



Universidad de Jaén

FACULTY OF EXPERIMENTAL SCIENCES

Analysis of olive oil

2024-2025
Grado en Química



GRUPO



Acceso Mayores 40

Guías docentes UJA

Horarios de tutorías

Llamamientos PEvAU

Movilidad (Coordinador)

P.O.D.

Solicitud bilingüismo

Syllabus 2024-25 - 10313002 - Analysis of Olive Oil (Análisis del aceite de oliva)

Caption

- Level 1: Tutorial support sessions, materials and exams in this language
- Level 2: Tutorial support sessions, materials, exams and seminars in this language
- Level 3: Tutorial support sessions, materials, exams, seminars and regular lectures in this language

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DEGREE:

Grado en Químicas

FACULTY:

FACULTY OF EXPERIMENTAL SCIENCES

ACADEMIC YEAR:

2024-25

COURSE:

Analysis of Olive Oil

SYLLABUS

1. COURSE BASIC INFORMATION

NAME: Analysis of Olive Oil

CODE: 10313002

ACADEMIC YEAR: 2024-25

LANGUAGE: English

LEVEL: 1

ECTS CREDITS: 6.0

YEAR: 4

SEMESTER: PC

2. LECTURER BASIC INFORMATION

NAME: FERNÁNDEZ DE CORDOVA, MARÍA LUISA

DEPARTMENT: U127 - QUÍMICA FÍSICA Y ANALÍTICA

FIELD OF STUDY: 750 - QUÍMICA ANALÍTICA

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LANGUAGE: English

LEVEL: 1

NAME: PEÑA RUEDA, MARTA

DEPARTMENT: U127 - QUÍMICA FÍSICA Y ANALÍTICA

FIELD OF STUDY: 750 - QUÍMICA ANALÍTICA

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WEBSITE: -

ORCID: -

LANGUAGE: English

LEVEL: 1

3. CONTENT DESCRIPTION

THEORETICAL CONTENT

BLOCK I. BASIC FOOD ANALYSIS

Topic 1: Food composition. Labeling. Foods with Differentiated Quality.**Topic 2:** Proximate analysis of foods: Moisture and Dry Matter, Ash, Crude Protein, Nitrogen-Free Extract, Crude Fat, and Crude Fiber.

BLOCK II. OLIVE OIL ANALYSIS

Topic 3: Composition of olive oil. Commercial categories. Legislation and Commercial Standards on characteristics of olive and pomace oils and analysis methods. Quality and purity characteristics.**Topic 4:** Evaluation of acidity, oxidation state, and degree of unsaturation of olive oils. Organoleptic evaluation of virgin olive oils.**Topic 5:** Analysis of major components: fatty acids and triglycerides. Analysis of minor components: sterols, erythrodiol and uvaol, aliphatic alcohols, stigmastadienes, waxes, and ethyl esters. Determination of 2-glyceryl monopalmitate.

LABORATORY PRACTICES

Block 1: Evaluation of the quality and purity of different commercial categories of olive and pomace oils. The following determinations will be carried out: acidity, peroxide value, K 232, K 270, fatty acid

composition, moisture and volatile matter, iodine value, and saponification value.

Block 2: Food analysis. The following practices will be carried out: Determination of sodium chloride concentration in margarine or butter; determination of starch in bananas: maturity index; reducing character of sugars and reducing sugars in jam.

4. COURSE DESCRIPTION AND TEACHING METHODOLOGY

. **Theory classes:** fundamentally expository method, supported by the use of the blackboard and video projector. Student participation will be actively encouraged at all times during class.

. **Laboratory practices:** students will be made aware of the importance of applying good laboratory practices and, in particular, of documenting all the work and experiences carried out in the laboratory in a personal laboratory notebook. This will greatly enhance their performance and understanding. Given the maturity level of the students in this course, efforts will be made to help them acquire a certain degree of independence in conducting the practices, effectively managing the available time, and making decisions when analyzing the presented samples. During the development of the practices, efforts will be made to address individual students' specific difficulties and emphasize the concepts and ideas related to the practice at hand. The instructions given to the students will be of an orientative nature, avoiding the practice becoming a mechanical and valueless task. Additionally, efforts will be made to establish a more personal relationship with the students in the laboratory.

. **Seminars:** support seminars will be conducted to complement the theory classes. The professor will present a specific topic for a limited time, and then the students will work on solving the questions and/or exercises proposed.

. **Self-assessment exercises:** several exercises will be proposed to the students throughout the course, consisting of short questions applying the theory. These exercises will be carried out on the PLATEA teaching platform outside of class. They will be available to the students for a certain period, and once completed, they will be corrected and graded. The seminar hours will be used to discuss and share the solutions to the different questions.

. **Preparation and presentation of assignments:** several topics that complement the material taught in class will be offered to the students for them to prepare in groups and present in class. The primary objective of preparing these topics is to raise awareness among the students about the importance of nutrition in health, its impact on the environment, and the need to be well-informed in this regard.

Students with special educational needs should contact the Student Attention Service (Servicio de Atención y Ayudas al Estudiante) in order to receive the appropriate academic support

5. ASSESSMENT METHODOLOGY

. **Theory exam:** the knowledge acquired by the students regarding the different analytical determinations commonly carried out in olive oils and other foods of the Mediterranean diet for quality and purity control will be assessed, as well as their application to specific cases.

Evaluated competencies: CE16

. **Self-assessment exercises:** the ability of students to think critically and solve problems related to food analysis, particularly in identifying possible adulterations in olive oils, will be evaluated.

Evaluated competencies: CE16

. **Laboratory practices:** the students' performance in carrying out the practices, the results obtained in each analysis, the discussion of results, and the laboratory notebook will be evaluated. The practices will involve analytical determinations explained in class, so the students' understanding of the underlying principles will also be assessed.

Evaluated competencies: CE16; P2

. **Preparation and presentation of assignments:** the correct use of chemical language, organization of ideas, and clarity of expression in the preparation of the work and during the presentation will be evaluated. The students' ability to engage in the subsequent debate will also be assessed.

Evaluated competencies: B4; B11

6. BOOKLIST ([Access the bibliography in the Library catalog](#))

MAIN BOOKLIST:

- Food Analysis [Recurso electrónico]. Edition: -. Author: Nielsen, S. Suzanne. Publisher: Boston, MA : Springer Science+Business Media, LLC, 2010. ([Library](#))
- Olive oil : chemistry and technology editor, Dimitrios Boskou.. Edition: 2nd ed.. Author: Boskou, Dimitrios.. Publisher: AOCS Press ([Library](#))

ADDITIONAL BOOKLIST:

- extra-virgin olive oil handbook edited by Claudio Peri. Edition: -. Author: Peri, C. (Claudio), ed.. Publisher: Wiley Blackwell ([Library](#))
- Olive oil: minor constituents and health edited by Dimitrios Boskou. Edition: -. Author: Boskou, Dimitrios, ed. lit.. Publisher: CRC Press ([Library](#))

7. SUSTAINABLE DEVELOPMENT GOALS

Salud y bienestar
Producción y consumo responsables

DETAILED INFORMATION

This course will contribute to achieving the following targets set in the Sustainable Development Goals (SDGs) SDG-3 and SDG-12:

SDG-3

3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.

SDG-12

12.1 Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, with all countries taking action, and with developed countries taking the lead, taking into account the development and capabilities of developing countries.

12.2 By 2030, achieve the sustainable management and efficient use of natural resources.

12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.

12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water, and soil in order to minimize their adverse impacts on human health and the environment.

12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities.

12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.

12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production.

12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products.

8. VIRTUAL / CLASSROOM TEACHING SCENARIO

Methodology and activities

Educational activities	Format (in-person class / online class)	Teaching methodology
		Description
32 theory sessions on the contents of the Program	Face to-face	32 master class sessions, lasting 1 hour each.
5-6 Seminar sessions	Face-to-face	5-6 Seminar sessions, lasting 1 hour each.
4-5 sessions of exposition of works	Face-to-face	4-5 sessions, lasting 1 hour each.
Practical sessions in the laboratories of the Department	Face-to-face	The organization of the practices will depend on the health guidelines of the moment and the capacity of the laboratory
Tutorials	Non-face-to-face	All tutorials will be conducted online (synchronous and asynchronous)

Recording by any means of face-to-face or synchronous face-to-face activities is expressly prohibited for students.

Evaluation system

Assessment test	Format (in-person/online, synchronous or asynchronous)	Description	Percentage
Continuous assessment	Face-to-face	Delivery of questionnaires resolved	10%
Continuous assessment	Face-to-face	Exhibition of works	10%
Continuous assessment	Face-to-face	Laboratory practices	25%
Final exam	Face-to-face	Written test of theoretical-practical nature	55%

The evaluation system will be maintained for both ordinary and extraordinary calls. It will be necessary to obtain a minimum score of 4 (out of 10) in the written exam and lab practices to access the weighted grade.

Resources

For interaction with the group of students the teaching platform will be used as well as the Google Suite resources. The VPN will be used to connect to the UJA licensed software. Electronic bibliographic resources will be used.

9. VIRTUAL TEACHING SCENARIO

Methodology and activities

Educational activities	Format (in-person class / online class)	Teaching methodology Description
32 theory sessions on the contents of the Program	Non-face-to-face	32 master class sessions, each lasting 1 hour, conducted by videoconference in synchronous mode.
5-6 Seminar sessions	Non-face-to-face	5-6 Seminar sessions, each lasting 1 hour, conducted by videoconference in synchronous mode.
4-5 sessions of exposition of works	Non-face-to-face	4-5 sessions of 1 h carried out, conducted by videoconference in synchronous mode, in which the students by groups will expose a work to the rest.
4 practical sessions in the virtual laboratory	Non-face-to-face	Development of 4 practical sessions, of 4 hours each, carried out by videoconference in synchronous mode. It will work with videos, simulations and experimental data will be given to the students for each of the practices so that they can carry out the corresponding calculations.

Tutorials	Non-face-to-face	All tutorials will be conducted online (synchronous and asynchronous)
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Recording by any means of face-to-face or synchronous face-to-face activities is expressly prohibited for students.

Evaluation system

Assessment test	Format (in-person/online, synchronous or asynchronous)	Description	Percentage
Continuous assessment	Non-face-to-face		
		Delivery of questionnaires resolved	15%
		Exhibition of works	15%
		Laboratory practices	20%
		2 written tests of theoretical-practical nature	50 %

The two written tests will be carried out using the teaching platform or a Google Suite resource in synchronous mode. The first of them will take place towards the middle of the class period, in an hour dedicated to AADs and the second on the official date established for the examination of the subject. The evaluation system will be maintained for both ordinary and extraordinary calls. In the extraordinary call, the two written tests may be recovered.

Resources

For interaction with the group of students the teaching platform will be used as well as the Google Suite resources. The VPN will be used to connect to the UJA licensed software. Electronic bibliographic resources will be used.

DATA PROTECTION CLAUSE (on line exams)

Institution in charge of data processing: Universidad de Jaén, Campus Las Lagunillas, s/n, 23071 Jaén

Data Protection Delegate: dpo@ujaen.es

Purpose: In accordance with the Universities Law and other national and regional regulations in force, carrying out exams and assessment tests corresponding to the courses students are registered in. In order to avoid frauds while sitting the exam, the exam will be answered using a videoconference system, being able the academic staff of the University of Jaén to compare and contrast the image of the person who is answering the exam with the student's photographic files. Likewise, in order to provide the exam with evidential content for revisions or claims, in accordance with current regulation frameworks, the exam will be recorded and stored.

Legitimacy: compliance with legal obligations (Universities Law) and other national and regional regulations currently in force.

Addressees: service providers who are the owners of the platforms where the exams are carried out and with whom the University of Jaén has signed the corresponding data access contracts.

Storage periods: those established in current in force regulations. In the specific case of exam videoconference recordings, not before the examination records and transcripts are closed or the exam can still be reviewed or challenged.

Rights: you can exercise your right of access, amendment, cancellation, opposition, suppression, limitation and portability by sending a letter to the postal or electronic address indicated above. In the event that you consider that your rights have been violated, you may submit a complaint to the Andalusian Council for Transparency and Data Protection www.ctpdandalucia.es

CLASS RECORDING CLAUSE PERSONAL DATA PROTECTION

Person in charge: Universidad de Jaén, Paraje Las Lagunillas, s/n; Tel.953 212121; www.ujaen.es

Data protection delegate (DPO): TELEFÓNICA, S.A.U. ; Email: dpo@ujaen.es

Procedure aim: To manage proper recordings of teaching sessions with the aim of facilitating learning process under a multimodal and/or online teaching

Period for record storage: Images will be kept during legal term according to regulations in force

Legitimacy: Data will be managed according to legal regulations (Organic Law 6/2001, December 21, on Universities) and given consent provided by selecting corresponding box in legal admission documents

Data recipients (transfers or assignments): Any person allowed to get access to every teaching modality

Rights: You may exercise your rights of access, rectification, cancellation, portability, limitation of processing, deletion or, where appropriate, opposition. To exercise these rights, you must submit a written request to the Information, Registration and Electronic Administration Service of the University of Jaen at the address above, or by e-mail to the address above. You must specify which of these rights you are requesting to be satisfied and, at the same time, you must attach a photocopy of your ID card or equivalent identification document. In case you act through a representative, legal or voluntary, you must also provide a document that proves this representation and identification. Likewise, if you consider that your right to personal data protection has been violated, you may file a complaint with the Andalusian Data Protection and Transparency Council www.ctpdandalucia.es

Campus Las Lagunillas s/n | 23071 - Jaén

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