

# GUIDELINES for EDUCATIONAL PROGRAMMING and filling out / revising SYLLABI

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## **1. INTRODUCTION**

The Self-Evaluation / Periodic Evaluation / Accreditation (**AVA**) system for Courses of Study, managed by the National University and Research Evaluation Agency (**ANVUR**), requires each Course within a Course of Study to create and update a Syllabus on an annual basis.

As part of the continuous improvement of **teaching quality**, the Syllabi play an important role and make it possible to manage the *teacher-student* relationship with transparency, in the spirit of implementing a teaching process that is based on students' conscious and active participation. Filling out the Syllabus is a crucial phase in the creation of the so-called educational agreement.

The Syllabi therefore serve the purpose of orienting students in their choice of courses in creating a learning plan as well as providing useful information for participating in the course. A **clear and complete** Syllabus should prevent students (especially those who do not attend class) from needing to seek information about the course through sources outside of the University (for example: social media groups that have not been approved by the teacher), which may give incorrect information.

Syllabi are public documents and their contents are visible on the University portal (<u>Syllabus</u>) and on <u>Universitaly</u>, for the use of registered students, potential future students, their families, and any others who may be interested.

# The contents required in the Syllabus are the cornerstone of didactic planning for a course; therefore, the PQA deems it useful to provide guidelines in order to:

- Share operating instructions to help instructors in planning their courses;
- Describe the principles of filling out the form correctly and ensuring greater consistency (all while respecting the individual needs of each Course of Study);
- Ensure the completeness of all of the information requested, consistency across the contents, clarity, and useability on the Course of Study websites;
- Set out the methods for revising and evaluating the contents by those involved in Teaching Quality Assurance.

## Correct writing is an objective of the QA process

The text contained in the Syllabus of a course must allow the students to understand the skills that are required to take the course, the knowledge and skills to be acquired during the course, the didactic methods that will be used, and the means of verifying their learning outcomes. It is therefore necessary to write all of this in a clear and concise manner.



## Timing

The creation and revising of Syllabi usually takes place by mid-July of each year for the courses of all teaching periods.

Meeting the planned deadlines is **fundamental in order for the educational programming to be published correctly** and to ensure that students have adequate information.

For contract instructors, if the selection and confirmation of their didactic responsibilities does not take place within the expected timeframe, the Chair of the Course of Study will provide the syllabus.

## Individuals involved in the Syllabus QA process

The following is a list of those involved in the creation/revision of syllabi and in the tasks of checking and monitoring their contents.

**Instructor:** the instructor is responsible for creating and revising the syllabus according to these guidelines, and for ensuring the availability of an English translation of the content in the various fields.

**Quality Assurance Responsible**: the Quality Assurance Responsible plays the role of verifying and monitoring the completion of the syllabi by all of the instructors, and the completeness and adequacy of the content. It is important to check that the contents of the various syllabi are consistent, with particular attention paid to integrated courses that are divided into multiple modules. The Quality Assurance Responsible of the offering Course of Study checks the publication of the syllabi for courses that are shared with other Course of Study.

**Contributions from the students** in reporting missing or incomplete syllabi. The Review Group of the Course of Study is also responsible for checking the syllabi that are shared with other Courses of Study.

**Instructor-Student Commission**: the Instruction-Student Commission is responsible for checking and monitoring (through random sampling) all of the Courses of Study in the Department, which is included in their annual report.

## ANVUR Evaluation

ANVUR checks the contents of the syllabi during the initial and periodic accreditation of Courses of Study.

The **AVA3** periodic accreditation system for University sites and Courses of Study considers syllabi under point **D.CDS.1** "*Quality assurance in planning Courses of Study*", in point D.CDS.1.4 "*Educational programming and means of verifying learning outcomes*", describing aspects to be considered:

**D.CDS.1.4.1**: the contents and programs of courses are coherent with the educational aims of the Course of Study, are clearly illustrated in the syllabi, and are made available on the Course of Study website in an appropriate and timely manner.

**D.CDS.1.4.2**: the methods for carrying out the monitoring of individual courses are clearly described in the syllabi, are consistent with the individual educational aims and appropriate for



verifying the expected learning outcomes. The means for verifying the courses are explained to the students.

**D.CDS.1.4.3**: the means for verifying learning outcomes are explained to the students.

## 2. RECOMMENDATIONS FOR COMPLETING AND REVISING SYLLABI

All of the information useful to prepare, attend, and study for (also individually) must be included in the syllabus to promote conscious and active learning on the students' part (see **ESG 2015** *Standards and Guidelines for Quality Assurance in the European Higher Education Area*, <u>https://www.enga.eu/wp-content/uploads/2015/11/ESG\_2015.pdf</u>).

In completing the syllabus, please remember to:

- Fill out **all 10** of the sections in English;
- Pay attention to **consistency across the various fields** that are logically related (educational aims, pre-requisites, reference texts, means for assessing learning, etc.);
- Define the educational aims of the course so that they are coherent with what is described in the learning area the course is a part of: Sections A4.b.1 and A4.b.2 (Knowledge and understanding and ability to apply knowledge and understanding) of the Sole Annual Form of the Course of Study;
- Bear in mind that the course is part of the overall structure of the Course of Study and the learning aims and outcomes must be consistent regardless of the teacher assigned from one year to another;
- The information must be **clear and exhaustive** and must not refer to additional information to be given in the classroom, since this would penalize students who do not attend;
- Specify the teaching methods and tools used, basing them on the specific needs of the various types of students;
- Analyze the points raised in the Teacher-Student Commission regarding the quality of the syllabi (points raised in AVA3 **D.CDS.1.4** and **D.CDS.1.5**);
- Pay the same attention to the **English version** of the form to allow potential Erasmus exchange students to acquire all of the information they need to choose which courses to include in their study plan prior to arriving at our University.

Additionally,

• For **courses taught in English**, the English version can be placed in the Italian column;



- The syllabus of an **integrated course**, the general part of which must be filled out by the coordinator and must contain all of the information for each module, for each field; in the field concerning assessing learning objectives, specify how the final mark is calculated (e.g., weighted mean of the marks in the individual modules, etc.);
- In the fields where no text can be entered, it is necessary to **insert two hyphens** "--" so that these sections of the syllabus are not deemed to be incomplete.

It would also be appropriate for each instructor, during the **periodic review of the syllabus** (generally before the start of classes for each academic year), to check and take into account anything brought up by the students in the **OPIS survey** referring to the previous year of the course, with particular attention to the items that concern course planning, information regarding didactic load (in particular, the relationship between number of CFU and study material) and the definition of the type of exam.

## 3. SYLLABUS STRUCTURE AND INSTRUCTIONS FOR COMPLETION

The syllabus is a training activity that is made up of **ten sections**, which can be found in the following order in the **UGOV-Teaching application**:

- a. Language of instruction
- b. Contents
- c. Reference texts
- d. Learning aims
- e. Pre-requisites
- f. Teaching methods
- g. Other information
- h. Means for assessing learning
- i. Extended program
- j. Objectives related to the 2030 Agenda for sustainable development

## a. Language of instruction

Include the language of instruction of the course. In this section, it is possible to specify any modules/learning units taught in another language (e.g., English) in addition to the indication of teaching materials in languages other than Italian (slides, handouts, manuals, scientific articles, etc.).



## b. Contents

List the main topics included in the course. It is advisable to use a bulleted list, spacing, and indentations to improve the readability of the text. If the course includes more than one module or phase, please highlight their subdivision appropriately in order to facilitate reading by the study.

The level of detail should be:

- sufficient to fully describe the contents of the course and their distribution over time;
- consistent with the number of CFU assigned to the course (the planned contents can never be expressed too succinctly and this is all the more true the higher the number of CFU assigned to the course);
- appropriate to make the students understand the actual development of the course (particular attention must be paid to non-attending students).

The contents may be described setting them out in didactic modules/learning units and, where possible, differentiating between fundamental contents and contents for further investigation. There cannot be a difference in the content for attending and non-attending students.

## c. Reference texts

List the texts, scientific articles, teaching materials provided by the instructor, and any online materials that are considered essential to prepare the final exam of the course. It is also possible to list titles or additional material that the student can choose to pursue as material for further investigation. Please remember to check that the bibliographic and online materials are actually available and can be found.

In the reference bibliography, the instructor may include scientific literature useful for the student to pursue studying independently if they are interested in gaining more knowledge about the discipline. The reference bibliography cannot be considered mandatory for the purposes of passing the final exam.

As recommended by the **MUR** (Ministry of Universities and Research) in the **National plan for open science 2021-2027**, instructors are invited to adopt, where possible, teaching materials that are open access (Open Educational Resources), selecting them from dedicated platforms (Federica, EduOpen, MOOC) or specifically made for the course.

## d. Educational aims (and expected learning outcomes)

This section constitutes the foundation of the syllabus: the educational aims are the basis for the choice of contents, teaching methods, and assessment methods.

The educational aims of a university syllabus must be easily traced back to the **Dublin Descriptors** of the academic cycle (Bologna Process; Didactic planning).

In particular, it is advisable to remember that the Dublin Descriptors are based upon the following items:



- 1. Knowledge and understanding; e.g., know, remember, understand, etc.
- 2. Applying knowledge and understanding; e.g., applying, being able to, etc.
- 3. Making judgements; e.g., knowing how to analyze, know how to assess, knowing how to critique, etc.
- 4. Communication skills; e.g., knowing how to communicate, knowing how to explain
- 5. Learning skills; e.g., being able to act in a context, being able to modify actions based on..., knowing how to self-evaluate, etc.

Filling out this field happens on two levels:

**A.** The educational aims describe the role of the course within the entire education program, that is, how the course contributes to reaching the educational aims of the Course of Study consistently with the expected professional profile and occupational goals (Form **Section SUA**-

## CdS: A4.a; A2.a)

**B.** The expected learning outcomes describe what a student needs to know, understand, and be able to do at the end of the learning process, consistently with what is expected based on the relevant Dublin Descriptors and those defined by the Course of Study (Form **Section SUA-CdS: A4.b.1, A4.b.2, A4.c**).

In this section, it is also necessary to specify the acquisition of any practical skills through laboratory or information technology activities or thanks to specific tools and methods. This can be described as follows: "At the end of the course, the study must know/be able to..."

**Suggestion**: it is advisable to consider the following questions when filling out the form:

- how does the course/module in question contribute to reaching the educational aims of the Course of Study?
- what learning outcomes of the Course of Study does it contribute to achieving?
- what new knowledge and abilities will the student have at the end of the course?

**Recommendations**: the educational aims must be explicitly stated as a result, *understood to be skills or abilities that the students are intended to obtain, through specific activities* (Coggi, 2005). The learning objectives should therefore be written such that they state the *final behavior expected of those being taught* (Pellerey, 1999) and should not coincide with the didactic activities implemented to reach these objectives (explaining, illustrating, etc., are usually the activities of an instructor, except in specific cases, and must therefore not be confused with the educational aims whose main agent is the student).

A well-stated educational aim makes it possible to understand what the instructor expects the students to know or know how to do at the end of the learning process.

In order to state an educational aim as an action at the end of the course, it should, first of all, have a verbal predicate. For the sake of convenience, the infinitive is often used: a verbal tense that clearly and succinctly indicates the inclusion of the terms in the behavior expected of the



student. It is also useful that the verb used refer specifically to a behavior that is in some way observable.

Below is an example:

At the end of the course, the student is expected to be able to:

- know the phases of empirical research in the area of education;
- know how to plan empirical research by applying the research phases in a defined context;
- know how to create a tool to collect information (questionnaire, interview script, observation rubric, etc.) based on a process of operationalizing variables;
- know how to administer one or more data collection tools through a targeted collection plan;
- know how to analyze quantitative data and be able to verify research hypotheses through univariate and bivariate statistics;
- know how to communicate the results of empirical research by writing a research report.

Some verbs used in syllabi do not adequately demonstrate immediate operational results but describe very vague results (more similar to an end point), which takes place over a long period of time (for example, consider certain verb forms often used in the teaching sector such as *develop, sustain, promote, disseminate, evolve, progress,* etc.), such that the result to be achieved becomes impossible to monitor and assess in the short term, which should, instead, be the case for a course within a specific semester.

Another frequent inaccuracy in the educational objectives section is including only contents without stating what is expected with regards to those contents (e.g., remembering them, applying them, creating them?): this is why a verbal predicate used within the aim is a determining factor and help the students to better understand the performance expected of them.

Annex 1 contains further information on this matter.

<u>Recommendation</u>: In accordance with the **National plan for gender medicine**, adopted in 2023 by the relevant Ministers, in implementation of Law no. 3 of 2018, it is strongly advisable to take into account, in writing the syllabi of all of the courses in the Course of Study, gender and age, should these involve a substantial difference in the educational aims of the course.

#### Examples in the sciences

**Pharmacology**: "Physiological differences between the sexes influence the absorption, distribution, metabolism, and excretion of drugs"; "Gender differences in the manifestation and frequency of adverse effects of drugs".

**Clinical biochemistry**: "Differences in the concentration, distribution, and diagnostic window of the analytes related to gender"; "Biological gender differences".

**Pathology:** "Gender differences in the prevalence and progression of diseases"

Internal medicine: "Cardiovascular diseases and gender differences".

**Immunology**: "Gender differences in the development of autoimmune diseases". Etc.



#### Examples in the humanities

**Sociology**: "Exploration of contemporary theories of gender differences in sociology and anthropology".

Modern history: "Evolution of gender roles in modern and contemporary societies".

**Epistemology**: "Gender differences in the production of knowledge".

Developmental psychology: "Influence of gender on psychological development".

Philosophy: "Gender issues in contemporary ethics".

Etc.

#### e. Pre-requisites

In this section, any preliminary knowledge necessary to deal with the planned contents of the course is listed succinctly. If there are no specific pre-requisites, the instructor is still invited to indicate this (e.g., "*No preliminary knowledge is necessary*"; or, for first-year exams, "*This being an exam of the first semester of the first year, there are no specific pre-requisites other than those required to access the Degree Course*".)

The system of pre-requisites can also be indicated in this section; please refer to the didactic regulations of the Course of Study.

## f. Teaching methods

Teaching is the area of knowledge that deals with setting up, consolidating, assessment of learning environments, that is, of specific contexts, [...] and specific human actions considered necessary to promote this process of acquisition. The instructor can choose different **teaching methods** within the same course, based on the educational aims to be reached.

In this section, the methods used in the course must be listed. A **selection of teaching methods** that can be used in academic teaching are listed here as examples and should not be considered exhaustive:

- Lectures;
- Socratic method;
- Case analysis;
- Practice or guided practice;
- Simulations, role-playing;
- Cooperative learning;
- Experiential learning cycles;
- Project work;
- Seminars;
- Laboratory lessons;
- Writing papers and/or research;
- Flipped classroom;



• Interdisciplinary methods.

In this field, any teaching support tools can be indicated: MOOC, platforms, videos, databases, etc.

It is useful for the instructor to state that the teaching materials used are uploaded to the Elly platform and how often (weekly, at the beginning of the course, at the end of the course, once a month, etc.). It is also useful to state whether any course slides are considered an integral part of the bibliography/works cited. If the teaching material is not uploaded to Elly, state how else it can be obtained, such that it can also be found by non-attending students.

The following is an example

Teaching activities will be conducted primarily through active learning alternated with classes conducted using the Socratic method. During the Socratic lessons, exchanges with the classroom will be promoted, on basic themes of experimental pedagogy, also for the purpose of bringing up any prior knowledge the students may have regarding the topics in question. In the second part of the lesson, experiential learning cycles will be activated, in which students will be asked to apply the theory to an empirical research project that they propose and develop according to methodological criteria illustrated in the lessons and the bibliographic and teaching materials.

The slides used during the lessons will be uploaded on a weekly basis to Elly. You must register for the course online in order to access them.

The slides will be considered an integral part of the teaching materials. Non-attending students are reminded to check the teaching material available and the instructions provided by the instructor through the Elly platform.

For **blended learning** courses, the methods that will be used for CFU administered in elearning mode must be specified, as stated in the University didactic Regulations.<sup>1</sup>

Teaching methods must also be consistent with the expected learning outcomes previous defined and it must be stated how the chosen didactic methods contribute to reaching them. For example, if they are related only to the acquisition of knowledge, the main teaching method used may be lectures. On the other hand, if the ability to apply knowledge is described, it would be appropriate to include practice, group work, or case studies as part of the teaching methods. In this field, any attendance requirements must also be stated, whether mandatory, optional, or strongly recommended, as well as any notes for non-attending students, methods, and flexible teaching tools chosen for the specific needs of the various types of students (AdC of AVA3 **D.CDS.2.3.2**), any initiatives for students with specific needs (AdC **D.CDS.2.3.3**).

It is also advisable to indicate any other information useful to students, such as: teaching support tools, creation of online Classrooms, links to materials on Elly, etc.

<sup>&</sup>lt;sup>1</sup> https://www.unipr.it/node/18006



## g. Other information (Optional field)

Other information about the course and the instructor that is useful to the students can be entered here, such as office hours, contact information, optional or external activities beyond the number of hours planned for the course (e.g., tutoring, optional laboratories, etc.).

## h. Means for assessing learning

The examination methods must be appropriate and consistent with the expected learning outcomes, also making it possible to determine various levels of reaching the objectives. Describe in detail the methods with which the effective achievement of the learning outcomes by the students will be acquired and ascertained.

## **Final evaluation**

(necessary for the publication of the credits of attending and non-attending students) The final evaluation, in the academic area, is the process through which a final judgement of the "evaluand" (the object being evaluated, not the subject) is made, and its "value" on an interval scale (0-30) in terms of reaching the learning outcomes, evaluated at the end of the process.

Specify:

- the means (written exam, oral exam, practical assessment, laboratory assessment, etc.).
- specific means, where planned, for students with disabilities, certified pursuant to Law 104/1992 or with specific learning needs (DSA), certified pursuant to Law 170/2010, referring to the indications provided by the Delegate for activities of integration of students with disabilities and specified learning needs in the University (see University Reception and Inclusion Center, CAI). It is also recommended that the following text be added "The guidelines issued by the University Inclusion Center, in compliance with Laws 104/1992 and 170/2010 and the CNUDD Guidelines, define the means through which students with disabilities, DSA, BES must take exams

(https://cai.unipr.it/wedit/fileman/Uploads/LINEE\_GUIDA\_RICHIESTE\_ADATTAMENT%20-%20Copy%201.pdf)"

- **the type of exam** (oral questions, multiple choice written questions, open-answer written questions, semi-structured written questions, practical laboratory activities, critical discussion project work, etc.) and the duration for written exams or activities (e.g., 2 hours of written exam); if the exam is divided into multiple parts (written/oral), specify the weight of each on the final mark;
- **the type of evaluation used** (e.g., mark out of 30, approval: approved, not approved, appropriate: appropriate, not appropriate, judgements: excellent, very good, good, moderate, sufficient, poor, very poor);
- **the number and types of exams** that are included in the final evaluation (with particular attention to the courses made up of modules);



- **the evaluation scale**. In the event of more than one exam (intermediate) specify whether the final score of the final evaluation is the sum of the scores, mean of the scores, weighted mean of the scores, etc.;
- **evaluation weighting and criteria** (e.g., for written exams, highlight any assessment criteria that could be made known, specifying when an exam is considered sufficient, etc. If possible, it is recommended that the weight of individuals questions be provided). It is advisable that the instructor maintain consistency between the stated educational aims and the instructions of the assessment exams. These slides projected during the UNIPR teacher training meetings can also be consulted for this purpose;
- **material useful to take the exam and allowed during it**: dictionaries, glossaries, manuals, table of elements, calculator, etc.;
- **methods for delivering the results of the exam**: state how the results of written exams will be shared.

Furthermore, it would be useful to indicate the following in this field:

- if applicable, any intermediate exams or early exams (specify when they will happen at the halfway point of a course, after two thirds, etc.) and how any intermediate exams will be weighted against the final evaluation (specify whether the final evaluation will be made up of the sum of the evaluations of the intermediate exams, or the mean or weighted mean of the marks);
- the evaluation parameters (e.g., ability to organize knowledge in a discursive manner; ability to think critically about the material studied; quality of exposition, competence in the use of specialized vocabulary, efficacy, linearity, etc.) and the information regarding grading.

#### The following is an example

The final learning assessment takes place at two different times:

1) a semi-structured written exam comprising three open questions. During the written exam, the student is asked to:

plan empirical research on a topic, following the research phases presented in the bibliographic material (item weight 15 points);

know how to identify within the research described in the chosen book the phases of empirical research and methodological implications presented in the investigation (item weight 8 points);

know how to classify the variables provided and know how to indicate the type of statistical analyses allowed, whether univariate or bivariate (item weight 7 points).

The written exam lasts 2 hours. The written exam is evaluated on a 0-30 scale. Honors are assigned if the maximum score is reached on each item as well as mastery of the relevant vocabulary.

2) An oral exam consisting of a critical discussion of the empirical research report that is the result of research actually carried out "in the field" by the candidate and meeting the methodological criteria set out during class and in the manual in the reference bibliography (the 15 phases of empirical research). During the oral exam, it will be checked that the student knows the phases of empirical



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research, has applied them correctly in a chosen context and in an independent manner, and that they are able to communicate processes and results using the specific terminology of the sector. The empirical research report may be written by individuals or groups of a maximum of 5 people. The work must be presented in hard copy on the day of the exam session when the student intends to undergo the oral exam. Group research must be discussed as a group. Each member of the group must master all of the research report, in its entirety; each member of the group must also state, at the end of the report, the parts that they personally wrote. The oral exam is evaluated on a 0-30 scale.

In order to obtain the final mark, the mean of the marks from the two exams (both out of 30) must be taken.

Please remember that registration for the exam session on ESSE3 is MANDATORY both for the written exam and for the oral exam.

NB During class, the instructor will administer partial exams for learning purposes, which will be useful to monitor that the educational aims are being met throughout, and provide feedback to the students before the official exam session. The dates of the partial exams will be shared by the instructor during class.

Further information is available in **Annex 2**.

#### i. Extended program

In this section, the contents of the course are given in more detail. Learning modules can be described, also by relating the contents to the expected learning outcomes, and fundamental content can be differentiated from content for further investigation.

#### j. Objectives related to the 2030 Agenda for sustainable development

The mention of the Objectives of the 2030 Agenda (SDGs), in addition to serving an informational purpose, are an opportunity for students to reflect on the relationship between different disciplines and sustainability. The relationship between the knowledge and skills obtained in the course with the Objectives of the Agenda should facilitate the comprehension of how sustainable development (from environmental, social, and institutional perspectives) can be pursued if given an appropriate forma mentis, which the university program must contribute to building and developing.

Cite the objective(s) of the 2030 Agenda for Sustainable Development that are considered relevant to the course. One or more of the following objectives must be cited: <a href="https://unric.org/en/united-nations-sustainable-development-goals/">https://unric.org/en/united-nations-sustainable-development-goals/</a>







## 4. CREATING A SYLLABUS FOR REMOTE OR MIXED TEACHING (EDUNEXT PROJECT)

The EDUNEXT project, promoted by the Ministry of Universities and Research as part of the National Plan for Recovery and Resilience (PNRR), Mission 4 "Education and Research", aims to improve the ability of the Italian higher education system to provide quality instruction to all through digital tools. The initiative aims to meet the need for innovation and temporal and logistical flexibility for students by promoting inclusivity and increasing the number of people with a degree in Italy.

The didactic methods included in the recent regulation (Ministerial Decree 1835 of 6 December 2024) are structured as follows:

 a) Traditional Courses of Study. These are courses of study that are offered entirely in person, or that provide for – for activities other than practical and laboratory activities – a limited amount of teaching offered remotely, not exceeding a third of the total.



- b) Courses of Study offered in mixed modality. These are Courses of Study in which for activities other than practical or laboratory activities remote teaching is envisioned for teaching activities, not exceeding two thirds of the total.
- c) Courses of Study offered primarily remotely. Thes are Courses of Study offered remotely for more than two thirds of the total.
- d) Courses of the Study offered entirely remotely. For these courses, all teaching activities are carried out remotely.

Annex 4 includes the planning forms for Educational Clusters and modules.



## **5. ANNEXES**

## ANNEX 1

A summary of the Anderson and Krathwohl taxonomy (2001) that was presented during the UNIPR staff training sessions is attached. This summary may be useful both to guide the development of the educational aims as well as to guide the evaluation instructions during the final evaluations, to be ensure consistency across the educational aims and what is evaluated during the exam.

(Anderson, L. W., Krathwohl, D. R., (2001), A taxonomy for learning, teaching and assessing. A revision of Bloom's Taxonomy of Educational Objectives. New York: Addison Wesley Longman, Inc.)

Table 1. The cognitive processes dimension — categories, cognitive processes (and alternative names)						
lower order thinking skills → higher order thinking skills						
remember	understand	apply	analyze	evaluate	create	
recognizing (identifying) recalling (retrieving)	interpreting (clarifying, paraphrasing, representing, translating) exemplifying (illustrating, instantiating) classifying (categorizing, subsuming) summarizing (abstracting, generalizing) inferring (concluding, extrapolating, interpolating, predicting) comparing (contrasting, mapping, matching) explaining (constructing models)	executing (carrying out) implementing (using)	differentiating (discriminating, distinguishing, focusing, selecting) organizing (finding coherence, integrating, outlining, parsing, structuring) attributing (deconstructing)	checking (coordinating, detecting, monitoring, testing) critiquing (judging)	generating (hypothesizing) planning (designing) producing (construct)	



## ANNEX 2

Although the final assessment (at the end of the course, during the exam session) is often thought of as the only means of evaluation, it is good practice to distinguish between the various possible evaluation functions (*final*, as described in the previous pages, *diagnostic* and *educational*).

*Diagnostic evaluation:* (as the course is starting, usually with attending students), to be conducted during the initial phases, during the first hours of the course, useful for the evaluation of whether or not the minimum pre-requisites have been met and to use as one is revising the detailed planning of the teaching program. For example, in your field, is it necessary to understand a certain concept and/or process in order to avoid the risk of most of the course contents not being understood? In this case, through a targeted selection of such concepts, it could be useful to proceed with a diagnostic evaluation at the start of the course. In the event of a failed test, it is possible to recommend a basic text to the students, with fundamental information to be reviewed before starting to study the discipline in question.

*Educational evaluation:* (during an intermediate phase, particularly feasible with attending students) during the course, useful to evaluate periodically how the students' learning is going. Educational evaluations can also be done informally by initiating a discussion towards the end of each class, or at the start of the next class, to check to what extent the concepts previously explained have been understood. Alternatively, an educational evaluation, whether oral or written, can be carried out periodically (for example at the halfway point of the teaching hours) to verify that the educational aims have been reached by a certain point of the course.

Conducting educational evaluations, whether oral or written, helps students to better plan their studies and understand, thanks to the feedback obtained on such exams, whether they are making good progress (and whether, therefore, they can attend the next exam session) or when, on the other hand, they have not reached the intermediate aims and should therefore review the study program from the beginning. The educational evaluation also helps the instructor to review the concepts that many students have failed to understand, without awaiting negative results on an exam session, when there is no longer any possibility of rectifying the situation didactically, aside from during office hours.

NB: in recent studies in the area of Evidence Based Education (Hattie, 2009), educational evaluation followed by feedback to the students is one of the elements with the greatest impact in terms of educational success and complete achievement of the educational aims by the students.



## ANNEX 3

Guidelines for writing the syllabus for remote or mixed teaching modalities.

## Educational Cluster Planning Sheet

The sheet must be approved by all of the instructors of the module, and Instructional Designer or equivalent figure (e.g., didactic planning delegate of the degree course, Chair of the Degree Course, etc.) and approved by the Degree Course Council.

EDUCATIONAL CLUSTER PLANNING SHEET		
Educational Cluster		
Title		
Number of CFU		
Principal instructor		
Educational aims and outcomes	<ul> <li>Which skills and/or knowledge will the students acquire during the course?</li> <li>What will they know or be able to do after having gone through all of the modules. The objectives are expressed with a verb and refer to concrete actions. For example: <ul> <li>Calculate the derivative of a logarithmic function</li> <li>Describe the characteristics of Leopardi's poetry</li> <li>Explain the theoretical basis of experimental research in education</li> <li>Produce a presentation on copyright and intellectual property rights, working in small</li> </ul> </li> </ul>	
Main topics of the course	groups - Independently select bibliographic references for project work Provide a succinct description of the course, explaining	
	how the contents are distributed across the modules.	
Division of the course into modules (3 CFU) and corresponding instructors	M1: Title, instructor, and CFU M2: Title, instructor, and CFU M3: Title, instructor, and CFU	
Evaluation methods	Indicate the type and methods for conducting the general evaluation (project work, interview, etc.) to pass the exam and acquire the credits.	
Pre-requisites with regards to other Educational Clusters	Indicate whether the Educational Cluster is a pre- requisite for another Educational Cluster, or whether it has pre-requisites	
Organizational methods	Indicate how the modules will be taught. E.g., in sequence, in parallel, with a pre-ordered sequence, etc. and any pre-requisites.	



## Planning form for a module (3 CFU) within an Educational Cluster

The form should be discussed with the Instructional Designer, technicians, and media producers.

Module	Title
Educational Cluster to which the module	Title
belongs	
Principle instructor of the module	
Tutors	
Hours dedicated to lecture (TEL-DE)	See the "didactic model" section of the planning guidelines.
Hours dedicated to interactive didactics (TEL-DI)	
Educational aims and outcomes	<ul> <li>Which skills and/or knowledge will the students acquire during the course?</li> <li>What will they know or be able to do after having gone through all of the modules. The objectives are expressed with a verb and refer to concrete actions. For example: <ul> <li>Calculate the derivative of a logarithmic function</li> <li>Describe the characteristics of Leopardi's poetry</li> <li>Explain the theoretical basis of experimental research in education</li> <li>Produce a presentation on copyright and intellectual property rights, working in small groups</li> </ul> </li> </ul>
Topics of the module	Provide a succinct description of the module, listing the content, theories, and key concepts that will be considered.
Didactic methods and approaches	Briefly describe the teaching strategies and methods to be used (lectures, laboratories, group work, projects, discussions, etc.) and how these will be organized in the division between online and in-person teaching (if included).
Module structure	Define the subdivision of the module into themes and indicate the lectures (if included), video lectures, and teaching activities to be carried out for each. Indicate which "objects" that make up the course (video lectures, classroom lectures, virtual classrooms, e- tivities, etc.) and their characteristics. Use a structure similar to the following. Section 1 Activity 1: In-person lecture with activity/Description Activity 2: Pre-recorded video/Topic Activity 3: Pre-recorded video/Topic Activity 4: Pre-recorded video/Topic





	Activity 5: Pre-recorded video/Topic
	Activity 6: Link-Text-Images/Investigation
	Activity 7: E-tivity
	Activity 7: Virtual classroom
	Activity 8: Self-assessment equestionnaire
	Section 2:
	Activity 1: Pre-recorded video/Topic
	Activity 2: Pre-recorded video/Topic
	Check that the structure corresponds to the educational
	aims and contributes to achieving them.
	<b>5 1 1 1 1 1 1 1 1 1 1</b>
Type of materials and teaching resources	Describe the characteristics of the didactic materials to
	be produced: video format and digital contents (See the
	Section "Teaching Materials" in the EDUNEXT
	Guidelines)
List of e-tivities	Indicate the e-tivities to be planned with the support of
	the tutors (themed forums, activities/questionnaires
	/reports with feedback, collaborative activities, etc.).
Instructor and tutor tasks	Define the tasks of the instructors and tutors in
	conducting the module.
Evaluation methods for issuing open	Indicate the type of test (questionnaires with
badges	open/closed questions with/without e-proctoring,
6	project work, interview, etc.) and the means for
	conducting the completion of the module and obtaining
	the open badge.
Textbooks and Teaching Materials	



## ANNEX 4

Here are examples of syllabi for the different areas. The examples have been partially obtained by taking into account the suggestions coming from the Instructor-Student Commission of well-structured syllabi already published, and have been modified, when necessary, to align them with the new guidelines.

## **Economic Area**

#### Learning objectives

**Knowledge and understanding.** By the end of the course, the students will acquire basic knowledge of interpretative models used to evaluate, with reference to different types of enterprises, the main internal issues and interactions with the external environment. Students will also learn the logic behind the processes of determining and communicating economic and financial results within a business.

**Applying knowledge and understanding.** By the end of the course, the students will be able to interpret and apply the most commonly used business analysis models, as well as address studies related to quantitative determination methodologies and subsequent studies concerning financial statement analysis and the evaluation processes related to external business reporting.

**Making judgments.** By the end of the course, the students will be able to effectively engage with interpretative frameworks of business dynamics, also through the acquisition of a suitable model for continuing their studies.

**Communication skills.** By the end of the course, the students will have developed problem-solving abilities, interpersonal skills, and the capacity to express themselves effectively both in written and oral form, using appropriate language to discuss the topics covered in the course with various stakeholders.

**Learning skills.** By the end of the course, the student will be able to develop skills and methodologies that allow them to explore the topics in a highly autonomous manner.

## Teaching methods

Acquisition of knowledge: lectures.

Acquisition of the ability to apply knowledge: practical exercises.

Acquisition of independent judgment: practical exercises.

Acquisition of learning skills: guided development of exercises.

Acquisition of technical language: during the course, the meaning of commonly used terms will be explained, and the exercises will aim to promote the correct use of the terminology learned.

## Assesment methods and criteria

Assessment of learning will be carried out through a written exam, with the possibility of an additional oral exam for all or some of the students, should the results of the written test not allow for an effective evaluation of individual preparation.

The written exam consists of two parts. The first relates to the theoretical part in business economics and consists of two open questions (for which a broad answer is required; rating 10 points each) and twelve short questions (unit rating, 1 point). The second, related to accounting aspects, is practical





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in nature and consists of an exercise on continuing entries and one on settling and closing entries (15 points each).

The total time allotted for the exam is 90 minutes. The use of a calculator is permitted.

Knowledge and understanding will be assessed through open-ended questions aimed at evaluating the student's knowledge of the topics and their ability to make connections between them. The short-answer questions cover a broader range of topics and are designed to test knowledge of all the subjects included in the syllabus.

The ability to apply knowledge and understanding, independent judgment, and learning skills will be assessed both through open-ended questions, which require students to connect different topics, and through practical exercises that involve applying accounting knowledge to business operations during the fiscal year as well as to the year-end closing process and the determination of the net income.

Communication skills will be assessed through open-ended questions requiring the use of appropriate language and through specific short-answer questions aimed at verifying correct comprehension and proper use of technical terminology.

Both parts will be graded on a 30-point scale. The final grade will be the average of the two parts. A minimum passing score is required in both parts of the exam.

Honors ("cum laude") may be awarded to outstanding students who, in addition to achieving full marks on the test, demonstrate an appreciable systematic understanding of the subject, an excellent ability to apply acquired knowledge to the specific problem, strong independent judgment, and particular care in the formal presentation of the exam.

Learning assessment may also take into account midterm tests carried out during the course.

Exam results will be communicated via the ESSE3 platform. Additional information will be provided through the Elly platform.

The guidelines issued by the University Inclusion Service, in accordance with Laws 104/1992 and 170/2010 and the CNUDD Guidelines, define the procedures for conducting exams for students with disabilities, Specific Learning Disorders (SLD), or Special Educational Needs (SEN).

(https://cai.unipr.it/wedit/fileman/Uploads/Guidelines\_ENG.pdf).

## **Engineering Area**

## Learning objectives

**Knowledge and understanding.** Through the lectures delivered during the course, the student will acquire the necessary knowledge to understand the operation of fluid machines and internal combustion engines.

**Applying knowledge and understanding.** Through classroom exercises on selected topics from the syllabus, the student will learn how to apply the acquired knowledge, as well as the appropriate approach to designing the machines studied.

**Making judgments.** The student will be expected to understand and critically evaluate the operation of the studied fluid machines and to assess which type of machine is best suited for a given application.

**Communication skills.** Through lectures, the student will acquire the specific terminology related to fluid machines. By the end of the course, the student is expected to be able to communicate the main





contents of the course - such as ideas, engineering issues, and related solutions - effectively in both oral and written form.

**Learning skills.** By the end of the course, the student will be able to further develop his/her knowledge through independent reading of specialized textbooks, scientific journals, or technical publications, including topics not strictly covered during the lectures, in order to successfully enter the job market or pursue further education.

At the end of the course, the student will have acquired a sufficient understanding and knowledge of the basic concepts of differential and integral calculus for functions of several real variables, as well as the theory of ordinary differential equations.

The course emphasizes the computational aspects rather than the more theoretical aspects of the discipline. Within the topics covered in the syllabus, the student will have acquired:

- 1. Sufficient knowledge of the course content;
- 2. The ability to use the tools of differential and integral calculus for functions of several real variables and the theory of ordinary differential equations to solve problems of simple or moderate difficulty;
- 3. The ability to analyze and evaluate the consistency and correctness of arguments and results obtained by themselves or by others;
- 4. The ability to communicate mathematical content clearly and precisely, using the correct scientific terminology specific to the discipline;
- 5. The ability to understand scientific and technical texts that use differential and integral calculus tools for functions of several real variables and ordinary differential equations.

#### Teaching methods

The lectures will be divided into two types:

(1) Fundamental lectures. The objective is to provide a fundamental understanding of the physical functioning of devices, limiting the mathematical details to the essentials and illustrating the physical phenomena from the perspective of their effect on the behavior of the devices;

(2) Advanced lectures. Using a deductive physical-mathematical approach, the physical phenomena that determine the behavior of the devices will be treated in greater detail within the framework of the drift-diffusion model.

The theoretical lectures will primarily be conducted on the blackboard or through slides. During the course, preparatory exercises will be carried out. Interaction with the students will be encouraged through open-ended questions. Some computer lab sessions based on the Matlab programming language are also planned. In addition to the aforementioned teaching methods, seminars may be organized, led by executives from multinational companies who will share real-world experiences from case studies.

#### Assesment methods and criteria

#### Oral Exam

During the exam, the student will be required to demonstrate a good understanding of the physical mechanisms that determine the behavior of electronic devices, and the ability to analyze their



behavior and characteristics quantitatively. The exam typically consists of two or three questions. In the final evaluation, 25 points are assigned based on the preparation for the topics covered in the fundamental lectures, and the remaining 5 points are based on the preparation for the topics covered in the in-depth lectures.

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The exam consists of an oral test and an individual thesis (max 4 pages, with a template provided during the course). In the thesis, the students are required to report on a project for an optical system to be carried out through numerical simulation using the Optilux software. The project is assigned individually. The students can propose their own project, subject to the instructor's approval. The thesis is evaluated based on its accuracy, completeness, clarity of presentation, and references, with a score ranging from 16 to 30, if approved.

The oral exam consists of open-ended questions and short exercises aimed at verifying the student's understanding of the subject and the ability to solve problems. If passed successfully, the oral exam is graded on a scale from 18 to 30. The final grade is the arithmetic average of the two tests, with honors awarded if the maximum score is achieved in both parts.

An intermediate exam is scheduled during the spring exam session.

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(https://cai.unipr.it/wedit/fileman/Uploads/Guidelines\_ENG.pdf).

## Humanistic Area

## Learning objectives

The first part of the course aims to provide an overview of the writings in early Christian literature and equip students with the basic tools for a solid understanding of the institutions of early Christian literature, with particular emphasis on literary genres.

The second part, which is monographic, focuses on exploring the linguistic aspects underlying doctrinal controversies.

**Knowledge and understanding.** The teaching of early Christian literature will enable students to critically understand the formal, substantive, and literary aspects of the linguistic roots behind certain doctrinal controversies. This knowledge will be acquired and supported through targeted educational interventions: lectures, seminars, and exercises.

**Ability to apply knowledge and understanding.** The study of the Jewish-Hellenistic historical context and the synoptic analysis of the most significant features of the early Christian literary manifestations will lead to an understanding of the fundamental development lines of early Christian literature in Greek and Latin and the content of the literary texts examined. These insights will provide





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students with a broader literary horizon and the ability to better contextualize historical-literary aspects, which, despite being ancient, are pivotal for a deeper understanding of contemporary theological and literary dynamics.

**Judgment autonomy.** Upon completion of the course, students should have developed the ability to gather data and critically interpret ancient Christian texts, as well as to formulate independent and reasoned judgments about them and the socio-cultural context in which they are embedded, based on analytical knowledge in theoretical, linguistic, and literary frameworks.

**Communication skills.** By the end of the course, students will have acquired the ability to communicate correctly both literary and extra-literary content and to clearly develop cross-disciplinary historical-literary paths.

**Learning ability.** The theoretical and disciplinary commitment will provide students with methodological expertise and learning skills useful for pursuing future professions related to teaching and communication.

By the end of the course, students are expected to be able to:

- Recognize the main concepts and tools of design (knowledge and understanding);
- Recognize and understand the main theoretical and methodological approaches to design in socio-educational contexts (knowledge and understanding);
- Recognize and understand the principles and methods of evaluation (knowledge and understanding);
- Hypothesize and plan a socio-educational project and/or an evaluative device (practical application of knowledge and understanding);
- Present a work project created individually and/or in groups to an audience, using the concepts and methods learned during the course (communication skills);
- Apply theory critically to analyze cases and professional experiences encountered during the course (judgment autonomy);
- Consult sector-specific literature to plan and develop their own projects (ability to learn);
- Assess their own performance and define a personal development plan (ability to learn).

#### Teaching methods

The course consists of lectures supported by weekly tutoring and the uploading of short video recordings or supporting materials. Through the lectures, students will be introduced to a methodological approach to texts that takes into account the literary genres and the distinctive characteristics of the authors studied. In addition to the lectures, other teaching activities (exercises and tutoring) will be provided to support students in acquiring the necessary skills for correct reading and translation of the texts. The assisted teaching activities will be organized according to the different needs and preparation levels of the students attending the course.

The teaching activities will be conducted with a focus on active learning methods (group work, simulations, problem-based learning), alternating with Socratic-style lectures (discussion, case studies, seminars), also through the mediation of resources provided on the Elly page of the course. These resources will serve as an opportunity for non-attending students to participate in the classroom activities during the course.

Students will be invited to form small workgroups in which they will summarize the main contents and topics discussed during the lessons on a weekly basis (notes). At the mid and end of the course,



the instructor will provide summary texts of these works, which will be considered an integral part of the course material.

## Assesment methods and criteria

For evaluation purposes, an oral exam is planned on the various parts of the syllabus, with the goal of assessing:

- The correct critical understanding of the formal, substantive, and literary features of the main genres of early Christian literature;
- The understanding of the fundamental development lines of Christian literature in Greek and Latin, as well as the content of the literary texts examined;
- The ability to collect data and critically interpret ancient Christian texts, as well as to formulate independent and reasoned judgments on them and the socio-cultural context in which they are situated;
- The ability to develop clear cross-disciplinary historical-literary pathways.

Evaluation Criteria:

• Clarity of presentation, appropriate use of language, ability to rework content, ability to make interdisciplinary connections, use of specialist vocabulary, relevance of answers to the questions posed.

A passing grade will be achieved by providing correct answers to at least 60% of the questions while adhering to the criteria outlined above.

The guidelines issued by the University's Inclusion Service, in accordance with laws 104/1992 and 170/2010 and the CNUDD guidelines, define the procedures for conducting exams for students with disabilities Specific Learning Disabilities (SLD) and Special Educational Needs (SEN). (https://cai.unipr.it/wedit/fileman/Uploads/Guidelines\_ENG.pdf).

The assessment of learning will be carried out through a written exam on the content and activities of the course, consisting of a structured part (multiple-choice questions) and a semi-structured part (short open-ended questions, concept maps, etc.). Grading scale: 0-30.

Following the written exam, there will be an oral exam consisting of the presentation of a project/theoretical deepening (project work) to be sent via email to the instructor by the exam registration deadline, followed by a discussion. More specific details on the development and presentation of the project will be provided during the first classes of the course and will be available on the course's Elly page. Grading scale: 0-4.

The criteria for evaluating the oral exam are:

- Mastery of the course content/themes (connections, consistency) (0-2 points);
- Independence of thought (critical re-elaboration, external connections, elements of originality) (0-2 points).

The overall exam grade is the sum of the grades for the written exam (0-30) and the oral exam (0-4). Any overall grade above 30 corresponds to a final grade of 30 with honors.

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(https://cai.unipr.it/wedit/fileman/Uploads/Guidelines\_ENG.pdf).



## Legal Area

## Learning objectives

At the end of the course, the student will have acquired knowledge and skills related to the main topics and key issues of succession and donation law. In particular, the student is expected to be able to:

- Know the legal provisions contained in Book Two of the Italian Civil Code; recall the basic definitions of the main private law institutions from the "Institutions of Private Law" course; understand the concepts of succession and donation; interpret the legal norms using a systematic method, following scholarly and jurisprudential interpretations (knowledge and understanding);
- 2. Apply the interpretations learned to concrete cases; be able to solve practical cases using legal reasoning techniques, under the guidance of the instructor (applying knowledge and understanding);
- 3. Independently analyze real-life cases using a critical method, through the process of interpreting facts and legally qualifying them (making judgments);
- 4. Present the conclusions of their case analysis, adequately justifying them based on legal norms and interpretative orientations (communication skills);
- 5. Be able to connect the different topics covered with each other, as well as with foundational and related disciplines; be able to evaluate alternative solutions to different practical cases (learning skills).

## Teaching methods

The course consists of lectures. During the lectures, the foundational characteristics of each legal institution will be highlighted, and general issues related to their application will be discussed, along with any relevant case law interpretations concerning the most significant and controversial legal concepts involved.

The full text of the court decisions cited and analyzed during the lectures will be uploaded, from time to time, to the Elly platform. These decisions are considered an integral part of the course materials.

The teaching activities will alternate between oral lectures, lasting 48 hours, and active learning methods, lasting 16 hours. During the lectures, which will focus each time on the in-depth study of specific institutions related to inheritance or donations, emphasis will be placed on dialogue with the class. Alongside each lecture, corresponding practical exercises will be conducted, guided by the instructor (case studies, analysis of legal rulings).

## Assesment methods and criteria

Written and oral exam

Written test (duration: 1 hour and 15 minutes)

Knowledge and understanding will be assessed through two open-ended questions (each worth 5 points), which require concise and focused answers aimed at verifying the actual understanding of the concepts and principles covered.





Communication skills, the ability to apply acquired knowledge through appropriate reasoning and argumentation, and independent judgment will be assessed through two additional open-ended questions (each worth 10 points), structured into multiple components, requiring a coherent and

logical discussion that integrates various notions acquired during the course. Learning ability will be assessed through a cross-evaluation of the answers provided to the different questions.

Students who score at least 16 out of 30 in the written test will be admitted to the oral exam.

The oral exam will cover the entire syllabus and will consist of no fewer than two questions, including at least one on microeconomics and at least one on macroeconomics. It will also serve to assess the student's acquisition of independent judgment.

The guidelines issued by the University Inclusion Service, in accordance with Laws 104/1992 and 170/2010 and the CNUDD Guidelines, define the procedures for conducting exams for students with disabilities, Specific Learning Disorders (SLD), or Special Educational Needs (SEN).

(https://cai.unipr.it/wedit/fileman/Uploads/Guidelines\_ENG.pdf).

## Medical and Veterinary Area

## Learning objectives

**Knowledge and understanding.** The lectures, as well as any other interactive tools (video projections, use of medical simulation tools, discussions with the instructor), will enable the student to: understand and define the integrated functioning mechanisms of the body; list possible pathophysiological alterations; describe first aid principles.

**Ability to apply knowledge and understanding.** The simulation and classroom discussion of clinical cases, exercises with interactive tools (mannequins and/or software dedicated to medical practice), data analysis (guided by the instructor), and the attendance of professional internships (carried out in clinical departments and/or at the Medical Simulation Center of the Department of Medicine and Surgery) should enable the student to: solve problems and perform numerical calculations related to physiological parameters; predict changes in various parameters in pathophysiological situations; understand and take care of individual health problems, paying attention to gender-specific issues, groups, and populations, including new topics within broad and interdisciplinary contexts.

**Autonomy of judgment.** Through classroom discussions, exercises, and professional internships, the student will be able to: collect and critically evaluate data to solve individual health problems; formulate hypotheses; solve analytical problems; make personal judgments; identify and counter false claims regarding various pathological situations.

**Communication skills.** The discussions held in the classroom, during exercises and internships, will enable the student to: clearly express the concepts learned; communicate in a clear and unambiguous manner; use appropriate language to support discussions on the topics covered with colleagues and specialists (e.g., on medical records, writing scientific papers, presenting at conferences); use appropriate language to clearly explain concepts to non-specialists (discussions with patients, families, and caregivers, writing popular science texts, and presenting to the general public).

Learning skills. The course will enable the student to acquire the methodological tools to autonomously manage, after graduation, the following: understand the need for continuous



professional development; search for appropriate sources and suitable tools for continuous learning/updating; apply critical skills to the sources found.

**Knowledge and understanding.** By the end of the course, the students must demonstrate the ability to describe the technologies used for the transformation of milk into its derivatives.

**Ability to apply knowledge and understanding.** By the end of the course, the students must demonstrate the ability to understand the microbiological, enzymatic, and physicochemical mechanisms underlying milk transformation processes, with particular reference to cheese production.

**Autonomy of judgment.** By the end of the course, the student will be able to assess the accuracy of process parameters in milk transformation.

**Communication skills.** By the end of the course, the students must demonstrate the ability to:

1. Express themselves clearly and with appropriate terminology when describing concepts related to milk quality and derived products.

2. Read, translate, interpret, and summarize scientific articles written in both Italian and English. **Learning skills.** By the end of the course, the students will be able to learn the concepts related to the technology applied to animal-origin products.

#### Teaching methods

The course is presential. The teaching methods include:

- Lectures, which include guided discussions on various parts of the syllabus and clinical case studies;
- Screening and discussion of videos;
- Practical exercises in small groups with tutors, where students use software for the virtual simulation of clinical situations, solve problems, and discuss the results among themselves and with the lecturer and/or tutor;
- Professional internships (exercises on mannequins and/or internships in clinical-surgical departments).

Attendance is mandatory, according to the academic regulations of the degree program. Attendance is tracked via a sign-in sheet or other methods that may be provided by the University (e.g., through an app).

The course includes theoretical and practical lectures that take place in the assigned departmental classrooms and/or in the Macroscopic Anatomy Lab and/or in the Microscopic Anatomy Lab and/or in the Veterinary Anatomy Museum. The theoretical lectures begin with an interactive discussion between the lecturer and students, aimed at summarizing and verifying the learning of previously covered topics. The theoretical-practical activities are carried out using histological slides/images, organs from various museum specimens, videos, and software programs for Macroscopic Anatomy and Microscopic Anatomy.

Practical activities follow the theoretical lessons so that students can approach them after acquiring the necessary knowledge, integrating the lessons with the observation of the histological slides/images available in the Veterinary Anatomy Museum and with the recommended textbooks. Each topic is addressed in a way that highlights how the macroscopic and structural organization of organs can explain clinical aspects of the veterinary profession.



## Assesment methods and criteria

The assessment of the expected learning outcomes described by indicator D1 and part of those described by indicators D2, D3, D4, and D5 is carried out through an oral exam. The exam is mainly structured into five or six questions: some of a theoretical nature, aimed at assessing the candidate's knowledge, understanding, judgment, and communication skills; others of a practical nature, aimed at evaluating the student's ability to apply their knowledge in solving an issue within the dairy sector. The guidelines issued by the University's Inclusion Service, in accordance with laws 104/1992 and 170/2010 and the CNUDD guidelines, define the procedures for conducting exams for students with disabilities Specific Learning Disabilities (SLD) and Special Educational Needs (SEN). (https://cai.unipr.it/wedit/fileman/Uploads/Guidelines\_ENG.pdf).

## Scientific Area

#### Learning objectives

At the end of the training activity, the student should have acquired knowledge and skills related to functional cosmetics, both traditional and more recently developed cosmetic technology, and cosmetic legislation. In particular, the student should be able to:

- 1. Understand the functional mechanisms of the skin. Know functional cosmetics and cosmetic technology. Be able to use the specific language of the discipline and the terminology of cosmetic ingredients. Know the European legislative regulations related to the production and marketing of cosmetic products (Knowledge and understanding).
- 2. Recognize the role of each component of a cosmetic formulation and the possible interactions between them. Be able to formulate the main categories of cosmetic products (solutions, creams, lotions, cleansers) (Ability to apply knowledge and understanding).
- 3. Be able to communicate the results of scientific studies to a non-expert audience. Know how to write a formal, organized, understandable document appropriate for a professional context. Be able to produce a written document that is correct in terms of morphology, syntax, and grammar (Communication skills).
- 4. Be able to assess the quality of a cosmetic product based on its composition and the recommended usage instructions (Judgment autonomy).
- 5. Connect the different topics covered with each other and with related basic and supplementary disciplines. Continuously update knowledge by consulting scientific publications related to the field (Learning ability).

At the end of the course, the student should:

- Know the relational data model and the main constructs of the SQL language;
- Be able to design and implement a database;
- Be capable of developing a project for the creation of an information system.
- Referring to the Dublin descriptors:

**Knowledge and understanding.** The course is divided into two parts. The first part aims to acquire the basic concepts of database management systems, with particular reference to systems using the relational model, and the various ways to interact with them. The second part of the course is designed to show the methodologies and techniques for designing a relational database.



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**Ability to apply knowledge and understanding.** The theoretical knowledge presented is concretely used for the design and use of relational databases within a specific DBMS (PostgreSQL). The exercises on SQL language focus primarily on the correctness, readability, and portability of queries. The exercises on database design are focused on understanding the adequacy of the designed schema to model the reality of interest, as well as evaluating its flexibility and robustness.

**Judgment autonomy.** In the part of the course dedicated to database design, it is highlighted how the same problem can be addressed and solved in different ways: students are encouraged to compare the various alternatives critically, pointing out their strengths and weaknesses.

**Communication skills.** The database design exercises require understanding and being able to effectively present the main characteristics of the reality of interest at various levels of abstraction. The initial stages of design, assuming the collection and analysis of requirements, provide an opportunity to practice communication skills in non-specialized contexts. In later stages, closer to implementation, the ability to communicate effectively and unambiguously the more technical aspects is required.

**Learning ability:** The theoretical study and practical application of the basic concepts of relational database management systems not only provide essential tools in the knowledge base of a graduate in Computer Science but also serve as a prerequisite for any subsequent specialization in the field of databases, enabling the independent interpretation of future developments driven by technological advancements or changes in context.

## Teaching methods

The teaching activities will primarily be conducted through lectures, supported by multimedia audiovisual tools.

The course is presential. For students who make a motivated request (working students or part-time students, students with health issues), links to recorded videos of previous years' lectures will be made available. The teaching materials used to support the lectures (PowerPoint presentation slides) will be made available on the Elly platform of the Department of Mathematical, Physical, and Computer Sciences. To download the material, enrollment in the course on Elly is required. The second part of the lectures will typically be dedicated to classroom exercises. After covering the theoretical content, students will solve exercises and problems with the guidance of the instructor to clarify and deepen the theoretical topics discussed. A selection of exercises and problems for each topic will be made available on the Elly platform on a weekly basis. The instructor will be available for clarifications regarding the theoretical content and exercises, for individual students or student groups, during office hours or by appointment. Additionally, extra exercise sessions will be held by tutors in preparation for the midterm written exams.

The course will be conducted through lectures accompanied by the projection of slides, which will be made available online on the Elly platform. The slides are an integral part of the teaching material. Care will be taken to constantly emphasize the appropriate use of technical language, include examples from "everyday life", highlight the connections between different parts of the course, and encourage active participation from students.

4 hours will be dedicated to exercises and exam simulations.

#### Assesment methods and criteria

The assessment of the acquisition of learning outcomes will take place through a written exam (or intermediate written exams) and an oral exam.



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Students who successfully pass the intermediate written exams (with an average grade of 18/30 or higher) will be assigned a grade that grants access to the oral exam. These students will therefore be exempt from the written exam. To take the oral exam, which will determine the final grade, these students must register for one of the exam sessions (indicated on ESSE3 as "oral exam"). The exemption from the written exam and the grade for access to the oral exam will remain valid for all exam sessions of the academic year.

For students who do not achieve a sufficient grade to access the oral exam or those who have not taken the intermediate written exams, it will be necessary to take the written exam (after registration on ESSE3 for the chosen written exam session) and the oral exam. In this case, students with a grade of 18/30 or higher will be considered eligible for the oral exam.

During each of the intermediate written exams, students will be required to:

- Demonstrate knowledge and understanding of specific topics from the course through openended questions, which will require the use of correct specialist language in Physics and the ability to synthesize (weight 15 points);
- Apply the knowledge and understanding acquired during the course by solving problems related to specific topics in the course (weight 15 points);

The intermediate written exams will be graded on a 0-30 scale. Each written exam will last 150 minutes and must be completed without notes or books, but with the aid of a calculator. The results of the written exams will be communicated via ESSE3.

The final written exams will have a similar structure but will last 180 minutes. During the oral exam, students will be required to:

- Demonstrate an independent judgment based on the knowledge and understanding of the fundamental laws of Classical Mechanics and Thermodynamics, through the discussion of the written exams (intermediate or final) and the deepening of theoretical aspects, making connections between the different parts and with basic concepts acquired in other courses;
- Be able to use the correct specialist language in Physics in order to translate complex concepts into understandable language.

The oral exam will be graded on a 0-30 scale. The final grade will be the arithmetic average of the written exam grade (or the grade from the intermediate written exams) and the oral exam grade.

The guidelines issued by the University's Inclusion Service, in accordance with laws 104/1992 and 170/2010 and the CNUDD guidelines, define the procedures for conducting exams for students with disabilities Specific Learning Disabilities (SLD) and Special Educational Needs (SEN).

(https://cai.unipr.it/wedit/fileman/Uploads/Guidelines\_ENG.pdf).

The final assessment consists of a written exam followed by an oral exam.

Students can access the oral exam only if they pass the written exam.

The written exam lasts 2 hours and consists of 3 open-ended questions, each assigned a score of up to 10 points. The student must demonstrate calculation skills and the ability to make connections between different areas of knowledge. Each question will be scored based on the correctness of execution, execution method, and clarity of presentation. To pass the written exam, the student must obtain at least 15 points. The result of the exam will be communicated via Esse3, usually within 2 days.

The oral exam consists of a discussion of the written exam and a check of the student's learning and understanding of the theoretical aspects of the course. The oral exam grade ranges from a minimum of -15 (severe and widespread gaps in fundamental concepts) to a maximum of +7 (excellent and confident knowledge, including related topics), and is added to the written exam grade. The result will be communicated immediately.



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