SUBJECT GUIDE 2013-14

ADVANCED BROMATOLOGIA

MODULE	CONTENT	YEAR	TERM	CREDITS	TYPE
Food Science	Ampliación de Bromatología	2nd	2nd	6	CORE

LECTURER(S)	Postal address, telephone nº, e-mail address
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DEGREE WITHIN WHICH THE SUBJECT IS TAUGHT	
Degree in Human Nutrition and Dietetics Degree in Science and Food Technology	

PREREQUISITES and/or RECOMMENDATIONS (if necessary)

General Chemistry, Biochemistry, Physiology, Biology, Chemistry and Biochemistry of food, Commodity Production, Basic Operations in Industry (possible subjects taken at university)

BRIEF ACCOUNT OF THE SUBJECT PROGRAMME (ACCORDING TO THE DEGREE)

• Classification and descriptive study of the composition, properties and nutritional value of foods of vegetable origin.
• Composition and properties of other foods: canned, ready-cooked food, water and beverages

GENERAL AND PARTICULAR ABILITIES

• CT1. Ability to communicate successfully in Spanish within disciplinary field.
• CT2. Problem-solving capacity
• CT3. Teamwork.
• CT4. Ability to apply theoretical knowledge in a particular way.
• CT7. Capacity for analysis and synthesis.
• CT8. Critical Thinking.
• CT9. Develop skills to initial research.
• CT10. Motivation for quality.

• CT11. Capacity for organization and planning.
• CT12. Ability to manage information.
• CT14. Sensitivity to environmental issues.
SPECIFIC
• CE2. Knowing the food production models, its composition and physical properties, physico-chemical and chemical to determine its nutritional value and functionality.
• CE3. Learn the techniques and food analysis to ensure optimal conditions for human consumption.
• CE15. Information, training and legal advice, scientifically and technically to the public, the food industry and consumers to design intervention strategies and training in the field of science and food technology.

OBJECTIVES (EXPRESSED IN TERMS OF EXPECTED RESULTS OF THE TEACHING PROGRAMME)

• To use the knowledge related to chemical composition and properties of foods, food analysis, detection of the alterations and fraud, processing, preservation and evaluation of food quality
• Ability to describe and explain the changes of processes due to food processing, preservation and deterioration.

DETAILED SUBJECT SYLLABUS

A. THEORETICAL AGENDA:
Item 1. - Food lipid. Dietary fats. Definitions. Classification. Edible Vegetable Fats: Olive oil, oil seeds oil: Preparation, composition, nutritional value, obtaining technological treatments. Other vegetable fats. Technological process of collection, storage and marketing. Legal Criteria analytical and health. Animal fats: Butter. Processes. Composition. Nutritional value. Other animal fats. Legal criteria, analytical and health. Modified Fats: Margarine, Minarinas, synthetic fats. Composition. Processes. Legal criteria, analytical, health and quality.
Item 2. - Cereal food. Wheat: Grain structure, composition, nutritional value. Alterations and conservation. Other food grains. Flour: wheat flour, collection, composition, technological properties (baking capacity), nutritional value). Legal criteria, sensory, analytical and health. Derivatives of cereals: bread and pasta: Definitions. Obtaining. Properties. Composition and nutritive value types. Other cereal products (biscuits, breakfast cereals, infant) technology, nutritional, analytical criteria and sanitary and quality.
Item 3. - Edible legumes: Definition. Its importance in the diet. Species most frequently consumed. Derivatives. Composition: toxic and anti-nutritional compounds. Analytical criteria sanitary and quality. Derivatives trading: soy.
Item 4. - Vegetables, vegetables and fruits. Their role in nutrition. Classification and study of the species most used. Composition and nutritional value. Negative factors for use. Technological processes of maturation, storage and marketing. Major derivatives (juices, frozen, canned, etc..): Technology, nutritional significance. Commercial preparations. Edible Fungi. Legal criteria, analytical, health and quality.

Item 5. - Food Sweeteners. Their role in nutrition. Sugar plants: sugar beet and sugar cane. Manufacturing, refining and commercial types. Honey: definition and properties. Syrups. Honey: Definition. Types. Analytical, health and quality criteria
Item 6. - Food stimulants definition. Their role in nutrition. Coffee: seed preparation. Roasted coffee preparation and composition. Roasted coffee. Imitations. Derivatives of coffee. Substitutes. Cacao. Definition. Seed preparation. Cocoa derivatives. Imitations. Analytical determinations. Tea: definition and preparation. Composition and commercial classes.
Item 7. - Condiments and spices: Definition, classification action. Vinegars. Salt. Saffron. Paprika. Other spices.
Item 8. - Water: Definition. Importance in food. Drinking water: Purification. Bottled drinking water. Soft Drinks: Definition. Classification. Role in food. And carbonated soft drinks: Soda water. Soft. Fruit drinks and fantasy. Tiger nut milk drink. Analytical, health and quality criteria.
Topic 9. - Alcohol: Its nutritional value. Wines: Definition, composition and classification. Development. Features. Analytical and health criteria. Other alcoholic beverages: cider, beer, spirits and liqueurs: Definition, composition, processing and features. Analytical health and quality criteria,.
Item 10. - Novel Foods. Introduction, general characteristics. Concepts and nutritional applications. New Foods: Processing Techniques. Examples: Functional Foods, GMO, Novel Foods, etc..
Item 11. - Food Composition Tables. Management of public databases available on the Internet private food composition. Interpret and manage major food composition tables in the section on food composition. (theory and practice in the classroom).

SEMINAR (autonomous work on one of the seminar topics and another on a free topic.
B. STUDY PROGRAM
B.1. PRACTICAL FOOD PROGRAM:
FOOD LIPID OILS
* ACIDITY
* INDEX peroxides
* REFRACTIVE INDEX
* ABSORBANCE IN UV
* FATTY ACIDS BY GAS CHROMATOGRAPHY
Hydrocarbon FOOD: MEALS
* PERCENTAGE OF HUMIDITY
* DETERMINATION OF ASH
* GLUTEN DETERINACION
* MEJORANTES PRESENCE (Bromates, iodate, persulfate)
SPIRITS: WINE
* Total acidity, VOLATILE AND FIXED
* ALCOHOL
* INDICES colorimetric
B.2. SENSORY ANALYSIS STUDY PROGRAM (3 hours):
• Basic principles of sensory analysis of virgin olive oil. Foundation. Importance as a quality parameter. Sensory attributes. Specific vocabulary.

• Basic principles of sensory analysis of wines. Foundation. Importance in oenology. Sensory attributes. Specific vocabulary.
C. FIELD INTERNSHIP PROGRAM and TRAVEL
They will schedule a visit to various industries related to the subject in the area of influence of the University of Granada.
Field Practice:
Visit an oil mill and winery and / or a brewer
Visit a flour plant

READING

KEY REFERENCES

- ASTIASARAN y MARTINEZ. Alimentos Composición y propiedades. Ed. McCraww-Hill. Interamericana. 2000.
- BARROS, C. (Recopilador). Legislación Alimentaria. Alimentaria. Madrid. 1976-Actualizado con CD
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- BELLO GUTIERREZ, J. Ciencia Bromatológica. Ed. Díaz de Santos. 2000.
- BRENNAN, J. Las Operaciones de la Ingeniería de los Alimentos. 3ª Edición. Ed. Acribia. 1998.
- CENZANO. Nuevo Manual de Industrias Alimentarias.1993.
- CODIGO ALIMENTARIO ESPAÑOL. Ed. Textos legales.
- CHEFTEL, J.G. y col. Introducción a la bioquímica y tecnología de los alimentos.2000.
- FELLOWS, P. Tecnología del Procesado de Los Alimentos. Principios y Prácticas. Ed. Acribia. Zaragoza. 1993.
- FENNEMA, O. R. Química de los Alimentos. Ed. Acribia. Zaragoza. 2000.
- GIL, A. Tratado de Nutrición. TOMO II. Composición y Calidad Nutritiva. 2005.
- HERNÁNDEZ, M. Tratado de Nutrición. Ed. Díaz de Santos.1999.
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- LINDER, M.C. Nutrición. Aspectos Bioquímicos. EUNSA. 1996.
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- MATAIX VERDU, J. Nutrición y Alimentación Humana. I. Nutrientes y Alimentos. Ed. Ergon. 2002.
- PAMPLONA, J.D. Enciclopedia De Los Alimentos Y Su Poder Curativo. 3 Tomos.
- POTTER y HOTCHKISS. Ciencia de los Alimentos. Ed. Acribia. 1999.
- PRIMO YUFERA. Química de los Alimentos. Ed. Síntesis. 1998.
- RANGEN, M.D. Manual De Industrias De Los Alimentos. Ed. Acribia. 1993.
- RODRÍGUEZ, Fº (Editor). Ingeniería de la Industria Alimentaria. Tomo II y III. Ed. Síntesis. 2002.
- VOLLMER, G. Elementos de Bromatología descriptiva. Ed. Acribia. 1999.

RECOMMENDED INTERNET LINKS
http://europa.eu.int/index_es.htm.

http://mapya.es/.
http://www.ine.es.
http://www.consumo-inc.es/home/home.htm.
http://www.seguridadalimentaria.org
http://www.fao.org.
http://www.fns.usda.gov/fns/.
http://www.cytali.org/tiki/tiki-index.php.
http://agrovia.com/.
http://www.us.es/acta/.
http://www.institutohuevo.com/scripts/index.asp.
http://geocities.com/paris/9282/cerveza.html.
http://elvino.com.
http://www.molineriaypanaderia.com/.
http://www.mercasa.es/.