



**UNIVERSITÀ DEGLI STUDI
DELL'INSUBRIA**

**DIPARTIMENTO
DI SCIENZE TEORICHE E
APPLICATE**

**DESCRIPTION OF THE CURRICULUM
BACHELOR'S DEGREE COURSE**

in

ENVIRONMENTAL AND NATURAL SCIENCES

a.y. 2022/2023



I. GENERAL INFORMATION

NAME OF THE DEGREE COURSE (DC)	Environmental and natural sciences
CLASS	L-32 - Environmental and natural sciences and technologies
TYPE	3-years degree course
COURSE LOCATION	Varese
COURSE WEBSITE	For information on the learning objectives of the DC, occupational opportunities, access requirements, admission procedures, expected educational results, curriculum / study plan, final exam, you may refer to the Annual Program Report (DC-APR), published on the course website at: www.uninsubria.eu/bachelor-ens
DEPARTMENT	Scienze teoriche e applicate - DiSTA (Theoretical and Applied Sciences – DiSTA)
DEGREE COURSE COORDINATOR	Nicoletta Cannone
ACADEMIC OFFICE OF THE DEGREE COURSE	Servizio di Ascolto Manager Didattici per la Qualità - DiSTA (in Italian)
LESSONS TIMETABLE	<ul style="list-style-type: none">• 19/09/2022 - 22/12/2022 1st semester• 20/02/2023 - 01/06/2023 2nd semester• 09/01/2023 - 17/02/2023 1st exam session• 05/06/2023 - 22/09/2023 2nd exam session (August excluded) For the lessons break dates and holidays for national, local and other festivities (Christmas break, Easter break, University holidays), students should refer to the University's Academic Calendar approved by the University bodies at the following link: www.uninsubria.it/chi-siamo/sedi-e-orari/calendario-didattico-di-ateneo (in Italian)
FURTHER INFORMATION	<ul style="list-style-type: none">• COURSE ACCESS: open-access• TEACHING LANGUAGE: Italian• TEACHING PROCEDURES: traditional with the aid of videoconferencing between the Varese and Como buildings
TUTORS	The DC tutors orient and assist students during their entire educational path making them actively participate in the educational process and removing obstacles to a profitable attendance to courses, also through specific initiatives related to the needs and predispositions of individual students. The TUTORs of the DC in Environmental and Natural Sciences are professors: R. Bettinetti, N. Cannone, A. Cattaneo, F. Livio, A. Martinoli, A. Pozzi



<p>LECTURERS OF THE DC</p>	<table border="0"> <thead> <tr> <th data-bbox="662 309 1082 336">Lecturer</th> <th data-bbox="1098 309 1490 336">Course</th> </tr> </thead> <tbody> <tr> <td data-bbox="662 342 1082 369">BRIVIO Maurizio Francesco</td> <td data-bbox="1098 342 1490 394">1. Animal biology - Biology applied to the animal cell module</td> </tr> <tr> <td data-bbox="662 400 1082 427">CANNONE Nicoletta</td> <td data-bbox="1098 400 1490 456">1. Biological diversity and plant taxonomy 2. Biodiversity and plant evolution</td> </tr> <tr> <td data-bbox="662 463 1082 492">CERABOLINI Bruno Enrico Leone</td> <td data-bbox="1098 463 1490 490">1. Environmental botany</td> </tr> <tr> <td data-bbox="662 499 1082 526">CROSA Giuseppe</td> <td data-bbox="1098 499 1490 526">1. Ecology</td> </tr> <tr> <td data-bbox="662 580 1082 607">DOSSI Carlo</td> <td data-bbox="1098 548 1490 640">Ecology 1. Analytical chemistry workshop 2. Environmental analytical chemistry</td> </tr> <tr> <td data-bbox="662 743 1082 770">MARTINOLI Adriano</td> <td data-bbox="1098 663 1490 804">Environmental analytical chemistry Environmental analytical chemistry 1. Biogeography 2. Animal biology - Zoology module</td> </tr> <tr> <td data-bbox="662 810 1082 837">MARTELLINI Maurizio</td> <td data-bbox="1098 810 1490 837">1. Physics</td> </tr> <tr> <td data-bbox="662 846 1082 873">PREATONI Damiano</td> <td data-bbox="1098 846 1490 902">1. GIS applications for biodiversity monitoring 2. Eco-ethology of terrestrial fauna</td> </tr> <tr> <td data-bbox="662 909 1082 936">RENESTO Silvio Claudio</td> <td data-bbox="1098 909 1490 936">1. Paleontology</td> </tr> <tr> <td data-bbox="662 945 1082 972">ZANARDINI Elisabetta</td> <td data-bbox="1098 945 1490 972">1. Environmental microbiology</td> </tr> </tbody> </table>	Lecturer	Course	BRIVIO Maurizio Francesco	1. Animal biology - Biology applied to the animal cell module	CANNONE Nicoletta	1. Biological diversity and plant taxonomy 2. Biodiversity and plant evolution	CERABOLINI Bruno Enrico Leone	1. Environmental botany	CROSA Giuseppe	1. Ecology	DOSSI Carlo	Ecology 1. Analytical chemistry workshop 2. Environmental analytical chemistry	MARTINOLI Adriano	Environmental analytical chemistry Environmental analytical chemistry 1. Biogeography 2. Animal biology - Zoology module	MARTELLINI Maurizio	1. Physics	PREATONI Damiano	1. GIS applications for biodiversity monitoring 2. Eco-ethology of terrestrial fauna	RENESTO Silvio Claudio	1. Paleontology	ZANARDINI Elisabetta	1. Environmental microbiology
Lecturer	Course																						
BRIVIO Maurizio Francesco	1. Animal biology - Biology applied to the animal cell module																						
CANNONE Nicoletta	1. Biological diversity and plant taxonomy 2. Biodiversity and plant evolution																						
CERABOLINI Bruno Enrico Leone	1. Environmental botany																						
CROSA Giuseppe	1. Ecology																						
DOSSI Carlo	Ecology 1. Analytical chemistry workshop 2. Environmental analytical chemistry																						
MARTINOLI Adriano	Environmental analytical chemistry Environmental analytical chemistry 1. Biogeography 2. Animal biology - Zoology module																						
MARTELLINI Maurizio	1. Physics																						
PREATONI Damiano	1. GIS applications for biodiversity monitoring 2. Eco-ethology of terrestrial fauna																						
RENESTO Silvio Claudio	1. Paleontology																						
ZANARDINI Elisabetta	1. Environmental microbiology																						
<p>EDUCATIONAL BACKGROUND ASSESSMENT TEST AND ADDITIONAL LEARNING REQUIREMENTS (OFA) REMEDIAL PROCEDURES</p>	<p>Due to current regulations, a secondary high-school diploma or equivalent title obtained abroad is necessary to access the degree course. Required knowledge is not associated to a specific secondary high-school diploma, the following skills being enough: good general culture; logical reasoning and reading comprehension skills; good knowledge of the basic mathematical notions.</p> <p>Enrollment in the degree course is openly accessible. Enrolled students must take a test to assess their educational background on mathematical topics. The test consists in 20 multiple-choice questions on the following topics: numeric comparisons, symbolic expressions, equations and inequalities, first-degree and quadratic, rational and fractional equations and inequalities, elements of Euclidean and Cartesian geometry, simple probability and combinatorial math problems and mathematical texts comprehension.</p> <p>To pass the test, students have to answer at least 10 questions correctly. The results will be shown immediately after the test.</p> <p>Students must take the test following the schedule compiled by the reference teaching structure, choosing from the two dates published on the institutional website.</p> <p>The test will take place on the limited access e-learning platform using the credentials provided by the University at the end of the enrollment procedure. Students can register to the test by accessing the restricted area https://uninsubria.esse3.cineca.it</p> <p>Students who do not pass the educational background assessment test will be assigned an additional learning requirement (OFA) which entails mandatory attendance to a Mathematics remedial course, at the end of which a further test will be organized by the end of the first semester of the first year. In case of late enrollment, the Council of the Degree Course may decide whether to organize extra tests and dedicated office hours to support students who have been assigned OFA.</p> <p>Students who, after the abovementioned tests, still do not pass the test, must pass the Mathematical analysis A exam organized for the end of the first semester of the first year in order to take other exams. Enrollment in the second year in regular position is subject to having met the OFA by 30 September of the year after enrollment. Students who do not take an educational background assessment test will have their careers blocked and will not, therefore, be able to take exams.</p> <p>Students in the following conditions do not have to take the test:</p> <ul style="list-style-type: none"> - Students transferring from another degree course of the University of Insubria (internal transfer), provided that they have taken an educational background assessment test similar to that provided for the degree course; 																						



	<ul style="list-style-type: none">- Students transferring from another University in which they have already taken an educational background assessment test similar to that provided for the degree course;- Students who enroll after having already obtained a diploma. <p>Students who are interested in obtaining the exoneration must submit a certificate or self-certification to the Students Services Office with the exams taken in their previous career.</p>
ADDITIONAL PREPARATORY TEACHING ACTIVITIES FOR THE EDUCATIONAL BACKGROUND ASSESSMENT TEST	<p>To prepare for the educational background assessment test and fill potential gaps, students may attend two different Mathematics pre-courses that are available online: a University credentials access-only course (available at http://elearning.uninsubria.it/ by registering to the “Mathematics pre-course”) and an open course http://precorso.dista.uninsubria.it/ (in Italian)</p> <p>A further preparation tool is provided by the CISIA (open access prior to registration at https://allenamento.cisiaonline.it/; in Italian): please refer to the CISIA Basic Mathematics, Engineering and Science MOOC, chapters 1, 2.1.4, 2.2.1, 4, 5, 6.1, 6.2, 7.1, 7.2, 7.3, 8.1, 8.2, 8.3, 9.1, 9.2 (when only the chapter number is given, all paragraphs should be included).</p> <p>Moreover, students can also attend the entrance exam preparation courses organized by the University for the period between the end of August and the beginning of September www.uninsubria.it/precorsi (in Italian)</p>
ENROLLING IN SINGLE COURSES	<p>For those students who are still deciding on the most suitable degree course for their needs, we recommend, before enrolling in the degree course in Environmental and Natural Sciences, to exploit the possibility of acquiring skills by enrolling in single courses (www.uninsubria.it/servizi/corsi-singoli) thus avoiding a further transfer to other degree courses.</p> <p>Please note that it is possible to enroll in single courses for a total of 60 ECTS (European Credit Transfer and Accumulation System), with the possibility to choose courses from those offered for the first, second and third year (differently from enrollment, which allows students to attend only first-year courses). Please remember that it is not possible to enroll in single courses which offer workshop and/or exercitation activities. Please note that many courses are not recognized by other degree courses. Students should therefore check and ask the Orientation office to make an educated decision (www.uninsubria.it/la-didattica/orientamento; in Italian)</p>
INFORMATION ON ENROLLMENT PROCEDURES AND OTHER ADMINISTRATIVE ASPECTS	INFOSTUDENTI SERVICE <p>The INFOSTUDENTI service is a web application that offers a communication channel through which students and future students can obtain some useful information by contacting the different offices of the University (Student Services office, Right to Study and Student Services, Orientation and Placement, Academic Offices and International Relations).</p> <p>With this system students can ask questions and receive answers, attach documents and follow the status of their requests.</p> <p>The service may be accessed at the following link: www.uninsubria.it/infostudenti (in Italian)</p>



II. STUDY PLAN

MANDATORY COURSES - 2022/2023 COHORT

Mandatory courses refers to all the courses provided for the entire degree course, which will have to be taken by all students enrolling in the current A. Y. (Enrollment cohort) in order to complete the degree program and obtain the qualification.

1st YEAR							
INTEGRATED COURSE / COURSE Title	COURSE / MODULE Title	ECTS	Academic field	DISCIPLINARY FIELD / Type of Teaching Activity	HOURS	SEM.	ASSESSMENT METHOD*
ANIMAL BIOLOGY	<i>ANIMAL BIOLOGY - Zoology module</i>	9	BIO/05	B/ biological disciplines	LEC:40 EXE:24 WRK:32	First	M
	<i>ANIMAL BIOLOGY - Biology applied to the animal cell</i>	6	BIO/06	B/ biological disciplines	LEC:48	Second	M
GENERAL AND ORGANIC CHEMISTRY	<i>GENERAL AND ORGANIC CHEMISTRY General chemistry module</i>	6	CHIM/03	A / Chemical disciplines	LEC:48	First	M
	<i>GENERAL AND ORGANIC CHEMISTRY Organic chemistry module</i>	6	CHIM/06	A / Chemical disciplines	WRK:48	Second	M
MATHEMATICS		9	MAT/08	A/Mathematical, IT and statistic disciplines	LEC:72	First	M
PHYSICS		6	FIS/01	A/Physical disciplines	LEC:48	First	M
ANALYTICAL CHEMISTRY WORKSHOP		6	CHIM/01	A/Chemical discipline	LEC:24 WRK:24 FIELD TRIPS:24	Second	M
GEOLOGY & LITHOLOGY		9	GEO/03	B/Earth sciences disciplines	LEC:56 WRK:12 FIELD TRIPS:20	Second	M
EDUCATIONAL BACKGROUND ASSESSMENT TEST		0	N/N	Elective / Elective	LEC:0	ND	M

2nd YEAR							
INTEGRATED COURSE / COURSE Title	COURSE / MODULE Title	ECTS	Academic field	DISCIPLINARY FIELD /Type of Teaching Activity	HOURS	SEM.	ASSESSMENT METHOD*
ENGLISH#		3	L-LIN/12	E/For the knowledge of at least one foreign language	LEC:0	Annual	M
GIS APPLICATIONS FOR BIODIVERSITY MONITORING		6	BIO/05	B/Biological disciplines	LEC:48	First	M
BIOGEOGRAPHY		6	BIO/05	B/Biological disciplines	LEC:48	First	M
ENVIRONMENTAL BOTANY		9	BIO/03	B/Ecological disciplines	LEC:72	First	M
ECOLOGY		99	BIO/07	B/Ecological disciplines	LEC:72	First	M



PHYSICAL GEOGRAPHY AND GEOMORPHOLOGY		9	GEO/04	A/Naturalistic disciplines	LEC:64 FIELD TRIPS:16 LEC:36	Second	M
PLANT BIODIVERSITY AND TAXONOMY		6	BIO/02	B/Biological disciplines	LEC:36 EXE:8 FIELD TRIPS:16	Second	M
ENVIRONMENTAL MICROBIOLOGY		6	AGR/16	B/Agrarian, chemical, physical, legal, economic and contextual disciplines	LEC:48	First	M
ENVIRONMENTAL ANALYTICAL CHEMISTRY		6	CHIM/01	B/Agrarian, chemical, physical, legal, economic and contextual disciplines	LEC:48	Second	M

3rd YEAR

INTEGRATED COURSE / COURSE Title	COURSE / MODULE Title	ECTS	Academic field	DISCIPLINARY FIELD / Type of Teaching Activity	HOURS	SEM.	ASSESSMENT METHOD*
CHEMISTRY AND ENVIRONMENTAL RISK TO HUMAN HEALTH	<i>CHEMISTRY AND ENVIRONMENTAL RISK TO HUMAN HEALTH - Environmental chemistry Module</i>	6	CHIM/12	B/Agrarian, chemical, physical, legal, economic and contextual	LEC:48	First	M
	<i>CHEMISTRY AND ENVIRONMENTAL RISK TO HUMAN HEALTH - Human exposure assessment form to risk agents Module</i>	6	MED/44	C/Related or supplementary educational activities	LEC:48		M
PALEONTOLOGY		9	GEO/01	B/Earth sciences disciplines	LEC:68	First	M

*J - JUDGMENT M - EXAM Q - QUALIFICATION A - ATTENDANCE

3rd YEAR

Students will have to choose 3 optional courses (18 ECTS) among those in the list:

INTEGRATED COURSE / COURSE Title	COURSE / MODULE Title	ECTS	Academic field	DISCIPLINARY FIELD / Type of Teaching Activity	HOURS	SEM.	ASSESSMENT METHOD*
REMOTE SENSING		6	GEO/03	C / Related or supplementary educational activities	LEC:48	First	M
TERRESTRIAL WILDLIFE BEHAVIOURAL ECOLOGY		6	BIO/05	C / Related or supplementary educational activities	LEC:40 EXE:16	Annual	M
CONSERVATION ECOLOGY		6	BIO/07	C / Related or supplementary educational activities	LEC:48	First	M
ECOTOXICOLOGY		6	BIO/07	C / Related or supplementary educational activities	LEC: 40 EXE: 12 FIELD TRIPS: 4	First	M
BIODIVERSITY AND EVOLUTION OF PLANTS		6	BIO/02	C / Related or supplementary educational activities	LEC:40 EXE:16	Second	M



APPLIED ECOLOGY		6	BIO/07	C / Related or supplementary educational activities	LEC:32 FIELD TRIPS:32	Second	M
GEOPEDELOGY		6	GEO/04	C / Related or supplementary educational activities	LEC:36 EXE:16 WRK:8	Second	M
GEOSPHERE AND GEOPROSPECTS IN THE ENVIRONMENT		6	GEO/03	C / Related or supplementary educational activities	LEC:40 EXE:16	Second	M
MOUNTAIN HISTORY AND RESOURCES		6	M-STO/05	C / Related or supplementary educational activities	LEC:40, SEM:12	First	M

*J - JUDGMENT M - EXAM Q - QUALIFICATION A – ATTENDANCE

3rd YEAR FURTHER MANDATORY COURSES

INTEGRATED COURSE / COURSE Title	COURSE / MODULE Title	ECTS	Academic field	DISCIPLINARY FIELD / Type of Teaching Activity	HOURS	SEM.	ASSESSMENT METHOD*
ELECTIVE		12	Elective	D / Elective	//		
FINAL EXAM		3	FINEX_S	E / For the final exam	FE:75	Annual	M
INTERNSHIP		9	NN	F / Educational and orientation internship	INT:225	Annual	A

RULES FOR THE CURRICULUM

PREREQUISITES:

In order to be admitted to the exams of the degree course, students must follow the following rules:

COURSE THAT CANNOT BE TAKEN	IF STUDENTS HAVE NOT PASSED THE COURSE(S) OF:
- ENVIRONMENTAL CHEMISTRY AND HUMAN HEALTH RISKS	- GENERAL AND ORGANIC CHEMISTRY - ANALYTICAL CHEMISTRY WORKSHOP
- ENVIRONMENTAL ANALYTICAL CHEMISTRY	- ANALYTICAL CHEMISTRY WORKSHOP

ENGLISH

The validation of European Credit Transfer and Accumulation System (ECTS) is also possible by acquiring the qualification within the University by passing an assessment test. Students may take the English language assessment test during the whole academic year in the specific sessions. An optional preparatory course for the assessment test is also provided through a self-learning course on a digital multimedia platform. The activation periods of this online course, which will have to be completed autonomously and which will be monitored by a tutor, are established during the academic year.

This course focuses on the development and practice of comprehension, reading, writing, listening and use of English skills at the B1 level (intermediate) according to the Common European Framework of Reference for Languages (CEFR) www.coe.int/en/web/common-european-framework-reference-languages.

Students who are interested in the self-learning course must send a request to the specific MDQ through INFOSTUDENTI by the end of January of the current academic year, after which they will be informed via email of the activation of the course, which is limited to some specific periods.



1st-YEAR WORKSHOPS ADMISSION TEST

In order to be admitted to the workshops of the Geology and Lithology and Analytical Chemistry Workshop courses, students will have to pass a specific assessment test on basic notions of geography, cartography and Earth sciences, matter and chemical sciences (secondary school level), before the beginning of the courses, generally in the month of January.

The test is passed if students obtain a mark of at least 21/30

Those who do not pass the admission test may attend the workshops during their second year, without prejudice to the fact that attending the workshops is mandatory in order to take the exam of the related courses.

VALIDATION OF PROFESSIONAL ABILITIES

Pursuant to article 5, paragraph 7 of the Ministerial Decree 270/04, the Council of the DC may validate:

- professional knowledge and skills certified pursuant to current regulations;
- knowledge and skills developed in educational activities at a post-secondary level in whose organization and implementation the university was involved.

The validation application, to which students will have to attach the syllabi of the exams taken in their previous career, even if taken at our University, will be assessed by a Committee appointed by the Council of the Degree Course. The validation may take place if the activity is related to the specific educational objectives of the Degree Course and of the educational activities for which the validation is being requested, also taking into consideration the content and duration in terms of hours of the activity. The maximum number of ECTS that may be validated is 12.

ATTENDANCE OBLIGATIONS

Attendance is mandatory for workshop courses only; students must attend 75% of the teaching activities provided for. Mandatory attendance courses must be taken in the correct year. Exceptions to the present norm may be allowed, for example, in cases of transfers from another course or University. **It will not be possible to enroll in single courses in the courses that provide for workshop activities and/or exercises.**

EDUCATIONAL INTERNSHIP:

The curricular internship - corresponding to 225 hours of activity - can be undertaken by students once they have obtained at least 78 ECTS for the exams provided for in their study plan and they have passed all 1st-year exams. Students who cannot undertake the curricular internship at an external company or institution may - prior to the authorization of the Internship Committee - cover the ECTS provided for by activating an internal curricular internship.

For further information, please visit: www.uninsubria.it/link-veloci/tutti-i-servizi/tirocini-curricolari-dista (in Italian)

FINAL EXAM:

For each candidate, the presentation of the final exam will last around 10-12 minutes followed by the discussion, if applicable; this will be attributed 3 ECTS.

After the presentation, the final degree mark, expressed out of 110 and a summa cum laude, if applicable, will be assigned by evaluating the overall preparation of the students, as attested by the exams marks and by the maturity demonstrated in the final exam.

To determine the final mark, the weighted average score, as an integer, of the marks obtained in the individual exams taken by candidates before the final exam will be calculated. The average score calculation is done according to the University's Students Regulations.

If applicable, an increment will be agreed upon by the Graduation Committee on the bases of the following:

- the total number of points for the discussion of a bachelor's degree thesis are 8
- the supervisor may appoint 4 points; the committee may appoint other 4 points for logical quality, the contents of the presentation and for the discussion after the presentation.

The supervisor will express their assessment before all others, offering a motivated judgment of the student's quality, following this relation:

4 points= excellent,

3 points= above average
score,

2 points= average score,

1 point=poor

In addition to the abovementioned assessment, the cum laude obtained by the student for the exams will be counted as 0.3 points up to 1 additional point; failed exams will be counted as -0.2 points, up to -1 point. Finally, 1 additional point will be attributed to students graduating in the allotted time, that is, students who have completed their studies in the legal duration of the degree course. Moreover, 1 additional point will be attributed to the candidates who have taken part in Erasmus programs.

The Committee President can propose the attribution of the summa cum laude for students who have obtained more than 110 points in total, considering also fractions, and at least one cum laude mark.



TRANSFER PROCEDURES FROM OTHER DEGREE COURSES

Students from other Universities or from another Degree Course of the University of Insubria, or from previous systems, can apply for a transfer/change to the Degree Course. Transfer/change applications will be assessed by the Council of the Degree Course, which will proceed to the validation of the ECTS according to the following criteria:

- analysis of the curriculum
- assessment of the adequacy of the academic fields and of the contents of the activities undertaken by the student in their previous career, with regard to the specific educational objectives of the degree course and of the individual educational activities provided for in the curriculum. The abovementioned validation is carried out as provided for in article no. 3, paragraphs 8 and 9 of the ministerial decree of Class redefinition (16 March 2007). The validation is carried out until the ECTS provided for by the curriculum are reached.

RULES FOR THE SUBMISSION OF STUDY PLANS AND INDIVIDUAL STUDY PLANS

Students will have to submit their Study Plan in their second year, with the possibility to modify it in the following year, following the University's administrative fulfillments calendar. Information on how to submit and fill in the study plan are available on the Students Services Office webpage (www.uninsubria.it/servizi/presentazione-piano-di-studio; in Italian).

Elective educational activities may be chosen among all courses activated by the University with the exception of some integrated courses offered by the limited access healthcare degree courses. The Council of the Degree Course will assess the coherence of these elective activities to the educational curriculum students have enrolled in. Please note that the lessons of elective courses taken from other Degree courses of the University may take place at the same time as the lessons of the Degree Course.

For further information please refer to the degree course webpage:

www.uninsubria.eu/bachelor-ens

For students with disabilities and/or specific learning disorders, please visit:

www.uninsubria.it/studentidisabilidsa (in Italian)



**UNIVERSITÀ DEGLI STUDI
DELL'INSUBRIA**

BACHELOR'S DEGREE COURSE IN
ENVIRONMENTAL AND
NATURAL SCIENCES