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Faculty of

Subject Data

Name:
INTRODUCTION TO RESEARCH DLEX_TOT
English name:
INTRODUCTION TO RESEARCH

Code:	**Type:**
757509315	

Hours:			
	Total	**In class**	**Out class**
Time distribution	Second semester: 1 hour class, 2 days a week		

ECTS:				
Standard group	**Small groups**			
	Classroom	**Lab**	**Practices**	**Computer classroom**
	3			

Departments:	**Knowledge areas:**
Chemistry.	Multidisciplinary.
Year:	Semester
4th year	Second semester

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TEACHING STAFF

Name:	E-mail:	Telephone
Prof.: José María Muñoz Molina Department: Química y Ciencia de los Materiales Office: 2.2 – Robert H. Grubbs building Center for Research in Sustainable Chemistry (CIQSO)	jose.molina@dqcm.uhu.es	+34 959 219946

Others Data (Tutoring, schedule...)

Department: Química y Ciencia de los Materiales
Office: 2.2 – Robert H. Grubbs building
Center for Research in Sustainable Chemistry (CIQSO)
Office hours: X-J-V; 11:00-13:00 h.

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SPECIFIC INFORMATION OF THE COURSE

1. Contents description:

1.1 In English:

This optional subject is offered in the fourth year of the degree. The course provides practical skills needed to establish the current state of the art of a topic, identify research needs, conduct library and information search, develop research proposals and communicate effectively scientific results.
The subject is useful before the TFG and for those students who want to enter the field of research, learn the use of management tools for scientific documentation and improve writing and speaking communications skills.

1.2 In Spanish:

Esta asignatura optativa se ofrece en el cuarto curso de la carrera. El curso proporciona las habilidades prácticas necesarias para establecer el estado actual de un tema, identificar necesidades de investigación, realizar búsquedas de información y bibliográficas, desarrollar propuestas de investigación y comunicar de manera efectiva los resultados científicos.
La asignatura es de utilidad antes del TFG y para aquellos alumnos que quieran adentrarse en el campo de la investigación, aprender el uso de herramientas de gestión de la documentación científica y mejorar las habilidades comunicativas escritas y orales.

2. Background:

2.1 Situation within the Degree:

2.2 Recommendations

The user-level management of information and communications technologies, which will be used repeatedly throughout the semester in a variety of activities.

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3. Objectives (as result of teaching):

The general objective is to provide tools for the development of research activities. After completing this course, students will be able to:

- Access resources and services available through Campus Library Services.
- Access and search using online databases (Scopus, Scifinder)
- Identify key terms and develop a search strategy.
- Extract information and summarize scientific articles.
- Know vocabulary, writing, publishing and public presentation of scientific papers.
- Correctly cite resources, using reference managers (Mendeley).
- Design and write proposals for research projects.
- Efficiently communicate research results to a specialized audience.

4. Skills to be acquired

4.1 Specific Skills:

- Access resources using online databases.
- Develop a search strategy.
- Summarize scientific articles.
- Know vocabulary, writing, publishing and public presentation of scientific papers.
- Correctly cite resources.
- Use reference managers.
- Design and write proposals for research projects.
- Efficiently communicate research results to a specialized audience.

4.2 General, Basic or Transversal Skills:

5. Training Activities and Teaching Methods

5.1 Training Activities:

- Theoretical lectures.
- Interactive teaching sessions.
- Reading, learning/using digital tools (datebases, reference managers), and presenting/discussing research articles.

5.2 Teaching Methods::

- Theoretical lectures, using teaching materials such as ppt presentations.
- Interactive teaching sessions in which students are expected to attend and actively participate.
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5.3 Development and Justification:

6. Detailed Contents

- **Lecture 1. Basic Concepts of Scientific Research.**
Definitions. Types of research. Scientific method. Practical cases.

- **Lecture 2. Literature Search.**
Information sources. Generalities and methodology. Databases features and use. SciFinder training: reference searching, structure searching, reaction searching.

- **Lecture 3. Reference Manager.**
Mendeley. Desktop and web versions. Library set up and management. Using the citation plug-in. Create your profile and working groups.

- **Lecture 4. The Experimental Design.**
Introduction. Experimental design steps. The laboratory notebook: set up, prelab preparation, post-lab action.

- **Lecture 5. Dissemination and Publication of Research.**
Types of science communication. Conference contributions. Why Publish? Different Types of Publications. The scientific article. Types of scientific articles. Structure of scientific article. Phases and rules for the development of a scientific article. Review and publication process. Quality criteria**.**

- **Lecture 6. Writing a scientific report.**
Structure of scientific report: introduction, objectives, experimental methods, results and discussion, conclusions, references.

- **Lecture 7. Misconduct.** Ethical guidelines.

- **Lecture 8. Scientific career. Predoctoral stage.**
Scholarships and contracts. The thesis. Stays abroad. Conferences. Postdoctoral stage. Academia or industry?

7. Bibliography

7.1 Basic Bibliography:

- Hugh G. Gauch Jr. *Scientific Method in Practice*, Cambridge University Press; 1st edition (2002), ISBN : 9780521017084.
- Stephen S . Carey, *A Beginner's Guide to Scientific Method*, Wadsworth Publishing; 3 edition (2003), ISBN : 9780534584504.
- E. Bright Wilson Jr. *An Introduction to Scientific Research*, Dover Publications; Rev. Sub. edition, ISBN : 9780486665450.

7.2 Additional Bibliography:

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- Michael J. Katz, *From Research to Manuscript: A Guide to Scientific-Writing*, Springer; 2nd ed. (2009), ISBN : 9781402094668.

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8. Systems and Assessment Criteria

8.1 System for Assessment:

- Practical exercises and quizs
- Oral presentation.
- Written exam.

8.2 Assessment Criteria and Marks:

8.2.1 Examinations Convocatory I

CONTINUOUS ASSESSMENT.

- Practical exercises and quizs (20%). Students are expected to attend all lectures. Students are expected to discuss and participate in class activities and discussions. The assignments will consist of the resolution of practical exercises about the issues studied during the course and quizs at the end of each lecture.

- Oral Presentation (40%). Each student will give an oral presentation in conference format for chemistry or other science subjectmatters. The goal will be to communicate research results to a specialized audience.

- Written exam (40%). One final exam that consist of ten questions about the issues studied during the course. A minimum score of 4 points out of 10 is required to pass the subject.

The final mark will be an average between the aforementioned three parts. It is mandatory a minimum final mark of 5 points out of 10 to pass the subject.

FINAL ASSESSMENT.

- Oral Presentation (60%). Each student will give an oral presentation in conference format for chemistry or other science subjectmatters. The goal will be to communicate research results to a specialized audience. A minimum score of 4 points out of 10 is required to pass the subject.
- Written exam (40%). One final exam that consist of ten questions about the issues studied during the course. A minimum score of 4 points out of 10 is required to pass the subject. The final mark will be an average between the aforementioned three parts.
It is mandatory a minimum final mark of 5 points out of 10 to pass the subject.

8.2.2 Examinations Convocatory II

- Oral Presentation (60%). Each student will give an oral presentation in conference format for chemistry or other science subjectmatters. The goal will be to communicate research results to a specialized audience. A minimum score of 4 points out of 10 is required to pass the subject.
- Written exam (40%). One final exam that consist of ten questions about the issues studied during the course. A minimum score of 4 points out of 10 is required to pass the subject. The final mark will be an average between the aforementioned three parts.
It is mandatory a minimum final mark of 5 points out of 10 to pass the subject.

8.2.3 Examinations Convocatory III

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- Oral Presentation (60%). Each student will give an oral presentation in conference format for chemistry or other science subjectmatters. The goal will be to communicate research results to a specialized audience. A minimum score of 4 points out of 10 is required to pass the subject.
- Written exam (40%). One final exam that consist of ten questions about the issues studied during the course. A minimum score of 4 points out of 10 is required to pass the subject. The final mark will be an average between the aforementioned three parts.

It is mandatory a minimum final mark of 5 points out of 10 to pass the subject.

8.2.4 Extraordinary Convocatory
- Oral Presentation (60%). Each student will give an oral presentation in conference format for chemistry or other science subjectmatters. The goal will be to communicate research results to a specialized audience. A minimum score of 4 points out of 10 is required to pass the subject. - Written exam (40%). One final exam that consist of ten questions about the issues studied during the course. A minimum score of 4 points out of 10 is required to pass the subject. The final mark will be an average between the aforementioned three parts. It is mandatory a minimum final mark of 5 points out of 10 to pass the subject.
8.3 Single Final Evaluation:
- Oral Presentation (60%). Each student will give an oral presentation in conference format for chemistry or other science subjectmatters. The goal will be to communicate research results to a specialized audience. A minimum score of 4 points out of 10 is required to pass the subject. - Written exam (40%). One final exam that consist of ten questions about the issues studied during the course. A minimum score of 4 points out of 10 is required to pass the subject. The final mark will be an average between the aforementioned three parts. It is mandatory a minimum final mark of 5 points out of 10 to pass the subject.