

FUNDAMENTALS OF BROMATOLOGY

Degree in Human Nutrition and Dietetics. Academic year 2026 - 2027

Code: 803977

Module: 2

Subject: Bromatology

Type of subject: Mandatory

Semester: 2º semester

Department: Nutrition and Food Science

Credits: 6 ECTS

Course: First

Starting date:

Schedule: Tuesday, Wednesday and Friday, 9,30 a 10,30

Place: Aula 15. Faculty of Medicine

Nº of students: 64

PROFESSORATE

Coordinators:

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BRIEF DESCRIPTION

The general objective of the subject is the knowledge of the components that are part of food and its effects on health, as well as the study of compounds of functional or technological interest that affect their quality.

Throughout the course you will study:

- The different natural components of food,
- compounds originated by technological treatments of food,
- substances intentionally added to food,
- the possible contaminants present in them,
- The most important aspects related to food quality and legislation

COMPETENCES

They are those corresponding to the Module and Subject to which this subject belongs.

General Competences

- C.G.3.1.
- C.G.1.1.
- C.G.1.2.
- C.G.1.3.
- C.G.1.4.
- C.G.2.1

- C.G.2.2
- C.G.3.3.
- C.G.3.4.
- C.G.4.1.
- C.G.4.2.
- C.G.4.3.
- C.G.5.3.
- C.G.5.4.
- C.G.6.1.
- C.G.6.2.
- C.G.7.3.
- C.G.7.4.
- C.G.8.1.

Specific Competences

- CE.M1.1
- CE.M1.5
- CE.M1.6
- CE.M1.7
- CE.M2.1
- CE.M2.2
- CE.M2.4
- CE.M2.5
- CE.M2.6
- CE.M3.3
- CE.M3.4
- CE.M3.6
- CE.M3.7
- CE.M3.8
- CE.M4.01
- CE.M4.02
- CE.M4.04
- CE.M4.17
- CE.M4.19
- CE.M4.22

SYLLABUS

THEORETICAL

Lesson 1. Concept of Bromatology. Historical evolution of Bromatology as a Science. Current importance of Bromatology.

Lesson 2. Food, concept and characteristics. Food classification criteria. Food groups. Tables of food composition.

Lesson 3. The food chain. Origin of food. Raw material and manufactured product. Storage, transportation, distribution and sale. Food expiration

Lesson 4. Bromatological legislation. Spanish and European legislation. Terminology in the food field.

Lesson 5. Food additives and food coadjuvants. Classification. Legal aspects.

Lesson 6. Food quality. Concept and types. Quality criteria.

Lesson 7. Quality control of raw materials and finished products. Traceability.

Lesson 8. Nutritional components of food. Macronutrients. Qualitative and quantitative aspects. **Lesson 9. Nutritional components of food.** Micronutrients. Types and characteristics.

Lesson 10. Compounds responsible for the sensory characteristics of food.

Lesson 11. Bioactive components in food. Functional ingredients.

Lesson 12. Undesirable components of food. Compounds of natural origin and contaminants.

Lesson 13. Functional properties of the different components of food: water, proteins, enzymes, carbohydrates and lipids.

Lesson 14. Fermentative processes in food: acid-lactic, alcoholic and acetic fermentation.

Lesson 15. Alteration of food. Influential factors. Action mechanisms.

Lesson 16. Chemical and biochemical transformations of food. Influence on their quality.

Lesson 17. Food preservation. General principles. Conservation by physical methods.

Lesson 18. Conservation by chemical methods. Emerging Food Preservation Technologies.

PRACTICAL

Laboratory practices: application at an experimental level of the knowledge acquired, through the handling of material, means and laboratory equipment, and analytical determinations of various quality parameters of different food groups.

The completion of practices is mandatory on the dates and times assigned in the teaching calendar and taught by at least two teachers.

Tutorials: guidance and resolution of doubts.

SEMINARS

Marketing and consumption of food in Spain. Habits and trends.

Denominations of origin and differentiated quality.

Food labeling

Sensory analysis of food and health

Consumer information on food additives.

EVALUATION

The evaluation will consider:

Final written exam on the theoretical contents of the subject (75%).

Presentation and evaluation of the work carried out in the seminars (10%).

Monitoring of work in the laboratory and final practical exam (15%).

Attendance to theoretical classes, practices and seminars.

The exam will consist of multiple choice questions and/or short questions. To pass the subject it is necessary to obtain a minimum of 5 out of 10 in each of the parts. In any case, it will be evaluated according to the norm established and approved at any time by the Faculty Board.

Attitude to follow in the event of a voluntary or accidental infraction in the rules of conducting the exam. The

voluntary or accidental violation of the rules for conducting the exam prevents the evaluation of the same,

Therefore, the offending student will take an oral exam of the subject to establish their knowledge of the subject. If intentionality in the deception is confirmed, it will be considered a very serious ethical breach, and the Services Inspectorate will be informed to take the disciplinary measures that it deems appropriate.

BASIC REFERENCES / LINKS RELATED IN INTERNET

- Astiasarán, I. y Martínez Hernández, J.A. (2002), *Alimentos. Composición y propiedades*, Editorial McGraw-Hill Interamericana, Madrid.
- Astiasarán, I.; Lasheras, B.; Ariño, A. y Martínez

- Hernández, J.A. (2003), *Alimentos y Nutrición en la Práctica Sanitaria*, Editorial Díaz de Santos, Madrid.
- Badui, S. (2006), *Química de los Alimentos*, 4ª ed., Editorial Pearson Educación, México.
 - Belitz, H.D., Grosch, W, y Schieberle, P (2012), *Química de los Alimentos*, 3ª ed., Editorial Acribia, Zaragoza.
 - Bello Gutiérrez, J. (2000), *Ciencia bromatológica. Principios generales de los alimentos*, Editorial Díaz de Santos, Madrid.
 - Bello Gutiérrez, J. (2005), *Calidad de vida, alimentos y salud humana*, Editorial Díaz de Santos, Madrid.
 - Código Alimentario Español (2006), *Biblioteca de Textos Legales*, 7ª ed., Editorial Tecnos, Madrid.
 - Cheftel, J.C. y Cheftel H. (1992), *Introducción a la bioquímica y tecnología de los alimentos*, Editorial Acribia, Zaragoza.
 - Cheftel J.C.; Cuq, J.L. y Lorient, D. (1989), *Proteínas alimentarias. Bioquímica. Propiedades funcionales. Valor nutritivo. Modificaciones químicas*, Editorial Acribia, Zaragoza.
 - Fenema, O.R. (2000), *Química de los alimentos*, 2ª ed., Editorial Acribia, Zaragoza.
 - Hernández Rodríguez, J. y Sastre Gallego, A. (1999), *Tratado de Nutrición*, Editorial Díaz de Santos, Madrid.
 - Larrañaga, I.J.; Carballo, J.M.; Rodríguez, M.M.; Fernández Sainz, J.A. (2001), *Control e higiene de los alimentos*, Editorial McGraw-Hill, Madrid.
 - Mahan, L.K. y Escott-Stemp, S. (2009), *KRAUSE Dietoterapia*, Editorial Elsevier Masson, Barcelona.
 - Mataix Verdú, J. (2009), *Nutrición y alimentación humana. I. Nutrientes y alimentos II. Situaciones fisiológicas y patológicas*, Editorial ERGON, Madrid.
 - Mazza, G. (2000), *Alimentos funcionales: Aspectos bioquímicos y de procesado*, Editorial Acribia S.A., Zaragoza.
 - Moll, M.; Moll, N. (2006), *Compendio de riesgos alimentarios*, Editorial Acribia, Zaragoza.
 - Multon, J.L. (1999), *Aditivos y auxiliares de fabricación en las industrias agroalimentarias*, Editorial Acribia, Zaragoza.
 - Ordóñez, J. y col. (1998), *Tecnología de los Alimentos*. Vol. I Componentes de los alimentos y procesos, Editorial Síntesis, Madrid.
 - Ordóñez, J. y col. (1998), *Tecnología de los Alimentos*. Vol. II Alimentos de origen animal, Editorial Síntesis, Madrid.
 - Pamplona Roger, J. (2006), *Enciclopedia de los alimentos*, Tomos 1, 2, 3, Editorial Safeliz S.L., Madrid.
 - Potter, N.N. (1999), *Ciencia de los alimentos*, Editorial Acribia, Zaragoza.
 - Roberts, H.R. (1986), *Sanidad alimentaria*, Editorial Acribia, Zaragoza.
 - Robinson, D.S. (1991), *Bioquímica y valor nutritivo de los alimentos*, Editorial Acribia, Zaragoza.
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 - Ziegler, E.E. y Filer, L.J. (1997), *Conocimientos actuales sobre Nutrición*, 7ª ed., Editorial ILSI, Washington D.C.
- ### Food Composition Tables
- Bello Gutiérrez, J.; Candela Delgado, M.; Astiasarán Anchía, I. (1998), *Tablas de composición para platos cocinados*, Editorial Díaz de Santos, Madrid.
 - Mataix Verdú, J. (2009), *Tabla de composición de alimentos españoles*, Editorial Universidad de Granada.
 - Ministerio Sanidad y Consumo (2003), *Tablas de composición de alimentos españoles*, Editorial Ministerio de Sanidad y Consumo, Madrid.
 - Moreiras, O.; Carbajal, A.; Cabrera, L.; Cuadrado, C. (2018), *Tablas de composición de alimentos*. 19Ed. Editorial Pirámide, Madrid.
 - Elmadfa, I. (1991), *La gran guía de la composición de los alimentos*, Equipo de alimentación de la Universidad J. Liebig de Giessen, 2ª ed., Integral, Barcelona.
 - Souci - Fachmann - Kraut (1991), *Tablas de composición de alimentos*. El pequeño Souci Fachmann-Kkraut, Editorial Acribia, Zaragoza.
 - Souci, S.W.; Fachmann, W.; Kraut, H. (2008), *Food Composition and Nutrition Tables*, 7 ed., Medpharm Scientific Publishers, Stuttgart.

Web pages of interest

- Boletín Oficial del Estado
www.boe.es
- Iberlex (Legislación estatal, autonómica y comunitaria) www.iberlex.boe.es
- Codex Alimentarius
www.codexalimentarius.net/web/index_en.jsp
- Food And Agriculture Organization Of The United Nations (FAO)
www.fao.org
- Food and Drug Administration (FDA)
www.fda.gov/ U.S.
- European Food Safety Authority
<http://efsa.eu.int>
- Agencia Española de Seguridad Alimentaria y Nutrición
www.aesa.msc.es
- Food and Nutrition Information Center (USDA)
www.nal.usda.gov/fnic/etext/fnic.html
- Instituto Nacional de Investigación Agraria y Agroalimentaria
www.inia.es
- Consejo Superior de Investigaciones Científicas
www.csic.es
- Consejo General de Colegios Oficiales de Farmacéuticos
www.portalfarma.es
- Ministerio de Sanidad y Consumo de España
www.msc.es
- Consejo General de Colegios Oficiales de Veterinarios
www.colvet.es
- El portal de la Unión Europea
<http://europa.eu.int>
- Organización Mundial de la Salud (OMS)
www.who.ch
- Confederación de Consumidores y Usuarios (CECU)
www.seguridadalimentaria.org

Approved by the Department Board, April 29th 2026