

## Syllabus

### Course description

<b>Course title</b>	Elements of chemistry and biochemistry applied to food and wine sciences
<b>Course code</b>	40403
<b>Scientific sector</b>	AGR/13
<b>Degree</b>	Bachelor in Enogastronomy in Mountain Areas
<b>Semester</b>	1
<b>Year</b>	2024/2025
<b>Credits</b>	6
<b>Modular</b>	No

<b>Total lecturing hours</b>	36
<b>Total lab hours</b>	24
<b>Total office hours</b>	18
<b>Attendance</b>	Highly recommended
<b>Course page</b>	/
<b>Lecturer</b>	Luigimaria Borruso, BZ K1.05, luigimaria.borruso@unibz.it, +39 0471 017610

<b>Scientific sector of the lecturer</b>	AGR/13
<b>Teaching language</b>	English
<b>Office hours</b>	Monday to Friday, upon appointment to be agreed through email
<b>Specific educational objectives</b>	The course contents are crucial for acquiring the scientific background and professional skills regarding the basis of chemistry and biochemistry applied to food and wine sciences.
<b>List of topics covered</b>	<b>Elements of chemistry</b> <ul style="list-style-type: none"> <li>• Introduction Elements of chemistry and biochemistry applied to food and wine sciences</li> <li>• Measurements and calculations</li> <li>• Matter and energy</li> <li>• Atomic theory and the atom</li> <li>• Chemical bonding</li> <li>• Elements and ions</li> <li>• Nomenclature</li> <li>• Chemical reactions</li> <li>• Chemical composition</li> <li>• Gases</li> <li>• Heavy metals residuals in food</li> </ul>

	<ul style="list-style-type: none"> <li>• Chemistry of food packaging</li> <li>• Carbohydrates and lipids</li> <li>• Proteins and enzyme</li> <li>• Vitamins and minerals</li> <li>• Introduction to cellular biology and biochemistry</li> <li>• Cellular respiration</li> <li>• Aerobic harvesting of energy</li> <li>• Stages of cellular respiration</li> <li>• Anaerobic Respiration</li> <li>• Biochemistry of food spoliage</li> <li>• Colour chemistry</li> <li>• Flavour chemistry</li> </ul>
<b>Teaching format</b>	The class comprises lectures during which the professor presents the topics. Excursions and laboratory activities are also foreseen. The assessment of the student preparation is through an oral exam. The exam includes questions to verify the understanding of the course topics. In addition, questions on possible practical implications of the topics taught in the course will be evaluated.
<b>Assessment language</b>	Oral
<b>Evaluation criteria and criteria for awarding marks</b>	Ability to present clearly the topics studied within the course using appropriate technical terminology. In addition, the capability to establish relationships between different topics will be evaluated.
<b>Required and/or suggesting reading materia</b>	Lecture notes are strongly recommended as a study material. Suggested books: <ul style="list-style-type: none"> <li>- Inorganic Chemistry, <i>Gary Miessler</i></li> <li>- Introduction to Food Chemistry, <i>Vassilis Kontogiorgos</i></li> <li>- Lehninger Principles of Biochemistry, <i>David L. Nelson Michael M. Cox</i></li> </ul>