

SYLLABUS

Bachelor Degree in Culinary and Gastronomic Sciences

Code- Course	054227 - Culinary and gastronomic research		
Thematic Area	Research and culinary innovation	Year	Fourth
Course Type	Mandatory	Credits	6cr. CREDITS
In-class Hours	60 hours	Hours of individual work	90 hours

BRIEF COURSE DESCRIPTION

The growth, importance, and demand of the food sector, increasingly seeks to find professionals with specialized training, which makes it necessary to train these professionals with general and specific knowledge, to have versatile and decisive professionals to advance in research and innovation in cooking, with the objective that the population will eat better, healthier and more sustainably.

In this subject the student has the opportunity to know, acquire and practice the necessary requirements to design and develop a culinary research project, from the exploration and information search phase to its development and the transmission of the generated knowledge.

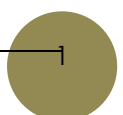
SPECIFIC SKILLS

CE16 - Communicating and technically consulting the food industry and consumers in order to design strategies of intervention and training in both fields, the culinary and the gastronomic one.

CE21 - Developing new processes and products, generating new opportunities in the culinary and gastronomic field.

LEARNING OBJECTIVES

- Obtain knowledge to facilitate the design and formulation of new products and processes in the kitchen.



- Know and use with familiarity the sources of information for culinary and gastronomic scientific research.
- Acquire the tools and knowledge necessary to address the design / training of different operations and human teams involved in culinary processes.
- Know the technological and innovation advances that have influenced modern gastronomy and human teams involved in culinary processes.
- Apply scientific knowledge to the optimization of culinary processes.
- Have a basis to argue scientifically and gastronomically to thus generate new value-added projects in product innovation and gastronomic processes.

THEMATIC CONTENTS

1. Introduction to the subject and contextualization. Framework / outline of the development of a project of culinary innovation and basic concepts (differences between innovation and research, what is cooking and how culinary knowledge is created.)
2. Initial exploration phase where work will be carried out and tools will be given for the generation of ideas, the formation of teams, the search for information to carry out culinary research, etc.
3. Exploration phase associated with current trends in gastronomy, where the student will acquire knowledge about current types of consumers, about trends in gastronomy, they will learn to analyze niche opportunities in the sector, some technological advances that have influenced the culinary innovation and theoretical concepts about labeling and health declarations.
4. Design, formulation and development of culinary research projects. Work will be carried out on the planning and implementation of projects at different levels, as well as the process of developing culinary projects of different aspects.
5. Evaluation of the feasibility of the projects; consumer tasting , the transition of prototypes from laboratory to industrial pilot plant ... The student will also acquire the ability to produce

criticism and evaluate the product or service by itself, analyzing its impact on society and the achievement of the initial objectives.

6. Transfer strategies and promotion of the generated knowledge.

LEARNING METHODOLOGY

The subject combines expository sessions, case studies, seminars with external guests, a field trip, together with the realization of a transversal group work to the whole subject where it is requested to apply the information of the contents treated in the on-site sessions and based on the integral development of a product or service at a theoretical level.

ASSESSMENT SYSTEM

The assessment is the process of evaluation of the degree of acquisition of the learnings by the student in relation to the specific competences of this subject.

In this sense, the student may choose to be assessed continuously during the course or through a single assessment at the end of the established period.

Continuous Assessment: this consists of the evaluation of the teaching-learning process from the continuous monitoring during the course of work carried out by the student and the learning incorporated.

Final Assessment: this consists of the evaluation of this process at the end of the established period, for all students who, for justified reasons, cannot attend classes regularly. This assessment is made based on the evidence that this subject has designed for these purposes.

Assessment systems	Continuous	Final
Attendance and participation in the classroom	5%	---
Practical exercises to be assessed	30%	40%
Transversal group work		
Written assignment	10%	---
Oral presentation	25%	---

Final written exam

30%

60%

Review and Reassessment of the Course

The student has the right to review all the evidences that have been designed for the assessment of learning.

If a student fails to achieve the learning objectives of the course, in order to opt for the reassessment of the course and submit a new reassessment task, it will be mandatory to fulfil one of these conditions:

A) Students must have been awarded a mean grade of 5.0 or higher in relation to the activities carried out throughout the semester without taking into account the final exam/s (both continuous assessment and single assessment) and having attended the final exam.

B) Students must have been awarded a final minimum grade of 4.0 in the overall course.

After the reassessment, the maximum grade is 5.0 in the overall course.

SOURCES OF BASIC INFORMATION

About the movement of Science and Cooking

Molecular gastronomy, information on processes and products used in gastronomy, additives, cooking techniques, etc.

- Modernist Cuisine
- Claudi Mans . Sferificaciones y macarrones. ed. Ariel
- Claudi Mans. La Tortilla quemada. ediciones gráficas rey s.l
- Claudi Mans. El secret de les etiquetes. ed Mina
- Hervé This Tratado elemental de Cocina. ed Acribia, s.a.
- Hervé This. Los secretos de los pucheros . Editorial Acribia
- Manual de gastronomía molecular. Mariana Koppmann. ed siglo veintiuno
- Davide Cassi, Ettore Bocchia. La ciencia de los fogones (de la cocina molecular italiana) Ediciones Trea
- Peter Barham. La cocina y la ciencia. ed. Acribia

- Pau Arenós: http://www.edicionesb.com/catalogo/autor/pau-arenos/901/libro/la-cocina-de-los-valientes_2144.html
- N Cubero, A Monferrer, J Villalta Aditivos alimentarios. ed Mundi prensa
- Harold McGee. La Cocina y los alimentos. Ed. Debate 2007
- Harold McGee. La buena cocina. Cómo preparara los mejores platos i recetas. Ed. Debate
- Elbulli taller i Fundació Alícia. Lèxic científic gastronòmic. Ed Planeta
- Fundació Alícia. A chefs guide to gelling, thickening and emulsifying agents. Ed. CRC Press. <https://www.crcpress.com/A-Chefs-Guide-to-Gelling-Thickening-and-Emulsifying-Agents/Alicia-Foundation/p/book/9781466565074>
- José Miguel Aguilera. Ediblestructures. The basic science of what we eat. Ed CRC Press.
- Joaquin Perez Conesa. Cocinar con una pizca de ciencia. IJK Editores.
- Stephen Beckett. La ciencia del chocolate. Editorial Acribia.
- Robert L. Wolke. Lo que Einstein le contó a su cocinero 1 y Lo que Einstein le contó a su cocinero 2. Ediciones Ma non Troppo (Robinbook)
- Carmen Cambón, Soledad Amrín, Eduardo Rodriguez. Ciencia a la cazuela. Introducción a la ciencia a través de la cocina. Ed. Alianza.
- Jörg Zippirck. No quiero volver a comer al Restaurante. Ed. Foca.
- Diego Golombek, Pablo Schwarzbaum. El cocinero científic., cuando la ciencia se mete en la cocina. Ed. RBA.
- Joan Roca i Salvador Brugués. La cocina al Vacío. Ed. Montagut editores. 2006
- Ömer y C. Akinb, «On the process of creativity in puzzles, inventions, and designs,» Automation in Construction, vol. 7, nº 2-3, pp. 123-138, 1998.
- C. Cobo Romaní y J. W. Moravec, «Aprendizaje Invisible. Hacia una nueva ecología,» Colección Transmedia XXI. Universitat de Barcelona, 2011.

- Jan Pokorny, Nedyalka Yanishlieva, Michael Gordon. Antioxidantes de los alimentos. Aplicaciones prácticas. Ed. Acribia
- Madrid Vicente. J. Madrid Cenzano. Los aditivos en los alimentos (según la Unión europea y la legislación Española). AMV Ediciones
- Norman n Potter, Joseph h. Hotchkiss. Ciencia de los alimentos. Ed. Acribia
- E. Lück, M. Jager. Conservación química de los alimentos, características, usos y efectos. 2ºed. Ed. Acribia
- H. D. Belitz, W. Grosch. Química de los alimentos. Ed. Acribia
- Owen R. Fennema. Química de los alimentos, 2ºed. Ed. Acribia
- Lehninger. Bioquímica. Ed. Omega.

About Health and Nutrition

- Guía de la alimentación saludable: Es una guía generada por la SENC (Sociedad Española de Nutrición Comunitaria) donde se encuentra mucha información sobre buenos hábitos saludables. Desde el consumo recomendado de cada grupo de alimentos y como planificar un menú semanal, hasta las necesidades nutricionales para grupos de población determinada, entre otra muy variada información.
<http://www.nutricioncomunitaria.org/es/noticia/guias-alimentarias-senc-2016>
- Estrategia NAOS: Es una estrategia para la Nutrición, Actividad Física y Prevención de las Obesidad que se elaboró en el 2005 a través de la AESAN (Agencia Española de Seguridad Alimentaria y Nutrición). El objetivo es el de impulsar iniciativas para que los niños y jóvenes adopten hábitos de vida saludable. En su web, se puede encontrar mucha información sobre hábitos y alimentación saludable.
<http://www.aecosan.mssi.gob.es/AECOSAN/docs/documentos/nutricion/estrategia-naos.pdf>
- Alimentación saludable: La Generalitat de Catalunya con la colaboración de l'Agència Catalana de Seguretat Alimentària, tiene una sección en la web dirigida al consumidor sobre alimentación saludable. Hay información muy variada, como un manual de nutrición saludable en la infancia y la adolescencia, información sobre los productos frescos y envasados, explicaciones de la pirámide alimentaria, etc.
<http://www.gencat.cat/salut/>
- Diabetes a la carta <http://www.diabetesalacarta.org/>
- <http://eletiquetadocuentamucho.aecosan.mssi.gob.es/nutricional.html>

- http://ec.europa.eu/food/safety/labelling_nutrition/claims/register/public/?event=register.home
- <https://www.hsph.harvard.edu/>
- <http://www.alicia.cat/ca/document>

Videos, websites and links to interesting books about creativity, science and cooking

- http://www.youtube.com/results?search_query=harvard%20cooking%20and%20science%202012&sm=1 [Último acceso: 19 07 2017].
- Esquivias, «Creatividad: definiciones, antecedentes y aportaciones.» 2004. [En línea]. Available: http://www.revista.unam.mx/vol.5/num1/art4/ene_art4.pdf. [Último acceso: 19 07 2017].
- B. R y B. Rabe, «LinkedIn SlideShare,» Febrero 2016. [En línea]. Available: <http://www.slideshare.net/byronrabe/la-creatividad-alcances-y-mitos>. [Último acceso: 19 07 2017].
- Torrance, «Indiana,» Instructional strategies for thinking, collaboration and motivation, 2015. [En línea]. Available: <http://www.indiana.edu/~bobweb/Handout/d3.ttct.htm> . [Último acceso: 19 07 2017].
- C. B. Idea, «Interred. Sudo,» Guía de buenas prácticas en materia de creatividad empresarial, 2015. [En línea]. Available: <http://4.interreg-sudoe.eu/contenido-dinamico/libreria-ficheros/62C8D32A-4A20-0066-A94A-DC9C7993DC89.pdf>. [Último acceso: 19 07 2017].
- G. Land, «Creativity at work,» Can Creativity be Taught?, 2014. [En línea]. Available: <http://www.creativityatwork.com/2012/03/23/can-creativity-be-taught/>. [Último acceso: 19 07 2017].
- Thinkers50, «Thinkers50,» The Thinkers50 Ranking 2013, 2015. [En línea]. Available: <http://thinkers50.com/t50-ranking/2013-2/>. [Último acceso: 19 07 2017].

- A. Petron, «Massachusetts Institute of Technology,» Factors Affecting Creativity in the Product Design Industry, 2007. [En línea]. Available: <http://web.mit.edu/petron/Public/creativedesign.pdf>. [Último acceso: 19 07 2017].
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- Akin, O. y C. (1998). Automation in Construction. Nº 7 (págs. 123-138). On the process of creativity in puzzles, inventions, and designs. Consultado el 19/07/2017 a través de <http://www.sciencedirect.com/science/article/pii/S0926580597000575>
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- Creativity at work. (2015). What is creativity? Consultado el 19/07/2017 a través de <http://www.creativityatwork.com/2014/02/17/what-is-creativity/>
- Daniel Goleman. (2015). Daniel Goleman: Biography. Consultado el 19/07/2017 a través de <http://www.danielgoleman.info/biography/>
- De Bono Group. Consultado el 19/07/2017 a través de http://www.debonogroup.com/edward_debono.php
- De Bono, E. (1970). El pensamiento lateral: Manual de creatividad. Consultado el 19/07/2017 a través de [http://educreate.iacat.com/Maestros/Edward de Bono - El pensamiento lateral - Manual de creatividad.pdf](http://educreate.iacat.com/Maestros/Edward_de_Bono_-_El_pensamiento_lateral_-_Manual_de_creatividad.pdf)
- De Bono, E. (2015). Lateral Thinking. Consultado el 19/07/2017 a través de <http://edwdebono.com/lateral-thinking>
- Euríbor. (2015). Empresas que fomentan la creatividad. Consultado el 19/07/2017 a través de <http://www.euribor.com.es/empleo/empresas-que-fomentan-la-creatividad/>

- González y Gilbert (1979). La medición de la creatividad: desarrollo de un instrumento y estudio de su fiabilidad. Consultado el 19/07/2017 a través de <http://www.redalyc.org/articulo.oa?id=80511305>
- Government of Western Australia, Dept. of Education (2015). S.C.A.M.P.E.R. Consultado el 19/07/2017 a través de <http://www.det.wa.edu.au/curriculumsupport/giftedandtalented/detcms/school-support-programs/gifted-and-talented/teachers/provision/approaches-and-strategies/instructional-strategies/scamper.en>
- Harimurti, Wijono y Hatmoko. (2011). Bauhaus Ideology Concept and Method on Architecture. Consultado el 19/07/2017 a través de http://www.researchgate.net/publication/206382301_Bauhaus_Ideology_Concept_and_Method_on_Architecture
- Heath Brothers. (2015). Biography. Consultado el 19/07/2017 a través de <http://heathbrothers.com/about/>
- Jungpyo, H.; Sukyoung, J. y Dongmin, C. (2007). Idea generation methodology for creative design thinking. Consultado el 19/07/2017 a través de <https://www.sd.polyu.edu.hk/iasdr/proceeding/papers/IDEA%20GENERATION%20METHODOLOGY%20FOR%20CREATIVE%20DESIGN%20THINKING.pdf>
- Instructional strategies for thinking, collaboration and motivation. (2015). Creativity test: Torrance Tests of Creative Thinking. Consultado el 19/07/2017 a través de <http://www.indiana.edu/~bobweb/Handout/d3.ttct.htm>
- Invisible Learning. (2015). Creatividad. Consultado el 19/07/2017 a través de <http://www.invisiblelearning.com/material/Creatividad.pdf>
- Lupton, E. y Miller A. El ABC de la Bauhaus y la teoría del diseño. Consultado el 19/07/2017 a través de <http://es.slideshare.net/SerSerendipity/el-abc-de-la-bauhouse>
- Monografías. (2015). Inteligencia artificial: Métodos de solución de problemas. Consultado el 19/07/2017 a través de <http://www.monografias.com/trabajos-pdf4/metodos-solucion-problemas-inteligencia-artificial/metodos-solucion-problemas-inteligencia-artificial.pdf>
- Pensamiento creativo y solución de problemas. (2015). Método CoRT: Técnicas de Edward De Bono para estimular la creatividad. Consultado el 19/07/2017 a través de <http://pcybspalon110.blogspot.com.es/2008/02/metodo-cort.html>

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- RTVE. Entrevista de Eduard Punset a Ken Robinson: Los secretos de la creatividad. Consultado el 19/07/2017 a través de <http://www.rtve.es/alacarta/videos/redes/redes-secretos-creatividad/1056427/>
- Slideshare. (2015). Thinking tools. Consultado el 19/07/2017 a través de <http://www.slideshare.net/zaid/thinking-tools-231143>
- Top Universities. (2015). Top 10 Universities for Art & Design. Consultado el 19/07/2017 a través de <http://www.topuniversities.com/university-rankings-articles/university-subject-rankings/new-ranking-world%E2%80%99s-top-art-schools>
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- Restaurant les Cols i Paco Perez, 2012. Consultado el 19/07/2017 a través de <http://www.youtube.com/watch?v=x53RVsbbtLI&list=PLPvxi5oPkFoH0EKbAfoYfPCix-iHd9xeI>
- Raül Balam Ruscalleda, 2012. Consultado el 19/07/2017 a través de http://www.youtube.com/watch?v=dp_ye3sTE_c&list=PLPvxi5oPkFoH0EKbAfoYfPCix-iHd9xeI
- Ferran Adrià, 2012. Consultado el 19/07/2017 a través de <http://www.youtube.com/watch?v=8RsjU-SM43w&list=PLPvxi5oPkFoH0EKbAfoYfPCix-iHd9xeI>
- Enric Rovira, 2012. Consultado el 19/07/2017 a través de <http://www.youtube.com/watch?v=Tf9g2se1LcM>
- Textures elBulli. Consultado el 19/07/2017 a través de <http://www.albertyferranadria.com/esp/videos-y-recetas-emulsificacion01.html>