

General information	
Academic subject	<b>Quality of fish production (I.C quality of animal production)</b>
Degree course	Food Science and Technology (L26)
Academic Year	<i>Third</i>
European Credit Transfer and Accumulation System (ECTS)	3 ECTS
Language	<i>Italian</i>
Academic calendar (starting and ending date)	<i>February 27<sup>th</sup>, 2023 – June 16<sup>th</sup>, 2023</i>
Attendance	<i>No Compulsory</i>

Professor/ Lecturer	
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Virtual headquarters	<i>Microsoft Teams</i>
Tutoring (time and day)	Monday-Friday 9.00-13.00

Syllabus	
<b>Learning Objectives</b>	The course aims to acquire knowledge about the quality of fish products of interest for food processing by illustrating the main factors that influence it. In addition, analytical methodologies will be acquired to determine the quality of fish production and the tools to interpret the result.
<b>Course prerequisites</b>	Knowledge of biology and chemistry.
<b>Contents</b>	<p>Structure and purpose of the course. The multiple meanings of the concept of quality when applied to fishery and aquaculture products. The consumption of fish in Italy.</p> <p>Product quality. Operating methods and processing yields in the main species of both breeding and fishing.</p> <p>Nutritional and dietary quality. The new LARN (Recommended Intake Levels of Energy and Nutrients for the Italian Population, edition 2012) as a prerequisite for understanding the range of coverage of human needs on average allowed by fish products. Synthetic reference to the compositional characteristics of fish, molluscs and crustaceans in the meaning of "naturally functional foods" recently attributed to these foodstuffs. Recent guidelines for proper nutrition labelling and information (GDA): principles and application to fish products. Description of catch fishing, aquaculture and mariculture and their influence on the quality characteristics of fishery products.</p> <p>Organoleptic quality. Mode of capture, killing and transport. Classes of freshness. Methods of evaluating the fresh product. Labelling and traceability.</p> <p>Freshness quality. Post-fatal modifications to fish, molluscs and crustaceans, as a cognitive prerequisite to illustrate the main chemical, physical and sensory methods currently available to capture these transformations. Quality Index Method (QIM): inspiring principles and undisputed merits for the evaluation of Freshness quality.</p>
<b>Books and bibliography</b>	Alasalvar C., Miyashita K., Shahidi F., Wanasundara U. Handbook of seafood quality, safety and health applications. Wiley-Blackwell, Chichester, West Sussex, UK, 2010.



	<p>Lie Ø. (Ed.), Improving farmed fish quality and safety. Woodhead Publishing Limited, Cambridge, UK, 2008.</p> <p>Martinsdottir E., Sveinsdottir K., Luten J., Schelvis-Smit R., Hyldig G., Valutazione sensoriale della freschezza del pesce – Manuale di riferimento per il settore ittico. QIM-Eurofish, Svansprent ehf, Iceland, 2004.</p> <p>Nollet L.M.L. Toldrà F. (Eds), Sensory analysis of foods of animal origin, Cap. da 12 a 17, CRC, Boca Raton, FL, USA, 2011.</p>
<b>Additional materials</b>	Lecture notes and slides integrate the contents of the reference texts

<b>Work schedule</b>			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
<b>Hours</b>			
75	16	14	45
<b>ECTS</b>			
3	2	1	
<b>Teaching strategy</b>	<p>The course topics will be treated with the help of presentations in Power Point. The exercises will consist of study visits to production facilities, projection of films and presentation of case studies.</p> <p>All the material used for the lessons will be made available to students on specific web platforms.</p>		
<b>Expected learning outcomes</b>			
<b>Knowledge and understanding on:</b>	<p>The student must demonstrate the ability to finalize the knowledge to the solution of the multiple application problems along the entire aquaculture supply chain, from breeding to the quality of the final product. In particular, it must acquire an adequate command of the technical aspects of the quality management of the fishery product, so as to incorporate and manage innovation, in relation to scientific and technological developments in the sector.</p>		
<b>Applying knowledge and understanding on:</b>	<p>The student must have the ability to apply the knowledge in the many areas related to the production and evaluation of the quality of fish products and, in particular, to know how to understand and use the results of research and experimentation in the sector, increasingly expanding its professional preparation for the solution of problems in the management of the fish supply chain.</p>		
<b>Soft skills</b>	<ul style="list-style-type: none"> <li>• <i>Making informed judgments and choices</i> <ul style="list-style-type: none"> <li>○ Ability to correctly orient choices to ensure high quality standards of the fish product</li> </ul> </li> <li>• <i>Communicating knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ Ability to assess the influence of individual process steps on the chemical and sensory quality of the finished product</li> </ul> </li> <li>• <i>Capacities to continue learning</i> <ul style="list-style-type: none"> <li>○ The student must possess the basic cognitive tools to independently deepen the knowledge of the specific sector also with a critical spirit, in order to develop its capacity to identify relevant aspects of a problem and to evaluate possible solutions.</li> </ul> </li> </ul>		
<p>The expected learning outcomes, in terms of both knowledge and skills, are provided in Annex A of the Academic Regulations of the Degree in Food Science and Technology (expressed through the European Descriptors of the qualification).</p>			



<b>Assessment and feedback</b>	<p>The exam consists of an oral test on the topics developed during the theoretical and theoretical-practical lessons in the classroom, in the laboratory and in the didactic visits, as reported in the Teaching Regulations of the Degree Course in Food Science and Technology (art. 9) and in the study plan (Annex A).</p> <p>For students enrolled in the course year in which the teaching is carried out, there is an exemption test, which consists of a written test on topics developed by the date of exemption. The test will be evaluated in thirtieth and in case of positive outcome, in the final oral exam the interview will focus on the remaining part of the teaching content. The results of the exemption test contribute to the assessment of the proficiency test and are valid for one academic year.</p>
<b>Methods of assessment</b>	
<b>Evaluation criteria</b>	<ul style="list-style-type: none"><li>● <b>Knowledge and understanding</b><ul style="list-style-type: none"><li>○ Exposing the solution to the multiple application problems along the entire aquaculture supply chain, from breeding to the quality of the final product. In particular, it must master the technical aspects of fish product quality management in relation to the scientific and technological aspects of the sector.</li></ul></li><li>● <b>Applying knowledge and understanding</b><ul style="list-style-type: none"><li>○ Describe the aspects of the multiple areas related to the production and quality assessment of fishery products and in particular, to present the results of research and experimentation in the sector aimed at solving problems in the management of the fish supply chain.</li></ul></li><li>● <b>Autonomy of judgment</b><ul style="list-style-type: none"><li>○ Express correctly the choices to ensure high quality standards of the fish product and evaluate the influence of the individual process steps on the chemical and sensory quality of the finished product</li></ul></li><li>● <b>Communicating knowledge and understanding</b><ul style="list-style-type: none"><li>○ The student will acquire communication skills and tools to analyse and discuss analytical data related to new process and products with interlocutors with similar and different backgrounds.</li></ul></li><li>● <b>Communication skills</b><ul style="list-style-type: none"><li>○ Use the technical-scientific lexicon in an appropriate manner and motivate the statements on the arguments.</li></ul></li><li>● <b>Capacities to continue learning</b><ul style="list-style-type: none"><li>○ The students will be also evaluated considering the capacity to deepen and update their knowledge within the topics of the course also through efficient bibliographic research using the database scopus and google scholar.</li></ul></li></ul>
<b>Criteria for assessment and attribution of the final mark</b>	<p>The evaluation criteria that contribute to the attribution of the final mark will be: knowledge and understanding, the ability to apply knowledge, autonomy of judgment, i.e. the ability to criticize and formulate judgments, communication skills</p>
<b>Additional information</b>	