<sub>de</sub>Vigo

**IDENTIFYING DATA**

**IT tools and communication in chemistry**

| | |
|---|---|
| Subject | IT tools and communication in chemistry |
| Code | V11G200V01401 |
| Study programme | (*)Grao en Química |

| Descriptors | ECTS Credits | Choose | Year | Quadmester |
|---|---|---|---|---|
| | 6 | Mandatory | 2nd | 2nd |

| | |
|---|---|
| Teaching language | English |
| Department | |
| Coordinator | Correa Duarte, Miguel Ángel |
| Lecturers | Correa Duarte, Miguel Ángel<br>Pérez Juste, Jorge<br>Silva López, Carlos |
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| Web | |
| General description | The course aims to familiarize students with the use of chemical information sources (scientifical and technical in general) with emphasis on its use through the Internet, as well as with the use of all types of software tools for statistical calculations and chemical modeling . Attention is also paid to the acquisition of important communication skills (writing scientific and technical documents, academic, web design, etc). |

**Competencies**

| Code | |
|---|---|
| C22 | Process and perform computational calculations with chemical information and chemical data |
| C23 | Present oral and written scientific material and scientific arguments to a specialized audience |
| D1 | Communicate orally and in writing in at least one of the official languages of the University |
| D2 | Communicate at a basic level in English in the field of chemistry |
| D3 | Learn independently |
| D4 | Search and manage information from different sources |
| D5 | Use information and communication technologies and manage basic computer tools |
| D6 | Use mathematics, including error analysis, estimates of orders of magnitude, correct use of units and data representations |
| D7 | Apply theoretical knowledge in practice |
| D8 | Teamwork |
| D9 | Work independently |
| D10 | Work at a national and international context |
| D14 | Analyze and synthesize information and draw conclusions |
| D15 | Evaluate critically and constructively the environment and oneself |
| D16 | Develop an ethical commitment |
| D18 | Generate new ideas and show initiative |

**Learning outcomes**

| Expected results from this subject | Training and Learning Results | |
|---|---|---|
| To know the different sources of scientific and technical information | C23 | D1<br>D2<br>D4<br>D5<br>D9<br>D14<br>D16 |

| | | |
|---|---|---|
| To understand the basics of running a Science library and know how to perform an advanced use of its services | | D2<br>D4<br>D5<br>D8<br>D9<br>D14 |
| To classify scientific journals based on their theme or objective | C23 | D1<br>D2<br>D3<br>D5<br>D8<br>D9<br>D10<br>D15<br>D18 |
| To know the basic characteristics of other sources: technical reports, conference proceedings, patents, dissertations, government publications, standards, videos, dictionaries, encyclopedias, directories, databases and """"handbooks"""". | C23 | D1<br>D2<br>D5<br>D8<br>D10<br>D16 |
| To know the basic characteristics of other sources: technical reports, conference proceedings, patents, dissertations, government publications, standards, videos, dictionaries, encyclopedias, directories, databases and """"handbooks"""". | C23 | D1<br>D2<br>D5<br>D8<br>D10<br>D16 |
| To know the structure and function of an abstracting or indexing service | C23 | D1<br>D2<br>D5<br>D8<br>D10<br>D16 |
| To know how to use statistical program packages to perform data fitting, graphical and other kinds of statistical analysis | C22 | D3<br>D5<br>D6<br>D7<br>D9<br>D14<br>D16 |

## Contents

| Topic | |
|---|---|
| The scietific literature: general aspects. | Structure and classification of the literature.<br><br>General rules of a literature search.<br><br>Function, organization and use of a scientific library. |
| Information Sources | Books.<br>Journals.<br>Technical reports.<br>Conference Proceedings.<br>Patents.<br>Thesis.<br>Government Publications.<br>Standards.<br>Videos.<br>Dictionaries.<br>Directories<br>Encyclopedias<br>Databases |

| Using Internet | Basic Internet services. |
|---|---|
| | Remote connection and file transfer utilities. |
| | Search engines. |
| | Electronic lists and subscription services. |
| | Other services. |
| | Structure, function and design of web pages. |
| Indexing and abstracting services | Identification of a scientific paper. |
| | The ISI Web of Knowledge (WOK). |
| | The Chemical Abstract Service (CAS) and the Scifinder. |
| | Other abstracting services. |
| | Handbooks. |
| Bibliographic Managers | Classification of bibliographic references: general principles. |
| | Use of popular software packages: |
| | Refworks and Endnote as examples. |
| Preparation of a scientific, technical or academic document | Parts of a scientific document. |
| | References, tables and figures : general principles. |
| | Use of computer templates. |
| | General aspects of the scientific style and the use of English. |
| | How to write: CVs, progress reports, grant requests and other academic documents. |

## Planning

| | Class hours | Hours outside the classroom | Total hours |
|---|---|---|---|
| Master Session | 14 | 28 | 42 |
| Practice in computer rooms | 26 | 52 | 78 |
| Troubleshooting and / or exercises | 2 | 22 | 24 |
| Long answer tests and development | 1.5 | 4.5 | 6 |

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

## Methodologies

| | Description |
|---|---|
| Master Session | The theoretical aspects of the subject are presented |
| Practice in computer rooms | Computer lab exercises: literature searches, use of bibliographic managers, use of statistical packages, report writing. |
| Troubleshooting and / or exercises | Report or article writing in English language. Simple exercises with modelling software |

## Personalized attention

| Methodologies | Description |
|---|---|
| Practice in computer rooms | The student is helped by providing adequate guidelines. Since all lectures are given in the computer room, the student will be helped mostly there in a practical and effective way. |
| Troubleshooting and / or exercises | The student is helped by providing adequate guidelines. Since all lectures are given in the computer room, the student will be helped mostly there in a practical and effective way. |

## Assessment

| | Description | Qualification Training and Learning Results |
|---|---|---|
| | | |

| | | | | |
|---|---|---|---|---|
| Practice in computer rooms | Typically, literature searches | 20 | C22 C23 | D1 D2 D3 D4 D5 D9 D15 D16 |
| Troubleshooting and / or exercises | Tipically, database searches and use of utilities of modelling software. | 40 | C22 C23 | D1 D2 D3 D4 D5 D8 D10 D14 D15 D18 |
| Long answer tests and developmentWritten exam consisting of short questions. | | 40 | | D1 D2 D14 D15 |

## Other comments on the Evaluation

Attendance at practical lectures (seminars) is compulsory. The student will be given a rating (0-10) as long as he/she has attended 3 or more seminar sessions, has delivered at least two reports on the exercises or practices proposed by the teacher or has done a written exam.

If the student fails in the first call he/she will be asked to improve some of the exercises or perform new ones provided by the teacher. In addition he/she will have to undergo a more thorough exam, which will weight 50% of the final grade.

## Sources of information
Douville, J.A., **The literature of chemistry**, 1st,
Kaplan, S.M., **The English-Spanish Spanish-English dictionary of chemistry**, 2ª,
Day, R.A.; Gastel, B., **How to write and publish a scientific paper**, 7ª,

## Recommendations

### Subjects that are recommended to be taken simultaneously
Numerical methods in chemistry/V11G200V01402
Physical chemistry II/V11G200V01403
Inorganic chemistry I/V11G200V01404

### Subjects that it is recommended to have taken before
Physics: Physics I/V11G200V01102
Physics: Physics II/V11G200V01201
Chemistry: Chemistry I/V11G200V01105
Chemistry: Chemistry II/V11G200V01204