Computer science [SG408]

Academic Activity a.y. 2026/2027

Lecturer(s): ALFREDO BENSO

Time period: Primo Ciclo Semestrale

Learning objectives:
This course ‘Computer science’, mandatory for all students, introduces the cultural, scientific, and technological dimensions of computer science within the broader context of the food systems. Students explore how computational thinking and programming support technological innovation from data analysis to process automation. At the same time, the course provides a rigorous introduction to Python programming as a practical tool for modelling, analyzing, and solving real-world problems relevant to food technology, environmental monitoring, and resource management.

Prerequisites:
No specific prerequisites are required. A basic understanding of mathematical notions such as functions and elementary algebra is useful. Students should also possess minimal familiarity with the use of a computer in everyday contexts. All necessary technical skills will be developed progressively throughout the course.

Course contents:
<b> <font color="CHOCOLATE">Program
The course will consider three main pillars:
Theory: representation of numerical and non-numerical data, computer architecture, software architecture
Problem solving and algorithms: solution of complex problems by means of design of the data structure, iterative refinements, flow-charts.
Programming: constants and variables, data structures, arithmetic and boolean operators, control-flow structures, functions, input-output, file manipulation

<b> <font color="CHOCOLATE">Teaching method
The course consists of weekly lectures (3 hours) and laboratory activities (1.5 hours starting from the second week).
Teaching is organized into three integrated formats:
Theory: Presentation of fundamental concepts in computer science, enriched with illustrative examples and guided exercises that link computational ideas to technological and ecological challenges.
Problem Posing and Solving: Collective analysis of realistic, domain-relevant problems (e.g., data processing from sensors, modelling production processes). Students discuss solution strategies, design algorithms using flowcharts or pseudocode, and will gradually implement increasing portions of the solutions.
Programming: Introduction to Python language constructs through live demonstrations, interactive coding, and practical exercises on the computer. Students develop increasing autonomy in programming, culminating in the solution of small but meaningful applied tasks.

<b> <font color="CHOCOLATE">Criteria, rules and procedures for the exam
For full-time students and part-time students
Exam: Computer-based written test in class using POLITO platform.
The exam consists of a test on the computer that aims at assessing the students’ knowledge of the theoretical aspects of the course (through numerical exercises or open-answer questions) and the programming skills (through the writing of a Python program that implements the solution of a practical problem). The duration of the written test is 90 minutes and it is a closed book test. The maximum score for the written test is 30 cum laude. During the discussion of the score written test, a supplementary oral test can be requested at the discretion of the instructor and covers the whole course program and is meant to assess and elaborate the student's skills.

Recommended readings:
Books:
Python For Everyone (3rd Edition), Cay S. Horstmann, Rance D. Necaise, ISBN: 978-1-119-49853-7

For full-time and part-time students
Lecture slides; Lecture notes; Exercises; Exercise with solutions ; Lab exercises; Lab exercises with solutions; Video lectures (previous years);

Further readings:
<b> <font color="CHOCOLATE">Learning objective
Students graduating in “Food Tech for Ecological Transition” could operate in contexts supporting the food process analysis, monitoring and implementation and this course will develop two complementary sets of competencies: to formalize concrete problems and to understand the quantitative and architectural foundations of computer science.

<b> <font color="CHOCOLATE">Response to the learning objective
Students will develop two complementary sets of competencies.
First, they will learn to formalize concrete problems and solve them by designing and implementing computer programs, gaining familiarity with algorithmic reasoning and the structured use of computational tools.
Second, they will understand the quantitative and architectural foundations of computer science (performance, computational complexity, data representation, and the basics of computer architecture) with particular attention to applications such as sensor data processing, traceability in supply chains, and modelling variability in biological and environmental data.
These abilities will support the student in approaching practical challenges across food technology, sustainability, and innovative applications.

The academic activity is offered in:

Scienze Gastronomiche

Program type:	Program: (Curriculum:)	Curriculum:	Credits:	Sector:
Bachelor or equivalent first cycle	Food Tech for Ecological Transition (2026)	comune	6	IINF-05/A

Printed on: 19/02/2026

Ecology and sustainable environmental transition [SG413]

Academic Activity a.y. 2026/2027

Lecturer(s): CHIARA ROMANO

Time period: Secondo Ciclo Semestrale

Learning objectives:

The course “Ecology and Sustainable Environmental Transition” is designed to prepare students to critically link foundational ecological science with the challenges and problems of the food system.
Specifically, the course will prepare students to:
Obtain a robust understanding of the biological and ecological aspects of life, biodiversity, and the processes that regulate ecosystems and their various biotic and abiotic components.
Identify the main anthropogenic impacts that lead to the loss of biodiversity and the degradation of habitats and natural resources, with a specific focus on those generated by agricultural and food production activities.
Discuss the ecological aspects and implications of human-nature interaction and food production to contribute to the development of innovative solutions that promote environmentally sustainable practices in the food sector.
Understand the key aspects of environmental management in food industries, including both the main legal and operational requirements for the correct management of emissions and residuals (by-product, waste, wastewater discharge, etc.), and the voluntary tools that companies may adopt to improve and report to the public their environmental performances (implementation of Environmental Management Systems, etc.).

By the end of the course, students will be able to:
- understand and analyze the core ecological processes at the base of ecosystem functioning;
- understand and present the value of biodiversity and the ecosystem services it provides;
- to recognize and identify the main environmental impacts, especially those correlated to food production and consumption, and their implications on living organisms and natural systems;
- understand the key mandatory and voluntary aspects of environmental management in food industries;
- think in an interdisciplinary and critical way about themes such as human impact on ecosystems and the principle of sustainability in food production.

Prerequisites:

It is recommended that students taking this module already have basic notions of biology and chemistry achieved in previous studies and an advanced knowledge of the English language in order to make full use of the teaching materials and actively participate in all activities.

Course contents:

Program (small changes can occur)
The course aims to introduce students to the basic concepts and principles of ecology related to animal and plant biodiversity and to the role this diversity has for the planet, human life, and food systems. It will illustrate the main causes of alterations and degradation, focusing on the impacts generated by agricultural and food production activities. The course will then focus on the operational aspects of the environmental management of food industry plants, considering both mandatory requirements for environmental compliance and voluntary tools to improve and report environmental performances data. Finally, innovative solutions promoting environmental sustainability will be discussed.

Course topics:
Foundational Ecology: The discipline of Ecology and introduction to ecological topics (species, populations, communities, ecosystems).
Ecosystem Dynamics: Components of an ecosystem, ecological pyramids, food webs, and trophic levels.
Earth Processes: Environmental variables and biogeochemical cycles (water, carbon, and nitrogen cycle).
Global Crises: The Global Water Crisis; Eutrophication and Aquatic Ecosystem Health.
Climate System: The Climate: regulating factors, Global Climate Change.
Population Ecology: Population ecology, carrying capacity, and biological interactions.
Biodiversity: Definitions and key concepts of biodiversity: distribution of species, geographical variations, the importance of Biodiversity: ecosystem services.
Human Impact: Main human impacts determining biodiversity loss, with particular reference to impacts of food supply chains.
Sustainability Frameworks: Environmental Sustainability; Eco-sustainable development of renewable energy.
Metrics & Management: Carbon and Ecological footprint metrics; Sustainable certifications; Conservation and

Management of natural resources.
Nature regeneration and restoration
Introduction to analytical tools to estimate impacts (such as LCA methodology)
Environmental management in food industries: authorizations and operational legal requirements related to environmental aspects (water withdrawals, waste management, wastewater discharges, emissions to air, etc.) originated by manufacturing processes; implementation of Environmental Management Systems ISO 14001/EMAS (initial environmental review and environmental performance data reporting)
Teaching method
The course will utilize lectures with slides, case studies, and group discussions. Small group tasks and practical exercises on the topics covered will also be used in class.
Teaching language: English

Criteria, rules and procedures for the exam
Full-time students
The exam consists of an oral test in English lasting approximately 30 minutes. The questions will be based on the themes, concepts and principles addressed during the course.
The exam aims to assess the knowledge acquired and the student's ability to apply it to specific cases. No notes or books may be used during the exam.
Assessment Criteria: To verify learning outcomes, the examination will assess the knowledge of ecological processes, the clarity of the description, the use of appropriate scientific language, and the capacity to develop connections and critical analysis.
If students are absent from more than 30% of the classes, they will be required to submit an additional presentation on a theme chosen in agreement with the lecturer.

Part-time students
The exam will be oral and the questions will be based on the themes, concepts and principles addressed during the course.

Recommended readings:

For the full-time students:
A dedicated set of teaching materials will be developed for this course, which does not fully coincide with published textbooks. This material will consist of slides, copies of individual book chapters and/or scientific articles provided and suggested by the teachers.
The teaching material relating to the lessons and/or exercises will be made available to students on the online platform.

For part-time students
The teaching material will be the same as that provided to full-time students.

Further readings:

Learning objective
Graduates in "Food Tech for Ecological Transition" working in the context of food systems and ecological transition will be able to rigorously identify and analyse the main environmental impacts and risks connected to food systems, and critically integrate ecological knowledge to design and promote truly sustainable models of food production, distribution, and consumption. This introductory course on "Ecology and Sustainable Environmental Transition", provides the essential foundational literacy needed to understand the core ecological systems, processes, and critical environmental issues that underpin and constrain all food production models, including the main operational aspects of the environmental management of food industry plants.

Response to the learning objective
With the aim of demonstrating effective preparation for the threshold competencies, the student will be asked to demonstrate, before the end of this course, that they have attained knowledge about the following points of particular importance:
Ecological Systems and Regenerative Principles: the student must possess a working knowledge of the core ecological systems and the fundamental principles necessary for their preservation and regeneration.
Systemic Environmental Risk Diagnosis: the student must be aware of the major environmental risks posed by current agro-food systems—including climate change, biodiversity loss, eutrophication, and water scarcity—and be able to diagnose which components of the food supply chain are the primary pressure points for these crises.
Environmental Management and food industry plants: the student must be able to identify the main options available for the correct management (including legal compliance) of emissions and residues originated by the plant (by-product, waste, wastewater discharge, emissions to air, etc.) and to develop the structure of an initial environmental review according to ISO14001/EMAS standards.

The academic activity is offered in:

Scienze Gastronomiche

Program type:	Program: (Curriculum:)	Curriculum:	Credits:	Sector:
Bachelor or equivalent first cycle	Food Tech for Ecological Transition (2026)	comune	10	BIOS-05/A

Printed on: 19/02/2026

Economics of sustainable development and technological innovation [SG409]

Academic Activity a.y. 2026/2027

Lecturer(s): DONATELLA SACCONE

Time period: Primo Ciclo Semestrale

Learning objectives:
The course 'Economics of Sustainable Development and Technological Innovation' prepares students to:
Understand the theoretical foundations of sustainable development, with reference to its environmental, social, and economic dimensions, and their relation to the concept of ecological transition.
Analyze the role of technological innovation as a lever for sustainable development and ecological transition.
Evaluate public policies and business strategies aimed at fostering sustainable development and ecological transition through technological innovation.
Connect global dynamics with local policies and business decisions.
At the end of the course, students will be able to:
Define and explain the concepts of sustainable development, ecological transition, and technological innovation.
Analyze the role of technologies in sustainable development and ecological transition, with particular focus on the agri-food sector.
Evaluate policies and strategies for sustainable technological innovation.
Apply economic tools and approaches to interpret real cases and propose solutions.

Prerequisites:
It is recommended that students enrolling in this course have a good command of the English language and basic knowledge of mathematics.

Course contents:
  Program
The course* will be developed on the following four topics:
SUSTAINABLE DEVELOPMENT
Definition
Dimensions
Related concepts (ecological transition, green economy, etc.)
Measurement
Practical exercises
TECHNOLOGICAL INNOVATION
Definition and types
Drivers of innovation
Measurement
Practical exercises
THE ROLE OF TECHNOLOGICAL INNOVATION IN SUSTAINABLE DEVELOPMENT
Costs and benefits of technological innovation
Opportunities and barriers to sustainable innovation
Trends and future scenarios
Practical exercises
TECHNOLOGICAL INNOVATION POLICIES FOR SUSTAINABLE DEVELOPMENT
Economic policy tools
International framework
National and regional policies
Case study analysis
* The program should be considered provisional: minor adjustments may be made based on the specific needs of the class.

 Teaching method
The teaching method consists of lectures, in-class discussions, and group work.
Teaching language: English

 Criteria, rules and procedures for the exam
For full-time students
The final examination will consist of an oral exam on the topics covered during the course, aimed at assessing the

knowledge acquired and the ability to apply it to specific cases. The oral exam will be held in English. The evaluation will be expressed on a scale of 30 points and will be based on: completeness and depth of the answers; ability to apply knowledge to specific cases; autonomy in developing responses; ability to use technical language.
Examination procedures vary depending on whether students have more or less than 30% absences (in accordance with University regulations). In particular, students who exceed this threshold will be assigned an additional task, consisting of reading a report chosen from among the optional readings (to be uploaded on the Moodle platform) and agreed upon in advance with the instructor.

For part-time students
The exam will consist of an oral interview on the topics included in the syllabus and will be graded on a scale of 30 points, according to the same criteria outlined for full-time students.

Recommended readings:

For full-time students
Specific teaching materials have been developed for this course, which do not fully coincide with the textbooks available on the market. These materials will be made available to students before the respective lectures through a dedicated platform and will be organized by topic. For effective consultation of the teaching materials by topic, it is recommended to refer to the course syllabus that will be uploaded to the same platform.

For part-time students
Specific teaching materials have been developed for this course, which do not fully coincide with the textbooks available on the market. These materials will be made available to students before the respective lectures through a dedicated platform and will be organized by topic. For effective consultation of the teaching materials by topic, it is recommended to refer to the course syllabus that will be uploaded to the same platform.

Further readings:

 Learning objective
The professional profile of the graduate in Food Tech for Ecological Transition, who operates within the context of ecological transition and the sustainability of agri-food systems, typically involves supporting the adoption and dissemination of technological innovations aimed at reducing environmental impact and promoting environmentally, economically, and socially sustainable models of production and consumption.
At the threshold level, this professional should be able to understand the principles of sustainable development and technological innovation, to assess the role and impact of emerging technologies, and to recognize economic policies that promote ecological transition and sustainable development through technological innovation.
This course aims to provide, at a basic level:
Skills to interpret and apply the concepts of sustainability and technological innovation in the agri-food sector;
Skills in the design and analysis of policies and strategies for technological innovation for sustainable development and ecological transition.

 Response to the learning objective
In order to demonstrate the student’s actual preparedness for threshold competencies, it is required that, by the end of this teaching module, the student shows the achievement of knowledge on the following points of particular importance:
fundamental principles of sustainable development, also in relation to the ecological transition, and of technological innovation;
the main types and dynamics of technological innovation applied to the agri-food sector.
as well as the ability to apply this knowledge to:
the analysis of the economic, social, and environmental impact of technological innovation;
the interpretation, evaluation, and design of technological innovation policies and strategies oriented toward sustainability.

The academic activity is offered in:

Scienze Gastronomiche

Program type:	Program: (Curriculum:)	Curriculum:	Credits:	Sector:
Bachelor or equivalent first cycle	Food Tech for Ecological Transition (2026)	comune	6	ECON-02/A

Printed on: 19/02/2026

English proficiency for academic research and corporate communication [SG416]

Academic Activity a.y. 2026/2027

Lecturer(s):

Time period: Primo Ciclo Semestrale

Learning objectives:
The learning activity “English proficiency for academic research and corporate communication” offers a linguistic preparation to support scientific research and corporate communication useful to operate in professional contexts requiring the ability to observe, analyse, and critically interpret food systems and production processes within real operational environments, with particular reference to sustainability, technological innovation, and ecological transition.
In particular, it prepares students to:
- understand and use the English language in academic and corporate contexts;
- prepare technical reports and support the preparation of research proposals;
- communicate the sustainability and sustainability strategies effectively;
- present innovation projects to academic, industrial, and policy stakeholders.
By the end of the course, students will be able to:
- draft research proposals and project summaries in clear, formal English;
- produce well-structured academic texts (abstracts, summary of research papers or literature reviews);
- write corporate documents (executive summaries, sustainability reports, policy briefs);
- deliver professional oral presentations for academic and industry audiences;
- use discipline-specific terminology related to food technology and ecological transition and suited for business contexts.

Prerequisites:
Minimum B2 level of English. A basic knowledge of concepts related to food science and sustainability topics is recommended.

Course contents:
  Program
The course will be organized around the following main thematic areas:

Academic English
- structure of a scientific paper (IMRaD model: I – Introduction, M – Methods, R – Results, and D – Discussion, commonly used in food science, biotechnology, and environmental science)
- formal language and academic style
- citations and bibliographic references
- practical exercises

English applied to research
- acquisition of technical and specialized vocabulary
- analysis of scientific articles
- presentation of research results (e.g., posters, academic presentations, etc.)

English applied to corporate communication inFood Tech
- writing technical and corporate reports
- writing executive summaries
- professional emails and correspondence
- communicating sustainability strategies (e.g., sustainability reports)
- developing effective presentations for investors
- practical exercises and case-studies

Note: The programme is to be considered as a forecast and may be subject to minor changes according to specific class needs.

 Teaching method
Teaching activities include interactive lectures, writing workshops, case studies from sustainable food companies

and academic researches, simulation of conference presentations, group project (corporate sustainability communication strategy), class discussions. Based on the class numerousness, students can be divided into different groups within each activity.
Teaching language: English

 Criteria, rules and procedures for the exam
For full-time students
The exam consists of a group presentation to the class, or of a submission of written portfolio prepared by small groups (3-4 peoples) concerning either a critical academic research report or a corporate communication project.
The weighting of assessments toward the final grade: 100% of the self-produced material.
The assessment will be graded out of 30.
Assessment evaluates linguistic accuracy, academic and corporate communication quality, analytical and applied skills, and effectiveness of oral presentation/group work.

Examination procedures are partially differentiated depending on whether students have exceeded or not 30% of absences (in compliance with university regulations).
In particular, students exceeding this threshold are required to complete an additional academic workload, given by teachers and to produce an audiovisual project (video) lasting 20 minutes.

For part-time students
The exam will consist of an oral interview on the topics included in the syllabus and will be graded out of 30 according to the same criteria outlined for full-time students.
Assessment criteria will be the same as for full-time students.

Recommended readings:
For full-time students
A dedicated set of teaching materials will be developed for this course, which does not fully coincide with published textbooks. Materials will be made available to students before each lecture via the designated online platform and organised by topic.
For efficient consultation, students are encouraged to refer to the course syllabus available on the same platform.
Selected scientific articles in food technology and sustainability will be used, together with corporate sustainability reports from international food companies.

For part-time students
A dedicated set of teaching materials will be developed for this course, which does not fully coincide with published textbooks. Materials will be made available to students before each lecture via the designated online platform and organised by topic.
For efficient consultation, students are encouraged to refer to the course syllabus available on the same platform.
Selected scientific articles in food technology and sustainability will be used, together with corporate sustainability reports from international food companies.

Further readings:
 Learning objective
Graduates in “Food Tech for Ecological Transition” are expected to support sustainable analysis and optimisation of food systems and processes. Within this framework, the activity “English proficiency for academic research and corporate communication” aims to develop threshold competencies enabling students to:
- communicate though the English language complex technical concepts clearly and concisely;
- apply appropriate linguistic and rhetorical strategies in sustainability and innovation contexts;
- use a persuasive communication for sustainability and innovation projects;
- engage professionally with academic, industrial, and policy stakeholders in international environments.
At a basic level, the course provides:
- advanced skills in academic writing and research communication;
- competencies in business and technical communication related to sustainability.

 Response to the learning objective
With the aim of demonstrating the effective preparation for the threshold competencies the student will be asked to demonstrate, before the end of this course module, that they have attained knowledge about the following points of particular importance:
- understanding of the structure and conventions of scientific writing;
- familiarity with referencing standards and principles of academic integrity;
- knowledge of corporate communication formats, including executive summaries, sustainability/ESG reporting, and investor-oriented communication.
and capacity to apply knowledge:
- employ precise and context-appropriate English in professional and research settings;
- critically analyse and present research and innovation projects in a clear, coherent, and evidence-based manner;
- draft structured academic texts using appropriate terminology and rhetorical conventions;
- produce professional corporate documents related to sustainability and ecological transition.

The academic activity is offered in:

Scienze Gastronomiche

Program type:	Program: (Curriculum:)	Curriculum:	Credits:	Sector:
Bachelor or equivalent first cycle	Food Tech for Ecological Transition (2026)	comune	3	NN

Printed on: 19/02/2026

Field visits [SG417]

Academic Activity a.y. 2026/2027

Lecturer(s):

Time period: Ciclo Annuale Unico

Learning objectives:
The learning activity “Field visits” offers preparation for professional contexts requiring the ability to observe, analyse, and critically interpret food production systems,products and their communication to consumers, within real operational environments, with particular reference to sustainability, technological innovation, and ecological transition.
The learning activity “Field visits” is present every academic year. It is characterized by a strong experiential part envisaging two didactic visits per year, each predominantly linked to one or more specific learning goals. In first year, in particular it aims to:
- develop the ability to critically analyse agro-forestry or marine food production systems, assessing their environmental impacts and evaluating the strategies adopted to enhance ecological sustainability;
- conduct a holistic analysis of a food-related process and understand the cultural and sociological implications of communicating the ecological transition.
The course will prepare students to:
- understand food production systems, products and their communication and consumption, through direct experiential learning;
acquire insights into cutting-edge technological, environmental, and organisational issues of agri-food systems;
- connect theoretical knowledge acquired in core courses with real-world cases;
- critically reflect on sustainability challenges and innovation strategies in food systems;
- interact with professionals operating in different areas of the agri-food sector, from production to food communication.

Prerequisites:
No specific prerequisites are required.

Course contents:
  Program
Two didactic visits (field visits) are envisaged within this course, each characterized by specific learning goals. In particular:
- the first field visit will aim to develop skills in mapping and describing agro-forestry or marine ecosystems, with particular reference to the assessment of the environmental sustainability of food production systems;
- the second field visit will focus on food-related communication and routine shaping practices aiming to understand the cultural and sociological implications of communicating the ecological transition.
Each field visit will be structured into three phases:
Phase 1: Preparation (lectures and group work)
Phase 2: Experiential learning on site (company visits/ field activity)
Phase 3: Reflection and synthesis (collective reflections)
Note: The programme is to be considered as a forecast and may be subject to minor changes according to specific class needs.

 Teaching method
Teaching activities include class discussions, visits to company and different production realities operating in the food sector and group work. Based on the class numerousness, students can be divided into different groups within each field visit.
Teaching language: English

 Criteria, rules and procedures for the exam
For full-time students
The exam consists of a group presentation to the class, or a 15-minute video, or a collection of 20 photographs with narrative, or an infographic with short explanatory captions, or a 15-minute podcast, freely chosen by students, focusing on one field trip or on a meta-theme emerging across multiple field trips.
Assessment criteria will be:
Phase 2: Students are assessed based on behaviour, attention, and level of participation.
Phases 1 and 3: Proactive participation during in-class activities, accuracy of the self-produced contents,

completeness of the work, research skills, ability to analyse, elaborate, and critically reflect.
The weighting of assessments toward the final grade: 100% of the self-produced material.

For part-time students
Examination procedures are partially differentiated depending on whether students have exceeded or not 30% of absences (in compliance with university regulations).
In particular, students exceeding this threshold are required to complete an additional academic workload, given by teachers and to produce an audiovisual project (video) lasting 20 minutes.

Recommended readings:

For full-time students
A dedicated set of teaching materials will be developed for this course, which does not fully coincide with published textbooks. Materials will be made available to students before each lecture via the designated online platform and organised by topic.
For efficient consultation, students are encouraged to refer to the course syllabus available on the same platform.

For part-time students
A dedicated set of teaching materials will be developed for this course, which does not fully coincide with published textbooks. Materials will be made available to students before each lecture via the designated online platform and organised by topic.
For efficient consultation, students are encouraged to refer to the course syllabus available on the same platform.

Further readings:

 Learning objective
Graduates in “Food Tech for Ecological Transition” are expected to support sustainable analysis and optimisation of food systems and processes. Within this framework, the activity “Field Visits” aims to develop threshold competencies enabling students to:
- understand food production and communication through direct observation;
- identify social, technological and environmental criticalities in the real-world;
- recognise opportunities for sustainable innovation in products and processes.

At a basic level, the course provides:
- skills supporting holistic process analysis;
- insights related to sustainability assessment and innovation;
- the ability to connect technical, ecological, and socio-organisational dimensions of food systems.

 Response to the learning objective
With the aim of demonstrating the effective preparation for the threshold competencies the student will be asked to demonstrate, before the end of this course module, that they have attained knowledge about the following points of particular importance:
- understanding of real-world food production and communication processes;
- developing awareness of social, environmental, and sustainability factors affecting food systems;
- familiarizing with organisational and managerial aspects of food-related activities.

and capacity to apply knowledge:
- analysing production processes and sustainability practices observed during field visits;
- contributing to the identification of improvement strategies for implementing the sustainability of food systems;
- critically reflecting on innovation pathways in relation to ecological transition.

The academic activity is offered in:

Scienze Gastronomiche

Program type:	Program: (Curriculum:)	Curriculum:	Credits:	Sector:
Bachelor or equivalent first cycle	Food Tech for Ecological Transition (2026)	comune	3	NN

Printed on: 19/02/2026

Food chemistry [SG415]

Academic Activity a.y. 2026/2027

Lecturer(s): EMMANUELE PARISI

Time period: Secondo Ciclo Semestrale

Learning objectives:
The course 'Food Chemistry' aims to provide in-depth knowledge on the chemical composition of food (macronutrients, micronutrients, and non-nutrient substances), with particular attention to the health and nutraceutical aspects of food constituents. The course will address, from a chemical perspective, the transformations of foods and their components undergo during processing techniques. Additionally, the main analytical methods for determining food constituents or contaminants will be covered.

By the end of the course, students are expected to understand the importance of food controls and the potential health implications related to the intake of nutraceuticals present in foods. At the end of the course, students will acquire the knowledge and understanding of the fundamental principles of food chemistry and the analytical techniques applicable to the food sector. They will develop the ability to assess food quality based on compositional data and any phenomena of alteration and adulteration.

Prerequisites:
Recommended: general chemistry; be able to conduct literature searches on scientific websites; interpret, compare, integrate, and communicate data; and discuss in a critical and constructive manner.

Course contents:
Program
Foundations and context
Course introduction, scope of Food Chemistry; Foods and nutrition (brief, physico-chemical angle); Food modifications: spoilage, counterfeits, adulteration, sophistication. Main preservation techniques (thermo-chemical and transport bases).
Nutrients
Carbohydrates: classification; intense sweeteners (properties, relative sweetness, stability). Lipids: classification; fatty acids; oxidation (mechanisms, inhibition); triacylglycerols; unsaponifiable fraction. Proteins (structure/function essentials). Minerals and vitamins (speciation, complexation, trace-metal redox). Water in foods and drinking water (sorption isotherms applied focus).
General analytical methods and sensory traits
Core methods for fats, proteins, sugars, water (principles & limits). Sensory traits: links to structure/matrix.
Plant-based foods
Cereals, wheat (flours, semolina, pasta, bread), rice, maize (composition and chemical implications). Oils: olive oil (basics, production, analysis); seed oils, hydrogenated fats and margarine (structure–function, stability). Fruits & vegetables; stimulant foods (caffeine, theobromine, etc.), chemical aspects.
Animal-based foods
Meat and fish; Dairy: milk, cheese and butter composition and basic analytical methods; Eggs; Honey (key components and quality indicators).
Novel foods & plant-based
Plant-based meats & milks: formulation (proteins, lipids, colloids), stability and rheology.
Food processing thermodynamic and kinetic basics (e.g., fermentations, Maillard reactions, water activity and drying).
Undesirable substances
Pesticides: classification, risk assessment of residues in foods (principles). Mycotoxins: occurrence and control (analytical notes).

Teaching method
Lectures will be delivered with the support of computer-based PowerPoint presentations, made available to students on the degree programme website prior to each class. Lectures with in-class questioning to verify prior knowledge and understanding of the topics. Emphasis is placed on terminology; student engagement in solving simple analytical problems supports the development of critical judgement and communication skills.

Criteria, rules and procedures for the exam
For full-time students and part-time students

The exam consists of a PowerPoint presentation in English on a course topic, including commercial examples and an analysis from physico-chemical, nutritional, and analytical perspectives. It is followed by:
questions on the presentation, one extra question on a different topic from the syllabus.
Operational details
Timing: presentation 10–12 minutes, Q&A 8 minutes (including 3–4 minutes for the extra question).
Materials: .pptx or .pdf; upload to the platform at least 24 hours before the session.
Sources & integrity: proper citation of standards, guidelines, articles, manuals; figures/data referenced; original work required.
For students who have not exceeded the 30% absences threshold, the final grade may be supplemented by the marks obtained in interim assessment tests (in accordance with the rules approved by the Academic Council).

Recommended readings:

Books:
J. N. Coupland, An Introduction to the Physical Chemistry of Food, Springer, New York (2014)
Belitz, Grosch, Schieberle. Food Chemistry, 5th ed., Springer (2019).
J. Scott Smith, Y.H. Hui Food Processing Principles and Applications, Wiley (2004)

For full-time and part-time students
• Teacher's slides
• Lecture notes

Further readings:

Learning objective
The module focuses on academic objectives:
• Explaining and modelling physico-chemical transformations of foods during processing and preservation, linking composition (nutritional value, additives, chemical contaminants) to quality and safety.
• Analysing formulation and stability (lipids/oxidation, carbohydrates/sweeteners, proteins; water activity–sorption), and interpreting packaging–food interactions (overall/specific migration) within a basic regulatory frame; framing novel/plant-based foods and beverages from chemical, analytical, and sustainability perspectives.
• Understanding and applying food processing thermodynamic and kinetic basics, e.g., fermentations, Maillard reactions, and water-activity control & drying.
At the threshold level, this figure must be able to
- compute/interpret water activity and colligative effects;
- discuss phase/oxidation phenomena in real matrices;
- select and justify analytical methods for fats, proteins, sugars and water;
- read and summarize migration tests and contaminant findings (pesticides, mycotoxins) in line with course principles;
- and communicate outcomes clearly to technical and non-expert audiences.
This course module proposes providing at the basic level
- Competences aimed at connecting composition → structure → property → process to support quality, safety and shelf-life decisions (including commercial examples).
- Competences in food composition and nutrients; packaging & migration basics; analytical methods; plant- and animal-based foods; novel foods (plant-based meats/milks); and wine/beer chemistry—all grounded in physico-chemical reasoning.

Response to the learning objective
With the aim of demonstrating effective preparation for the threshold competencies, the student will be asked to demonstrate, before the end of this course module, knowledge of the following points of particular importance:
Sustainability skills: systems thinking, critical thinking, effective communication skills, ethics, information searching.
Academic skills: reflection, critical thinking, academic writing, academic language, ethics, information searching, academic integrity, referencing. Work ready skills: communication, time management, planning & organisation, teamwork/collaboration, creativity, critical thinking.

The academic activity is offered in:

Scienze Gastronomiche

Program type:	Program: (Curriculum:)	Curriculum:	Credits:	Sector:
Bachelor or equivalent first cycle	Food Tech for Ecological Transition (2026)	comune	6	CHEM-03/A

Printed on: 19/02/2026

Mathematics and principles of statistics [SG407]

Academic Activity a.y. 2026/2027

Lecturer(s): MAURO GASPARINI

Time period: Primo Ciclo Semestrale

Learning objectives:
The course 'Mathematics and principles of statistics' will give a basic mathematical and statistical knowledge, with a focus on elementary techniques on linear algebra and mathematical analysis for functions of one variable, as well as basic statistical methods. A practical and problem-oriented approach will be adopted.
After finishing the course, students will be able to tackle simple problems in differential and integral calculus and linear algebra, and to identify the statistical techniques necessary for basic statistical processing of data.

Prerequisites:
Students attending this course should already know the following basic concepts of mathematics studied in the high school: polynomial equations and inequalities of the first and second order; fractional equations and inequalities; systems of inequalities; multiplication and division of polynomials; trigonometric functions; logarithms and exponentials; Euclidean geometry.

Course contents:
<b> <font color="CHOCOLATE">Program
Mathematics and Principles of Statistics
4cfu MATH-03/A
Differential Calculus: real functions of one variable; elementary functions; limits of functions; continuity; derivatives; De L'Hopital rule; qualitative graph of a function; Taylor polynomial. (1,5 cfu)
Integral calculus: definition and calculus of integrals. (1cfu)
Linear algebra and geometry: vectors and matrices, lines and planes, algebraic systems, eigenvalues and eigenvectors. (1,5 cfu)
2cfu STAT-01/A
Data handling and descriptive statistics.
Elements of statistical methods for surveys and for the analysis of sensory and consumer data.

<b> <font color="CHOCOLATE">Teaching method
The course will include 40 hours of theoretical lessons and 20 hours of exercise classes.

<b> <font color="CHOCOLATE">Criteria, rules and procedures for the exam

For full-time students
The exam is a 90-minute written exam. It includes four multiple-choice questions (4 points for each correct answer, -1 point for each wrong answer, 0 points for unanswered questions) and two open-ended questions (7 points each). The exam aims to assess the knowledge of the topics covered in the course. If the written exam is not completely sufficient, the teacher could ask the student to take an oral exam.

For part-time students
The exam consists of a 90-minute written. It includes four multiple-choice questions (4 points for each correct answer, -1 point for each wrong answer, 0 points for unanswered questions) and two open-ended questions (7 points each). The exam aims to assess the knowledge of the topics covered in the course. If the written exam is not completely sufficient, the teacher could ask the student to take an oral exam.

Recommended readings:
For full-time students
Special teaching material will be developed for this course, which does not completely coincide with texts available on the market.

Reference texts:
Calculus – Early Transcendentals, James Stewart, coauthors Daniel K. Clegg, Saleem Watson;
Introductory Statistics, by Sheldon Ross.

For part-time students

Special teaching material has been developed for this course, which does not completely coincide with texts available on the market.

Reference texts:
Calculus – Early Transcendentals, James Stewart, coauthors Daniel K. Clegg, Saleem Watson;
Introductory Statistics, by Sheldon Ross.

Further readings:

<b> <font color="CHOCOLATE">Learning objective
This course module proposes endowing the students with basic numeracy skills in calculus and with basic statistical notions which are the basis to develop competence in impact analysis and in flow mapping and monitoring in food production processes .

<b> <font color="CHOCOLATE">Response to the learning objective
With the aim of demonstrating the effective preparation for the threshold competencies the students will be asked to demonstrate, before the end of this course module, that they have attained knowledge about the following points of particular importance:
- compute limits and derivatives;
- compute integrals;
- perform computations with matrices and vectors;
- perform basic statistical analysis.

and capacity to apply knowledge:
- to elementary quantitative problems and basic statistical databases.

The academic activity is offered in:

Scienze Gastronomiche

Program type:	Program: (Curriculum:)	Curriculum:	Credits:	Sector:
Bachelor or equivalent first cycle	Food Tech for Ecological Transition (2026)	comune	6	MATH-03/A, STAT-01/A

Printed on: 19/02/2026

Mechanics for food systems [SG414]

Academic Activity a.y. 2026/2027

Lecturer(s): CARMEN VISCONTE

Time period: Secondo Ciclo Semestrale

Learning objectives:

The course 'Mechanics for food systems' aims to describe how mechanization of production processes and packaging represents the key to increase productivity and reliability in food industry. Therefore, the design and modelling of mechanical systems represent a key piece of knowledge for food tech's ecological transition.
The objective of this course is:
to provide the students with the basic modeling techniques to describe the kinematics, statics, and dynamics of rigid bodies
to provide the students with a basic knowledge on fluid automation technology, with reference to pneumatic and electro-pneumatic systems.

The course, based on an inductive method of teaching, enables the student to properly address problems relevant to the automation of food processing and packaging with an eye to efficient resource use.

Prerequisites:

It is recommended that students attending this course should already have an elementary background in Mathematics and Physics.

Course contents:

Program
The course covers the fundamentals of applied mechanics and fluid automation and consists of front lectures (21 h), applied classes (15 h) and lab experiences (12 h).
Kinematics of mechanical systems: planar kinematics of rigid bodies; constraints and degrees of freedom; position, velocity, and acceleration determination; outline of relative motion; examples of mechanisms in food automatic machines
Statics: forces and torques; free-body-diagram; examples
Dynamics of mechanical systems:
Newton's laws of dynamics; examples
Work and energy, power, and efficiency
Friction: static and dynamic friction, rolling friction; examples
Overview of components for motion transmission: gears, belts.
Compressed air plant, air treatment.
Basic pneumatic components: structure, operation and consumption of pneumatic actuators and valves.
Digital techniques for pneumatic applications. Functional and operative diagrams (step-displacement, grafcet, …).
Ladder diagram.

Teaching method
The course (6 credits: 21 lecture hours, 15 applied class hours, 12 lab experiences hours) is organized as follows:
16,5 lecture hours to cover the fundamentals of applied mechanics + 9 applied class hours on the specific topics + 3 lab experience hours
4,5 lecture hours to cover the fundamentals of fluid automation + 6 applied class hours on the specific topics + 9 lab experience hours
Theoretical lectures are supported by examples and applications. During the applied class hours, the students are provided by materials and frames of solution. The teacher will assist students during both the applied class and lab experiences hours, supporting them in their learning progression and clarifying their doubts.
The teacher is available to meet students for consultation; please contact her/him by e-mail.

Criteria, rules and procedures for the exam
For full-time students and part-time students
Achieved learning outcomes will be assessed by means of a final written exam. This is based on an analytical assessment of student achievement of the "expected learning outcomes" described above.

The final written exam (duration: 2,5 hours) consists of questions and exercises on the content of the course and is made up of two parts, each ranked from 0 to 30: one part concerns the fundamental of applied mechanics and the

other one concerns the fluid automation. In each part, the students will be asked to solve:
- one problem using calculations, so to assess their ability to choose the most suitable mathematical instrument
- one more theoretical question.

To pass the exam, students must achieve 18 out of 30 for every part. The final grade will be the average of the grades obtained in the two parts. Students that achieved 30 out 30 for both parts, will be evaluated by 30/30 cum laude.

The exam is a closed book one. The calculator can be used.

A few days after the written test, the exam results are available and the students are summoned for a review of the written output, during which examiners inform the student on grading criteria, and receive any student appeal supported by appropriate explanations.

Further details on exam rules are given on the official course website.

Recommended readings:

Books:
Main study references:
Juvinall, R.C., Marshek, K.M., Fundamentals of machine component design, 5th Edition, Wiley, 2011
Meriam, J. L., Kraige L. G., Engineering Mechanics Dynamics, 7th Edition, Wiley, 2013.
C. Ferraresi, T. Raparelli: "Meccanica applicata", 3a edizione, 2007, CLUT
Magnani P.L., Ruggieri G., Meccanismi per macchine automatiche, UTET
G. Belforte, Manuale di Pneumatica, III Edizione, Tecniche Nuove, Milano, 2019.
Peter Beater, Pneumatic drives – System design, Modelling and Control, Springer, Berlin, 2007

For full-time and part-time students
• Teacher's slides
• Lecture notes

Further readings:

Learning objective
The course aims at developing the ability of the student to identify the functional problems relevant to rigid bodies mechanics and mechanical drives, to address and solve them with a scientifically correct approach. At the end of this course, the student will have the knowledge of:
- the kinematic characteristics of a mechanical system
- the dynamic characteristics of a mechanical system
- the general layout of a mechanical power transmission system and of the main kind of components used in such a system
- the operating principle of the devices used for transmitting motion
- the operating principle of the main pneumatic and electro-pneumatic components and their application to automatic machines
- programmable logic control (Grafcet, ladder)

Response to the learning objective
As a consequence, the student will be able to:
- develop functional models of real planar mechanisms, to determine their kinematic characteristics by graphically solving vector equations (triangle of velocities, polygon of accelerations)
- identify the free-body-diagram of a mechanical system or of its parts, to determine the static or dynamic balance condition as a function of the external loading
- identify the main characteristics of a mechanical power transmission system, evaluating the force/torque exchange
- design a basic pneumatic and electropneumatic circuit

The ability to solve real problems is achieved by developing the ability to apply theoretical models to practical applications. Thus, exercises and lab sessions propose simple but realistic problems whose objective is to lead the student to a full comprehension of the theoretical basis to use it in everyday professional life.

The academic activity is offered in:

Scienze Gastronomiche

Program type:	Program: (Curriculum:)	Curriculum:	Credits:	Sector:
Bachelor or equivalent first cycle	Food Tech for Ecological Transition (2026)	comune	6	IIND-02/A

Printed on: 19/02/2026

Technology for food and social change [SG411]

Academic Activity a.y. 2026/2027

Lecturer(s): MARIA GIOVANNA ONORATI

Time period: Primo Ciclo Semestrale

Learning objectives:

The course “Technology for society and communication - (Mod 2 - Technology for food and social change)” will prepare students to work as consultants and analysts in the field of digital communication applied to food consumption, with specific expertise in the use of platforms, media, and artificial intelligence for food-related consumer analysis in the following professional fields of application:

1. Food Market & Consumer Insight
Analysis of food markets and consumer behaviours using digital and AI-based tools.
2. Food Media & Branding
Development of cross-media communication strategies for food brands and products using digital platforms and AI solutions.
3. Food Consumer Engagement & Education
Design of educational and engagement activities on food behaviours in educational, corporate, or community settings, also through interactive and AI-driven tools.

By the end of the course, students will be able to:
Understand the role of digital platforms and artificial intelligence (including generative AI) in food consumption dynamics and food-related media.
Analyse how platformization shapes tastes, purchasing decisions and behavioural patterns across different socio-cultural and generational groups.
Critically assess the ethical and social implications of profiling, datafication and brandization in communication and consumption contexts, using both qualitative and quantitative research methods.
Apply digital and AI-based tools to investigate food behaviours and design interventions aimed at engagement, education or the promotion of more sustainable practices.

Prerequisites:

It is recommended that students attending this course are already familiar with digital apps and platforms related to food consumption.

Course contents:

Program
Module Contents
Social construction of taste in algorithmic environments (recommendation systems, food apps, digital foodscapes, ranking and rating mechanisms within platforms).
Antinomies of food taste in technological and ecological transition (sustainability, convenience, health, identity).
Cultural and social differences in food taste and lifestyles interpreted through digital media usage.
Global trends in food consumption and taste evolution observed through platforms and generative AI.
AI, platforms and algorithms in food consumption (from e-commerce to AI-driven commerce: ethics, profiling, digital inequalities).
Social research methods applied to food behaviours (survey research, social listening, netnography).
Sociological inquiry into food consumption using softwares for exploring digital datasets.

Teaching method
The teaching method consists in… The course combines traditional lectures with interactive activities, including group work, data analysis sessions and case study discussions
Teaching language:English.

Criteria, rules and procedures for the exam

For full-time students
The exam (which will be completed in English) is structured as follows:

Methodology

Project work based on case studies of consumer analysis introduced during the course.
The project may be developed:
in small groups (2–4 students) or individually;
each student must be clearly responsible for a specific section of the project and make their individual contribution identifiable.
Final Output
Written report
Max. 60,000 characters total (excluding tables and images) for group reports
Average of 15,000 characters per student in group reports
20,000 characters for individual projects.
To be submitted via email 10 working days before the oral exam
Oral presentation
Held on the official exam date
Each student presents only the section they are responsible for

The assessment criteria will be as follows:
Group-written report 30% of the final grade
Individual oral presentation & personal contribution 70% of the final grade
Class participation (interest, interaction, engagement) be taken into account.

Hard skills assessed: use of literature, analytical competence, critical thinking, clarity of presentation
Soft skills assessed: cooperation, negotiation, responsibility, commitment

Exam procedures are partially differentiated according to whether students have had more or less than 30% absences (in compliance with the University regulations). In particular, if a student exceeds 30% of absences, an additional workload (agreed upon with the instructor) will be assigned.
Once the supplementary work is completed, the same evaluation criteria will apply as for all students.

For students who have not exceeded the 30% absences threshold, the final grade may be supplemented by the marks obtained in the above-described activities (in accordance with the rules approved by the Academic Council).

For part-time students
Part-time students will take the exam individually (in Italian or English, at their own choice) and will not be allowed to join any group. The exam will follow this structure:
Methodology:
The exam consists of an individual project based on case studies related to consumer analysis covered during the course. These will serve as the field of application for the theoretical frameworks, contents and operational tools introduced in the module.
The project topic will be agreed upon with the student and must be developed individually. In the project, the student will be required to demonstrate a coherent and competent use of the course contents, showing clear and accurate application of the materials provided.
Final Output:
A written report (25,000 characters excluding images and tables)
An oral presentation, held on the official exam date
Deadline:
The written report must be submitted to the instructor via email 10 working days before the oral exam.

Recommended readings:

For full-time students
Special teaching material has been developed for this course, which does not completely coincide with texts available on the market.
The recommended texts for all are:
- Lewis, T. (2020). Digital food: From paddock to platform. Bloomsbury.
- Onorati, M.G. 2024. The Why Behind the Food Buy. Milano, Bocconi University Press.
- Lupton, D., & Feldmann, Z. (Eds.). (2020). Digital food cultures. Routledge.
- M. G. Onorati, G. G. Bonetti, 2025. “Digital Food Rating, Caring Dietary Styles, and Identity: A Study of Plant-Based Restaurant Reviews.” Journal of Cultural Economy. https://doi.org/10.1080/17530350.2025.2492591
- Allgaier, J. et al.. 2025. Digital Foodscapes: Past - Present - Future. Workshop Report. 2025. “Digital Foodscapes: Past—Present—Future”. OSF (Center for Open Science). Doi: https://doi.org/10.31235/osf.io/pzmu5_v1
- Stehrenberger, A., Danesi, G., & Schneider, T. (2024). More of the same? How digital food platforms reinforce prevailing eating interests and practices. Journal of Cultural Economy, 1–19. https://doi.org/10.1080/17530350.2024.2378472
- Hagendorff, T. 2023. “How Artificial Intellegence Can Support Veganism: An Exploratory Analysis.” Journal of Animal Ethics 13 (2): 142–149. https://doi.org/10.5406/21601267.13.2.05
- Onorati, M. G. & Giardullo, P. (2020). Social media as taste remediators: Emerging patterns of food taste on TripAdivsor. Food, Culture and Society, 23(3), 347–365. https://doi.org/10.1080/15528014.2020.1715074

The following texts represent the indicative reference literature for the course and will be complemented by

handouts and supplementary materials prepared by the instructor. Given the high relevance and rapid evolution of the topic, updates or changes may occur based on more recent publications specifically addressing technologies applied to food consumption.
The text will be supplemented by readings that will be made available to students before the respective lectures via the University's e-learning platform.
Exercises: before each lecture, the lecturer will indicate to the students the material to be studied, in order to carry out in-class exercises and/or discussions related to it.

Possible supplementary bibliography:
... (list of texts) …
- Kuhl, E. AI for food: accelerating and democratizing discovery and innovation. npj Science of Food 9, 82 (2025). https://doi.org/10.1038/s41538-025-00441-8
- Bi, C., Cui, X., Sun, Z. et al. 2025. Thinking AI or feeling AI? The effect of AI on consumers' willingness to purchase healthy food from the perspective of nudge. Humanit Soc Sci Commun 12, 1032 (2025). https://doi.org/10.1057/s41599-025-05391-w
- Floridi, L. 2025. A Conjecture on a Fundamental Trade-Off Between Certainty and Scope in Symbolic and Generative AI. Philosophy & Technology (2025) 38:93. https://doi.org/10.1007/s13347-025-00927-z
- Bonetti, G. G., van Hooven, C., & Onorati, M. G. (2024). "Planting Seeds of Change in Foodstyles: Growing Brand Strategies to Foster Plant-Based Alternatives Through Online Platforms." Gastronomy, 2(4), 169-190. https://doi.org/10.3390/gastronomy2040013

… (Alternative or complementary materials will be indicated by the instructor closer to the beginning of the course)

For part-time students
Special teaching material has been developed for this course, which does not completely coincide with texts available on the market.
The recommended text for all ....
- Lewis, T. (2020). Digital food: From paddock to platform. Bloomsbury.
- Onorati, M.G. 2024. The Why Behind the Food Buy. Milano, Bocconi University Press.
- Lupton, D., & Feldmann, Z. (Eds.). (2020). Digital food cultures. Routledge.
- M. G. Onorati, G. G. Bonetti, 2025. "Digital Food Rating, Caring Dietary Styles, and Identity: A Study of Plant-Based Restaurant Reviews." Journal of Cultural Economy. https://doi.org/10.1080/17530350.2025.2492591
- Allgaier, J. et al.. 2025. Digital Foodscapes: Past - Present - Future. Workshop Report. 2025. "Digital Foodscapes: Past—Present—Future". OSF (Center for Open Science). Doi: https://doi.org/10.31235/osf.io/pzmu5_v1
- Stehrenberger, A., Danesi, G., & Schneider, T. (2024). More of the same? How digital food platforms reinforce prevailing eating interests and practices. Journal of Cultural Economy, 1–19. https://doi.org/10.1080/17530350.2024.2378472
- Hagendorff, T. 2023. "How Artificial Intellegence Can Support Veganism: An Exploratory Analysis." Journal of Animal Ethics 13 (2): 142–149. https://doi.org/10.5406/21601267.13.2.05
- Onorati, M. G. & Giardullo, P. (2020). Social media as taste remediators: Emerging patterns of food taste on TripAdivsor. Food, Culture and Society, 23(3), 347–365. https://doi.org/10.1080/15528014.2020.1715074
- Bonetti, G. G., van Hooven, C., & Onorati, M. G. (2024). "Planting Seeds of Change in Foodstyles: Growing Brand Strategies to Foster Plant-Based Alternatives Through Online Platforms." Gastronomy, 2(4), 169-190. https://doi.org/10.3390/gastronomy2040013

.....
The text will be supplemented by readings that will be made available to students before the respective lectures via the University's e-learning platform.
Exercises: before each lecture, the lecturer will indicate to the students the material to be studied, in order to carry out in-class exercises and/or discussions related to it.

Possible supplementary bibliography:
- Kuhl, E. AI for food: accelerating and democratizing discovery and innovation. npj Science of Food 9, 82 (2025). https://doi.org/10.1038/s41538-025-00441-8
- Bi, C., Cui, X., Sun, Z. et al. 2025. Thinking AI or feeling AI? The effect of AI on consumers' willingness to purchase healthy food from the perspective of nudge. Humanit Soc Sci Commun 12, 1032 (2025). https://doi.org/10.1057/s41599-025-05391-w
- Floridi, L. 2025. A Conjecture on a Fundamental Trade-Off Between Certainty and Scope in Symbolic and Generative AI. Philosophy & Technology (2025) 38:93. https://doi.org/10.1007/s13347-025-00927-z
Any alternative texts will be defined at the beginning of the course with students in this situation.

Further readings:
Learning objective
The professional figure of the "graduate in Food Tech for Ecological Transition" who works in the context of within the context of technological development, innovation, and social change is typically entrusted with the task of:
- Explore food consumer market using digital and AI-supported tools
- Support product and brand communication through digital platforms and media
- Design educational or consumer engagement activities on food behaviours

- Contribute to the development of ethical and inclusive food policies using digital environments and tools
At the threshold level, this figure must be able to:
- understand and apply the fundamental sociological, communicative, and technological frameworks that explain how digital platforms and AI influence food consumption and social change;
- possess a theoretical and methodological foundation for analysing the relationship between technology, communication, and food in contemporary society.
This course module proposes providing at the basic level:
Competences aimed at:
- developing an understanding of how digital media, data analytics, and AI tools shape food-related communication, consumer behaviour, and social change.
Competences in:
- the use of digital and AI-based tools for analysing consumer trends, designing communication strategies for food brands, and assessing the ethical and social dimensions of technological innovation in the food system.

Response to the learning objective
With the aim of demonstrating the effective preparation for the threshold competencies the student will be asked to demonstrate, before the end of this course module, that they have attained knowledge about the following points of particular importance:
A. Human values and (AI) digital-mediated consumption practices from a sociological perspective.
B. Cultural differences in digital-mediated food choices, analysed from a cross-cultural, cross-generational and cross-media perspective.
C. The impact of AI applied to food (AI-food) on global consumption trends and the evolution of taste.
D. Social research methods and analysis applied to digital foodscapes.
E. Cross-media and data-driven food communication, including AI-based formats.
and capacity to apply knowledge:
A. Explore consumer behaviours in light of values and social dynamics within digital environments.
B. Compare consumption patterns across cultural and generational groups using data derived from media platforms or from media usage.
C. Critically assess — also from an ethical and policy perspective — the influence of machine learning and platform algorithms (e.g. food rating and recommendation systems) on preferences, purchasing suggestions and food choice models.
D. Collect and interpret data from surveys, digital platforms and social media (e.g. social listening, sentiment analysis).
E. Design or evaluate cross-media food communication strategies supported by AI-based content.

The academic activity is offered in:

Scienze Gastronomiche

Program type:	Program: (Curriculum:)	Curriculum:	Credits:	Sector:
Bachelor or equivalent first cycle	Food Tech for Ecological Transition (2026)	comune	6	GSPS-06/A

Printed on: 19/02/2026

Technology for society and communication [SG412]

Academic Activity a.y. 2026/2027

Lecturer(s):

Time period: Primo Ciclo Semestrale

Syllabus not published by lecturer.

The academic activity is offered in:

Scienze Gastronomiche

Program type:	Program: (Curriculum:)	Curriculum:	Credits:	Sector:
Bachelor or equivalent first cycle	Food Tech for Ecological Transition (2026)	comune	0	PEMM-01/B, GSPS-06/A

Printed on: 19/02/2026

Technology, media and cultural policy [SG410]

Academic Activity a.y. 2026/2027

Lecturer(s): LUCA ANTONIAZZI

Time period: Primo Ciclo Semestrale

Learning objectives:

The course “Technology, Media and Cultural Policy” is the first module of the course Technology for Society and Communication, which prepares students to work in the media sector. Specifically, this module trains students to operate as consultants, analysts, or strategists in the field of communication applied to food production and consumption, within food systems operating in the ecological transition. In particular, the course prepares students to:
Conduct or support critical analyses of the food communication system and cultural industries (e.g. television, cinema, advertising), with particular attention to sustainability and the role of technology
Carry out or support public relations activities or the management and development of institutional relations in the agri-food industry
Develop or support the design of advertising campaigns, B2B communication strategies, events, or media content in the agri-food and gastronomic fields (e.g. journalistic articles, branded entertainment)
Conduct or support analyses of public policy initiatives, self-regulation, or advocacy initiatives aimed at influencing the activities of the food and communication industries (e.g. advertising regulation).
Support the development of new technologies and organizational models by providing knowledge and strategies that ensure careful consideration of cultural, social, and political aspects and implications.

This provides an overview of industrial dynamics useful for better understanding agri-food communication and its relationships with media and public policy. At the end of the course, students will be able to:

Understand and critically analyze the evolution, functioning, and cultural impact of media industries (e.g. television, cinema) as strategic partners of the agri-food industry.
Identify and assess the effectiveness of strategic relationships between the agri-food sector, media systems, and their multistakeholder networks, which influence both agri-food production and communication processes.
Analyze communication strategies and cultural narratives related to food, with a particular focus on sustainability and the so-called processes of platformisation (the growing centrality of digital platforms in communication processes).
Interpret and critically evaluate the initiatives undertaken by governments and public institutions in the field of communication to regulate both communication and, ultimately, food culture (e.g. advertising regulation).

Prerequisites:

No prerequisites are required to attend the course.

Course contents:

Program
The course is organized into three main blocks. The first block will cover themes related to the history and technology of media and communication. Food and sustainability will certainly be part of these lectures, but they will not be the primary focus. The goal is to introduce students to contemporary media systems and cultural industries. Media industries have become particularly significant in shaping today’s social and economic reality through multiple strategies and channels of dissemination, including new digital platforms.
The second block will focus on specific cultural industries (e.g. television, advertising), on the so-called platformisation of communication, and on government actions aimed at influencing industrial and technological choices. This block will center on food communication, representations of agricultural production, and sustainability.
The third block will address specific case studies. Depending on how the class responds to the first sessions, cases will be selected to illustrate the impact of technology and communication on sustainable food cultures and eating habits. The course will also include lectures on academic writing and production, which will be assessed as part of one of the two exam components (the final paper). A substantial part of the course will be dedicated to seminar-style activities, fostering dialogue and interaction between the lecturer, students, and guest speakers.

Teaching Methods
The main teaching method will be lectures given by the instructor, accounting for approximately 70% of the course. In addition, the course will include seminar and “workshop”-style activities involving debates, textual analysis, and the screening of audiovisual materials. Students will also be asked to complete some tasks outside of class time

(e.g. readings or small assignments).

Exam Criteria, Rules, and Procedures
Exam Language: English
Exam Format:
Two components will determine the final grade: a written essay, an oral exam. The written paper, between 15,000 and 20,000 characters, will focus on a topic or prompt chosen by the student from a list provided by the instructor. It will involve analyzing and discussing a case study or debate concerning developments in media and ICT (Information and Communication Technology) cultural policies, and how these have influenced corporate communication and food culture.
The use of AI tools is allowed but must strictly comply with university regulations. Compliance will be verified during the first part of the oral exam, which will focus on the written paper.
The written paper must be submitted at least ten days before the date of the oral exam.

Part-time students or those with low attendance
Additional study materials will be provided to part-time students. Further materials will also be provided to those attending less than 70% of the course, with an even greater workload for those attending less than 50%.

Exam Structure and Grading
The first part of the oral exam will be based on the written paper. The second part will consist of questions on the exam texts and other course materials. The final grade will be determined as follows: one third from the written paper grade and two thirds from the oral exam grade.

Assessment Criteria for the Written Paper
The paper will be assessed based on: 1. the use of relevant literature; 2. the quality and relevance of the supporting documentation; 3. the clarity and systematic structure of the argumentation; 4. adherence to editorial conventions
The oral exam will be assessed based on 1. the accuracy of responses, 2. completeness of answers, 3. mastery of technical concepts and vocabulary.

Additional Information
Exam criteria, rules, and procedures may be subject to change. In such cases, the instructor will inform students well in advance.

Recommended readings:
A selection of book chapters, essays, and articles will be provided to students in PDF format. The main texts to be used are listed below. The workload will be determined in accordance with university policies. Please note that part-time or non-attending students (or those with low attendance) will be provided with additional study materials by the instructor.

Readings for further study

Ashley, B., Hollows, J., Taylor, B., & Jones, S. (2004). Food and Cultural Studies. London: Routledge.
Bartz, C., Ruchatz, J., & Wattolik, E. (eds) (2023) Food–Media–Senses. New Rockford: Transcript Publishing.
Carson, D., Baron, C., & Bernard, M. (2013). Appetites and Anxieties: Food, Film, and the Politics of Representation. Detroit: Wayne State University Press.
Contois E., Kish, Z. (2022). Food Instagram: Identity, influence, and negotiation. University of Illinois Press.
Contois, E. J. (2020). Diners, Dudes, and Diets: How Gender and Power Collide in Food Media and Culture. UNC Press Books.
Cramer, J. M., Greene, C. P., Walters, L. (eds.) (2011). Food as Communication. Communication as Food. Bern: Peter Lang. De Iulio, S., & Kovacs, S. (eds.). (2022). Food Information, Communication and Education: Eating Knowledge. London:
Fakazis, E., & Fürsich, E. (eds.). (2023). The Political Relevance of Food Media and Journalism. London: Routledge. Gunter, B. (2016). Food advertising: Nature, impact and regulation. Cham: Springer.
Goodman, D., & Goodman, M. (2001). Sustaining foods: organic consumption and the socio-ecological imaginary. In Exploring Sustainable Consumption (pp. 97-119). Pergamon.
Goodman, M. K., & Jaworska, S. (2020). Mapping digital foodscapes: Digital food influencers and the grammars of good food. Geoforum, 117, 183-193.
Goodman, M. K., Johnston, J., & Cairns, K. (2017). Food, media and space: The mediated biopolitics of eating. Geoforum, 84, 161-168.
Guthman, J. (2024). The Problem with Solutions: Why Silicon Valley Can't Hack the Future of Food. Univ of California Press.
Hollows, J. (2022). Celebrity Chefs, Food Media and the Politics of Eating. London: Bloomsbury Publishing.
Johnston, J., & Goodman, M. K. (2015). Spectacular foodscapes: Food celebrities and the politics of lifestyle mediation in an age of inequality. Food, culture & society, 18(2), 205-222.
Leer, J., & Krogager, S. G. S. (Eds.). (2021). Research Methods in Digital Food Studies. Routledge.
Lewis, B., Lewis, J., (2014). Health Communication. A Media and Cultural Studies Approach. London: Palgrave Macmillan.
O'Hagan, L. A., & Eriksson, G. (Eds.). (2024). Food Marketing and Selling Healthy Lifestyles with Science:

Transhistorical Perspectives. London: Routledge.
Phillipov, M. (2023). Digital Food TV: The Cultural Place of Food in a Digital Era. London: Routledge.

Further readings:

Learning objective
The professional profile of graduates in Food Tech for Ecological Transition is enriched through the Technology, Media and Cultural Policy module, which provides fundamental knowledge and skills related to the world of gastronomy and food production in the broader frame of the ecological transition. Graduates who specialize in food media and communication are often employed in marketing departments, internal and digital communication management, or external relations departments, where they are tasked with:
- Analyzing and critically assessing sociocultural contexts to contribute to more sustainable, responsible, and socially equitable technological and industrial development that strengthens the company's brand identity.
- Analyzing and designing communication strategies to promote technology as a tool for improving the food sector in a balanced and sustainable way.
- Designing communication campaigns to promote products and services that comply with best practices in terms of sustainability and ecological responsibility.
- Developing and managing strategic relationships with external organizations, especially—but not exclusively—in the fields of communication, advertising, and more broadly, the cultural industries.
At a threshold level, this professional figure must be able to critically analyze gastronomic communication, exploring the logic of cultural and communication industries, their interactions with the agri-food sector, and the media representations and narratives that emerge from these interactions.
This teaching module aims to provide basic-level competencies aimed to:
- Understand and analyze the logics of cultural production and media circulation of representations and content related to agri-food products.
The module provides competences in:
- Using basic academic research tools to analyze and design communication campaigns, whether for commercial purposes or for raising public awareness.

Responses to Learning Objectives
In order to demonstrate achievement of the threshold competences, by the end of this module students are expected to show knowledge of:
- Concepts, tools and skills in the field of media and communication studies
- Communication for gastronomy and the agri-food industry
- Institutional relations between the cultural and agri-food industries
- Visual and textual analysis and the sociocultural contextualization of media content
Ability to apply knowledge to:
- The development of new communication strategies, new corporate cultures, and new models for managing external relations
- The analysis of promotional or awareness campaigns in the agroindustry and the gastronomic field
- The production of brief reports on communication strategies, public policies, and public engagement
- The design of basic gastronomic communication campaigns
- The innovation of products or services in the gastronomic sector with a focus on sustainability

The academic activity is offered in:

Scienze Gastronomiche

Program type:	Program: (Curriculum:)	Curriculum:	Credits:	Sector:
Bachelor or equivalent first cycle	Food Tech for Ecological Transition (2026)	comune	6	PEMM-01/B

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