

**COURSE DATA****Data Subject**

Code	41028
Name	Research Techniques
Cycle	Master's degree
ECTS Credits	15.0
Academic year	2023 - 2024

Study (s)

Degree	Center	Acad. year	Period
2021 - M.D. in Food Quality and Safety	Faculty of Pharmacy and Food Sciences	1	Annual

Subject-matter

Degree	Subject-matter	Character
2021 - M.D. in Food Quality and Safety	4 - Research techniques	Optional

Coordination

Name	Department
ROIG MONTOYA, PATRICIA	265 - Prev. Medicine, Public Health, Food Sc.,Toxic. and For. Med.
RUIZ LEAL, MARIA JOSE	265 - Prev. Medicine, Public Health, Food Sc.,Toxic. and For. Med.

SUMMARY

The objective of the Research Techniques subject is to allow students who are studying the research orientation to obtain the skills and abilities necessary to carry out a research project.

The subject Research Techniques will prepare students to critically assess and know how to use and apply sources of information related to Nutrition and Bromatology, Food Safety and Food Technology and Biotechnology.

Basic training for research activity will be provided, with the ability to formulate hypotheses, collect and interpret information for problem solving in accordance with the scientific method, understanding the importance and limitations of scientific thinking in health, nutrition and technology.



Students will learn the appropriate research techniques for the development of a research project in the fields of Nutrition and Bromatology, Food Technology and Biotechnology and Food Safety.

The activities in the research laboratory will comprise 375 hours of work, which is equivalent to three months of experimental work. Exceptionally, the work may be bibliographic research with an equivalent dedication

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

Not applicable

OUTCOMES

2021 - M.D. in Food Quality and Safety

- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Students should demonstrate self-directed learning skills for continued academic growth.
- Manejar la metodología estadística y saber analizar problemas y aplicar las herramientas estadísticas más apropiadas en cada caso.
- Adquirir la formación básica para la actividad investigadora, con capacidad de formular hipótesis, recoger e interpretar la información para la resolución de problemas de acuerdo con el método científico, comprendiendo la importancia y limitaciones del pensamiento científico en materia sanitaria y nutricional.
- Ser capaces de obtener y de seleccionar la información y las fuentes relevantes para la resolución de problemas, elaboración de estrategias y asesoramiento a clientes.
- Elaborar y manejar los escritos, informes y procedimientos de actuación más idóneos para los problemas suscitados.
- Contemplar en conjunto y tener en cuenta los distintos aspectos y las implicaciones en los distintos aspectos de las decisiones y opciones adoptadas, sabiendo elegir o aconsejar las más convenientes dentro de la ética, la legalidad y los valores de la convivencia social.
- Know how to work in multidisciplinary teams reproducing real contexts and contributing and coordinating their own knowledge with that of other branches and participants.



- Use different presentation formats (oral, written, slide presentations, boards, etc.) to communicate knowledge, proposals and positions.
- Projectar sobre problemas concretos sus conocimientos y saber resumir y extraer los argumentos y las conclusiones más relevantes para su resolución.

LEARNING OUTCOMES

Knowledge of the methodological debate in the discipline and specialty in which the student wants to develop his or her research activity, as well as the most relevant sources. In a word, it could be summarized as knowing the current state of the art with respect to the problems or topics you want to study, so that your projected contributions represent an advance with respect to that current situation, but built on the basis of what has already been consolidated.

Knowledge of the Research Techniques used in the fields of Nutrition and Bromatology, Food Safety and Food Technology and Biotechnology.

Acquisition of the skills and competencies necessary to work in research teams in companies, public or private centres.

DESCRIPTION OF CONTENTS

1. Research Techniques

The Scientific Method, Observation, Hypothesis and Theory. Scientific information in Nutrition, Food Science and Technology, or Food Safety. Libraries and documentation centres. Catalogues. Databases. Accumulation and retrieval of information. Bibliographic reference. Bibliographic indicators.

The subject Research Techniques trains students in basic or applied areas that may be related to:

- Nutrition and Bromatology: bioactive components of food, bioavailability and functionality.
- Food Safety to ensure food safety with the control of contaminants.
- Food Technology and Biotechnology on the transformation and preservation of food, biotechnology of microorganisms of food interest, novel foods, etc.

A summary of the lines of research, to be chosen by the student, in which the appropriate Research Techniques will be developed in each case, is presented:

- Anthropometric and nutritional evaluation of population groups.
- In vitro and in vivo bioavailability of food components.
- Identification, quantification and stability of bioactive compounds and food ingredients
- Technical reports and advice on nutritional and functional quality of food.
- Determination of the nutritional profile and special characteristics of foods and innovation of foods with reduction of fat, salt and sugars.
- Study and evaluation of intakes and menus in communities.
- Study of shelf life in packaged foods.
- Evaluation of the application of thermal and non-thermal technologies, known as new technologies in food processing.
- Post-harvest treatments.



- Detection of pathogenic microorganisms in food.
- Development of in vitro and in vivo methods for the study of contaminants in food.
- Risk assessment of exposure to pollutants

WORKLOAD

ACTIVITY	Hours	% To be attended
Graduation project		100
TOTAL	0,00	

TEACHING METHODOLOGY

The academic tutor individually develops a work plan that prepares the student to review the current status of the chosen work topic, as well as planning the development of the research, so that in the right time it gives place for the student to learn and apply the necessary research techniques in the selected field, whether it is Nutrition and Bromatology, Food Safety or Food Technology and Biotechnology.

In summary, the techniques are varied and will be used to develop analytical-instrumental, toxicological, immunochemical, technological, microbiological methods, among others, to be applied in the different topics of food sciences.

The student will perform the assigned research activities.

Follow-up and tutoring will be carried out

The student will prepare and present a report following the guidelines indicated on the master's degree website.

EVALUATION

The research techniques are supervised by an academic tutor. University professors appointed by the Master's CCA act as academic tutors according to the activities to be carried out in the research techniques. The academic tutors are responsible for explaining the evaluation criteria to the students.

The research techniques will be evaluated on the basis of their own competences related to the field of food quality and safety.

The final grade of the student will be given by the responsible teachers, taking into account the following aspects

- a) The tutor's evaluation of the research techniques in terms of attitude, performance and learning process by filling in a questionnaire. And with a value of 60% of the total subject.
- b) Evaluation by the academic tutor taking into account the report presented by the student. And with a value of 40% of the total subject.



REFERENCES

Basic

- Las obtenidas al realizar las búsquedas bibliográficas de artículos de revisión y experimentales de la temática seleccionada en las bases de datos.