

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

Code	41029
Name	Food Technology and Biotechnology
Cycle	Master's degree
ECTS Credits	10.0
Academic year	2021 - 2022

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	3 - Food technology and biotechnology	Obligatory

Coordination

Name	Department
FONT PEREZ, GUILLERMINA	265 - Prev. Medicine, Public Health, Food Sc., Toxic. and For. Med.

SUMMARY

The Technology and Biotechnology module aims the training to obtain safer food, with higher quality and healthier through studies of microorganisms and food bioprocesses in which they participate.

It will provide expertise for the implementation of biological and biotechnological techniques for detection of microorganisms and interpretation of results.

It will study the methods used in food preservation and processing as well as emerging technologies and packaging technologies.

It will explore in depth the specific technology and biotechnology of novel foods, functional foods and GMOs and their impact on both food quality and health of consumers

Statistical methods were used to proceed to analyze problems and apply statistical tools most appropriate in each case.



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

- Ser capaz de entender las metodologías para el procesado de los alimentos.
- Adquirir conocimientos sobre los procedimientos reglamentarios en la gestión de la calidad alimentaria
- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.
- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Capacidad para adaptar los procesos relacionados con los alimentos a las normas vigentes de higiene de los alimentos y sistemas de gestión de calidad.
- Conocer la investigación que en alimentación, nutrición y tecnología alimentaria demanda nuestra región.
- Conocimientos básicos sobre los principales grupos microbianos relacionados con los alimentos y familiarizarse con los métodos de clasificación microbiana.
- Capacidad para la aplicación de las principales técnicas biológicas y biotecnológicas para la detección de microorganismos y la interpretación de los resultados.
- Manejar la metodología estadística y saber analizar problemas y aplicar las herramientas estadísticas más apropiadas en cada caso.
- Conocimiento de los métodos más empleados en la conservación y transformación de alimentos así como de las tecnologías emergentes y tecnologías de envasado.



- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- 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.
- Participate in, lead and coordinate debates and discussions, be able to summarize them and extract the most relevant conclusions accepted by the majority.
- Use different presentation formats (oral, written, slide presentations, boards, etc.) to communicate knowledge, proposals and positions.
- Proyectar sobre problemas concretos sus conocimientos y saber resumir y extraer los argumentos y las conclusiones más relevantes para su resolución.
- Planificar, ordenar y encauzar actividades de manera que se eviten en lo posible los imprevistos, se prevean y minimicen los eventuales problemas y se anticipen sus soluciones.
- Obtener la formación necesaria para incorporarse a Departamentos de Investigación, Desarrollo e Innovación dentro de las empresas del sector agroalimentario.

LEARNING OUTCOMES

Knowledge of technological processes.

Knowledge of packaging and its characteristics.

Basic knowledge of the major microbial groups related with food and with the methods of microbial classification.

Capacity for the application of biological and biotechnological techniques for detection of microorganisms and interpretation of results.

Knowledge of the methods used in food preservation and processing as well as emerging technologies and packaging technologies.

Knowledge of the characteristics of new foods, functional foods and GMOs and their impact on both food quality and consumer health.

**DESCRIPTION OF CONTENTS****1. Technology and Food Biotechnology**

Quality of cereals and cereal products.

Quality and flavor of the meat. Curing agents.

Packaging materials and packaging technologies for food marketing.

Bioactive packaging against the growth of mycotoxigenic fungi in food.

Characterization of producing fungi and identifiers of genes involved in the production of mycotoxins.

Effects of thermal and non thermal treatments in food quality.

Biotechnology applications in the wine industry: improved microorganisms.

Strategies in sensory analysis of food.

Comprehensive study of the reformulation of foods with better nutritional profile.

Biotechnology of proteins and enzymes in the food industry.

Biotechnology of lactic acid bacteria.

Baker's yeast: new challenges for classic biotechnology.

Conservation and improvement of the quality of fruit.

Immuno analytical approaches to food safety.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	85,00	100
Attendance at events and external activities	18,00	0
Development of group work	20,00	0
Study and independent work	18,00	0
Readings supplementary material	15,00	0
Preparation of evaluation activities	4,00	0
Preparing lectures	40,00	0
Preparation of practical classes and problem	50,00	0
TOTAL	250,00	

TEACHING METHODOLOGY

MD1 - Theoretical lectures

MD3 - Resolution of practical cases

MD5 - Seminars

MD6 - Development of projects

MD9 - Debate and led discussion

MD10 - Conference of experts

MD11 – Working groups



EVALUATION

English version is not available

REFERENCES

Basic

- Lecturas recomendadas por los profesores y profesoras disponibles en bases de datos de la UV o accesibles por internet.

ADDENDUM COVID-19

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

1. Contents

The contents initially programmed in the teaching guide for the theoretical sessions are maintained.

2. Volume of work and temporary planning of teaching

Maintenance of teaching planning.

3. Teaching methodology

Substitution of the face-to-face class by videoconference, upload of the materials for the sessions on the virtual classroom (explained power point presentations, links and related articles). The materials provided in the original guide for face-to-face teaching will be included and the use of virtual tutorships to answer students' questions is hereby introduced. Feedback is done through the Socrative tool.

4. Evaluation

The evaluation modality of this section is maintained. The exam will be carried out at the proposed time, telematically, through the virtual classroom. The evaluation will be weighted up to 80% and other activities of continuous evaluation up to 20%.



If a person does not have the means to establish this connection and access the virtual classroom, they should contact the teaching staff by email at the time of publication of this annex to the teaching guide.

5. Bibliography

The recommended readings available in databases subscribed to by the UV (they require VPN in some cases) and those recommended by the teachers are maintained.