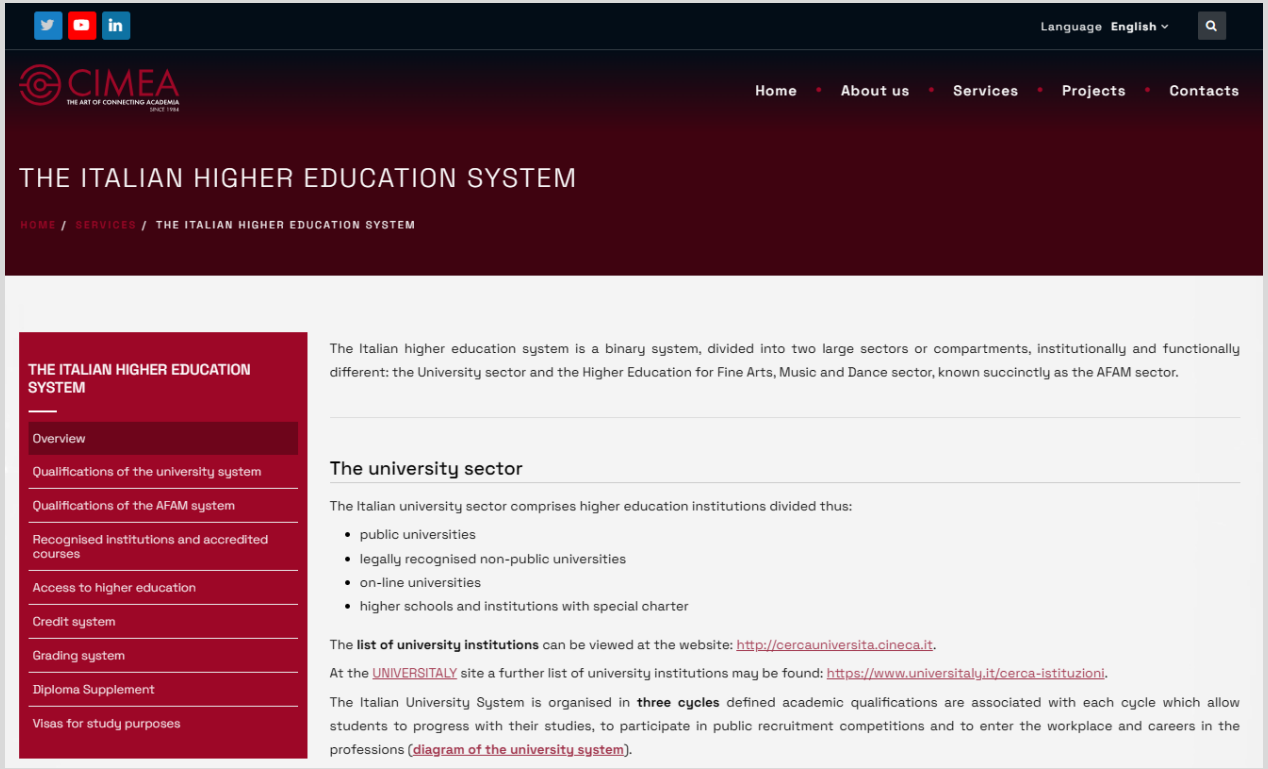
Sustainable polyMer And pRocess chemisTry

An Introduction to our Educational System

1) The italian educational system
2) Unige for students
3) SMART organization
4) Useful stuffs

The Italian Educational System

https://www.cimea.it/EN/pagina-il-sistema-italiano-d-istruzione-superiore#
https://uni-italia.it/en/students/the-university-system/
https://www.unipi.it/index.php/study/item/2265-educational-system



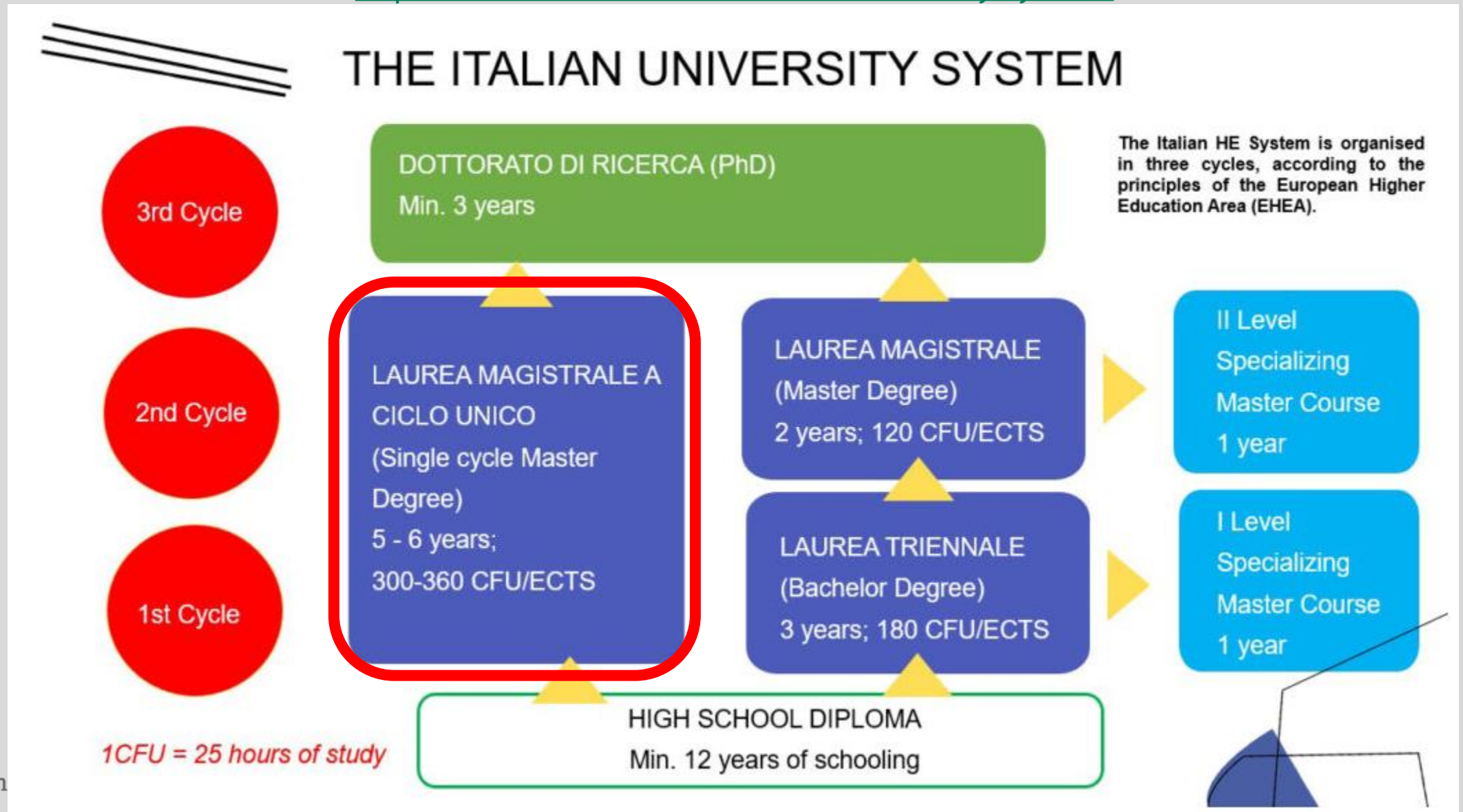
- **The Italian HE System is organized in three cycles**, according to the principles of the European Higher Education Area (EHEA).

- **Bachelor's degree** (Laurea triennale) and lasts 3 years. This Bachelor's grants access to a **Master's degree** (Laurea Magistrale) which is considered the 2nd cycle, and gives access to 3rd cycle **PhD programmes** (Dottorato di Ricerca).
- **Specific qualifications are associated with each cycle**, allowing students to progress with their studies, participate in public recruitment competitions, take part in all European mobility programs, enter the labour market and develop professional careers.
- For each cycle, a number of CFU (University Credits) are allocated, which measure the workload required of students (divided into lectures, exercises, laboratories, internships, etc.).
- **As a rule, one credit (CFU or ECTS) corresponds to 25 hours of overall study.**

The Italian Educational System

https://uni-italia.it/en/students/the-university-system/

SMART



The Italian Educational System

MAIN TYPE OF DEGREE PROGRAMMES

DEGREE PROGRAMMES	TITLE REQUIRED	DEGREE EARNED	ECTS/CREDITS	YEARS
First cycle	High school Diploma	Bachelor's degree	180	3
Second cycle	Bachelor's degree Diploma	Master's degree	120	2
Long single-cycle	High school Diploma	Master's degree	360	5+
Short specialisation (Master I level)	Bachelor's degree Diploma	Specialisation certificate	Minimum 60	1-2
Short specialisation (Master II level)	Master's degree Diploma	Specialisation certificate	Minimum 60	1-2
Specialisation programme	Master's degree Diploma	Specialisation Degree	60-300	1-5
Third cycle	Master's degree Diploma	Doctoral degree		3+

SMART

The Italian Educational System

GRADING SYSTEM

- **Exams are graded according to a scale ranging from 0 to 30.**
- 18 is the passing mark (very poor).
- A cum laude may be added to the highest grade (30 e lode), as a special distinction.
- The minimum passing mark for the final degree is 66/110 (very poor), whereas the maximum is 110/110.
- For outstanding students degrees may be awarded a cum laude distinction.

Minimum passing grade	18
Adequate	19-23
Satisfactory	24-26
Good	27-28
Very good	29-30
Outstanding	30 *cum laude*

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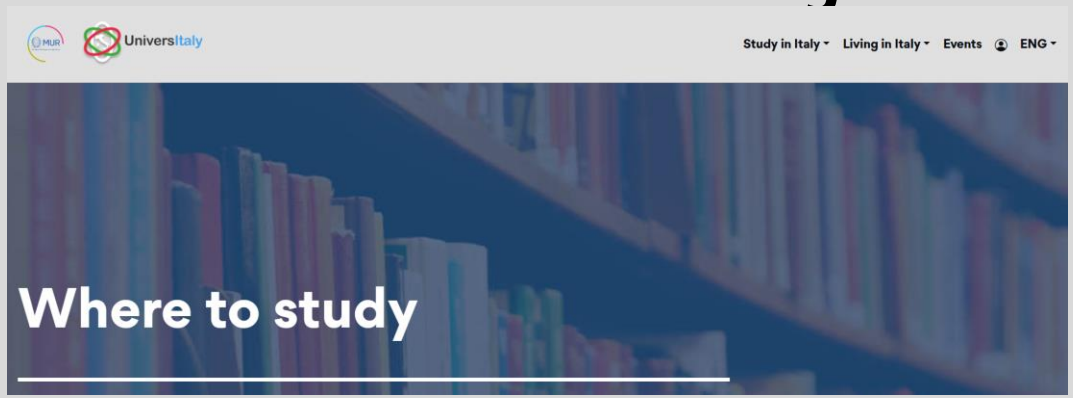
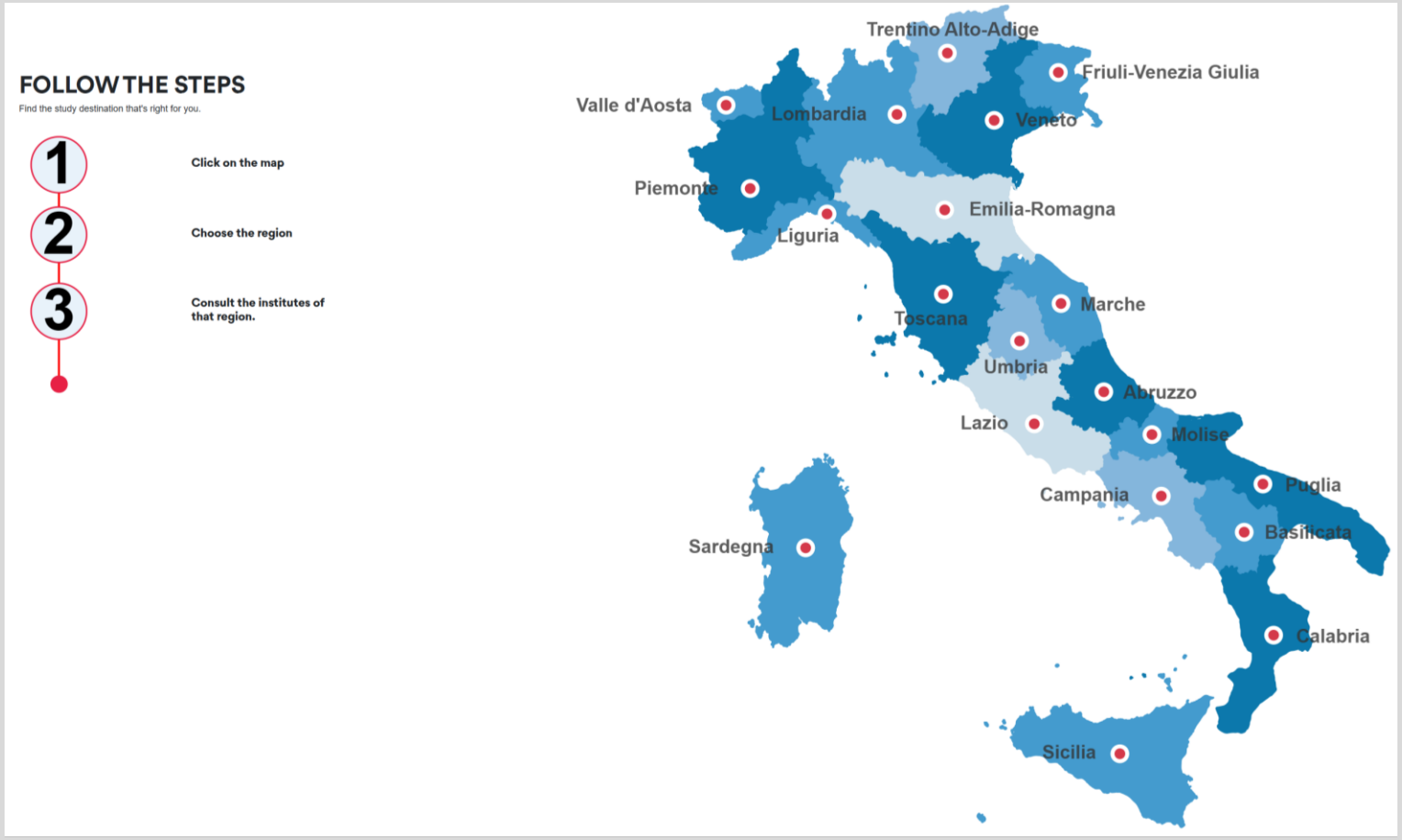
The Italian Educational System

UNIVERSITALY

- https://www.universitaly.it/cerca-istituzioni





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SMART organization

- **ADMISSION RECEIPT**

Università di Genova

UniGeApply - OUTCOME OF ADMISSION

A.Y. 2024/25 Student Number: [redacted]

Name: [redacted] Fiscal code: [redacted]
Date of Birth: [redacted] City: [redacted]

Dear [redacted],

we are very pleased to inform you that, at the end of the assessment of your documentation, your application to Master degree course in SUSTAINABLE POLYMER AND PROCESS CHEMISTRY (2 years - GE) has been accepted. Congratulations and a warm welcome to the UniGe community!

We are confident that this represents the first step of an exceptional human and professional training adventure, and we are happy that you have chosen us to do that together!

The next steps to complete your enrollment are as follows:

1. Registration on the Universitaly portal (https://www.universitaly.it). In case of a master's degree taught in Italian, you could already apply on Universitaly before the outcome of the evaluation on UniGeApply (your application can however be validated from now on, that is after a positive evaluation of the pre-selection process). You can check the opening and closing dates of the Universitaly.it portal for the A.Y. 2024/25 consulting the table on the web page: https://unige.it/enrolment-non-eu-students-residence-abroad-foreign-diploma. If the application is submitted before or after the opening/closing dates, the application will not be accepted by the University and cannot be validated and sent to the Embassy/Consulate. This step is compulsory both for your study visa application and later for your pre-enrolment at UniGe. Considers that Universitaly is an external portal to Unige. Please, once you have registered with your personal data (enter your personal data exactly as shown on your passport), upload to Universitaly the mandatory documents you already uploaded in the pre-assessment procedure on UNIGEAPPLY. The documents are listed below:
i) Passport;
ii) Bachelor's degree diploma;
iii) Bachelor's degree transcript;
iv) **If you have been selected for a course in English**: certificate of English knowledge, level B2 (or a document certifying that your Bachelor's study program was held in English);
If you have been selected for a course in Italian: certificate of knowledge of Italian language, level B2;
For information on language certificates and any tests to be passed if the certificate is not presented, check information starting from the web page https://unige.it/enrolment-non-eu-students-residence-abroad-foreign-diploma;
v) Diploma and transcript of any additional degree you have uploaded in the pre-assessment procedure.

Please upload the most up-to-date versions of these documents to Universitaly. If you already have the Declaration of Value (DOV) or the certification of comparability issued by CIMEA (Academic Equivalence Mobility Information Center, cimea.it), also upload one of the two documents. Always consult the web page https://unige.it/enrolment-non-eu-students-residence-abroad-foreign-diploma for more information and updates on Universitaly, pre-enrolment, enrolment and useful information.

2. Once you have submitted your application to Universitaly, the UniGe Admission Office will check the information and documentation you have entered. Once your application has been verified, you will be able to download your Letter of Acceptance (by printing out the "university pre-enrolment application" summary) to be signed and presented to the relevant diplomatic-consular representations. Please note, this letter is for visa application, it is not related to the successful completion of your pre-enrollment at Unige.

3. After validating your application on Universitaly you will be allowed to enter the UniGe web portal for students and complete your online pre-enrollment with the same access keys you used for your application on UNIGEAPPLY (go to Online Services > Online Services for Students). For updates on the enrollment procedure always check the page: https://unige.it/enrolment-non-eu-students-residence-abroad-foreign-diploma.

4. While your visa is being processed, you can apply for a scholarship and accommodation at our Regional Agency Aliseo (for info and deadlines visit https://www.aliseo.liguria.it/foreign-students/). You can complete the enrolment only after arrival in Italy. For more details see: https://unige.it/enrolment-non-eu-students-residence-abroad-foreign-diploma.

Please note that the above mentioned steps (from 1 to 3) are mandatory: if you miss one of them your admission will be invalid

For any information on the enrollment and living in UniGe, you can visit the webpage:
https://unige.it/en/usg/en/welcoming-international-students
or write to the UniGe Welcome Office at: admissions@unige.it.

For any information regarding Master degree course in SUSTAINABLE POLYMER AND PROCESS CHEMISTRY (2 years - GE) , please write to .

Looking forward to meeting you in person, we thank you again for your trust in UniGe!

Best regards,

Prof.
Head of Program, Master degree course in SUSTAINABLE POLYMER AND PROCESS CHEMISTRY (2 years - GE) , University of Genoa

Date: 11/06/2024 09:15:24
(id: 201270)

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Please do not reply to this message.

- **Read carefully documents and e-mail you receive, including web sites there embedded!**
- Answer to most of your questions are already there.

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SMART organization

https://unige.it/en/international/enrolment-non-eu-students-residence-abroad-foreign-diploma

Enrolment for non-EU students with residence abroad and foreign qualification (visa applicants)

DEADLINES FOR NON-EU STUDENTS LIVING ABROAD A.Y. 2024/2025

Updates: check the deadlines, the modalities and the requirements to be able to confirm the enrollment - see the table below and the section STEP 3 - Enrollment

The deadlines shown in the table apply to students who enroll for the first time in the first year of their chosen course of study. If you are applying for a scheduled access course, always refer to the deadlines in the call.

If you are already a student at Unige: check the deadlines for enrollment to the years following the first, the deadlines for course transitions or transfers on the dedicated page

29th March 2024	Deadline for applications on UNIGEAPPLY for Master's degree courses taught in English for the A.Y. 2024/2025 (mandatory pre-evaluation) **UPDATING for two new activation courses (submission of applications on UNIGEAPPLY):** Electronic Engineering and Sustainable Polymer and Process Chemistry (SMART), opening: **7th May 2024**; closing: **7th June 2024** (mandatory pre-evaluation).

Enrollment steps

Before leaving for Italy
UniGeApply (if required), Universitaly, pre-enrollment

When you arrive in Italy

Enrollment documents

Knowledge of the language (Italian/English): certificates and tests

If you choose a course with admission test and limited

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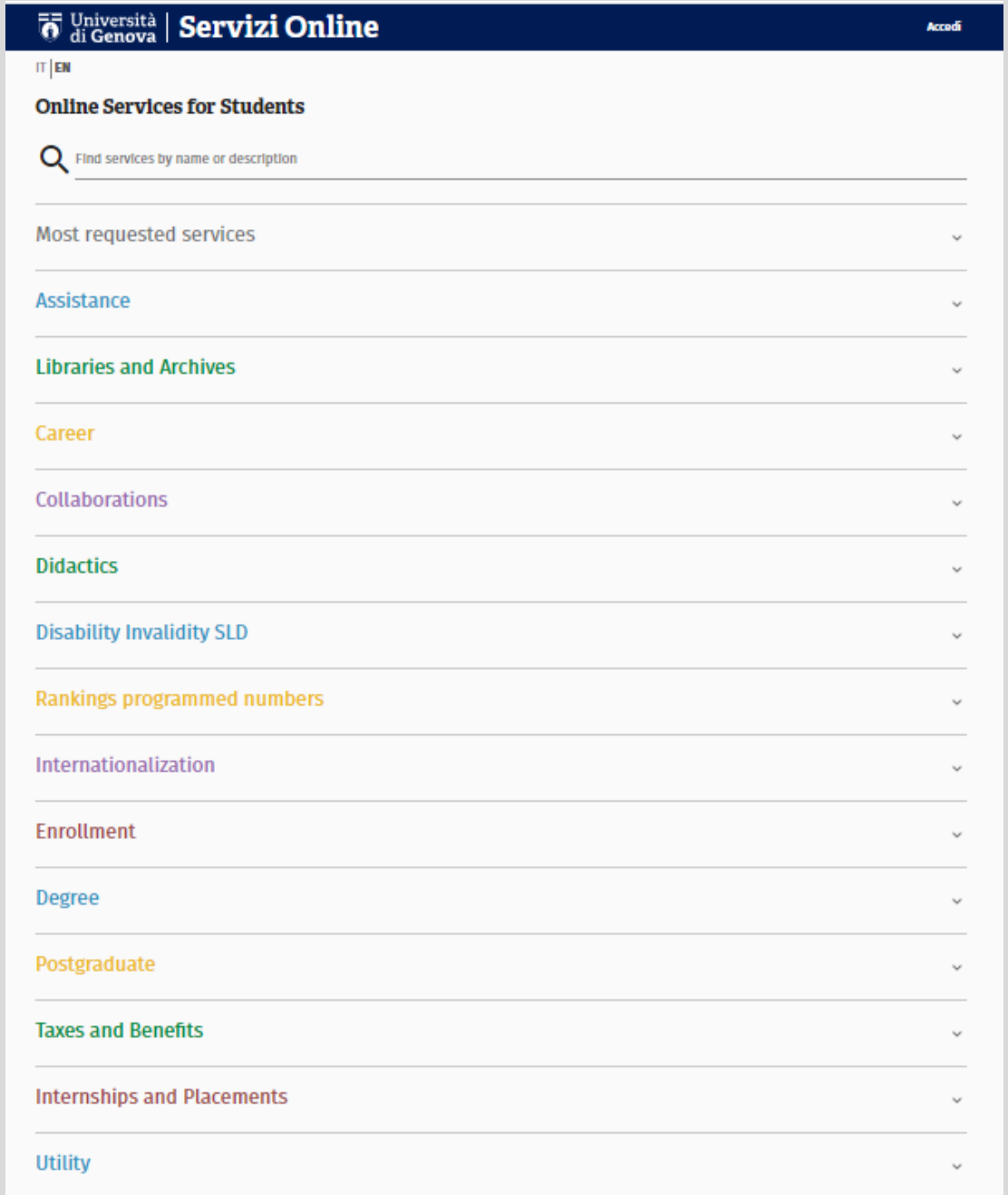
SMART organization

- Student on-line services

https://servizionline.unige.it/web-sol/en/#/

https://servizionline.unige.it/web-sol/en/#/indice/studenti



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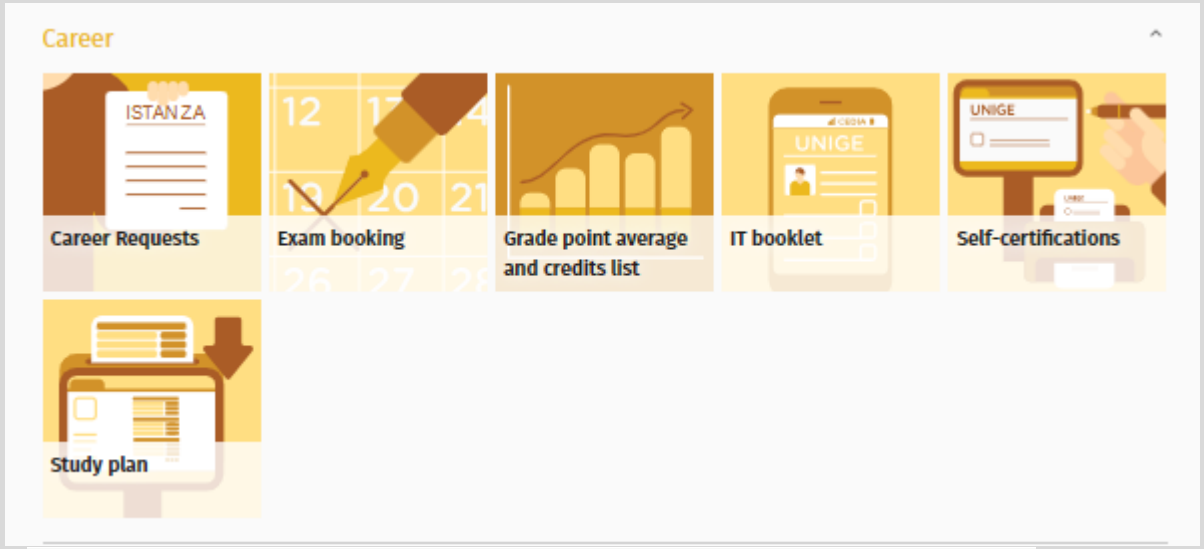

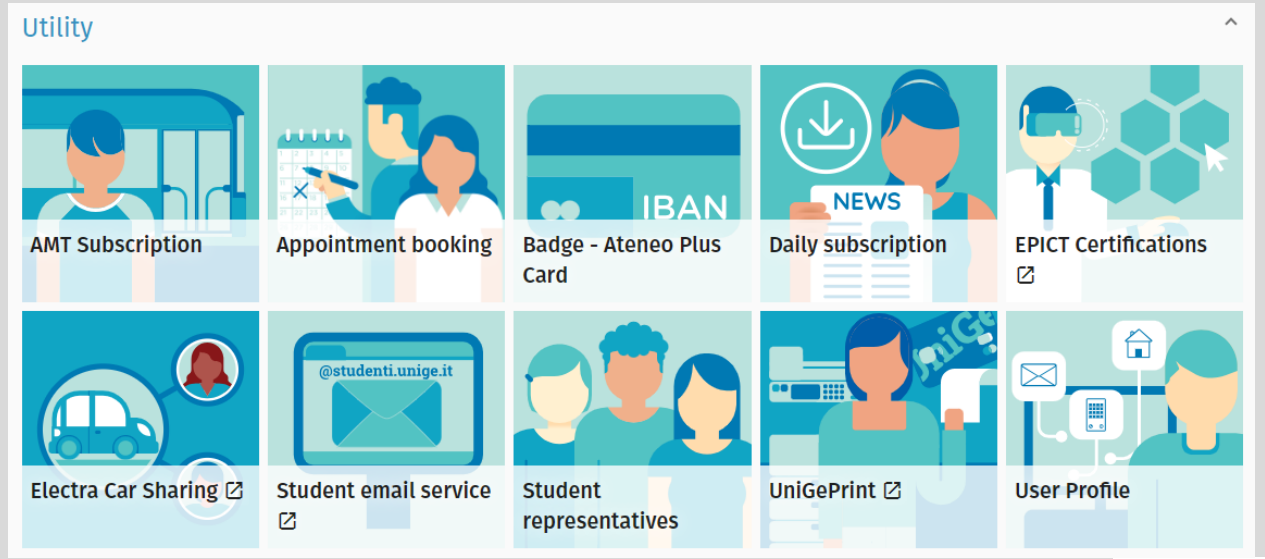

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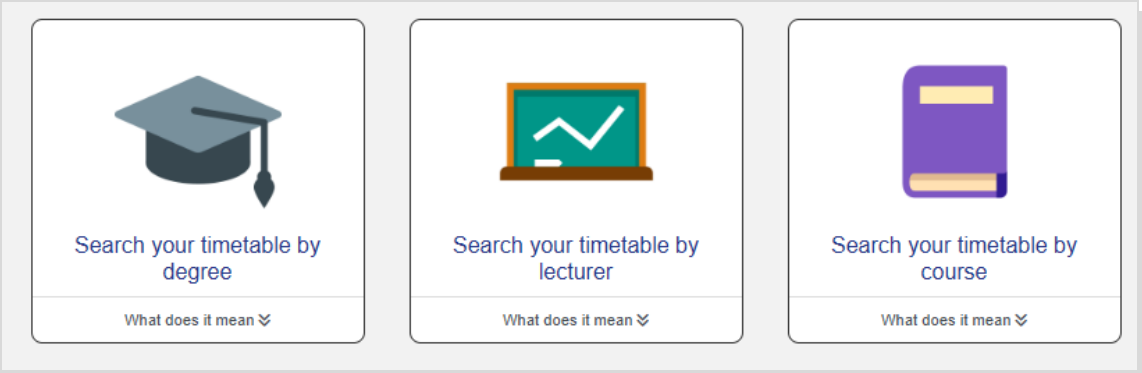
https://2024.aulaweb.unige.it/?lang=en

https://easyacademy.unige.it/portalestudenti/index.php?view=easycourse&include=homepage&_lang=en



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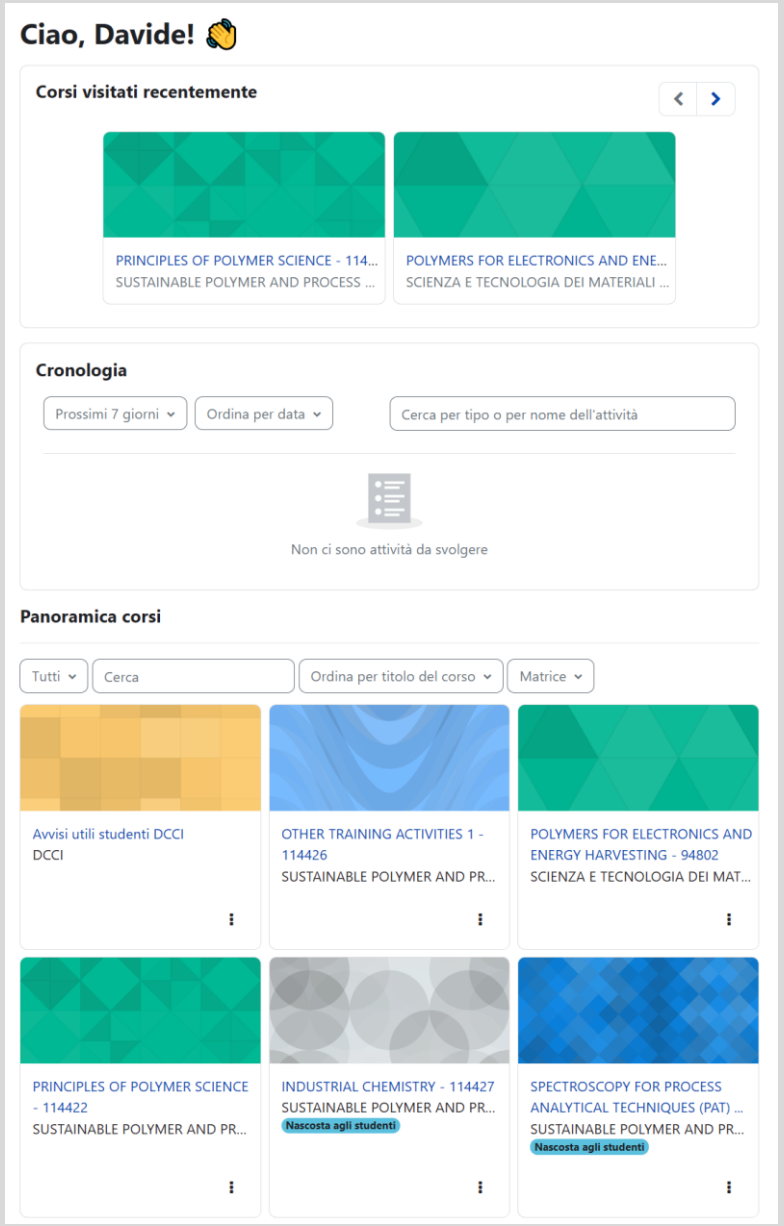
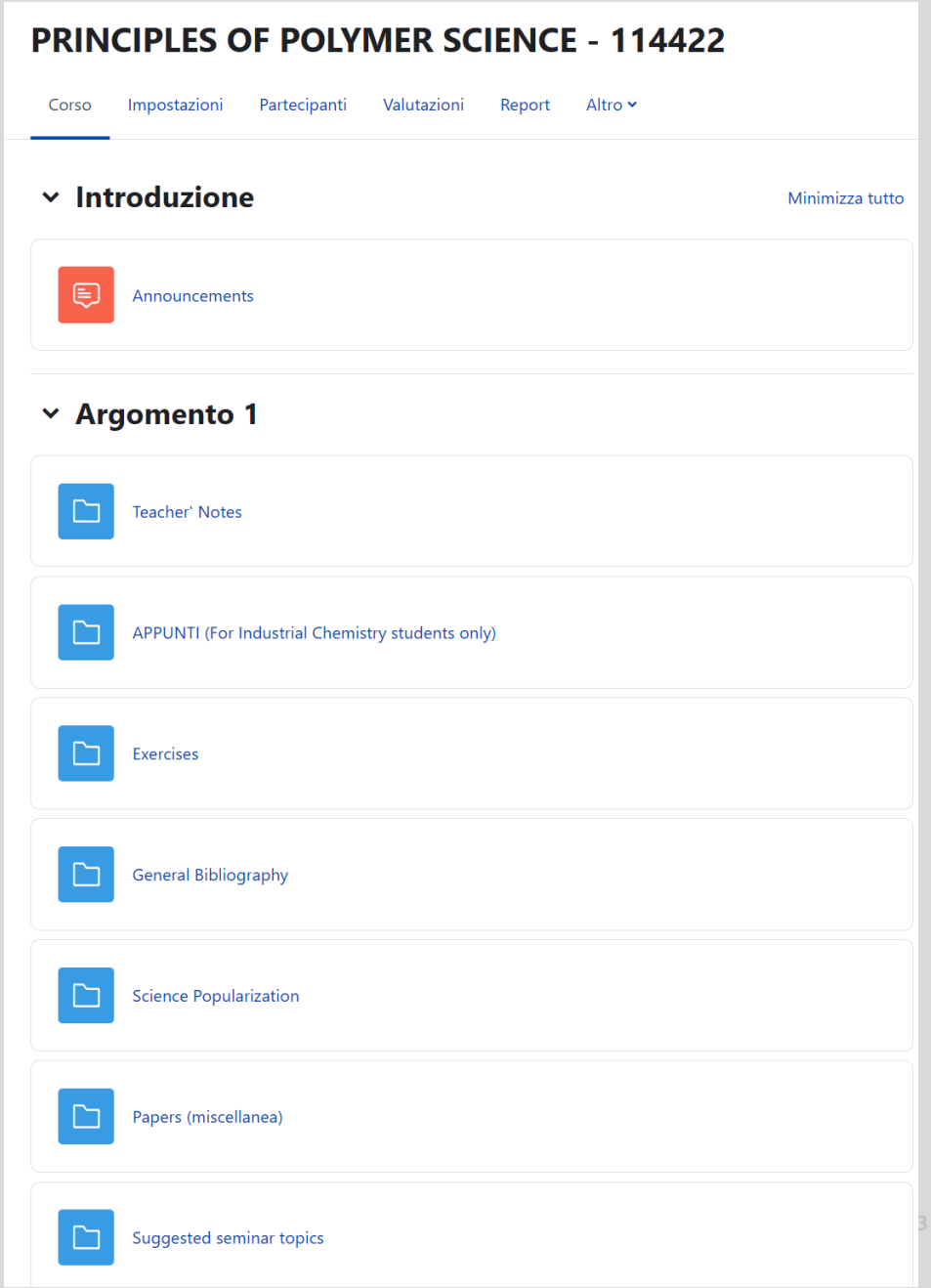
- AulaWeb





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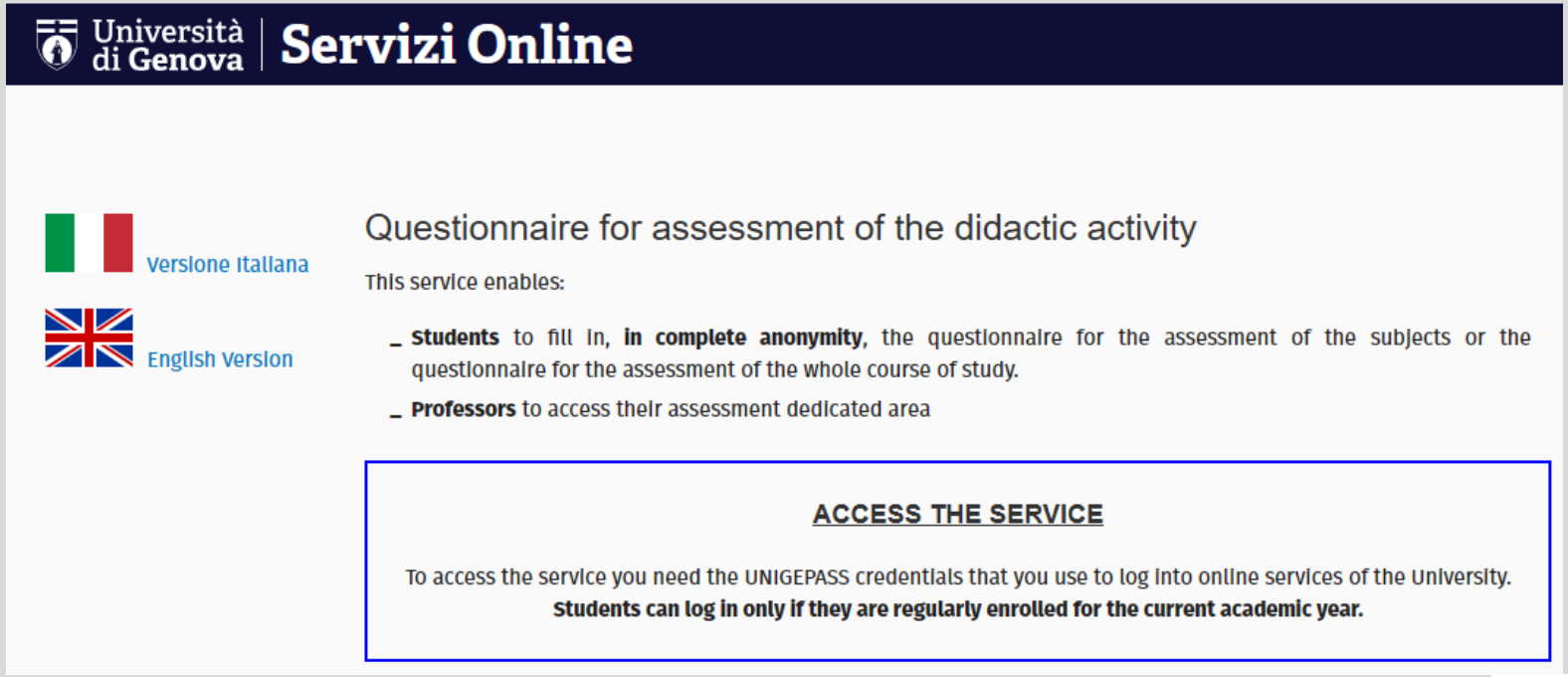
https://valutazione.servizionline.unige.it/insegnamenti/publics/info/index.jsp?lang=EN



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https://servizionline.unige.it/web-sol/en/#/indice/studenti

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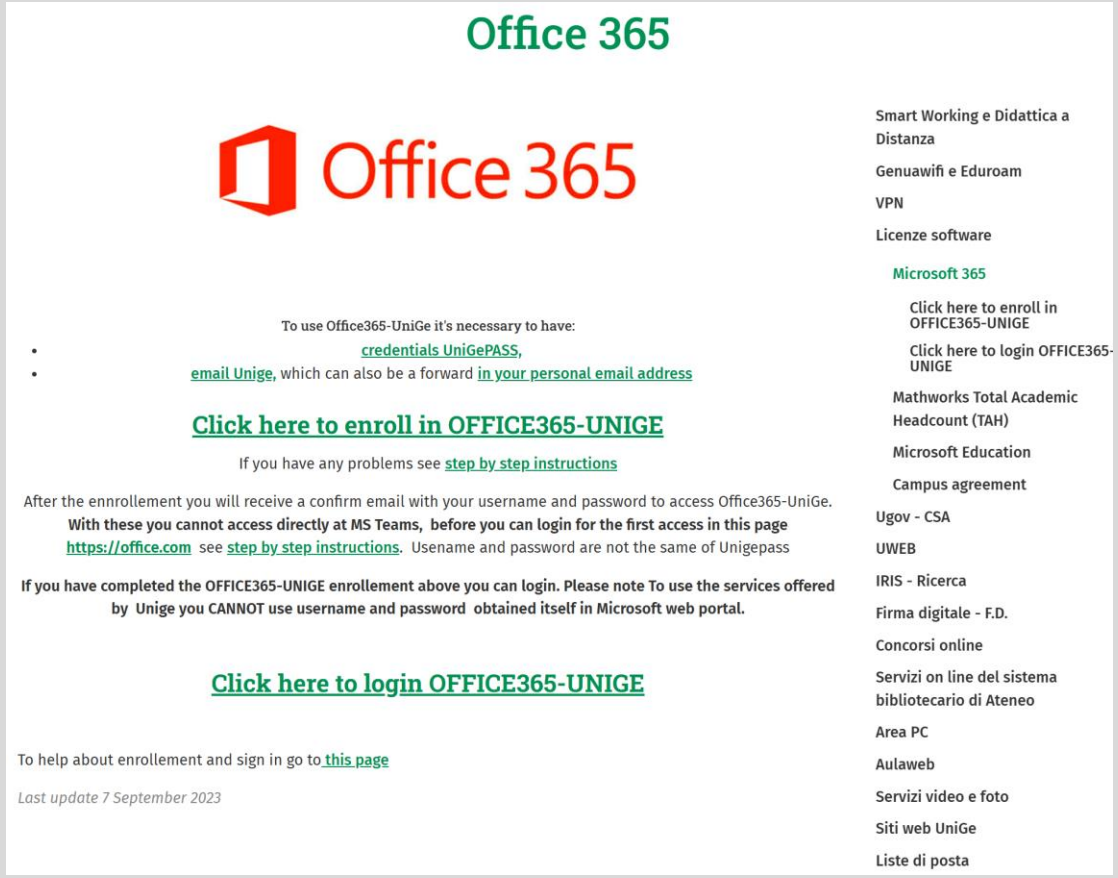
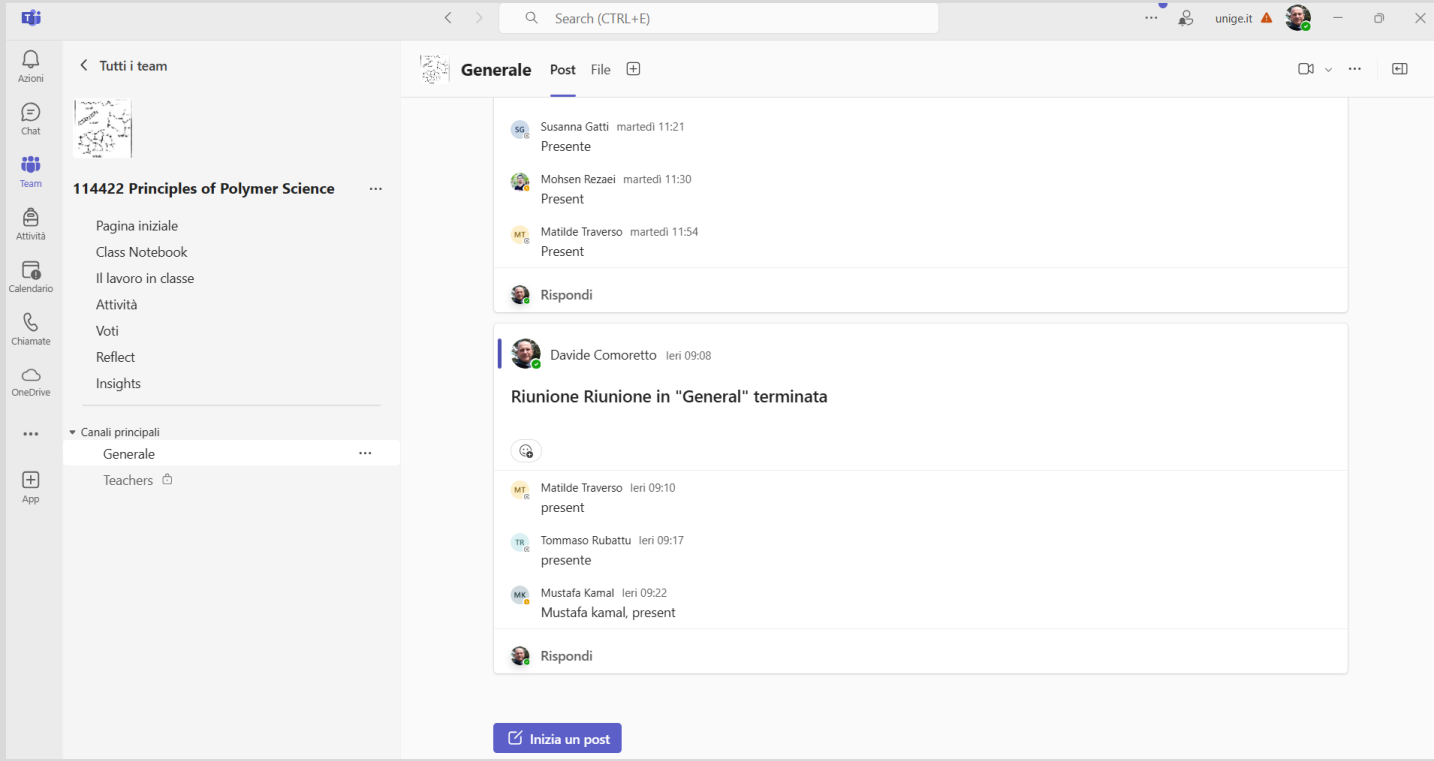
- Office 365: registration through your own Unige account (matricula number and official UniGE e-mail)
- https://ict.unige.it/en/office365



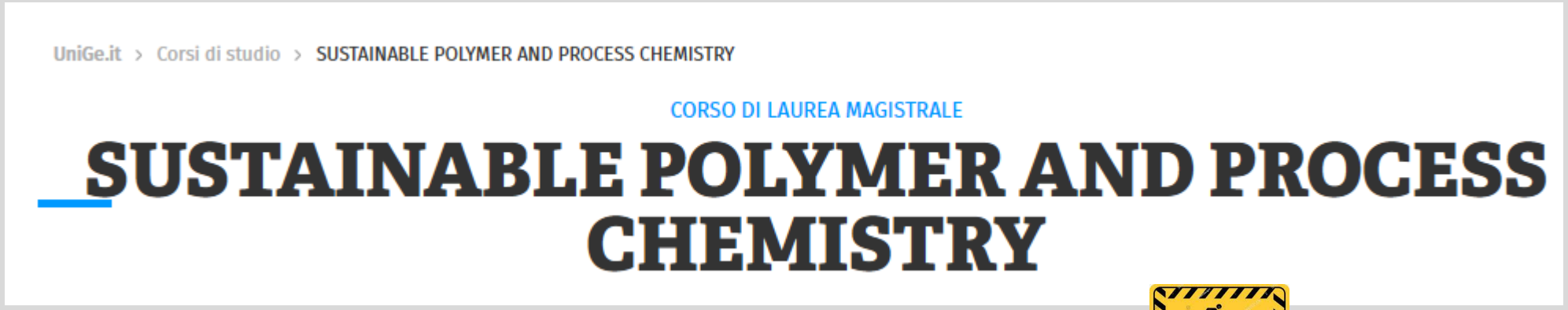
- Microsoft Teams



- On-line lessons
- Lesson recordings
- Student-teacher interactions
- ....

SMART: ORGANIZATION CHART

Sustainable polyMer And pRocess chemisTry Master of Science organization



https://corsi.unige.it/corsi/11767

https://chimica.unige.it/node/1816

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SMART organization

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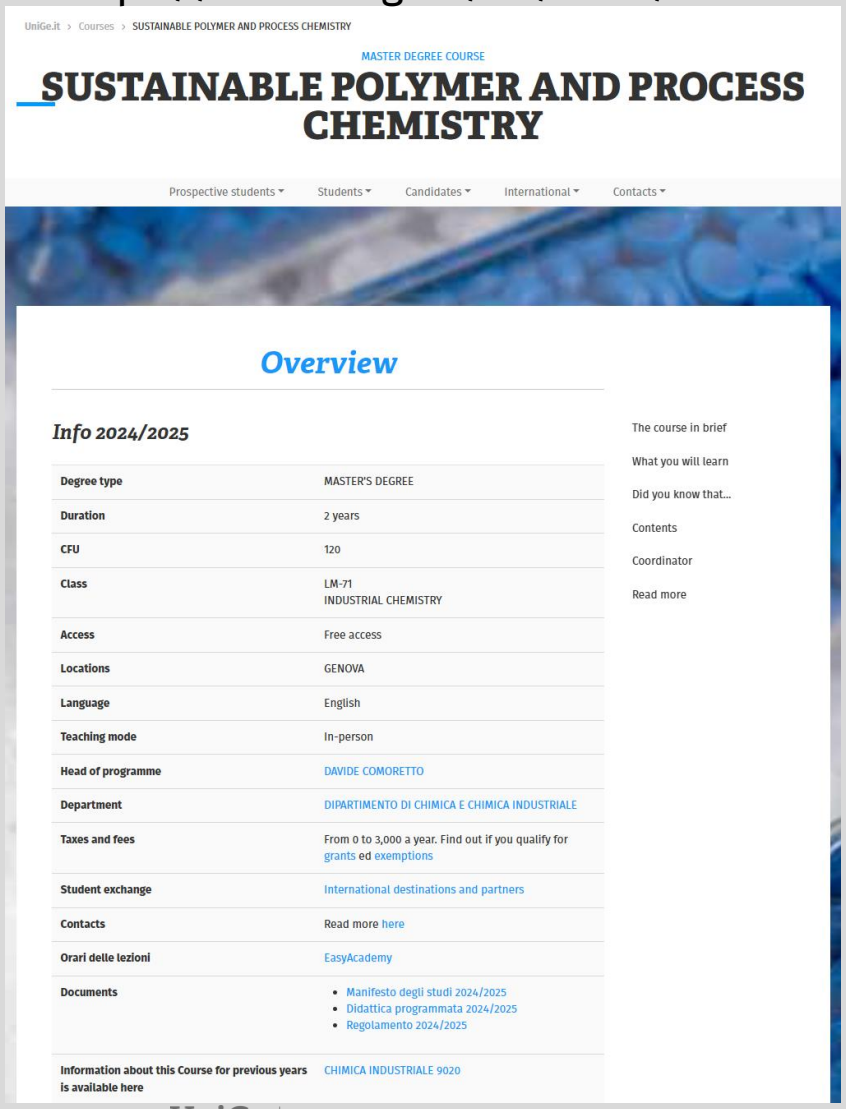

UniGe.it › Courses › SUSTAINABLE POLYMER AND PROCESS CHEMISTRY

MASTER DEGREE COURSE

SUSTAINABLE POLYMER AND PROCESS CHEMISTRY

Prospective students | Students | Candidates | International | Contacts

Overview

Info 2024/2025

Degree type	MASTER'S DEGREE
Duration	2 years
CFU	120
Class	LM-71 INDUSTRIAL CHEMISTRY
Access	Free access
Locations	GENOVA
Language	English
Teaching mode	In-person
Head of programme	DAVIDE COMORETTO
Department	DIPARTIMENTO DI CHIMICA E CHIMICA INDUSTRIALE
Taxes and fees	From 0 to 3,000 a year. Find out if you qualify for grants ed exemptions
Student exchange	International destinations and partners
Contacts	Read more here
Orari delle lezioni	EasyAcademy
Documents	• Manifesto degli studi 2024/2025 • Didattica programmata 2024/2025 • Regolamento 2024/2025
Information about this Course for previous years is available here	CHIMICA INDUSTRIALE 9020

The course in brief
What you will learn
Did you know that...
Contents
Coordinator
Read more

Documents

- Manifesto degli studi 2024/2025
- Didattica programmata 2024/2025
- Regolamento 2024/2025

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SMART organization

https://corsi.unige.it/en/corsi/11767

Documents

- Manifesto degli studi 2024/2025
- Didattica programmata 2024/2025
- Regolamento 2024/2025

- **Manifesto degli Studi 2024/2025**
- Upon clicking on the name of the class (for instance, https://corsi.unige.it/en/off.f/2024/ins/77887?codcla=11767
- Several important info…

UniGe.it › Courses › Subjects 2024/2025 › PRINCIPLES OF POLYMER SCIENCE

PRINCIPLES OF POLYMER SCIENCE

CODE	114422
ACADEMIC YEAR	2024/2025
CREDITS	4 cfu anno 1 SCIENZA E TECNOLOGIA DEI MATERIALI 11430 (LM SC.MAT.) - GENOVA 4 cfu anno 2 SCIENZA E TECNOLOGIA DEI MATERIALI 11430 (LM SC.MAT.) - GENOVA 8 cfu anno 1 SUSTAINABLE POLYMER AND PROCESS CHEMISTRY 11767 (LM-71) - GENOVA 5 cfu anno 2 CHIMICA INDUSTRIALE 9020 (LM-71) - GENOVA
SCIENTIFIC DISCIPLINARY SECTOR	CHIM/04
LANGUAGE	English
TEACHING LOCATION	GENOVA
SEMESTER	1° Semester
TEACHING MATERIALS	AULAWEB

OVERVIEW

Principles of Polymer Science (114422) is a 8 CFU class held in the first semester of the 1st year in the Sustainable Polymers and Process Chemistry MSc Course.

This class provides fundamental theoretical and practical knowledge on polymeric materials in solution, melt and solid state.

MANIFESTO DEGLI STUDI A.A. 2024/2025
CORSO DI LAUREA MAGISTRALE in 11767 SUSTAINABLE POLYMER AND PROCESS CHEMISTRY (classe LM-71)

SCHEDA INFORMATIVA

Sede amministrativa: GE
Classe delle lauree in: Classe delle lauree magistrali in SCIENZE E TECNOLOGIE DELLA CHIMICA INDUSTRIALE (classe LM-71)
Durata: 2 anni
Indirizzo web: https://chimica.unige.it/node/1816
Dipartimento di riferimento: DIPARTIMENTO DI CHIMICA E CHIMICA INDUSTRIALE

REQUISITI PER L'ACCESSO E MODALITÀ DI AMMISSIONE +
FINALITÀ E OBIETTIVI FORMATIVI +
CARATTERISTICHE E MODALITÀ DI SVOLGIMENTO DELLA PROVA FINALE +
PROFILO PROFESSIONALE E SBOCCHI OCCUPAZIONALI E PROFESSIONALI PREVISTI PER I LAUREATI +
PROFESSIONI A CUI PREPARA IL CORSO (codifiche ISTAT) +

PIANO DI STUDI

1° anno (coorte 2024/2025)

Codice	Disciplina	Settore	CFU	Tipologia/Ambito	Docenti	Ore
114422	PRINCIPLES OF POLYMER SCIENCE (1° Semestre)	CHIM/04	8	8 CFU CARATTERIZZANTI Discipline Chimiche Ambientali, Biotecnologiche, Industriali, Tecniche ed Economiche	CAVALLO DARIO COMORETTO DAVIDE	LEZ: 32 LAB: 52
66402	CHEMISTRY AND TECHNOLOGY OF CATALYSIS + LABORATORY (2° Semestre)	CHIM/04	6	6 CFU CARATTERIZZANTI Discipline Chimiche Ambientali, Biotecnologiche, Industriali, Tecniche ed Economiche	COMITE ANTONIO	LEZ: 32 ESE: 13 LAB: 13
114449	UNIT OPERATIONS, REACTOR ENGINEERING AND CHEMICAL TECHNOLOGIES		10			
	114450 - UNIT OPERATIONS, REACTOR ENGINEERING AND CHEMICAL TECHNOLOGIES MOD.1 (Annuale)	ING-IND/25	5	5 CFU CARATTERIZZANTI Discipline Chimiche Ambientali, Biotecnologiche, Industriali, Tecniche ed Economiche	SERVIDA ALBERTO	LEZ: 40
	114451 - UNIT OPERATIONS, REACTOR ENGINEERING AND CHEMICAL TECHNOLOGIES MOD.2 (Annuale)	CHIM/04	5	5 CFU CARATTERIZZANTI Discipline Chimiche Ambientali, Biotecnologiche, Industriali, Tecniche ed Economiche	MONTICELLI ORIETTA COMITE ANTONIO	LEZ: 40
61837	THEORY OF INDUSTRIAL CHEMICAL PROCESS DEVELOPMENT (2° Semestre)	ING-IND/26	6	6 CFU CARATTERIZZANTI Discipline Chimiche Ambientali, Biotecnologiche, Industriali, Tecniche ed Economiche	REVERBERI ANDREA	LEZ: 48
114427	INDUSTRIAL CHEMISTRY (2° Semestre)	CHIM/04	8	8 CFU CARATTERIZZANTI Discipline Chimiche Ambientali, Biotecnologiche, Industriali, Tecniche ed Economiche	CASTELLANO MAILA COMORETTO DAVIDE	LEZ: 64
80198	ECONOMY AND MANAGEMENT OF PRODUCTIVE PROCESSES (2° Semestre)	ING-IND/26	6	6 CFU AFFINI O INTEGRATIVE Attività Formative Affini o Integrative	VOCCIANTE MARCO	LEZ: 40 LAB: 12
114426	OTHER TRAINING ACTIVITIES 1 (1° Semestre)		2	1 CFU ALTRE ATTIVITA' Abilità Informatiche e Telematiche 1 CFU ALTRE ATTIVITA' Altre Conoscenze Utili per l'Inserimento Nel Mondo del Lavoro	COMORETTO DAVIDE SERVIDA ALBERTO COMITE ANTONIO REVERBERI ANDREA VOCCIANTE MARCO PEDDIS DAVIDE	LEZ: 18

6 CFU tra i seguenti insegnamenti:

111302	CARBON DIOXIDE CAPTURE, UTILIZATION, AND STORAGE (1° Semestre)	CHIM/04	6	6 CFU AFFINI O INTEGRATIVE Attività Formative Affini o Integrative	COMITE ANTONIO PAGLIERO MARCELLO	LEZ: 40 LAB: 13
111303	MEMBRANE SEPARATION TECHNOLOGY (2° Semestre)	CHIM/04	6	6 CFU AFFINI O INTEGRATIVE Attività Formative Affini o Integrative	PAGLIERO MARCELLO	LEZ: 40 LAB: 13
114428	POLYMER MANUFACTURING: FROM CLASSICAL PROCESSING TO 3D PRINTING (2° Semestre)	CHIM/04	6	6 CFU AFFINI O INTEGRATIVE Attività Formative Affini o Integrative	CAVALLO DARIO LOVA PAOLA	LEZ: 32 ESE: 6 LAB: 20
94802	POLYMERS FOR ELECTRONICS AND ENERGY HARVESTING (1° Semestre)	CHIM/04	6	6 CFU AFFINI O INTEGRATIVE Attività Formative Affini o Integrative	COMORETTO DAVIDE	LEZ: 40 LAB: 13
114432	SPECTROSCOPY FOR PROCESS ANALYTICAL TECHNIQUES (PAT) (2° Semestre)	CHIM/04	6	6 CFU AFFINI O INTEGRATIVE Attività Formative Affini o Integrative	SERVIDA ALBERTO COMORETTO DAVIDE	LEZ: 40 LAB: 13

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SMART organization

https://corsi.unige.it/en/corsi/11767

Documents

- Manifesto degli studi 2024/2025
- Didattica programmata 2024/2025
- Regolamento 2024/2025

- Upon clicking on the name of the class (for instance, https://corsi.unige.it/en/off.f/2024/ins/77887?codcla=11767
- Several important info…

AIMS AND CONTENT

LEARNING OUTCOMES

Aim of this class is to provide the advanced knowledge (both theoretical and experimental) necessary for the study of macromolecules in the liquid and solid state, both in the amorphous and crystalline phase. The physico-chemical properties of polymeric materials and the structure-property relationships of macromolecules are discussed through the characterization of the molecular dimensions, the microstructure of the chains, the properties of the material. Theoretical concepts will be deepened by lab activities on characterization methods of polymers in solution, in the melt and solid state.

AIMS AND LEARNING OUTCOMES

Aim of this class is to provide fundamentals for advanced studies of macromolecules in solution, melt and solid state, both amorphous and semi-crystalline. Physical chemical properties of polymer materials as well as structure-property relations are discussed, focusing on characterization of molecular size, phase and kinetic transitions and melt/solid state material properties.

At the end of the class, students are expected to know:

- The concept of macromolecule, of molecular weight distribution and the meaning of the different molar mass averages;

- Thermodynamics principles governing the macromolecular state in solution, with particular emphasis on the Flory-Huggins and Flory-Krigbaum models, the Theta temperature as well as the phase equilibria;

- The characteristics of the main techniques used for advanced characterization molar masses;

- To describe and discuss the correlation between size and structure of the polymer chains and their solution properties;

- Macromolecular properties in the (semi)crystalline state, melting (Tm), morphology, kinetics of crystallization, and connections with thermodynamic parameters;

- Properties of macromolecules in the amorphous state, in particular the glass transition temperature and its dependence on the molecular mass and on the polymer structure

- The working principles and application of the main techniques used for polymer characterization, including static light scattering, gel permeation chromatography, differential scanning calorimetry, wide-angle x-ray scattering, infra-red spectroscopy, polarized light microscopy, rotational rheometry and mechanical testing in uniaxial tension.

PREREQUISITES

Basic knowledge of polymer chemistry is required to efficiently follow the lectures of this teaching. For the students possessing a bachelor degree in Chemistry and Chemical Technology or Material Science from the University of Genova the prerequisites are given by the attendance of the teachings "Macromolecular Chemistry" or "Science and Technology of Polymeric Materials". Students from abroad or from different bachelor courses must acquire this knowledge by independently deepen the topics on suggested studying material (for instance Introduction to Synthetic Polymers by, Ian M. CAMPBELL, Oxford University Press, 2000).

EXAMS

EXAM DESCRIPTION

The oral exam consists in a discussion covering the topics presented during lessons, including lab activities. The exam will start with the discussion of one laboratory experience selected by the student among those carried out (up to 10/30). Then, one or more theoretical questions will follow. The student must show to have understood main physical/chemical/technological fundamentals related to the topics and to use the suitable technical vocabulary including ability to answer questions (up to 20/30).

Lab attendance is compulsory. The exam is possible only after attending all lab experiences.

For students with disabilities or with SLD, the assessment method will comply with the UNIGE rules summarized in https://unige.it/disabilita-dsa.

Students have to book in advance an appointment for the exam with teachers.

In case of emergency and only according to specific indications by the University of Genoa, the assessment method for the exam might be changed, including the possibility of an online procedure.

ASSESSMENT METHODS

The aim of the exam is to verify the achievement of the intended learning objectives both for the theoretical and labs topics. If these objectives are not met, the student will be encouraged to further study the topics, with the support of the teacher's explanations, and attempt the exam again. During the laboratory classes, teachers will assess the extent of students' participation and their capability in conducting experimental work. The exam will ascertain whether the student has attained an adequate level of knowledge on the class topics, with particular reference to polymer physico-chemical properties in various states and their means of characterization.

Università di Genova | DCCI DIPARTIMENTO DI CHIMICA E CHIMICA INDUSTRIALE

MANIFESTO SMART: COMPULSORY

1° Year (52 credits)

Code	Descriptive Title	SSD	Type/Area	Teacher
114426	**OTHER TRAINING ACTIVITIES 1**		2 CFU	PhysMatCompSci RECAP
114427	**INDUSTRIAL CHEMISTRY**	CHIM/04	8 CFU CAR	Comoretto Davide Castellano Maila
114449	**UNIT OPERATIONS, REACTOR ENGINEERING AND CHEMICAL TECHNOLOGIES**	ING-IND/25 CHIM/04	10 CFU CAR	Servida Alberto Comite Antonio Monticelli Orietta
80198	**ECONOMY AND MANAGEMENT OF PRODUCTIVE PROCESSES**	ING-IND/26	6 CFU AFF/INT (5t+1p)	Vocciante Marco
114422	**PRINCIPLES OF POLYMER SCIENCE**	CHIM/04	8 CFU CAR (4t+4p)	Comoretto Davide Dario Cavallo
61837	**THEORY OF INDUSTRIAL CHEMICAL PROCESS DEVELOPMENT**	ING-IND/26	6 CFU CAR	Reverberi Andrea
66402	**CHEMISTRY AND TECHNOLOGY OF CATALYSIS + LABORATORY**	CHIM/04	6 CFU CAR (4t+2p)	Comite Antonio
NA	**OPTIONAL COURSE**	CHIM/04	6 CFU AFF/INT (5t+1p)	

2° Year (68 credits)

Code	Descriptive Title	SSD	Type/Area	Teacher
114439	**SYNTHESIS AND INDUSTRIAL PRODUCTION OF POLYMERS**	CHIM/04	9 CFU CAR (6t+3p)	Monticelli Orietta Vicini Silvia
114441	**ECO-DESIGN OF MATERIALS AND SUSTAINABLE TECHNOLOGIES**	CHIM/03 CHIM/06	5 CFU AFF/INT (4t+1p)	Colombara Diego Pellis Alessandro
114440	**SUSTAINABLE DESIGN & RECYCLING OF INORGANIC MATERIALS**	CHIM/02	5 CFU CAR (4t+1p)	Peddis Davide
114444	**CIRCULAR ECONOMY PROCESSES FOR PLASTICS AND THE ENVIRONMENT**	CHIM/04	6 CFU CAR (5t+1p)	Lova Paola
NA	**OPTIONAL COURSE**		6 CFU OPT (5p+1t)	
114448	**FOCUS GROUP**		2 CFU OPTIONAL	Student seminars on topics of their choice in line with the training project (soft skills, flipped classroom, focus group)
114445	**OTHER TRAINING ACTIVITIES 2 (intellectual properties and patenting)**		1 CFU	SEMINARS
114446 100274	**OTHER TRAINING ACTIVITIES 3-4**		3 CFU	Advanced English / Italian for Foreigners
114447	**FINAL EXAM**		31 CFU	

MANIFESTO SMART: OPTIONAL CLASSES

Optional courses

Code	Descriptive Title	SSD	Type/Area	Teacher
111302	**CARBON DIOXIDE CAPTURE, UTILIZATION, AND STORAGE**	CHIM/04	5t+1p CFU AFF/INT	Pagliero Marcello Antonio Comite
111303	**MEMBRANE SEPARATION TECHNOLOGY**	CHIM/04	5t+1p CFU	Pagliero Marcello Antonio Comite
114428	**POLYMER MANUFACTURING: FROM CLASSICAL PROCESSING TO 3D PRINTING**	CHIM/04	5t+1p CFU AFF/INT	Cavallo Dario Lova Paola
114435	**PROPERTIES OF POLYMER-BASED MATERIALS, BIOMATERIALS AND COMPOSITES**	CHIM/04	5t+1p CFU AFF/INT	Castellano Maila Alloisio Marina
94802	**POLYMERS FOR ELECTRONICS AND ENERGY HARVESTING**	CHIM/04	5t+1p CFU AFF/INT	Comoretto Davide
114432	**SPECTROSCOPY FOR PROCESS ANALYTICAL TECHNIQUES (PAT)**	CHIM/04 ING-IND/25	5t+1p CFU AFF/INT	Comoretto Davide Servida Alberto

1 cfu = 25 h of work

1 cfu theo = 8 h lesson, 17 h individual study

1 cfu pratice = 13 h lab, 12 h individual study

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SMART organization

https://corsi.unige.it/en/corsi/11767

Documents

- Manifesto degli studi 2024/2025
- Didattica programmata 2024/2025
- Regolamento 2024/2025

- **Manifesto degli Studi 2024/2025**

SELECTED RULES

LEARNING OUTCOMES

The specific learning outcomes of the MSc and its subjects are contained in the Teaching Regulations for the 2024/2025 (SMART first year) and 2023/2024 (INDUSTRIAL CHEMISTRY second year) cohorts, which can be found respectively at **https://corsi.unige.it/corsi/11767/**, **https://corsi.unige.it/corsi/9020/** (bottom of the page, after selecting the year).

Further regulations and information can be found in the University Teaching Regulations and the Student Regulations (**https://unige.it/regolamenti/area_studenti[DC5]**).

LECTURE AND EXAMS SCHEDULE

- The lectures of the first semester will begin on 23/09/2024 and end on 24/01/2025, with the breaks provided for in the academic calendar.
- The lectures of the second semester will begin on 24/02/2025 and end on 13/06/2025, with the breaks provided for in the academic calendar.
- Classes in courses borrowed from other MSc programs will follow the corresponding schedules. Students are therefore asked to pay particular attention to the start of classes in the following subjects: Properties of Polymers and Polymer Matrix Composites, Polymers for Electronics and Energy Harvesting, Economics of Production Processes, Modeling the Optical Response of Polymer Films and Industrial Coatings, Modeling and Numerical Simulation of the Behavior of Materials in Process Industries.
- Examination dates will be scheduled in the following time slots: 27/01-21/02 2025, 16/06-31/07 2025, 01/09-26/09 2025. Extra slots may be scheduled at the discretion of the professors during the week following Easter Sunday; these slots must be scheduled outside the lecture calendar.
- During the lecture period, special exam slots may be scheduled only for students who have met all attendance requirements specified in their syllabus.
- To take exams the students must register within the set time on the portal dedicated: **https://servizionline.unige.it/studenti/prenotazione**

STUDY PLAN (SMART, first year, cohort 2024/2025)

It is mandatory for the student to include one of the classes listed in Table 1 of the Study Regulation (6 CFU); this class must be marked as "complementary related" (AFFINI E INTEGRATIVI).

PREREQUISITE FOR ADMISSION

The prerequisite for admission to the Sustainable polyMer And pRocess chemisTry (SMART) degree course is a Bachelor's degree in the new or old academic system that is deemed suitable or another academic degree obtained in Italy or abroad that is recognized as equivalent. In addition, a certified B2 level (or higher) in English is required. The competencies required for entry concern mastery of the basic concepts and tools of mathematical, chemical and physical sciences as well as basic knowledge in the characteristic disciplines of the LM-71 class. To be admitted to the SMART Master's degree program, students must also demonstrate possession of the following requirements: - Curricular requirements; - requirements for adequacy of personal preparation in the following disciplines: general and inorganic chemistry, organic chemistry, physical chemistry, analytical chemistry, mathematics and physics. The chemistry disciplines also require a sufficient level of practical experience gained through participation in courses involving laboratory activities. Curricular Requirements At least, 15 CFU un academic fields and disciplines MAT/01-09, FIS/01-08, and INF /01, including - at least 6 CFU in MAT /01-09 - at least 6 CFU in FIS/01-08 Academic fields and disciplines CHIM/01-12 and/or ING-IND /21-27: a total of at least 50 CFU Procedures for reviewing curricular requirements and adequacy of personal preparation are outlined in the MSc Teaching Regulations. Credit may also be earned by taking more than one course or by enrolling in individual courses. English language proficiency at B2 level is required for admission. Admission requirements are reviewed by the Program Requirements Assessment Committee according to the procedures described in the MSc Teaching Regulations (https://corsi.unige.it/en/corsi/11767). In the case of graduates from abroad, the review of curricular requirements is carried out taking into account the equivalence between the courses indicated in the personal curricula and those indicated in the Italian regulations mentioned above The review of personal preparation is carried out as described in the M.Sc. teaching regulations. The validation of credits will be granted as a result of the recognition of:

- professional knowledge and skills individually certified according to current legislation in force

- other knowledge and skills acquired through educational activities at college level is possible.

The Program Requirements Assessment Committee (https://corsi.unige.it/en/corsi/11767) manages the admissions and examination procedures for both curricular requirements and personal preparation according to procedures descried in detail in the teaching regulations (https://corsi.unige.it/en/corsi/11767). In the case of degrees obtained abroad or Italian degrees with non-credit systems, the Commission will assign a scientific-disciplinary field and a value in cfu to each educational activity acquired in order to define the curricular requirements. As regards the requirements for the adequacy of personal preparation, admission to the Master's degree program in Sustainable polyMer And pRocess chemisTry is subject to a preliminary examination by the The Program Requirements Assessment Committee, which verifies the actual possession of the required knowledge and skills in an interview. Graduates of a three-year Italian degree program L-27 (formerly DM 270) or L-21 (formerly DM 509) with a final grade of 90/110 or better are exempt from the preliminary examination. Special testing methods are available on request to meet the needs of disabled students and students with specific learning disabilities.

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SMART organization

https://corsi.unige.it/en/corsi/11767

Documents

- Manifesto degli studi 2024/2025
- Didattica programmata 2024/2025
- Regolamento 2024/2025

EDUCATIONAL AIMS AND OBJECTIVES

The Master of Science degree program in Sustainable Polymer and Process Chemistry (SMART) offers an educational pathway that is characterized by in-depth interdisciplinary knowledge and enables students to:

(a) receive a valid preparation in the various fields of chemistry, which raises and refines the level achieved in the previous Bachelor's program;

(b) acquire knowledge of the specific aspects and problems that characterize industrial chemistry and chemical processes, with particular reference to the relationships between the properties of the final product and the processes from which it is obtained;

(c) gain a thorough knowledge of the theoretical-applicative aspects of product synthesis and chemical process development and the ability to use this knowledge to interpret issues related to industrial production in the different chemical sectors, with particular reference to the relationships between product and process, scale-up and sustainability;

(d) become a qualified expert in the field of materials science, particularly in the area of polymeric materials for advanced applications;

(e) have knowledge and skills relevant to characterizing and defining the structure-property relationships of chemicals and materials, particularly polymeric materials;

(f) be able to use modern instruments to measure important chemical and physical parameters and to process the collected data using mathematical and computational methods;

(g) be proficient in the scientific method of investigation and laboratory instrumentation;

(h) be able to design and carry out experiments of high complexity;

(i) be able to handle chemicals both in the laboratory and on an industrial scale in an environmentally sound manner and without physiological hazards;

(l) be able to assess the impact of industrial production on the environment by taking the necessary precautions and identifying measures to remedy any adverse effects;

(m) know how to evaluate and manage the most appropriate techniques for the recovery and recycling of materials with a view to the circular economy

(n) know how to evaluate and manage the end of life of materials and products

(o) know how to carry out experimental studies according to scientific criteria and how to adapt them to the available resources

(p) know how to deal with environmental remediation issues;

(q) know how to manage the industrialization of chemical processes from the laboratory scale;

(r) be able to design, plan and manage complex and/or innovative systems, processes and services taking into account the principles of environmental sustainability;

(s) be able to evaluate a chemical process from an economic, patent, safety and sustainability perspective;

(t) organize independently the pursuit of objectives in their field of work, including tasks with specific responsibilities.

The curriculum of the degree program is organized in such a way that the set objectives can be achieved. The contents of the courses are appropriately coordinated in their sequential development. In addition to the industrial aspects of chemistry, to which particular attention is paid, there is also room for contributions from other areas of chemistry. Lectures are complemented by classroom or laboratory exercises to enable effective learning and the acquisition of the necessary practical skills. Soft skills and the ability to analyze specific problems (focus groups) are developed through the preparation and presentation by the students of seminars open to the public on innovative topics and current technical-scientific issues, which are evaluated according to the criteria established in the Teaching Regulations. The topic of the seminars is freely chosen by the students. The introduction of this type of activity - carried out under the supervision of lecturers and/or PhD students - falls within the scope of innovative teaching (flipped classroom). Guided visits to laboratories and industrial plants are also organized in order to better understand the industrial reality and that of scientific and technological research. In order to harmonize the educational path of students from different backgrounds, three types of other educational activities are planned, concerning - the harmonization of basic knowledge; - the management of intellectual property; - additional language skills (Italian for foreigners and advanced English for Italian students). Finally, students' preparation will be enhanced by the opportunity to participate in seminars organized by the MSc teaching board and held by experts from industry, academia and research centers on advanced research topics relevant to industrial chemistry, such as polymer science, industrial issues and end-of-life management of manufactured products. These seminars can be integrated into the lectures. Sufficient time is allowed for the preparation of the thesis. The MSc teaching board consider it an essential tool for acquiring experimental skills and becoming familiar with the methods of scientific investigation, as well as learning how to communicate the information gained effectively.

CHARACTERISTICS AND MODALITIES FOR THE FINAL EXAMINATION

The final examination requires the realization of an experimental work on an original topic, which can be carried out in the research laboratories of the Department of Chemistry and Industrial Chemistry of the University of Genoa or, on request, in external, national or foreign institutions (universities, public or private laboratories or research institutes, public or private industries) under the guidance of a supervisor. The final examination includes, in particular, a research or design activity carried out by the student in an original manner, demonstrating mastery of the topics covered and the acquisition of skills and the ability to work independently. The results of the activity are recorded in a written dissertation, which the student prepares in an original manner under the guidance of a supervisor and defends orally (by means of an appropriate presentation) facing a panel of experts consisting of lecturers from the Master's program. In order to begin working on the dissertation, the student must have achieved a minimum number of credits in accordance with the final examination regulations, which also contain the rules for awarding the final grade.

The modalities for the final examination are described in the final examination regulations (https://corsi.unige.it/corsi/11767/laureandi-tesi-progetti). These regulations also set out the criteria for awarding the final grade. An overview of the topics available for the final dissertation can be found at **https://chimica.unige.it/node/777**.

PROFESSIONAL PROFILE AND EMPLOYMENT

Industrial Chemist with a degree in Sustainable Polymer and Process Chemistry (SMART)

FUNCTION IN A PROFESSIONAL ENVIRONMENT

SMART graduated can find employment as professional freelancers or as employees in technical and managerial positions of high responsibility in the fields of research, innovation, development, production, advanced design, planning, programming, management of complex systems and qualification and diagnostics in companies for the development, production and processing of chemicals, material design. In addition, they can work as consultants or as employees in service and consulting companies, in analytical laboratories of public and private companies and organizations, as well as in the fields of teaching, cultural education or science dissemination.

- Chemist responsible for research and development activities (processes and materials);

- Chemist in charge of analytical and quality control laboratories (both in the industrial sector - e.g. pharmaceuticals, chemicals, petrochemicals - and in the food sector);

- Chemist responsible for functional and composite materials characterization laboratories;

- Chemist responsible for formulation laboratories;

- Production and/or operation of industrial units and/or installations manager;

- Prevention and Protection Service (PPS) manager;

- Head of the Safety and Environment Service;

- Commercial employee or responsible and/or technical sales support;

- Responsible for strategic planning activities;

- Lecturer in technical and scientific subjects;

- Freelancer consultant in various fields such as environmental protection, safety in laboratories and installations, REACH regulation;

- Chemist responsible for the recycling of materials, especially plastics;

- Chemist responsible for the sustainable development of new polymers and materials;

- Chemist responsible for material recovery and recycling facilities;

- Chemist responsible for environmental reclamation;

- PhD student.

SKILLS ASSOCIATED WITH THE FUNCTION

SMART program is designed in such way that the graduated in Sustainable Polymer and Process Chemistry acquires both an adequate mastery of scientific methods and scientific contents as well as a professionalizing knowledge.

For this reason, SMART graduates are already able, in the first years of employment, to

- carry out chemical laboratory analyzes

- characterize polymeric materials (chemically, physically and mechanically);

- design new functional polymeric materials;

- design new functional polymeric materials;

- develop innovative and sustainable processes (with specific skills in industrial catalysis, industrial scale-up and reactor technology);

- developing (innovative) membrane separation processes;

- addressing and solving environmental issues;

- addressing and managing issues related to the recovery and recycling of materials and their end-of-life (circular economy);

- Addressing and managing safety issues (laboratory and/or plant);

- developing pollution monitoring and control systems;

- developing quality and production control systems (both on-line and off-line);

- developing process monitoring and control systems;

- Addressing basic and applied research issues in a PhD program.

Employment

- Chemical industry (fine and basic chemicals), petrochemicals, pharmaceuticals, cosmetics, formulations, food; - Industry for the production and processing of polymer and composite materials;

- Manufacturing industry (mechanical engineering, electronics, iron and steel industry, concretes ...);

- Recycling and waste recovery industry;

- Recycling and recovery of polymers and inorganic materials and waste;

- Private, corporate and public research and development centers;

- Consultants (also through registration in the professional register of chemists).

- Higher level training through participation to a PhD program (in Italy or abroad).

SMART graduated who have the credentials required by current regulations can attend public competitions for access to the first and second of secondary school teacher training degrees.

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SMART organization

https://corsi.unige.it/en/corsi/11767

Documents

- Manifesto degli studi 2024/2025
- Didattica programmata 2024/2025
- Regolamento 2024/2025

- **Didattica Programmata 2024/2025:**
- Mainly, SECOND YEAR CLASSES
- Additional info there available

2° anno (coorte 2024/2025)

Codice	Disciplina	Settore	CFU	Tipologia/Ambito	Obiettivi Formativi	Propedeuticità
114439	SYNTHESIS AND INDUSTRIAL PRODUCTION OF POLYMERS	CHIM/04	9	9 CFU CARATTERIZZANTI Discipline Chimiche Ambientali, Biotecnologiche, Industriali, Tecniche ed Economiche	The aim of the teaching is to provide the general concepts of the synthesis of polymers, including those from renewable sources, necessary to approach their large-scale production. At the end of the course, by attending and participating the proposed educational activities and by the individual study, the students will be able to: i) know the methodologies for the synthesis of industrial interest macromolecules, ii) deduce, on the basis of the chemical-physical properties of the used monomers, the most suitable synthesis method and iii) establish the polymerization conditions (temperature, time, type of reactor, etc.) on the basis of the final characteristics of the polymer material and the cost-effectiveness of the process. Theoretical concepts will be deepened in lab activities devoted to the synthesis and characterization of macromolecules	-
114440	SUSTAINABLE-DESIGN & RECYCLING OF INORGANIC MATERIALS	CHIM/02	5	5 CFU CARATTERIZZANTI Discipline Chimiche	Starting from the discussion of sustainability issues related to raw materials availability and geo-localization, this class will give basic physico - chemical knowledge necessary to approach to the recycling and sustainable design of inorganic materials. A special focus will be given on sustainable design and recycling of materials used in renewable energies and e-mobility sectors.	-
114441	ECO-DESIGN OF MATERIALS AND SUSTAINABLE TECHNOLOGIES		5		The course illustrates the twelve principles of green chemistry and how they relate to the most recent sustainable materials technologies. The periodic table is explored with a focus on raw materials availability. Specifically, the first focus is on developing and applying chemicals, biopolymers, and green solvents from biomass. Subsequently, the upcycling of glass, aluminum, and electronic devices is discussed. Finally, a combination of (photo)(bio)(electro)catalysis with green processes is presented and analyzed.	-
	114442 - ECO-DESIGN OF MATERIALS AND SUSTAINABLE TECHNOLOGIES MOD.1	CHIM/03	3	3 CFU AFFINI O INTEGRATIVE Attività Formative Affini o Integrative		-
	114443 - ECO-DESIGN OF MATERIALS AND SUSTAINABLE TECHNOLOGIES MOD.2	CHIM/06	2	2 CFU AFFINI O INTEGRATIVE Attività Formative Affini o Integrative		-

114444	CIRCULAR ECONOMY PROCESSES FOR PLASTICS AND THE ENVIRONMENT	CHIM/04	6	6 CFU CARATTERIZZANTI Discipline Chimiche Ambientali, Biotecnologiche, Industriali, Tecniche ed Economiche	The teaching provides the means for acquiring knowledge and comprehension of diverse Polymer Recycling Technologies. This encompasses a comprehensive examination of conventional methodologies, namely mechanical, chemical, and thermal processes, alongside contemporary innovations, inclusive of sophisticated sorting and purification techniques. Additionally, students will understand the environmental and economic advantages associated with the implementation of a Circular Economy paradigm, specifically within the context of polymer recycling. Furthermore, they will actively engage with industry experts through seminars and presentations. This interactive discourse aims to facilitate the understanding of prevailing trends, challenges, and achievements in polymer recycling. Insights gleaned from Industry representatives will contribute to gain a profound insight into the intricacies inherent in various recycling processes.	-
114445	OTHER TRAINING ACTIVITIES 2		1	1 CFU ALTRE ATTIVITA' Altre Conoscenze Utili per l'Inserimento Nel Mondo del Lavoro	Training activities providing basic knowledge of intellectual asset management and patenting	-
114447	FINAL EXAM		31	31 CFU PROVA FINALE Per la Prova Finale	The final exam requires an experimental thesis on an original topic to be carried out at the research laboratories of the Department of Chemistry and Industrial Chemistry of the University of Genoa or, on request, at external, national or foreign structures (University, public or private laboratories or research institutions, public or private industries), under the guidance of a Supervisor. The results of the activity will be shown in a written dissertation prepared in an original way by the student under the guidance of a Supervisor and discussed orally in front of a Committee including teachers of the Master's degree course and experts in the field. During the thesis, the student will acquire the skills and methodologies necessary to face systematic research problems (basic and / or applied) as well as to analyze and report the results rigorously and clearly.	-
114448	FOCUS GROUP		2	2 CFU A SCELTA A Scelta dello Studente	Educational activities in line with the training project (soft skills, flipped classroom, focus group)	-

SMART organization

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Documents

- Manifesto degli studi 2024/2025
- Didattica programmata 2024/2025
- Regolamento 2024/2025

- **Regolamento 2024/2025:**
- All rules steering the MSc SMART (ITA/ENG).
- Read carefully this document to understand SMART organization and what we expect from you.

Università di Genova | DCCI DIPARTIMENTO DI CHIMICA E CHIMICA INDUSTRIALE

School of Mathematics, Physics and Natural Sciences

Department of Chemistry and Industrial Chemistry (DCCI)

Master's of Science Sustainable Polymer and Process Chemistry

Class LM-71

TEACHING REGULATIONS - Intake 2024/2025

Approved by the Council of the Course of Studies on 02/05/2024

Description of the operations of the MSc degree course

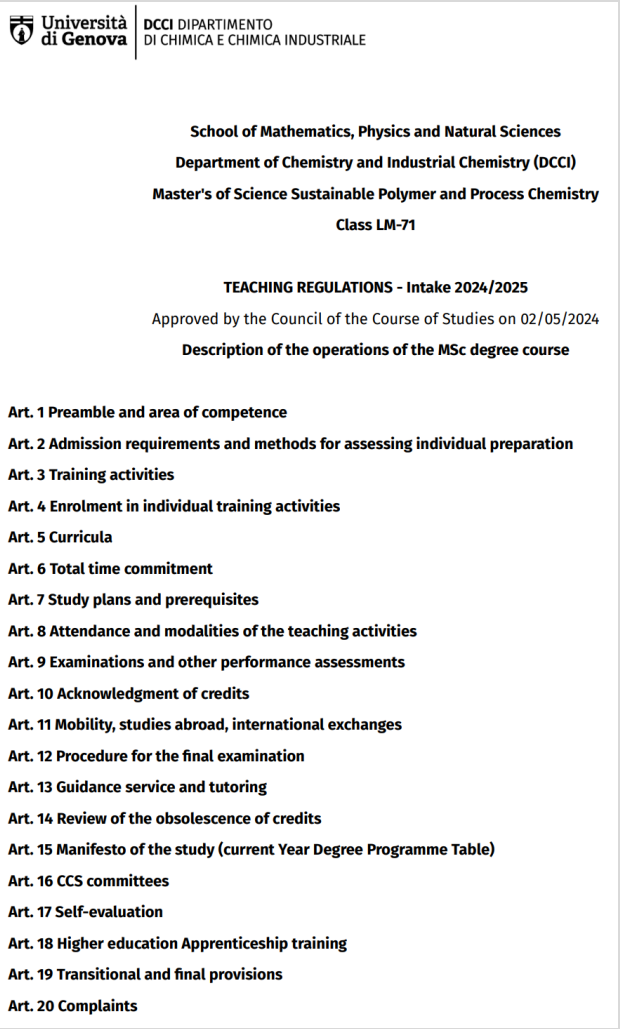
Meeting 18.10.2024

SMART organization

https://corsi.unige.it/en/corsi/11767

Documents

- Manifesto degli studi 2024/2025
- Didattica programmata 2024/2025
- Regolamento 2024/2025



Università di Genova | DCCI DIPARTIMENTO DI CHIMICA E CHIMICA INDUSTRIALE

School of Mathematics, Physics and Natural Sciences

Department of Chemistry and Industrial Chemistry (DCCI)

Master's of Science Sustainable Polymer and Process Chemistry

Class LM-71

TEACHING REGULATIONS - Intake 2024/2025

Approved by the Council of the Course of Studies on 02/05/2024

Description of the operations of the MSc degree course

Art. 12 Procedure for the final examination

The final examination consists in carrying out an experimental work on an original topic developed in the research laboratories of the DCCI or, on request, in external structures (universities, public or private laboratories or research institutions, public or private companies) in Italy or abroad, under the guidance of a supervisor.

The final examination includes, in particular, a design or research activity carried out by the student in an original way, demonstrating mastery of the topics covered and the acquisition of the necessary skills and ability to work independently.

The CCS draws up specific regulations for the thesis and final examination (Final Examination Regulations, https://corsi.unige.it/11767/p/commissioni-e-referenti), which also set out the criteria for awarding bonus points for students who have obtained CFUs abroad for the other activities 2 and for the Focus Group.

To be able to start the thesis, which takes at least six months, the student must have earned the minimum number of CFUs indicated in the Final Examination Regulations.

The results of the thesis are recorded in a written dissertation in English (with a summary in Italian), written in an original way by the student under the guidance of the supervisor and discussed orally before a special committee composed of lecturers of the degree program and/or experts in the sector.

The final examination is public and consists of the presentation of the final thesis; the final grade is expressed in hundredths and is determined according to the criteria laid down in the final examination regulations. The Final Examination Board consists of at least five members and is appointed by the Director of the DCCI.

Meeting 18.10.2024

SMART organization

https://corsi.unige.it/en/corsi/11767

Documents

- Manifesto degli studi 2024/2025
- Didattica programmata 2024/2025
- Regolamento 2024/2025

Università di Genova | DCCI DIPARTIMENTO DI CHIMICA E CHIMICA INDUSTRIALE

School of Mathematics, Physics and Natural Sciences

Department of Chemistry and Industrial Chemistry (DCCI)

Master's of Science Sustainable Polymer and Process Chemistry

Class LM-71

TEACHING REGULATIONS - Intake 2024/2025

Approved by the Council of the Course of Studies on 02/05/2024

Description of the operations of the MSc degree course

Art. 2 Admission requirements and methods for verifying individual preparation

The prerequisite for enrolment in the MSc in Sustainable Polymer and Process Chemistry is the possession of a degree from an Italian university (three-year degree according to Ministerial Decree DM 509/1999 or DM 270/2004, specialist or Master's degree according to Ministerial Decree 509/1999 or DM 270/2004, single degree of the old system) or a foreign degree considered equivalent. The equivalence of foreign degrees is determined by analyzing the corresponding transcript of records.

Only Italian students are entitled to conditional enrollment, provided that the degree is obtained within the deadline set each year by the decree of the Rector of the University of Genoa or by the Council of the DCCI, if this deadline is earlier than the one set by the University. Only students who have already completed all the coursework (CFUs) provided for in their study plan by the deadline set each year in the study manifesto (normally in October, immediately before the start of lectures), with the exception of a limited number set from year to year and indicated in the said manifesto, will be admitted for conditional enrollment. All extracurricular CFUs and CFUs counted toward the final exam will not be included in the calculation of required CFUs.

Admission to the Master of Science degree program in Sustainable Polymer and Process Chemistry requires possession of:

- specific curricular requirements;
- adequate individual preparation;
- a sufficient level of practical experience, e.g. through participation in courses with laboratory exercises;
- knowledge of the English language, including specialized lexicons, at level B2 or higher.

As far as the curricular requirements are concerned, to be admitted to the Master's program you must

- have at least 50 credit points (CFU) or equivalent knowledge in the scientific subject areas (SSD) CHIM/01-12 and/or ING-IND/21-27;
- have at least 15 CFU or equivalent knowledge in the SSD MAT/01-09, FIS/01-08 and INF/01; of the total of 15 CFU, at least 6 CFU must be in the SSD MAT/01-09 and at least 6 CFU in the SSD FIS/01-08.

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Sustainable polyMer And pRocess chemisTry Master of Science organization

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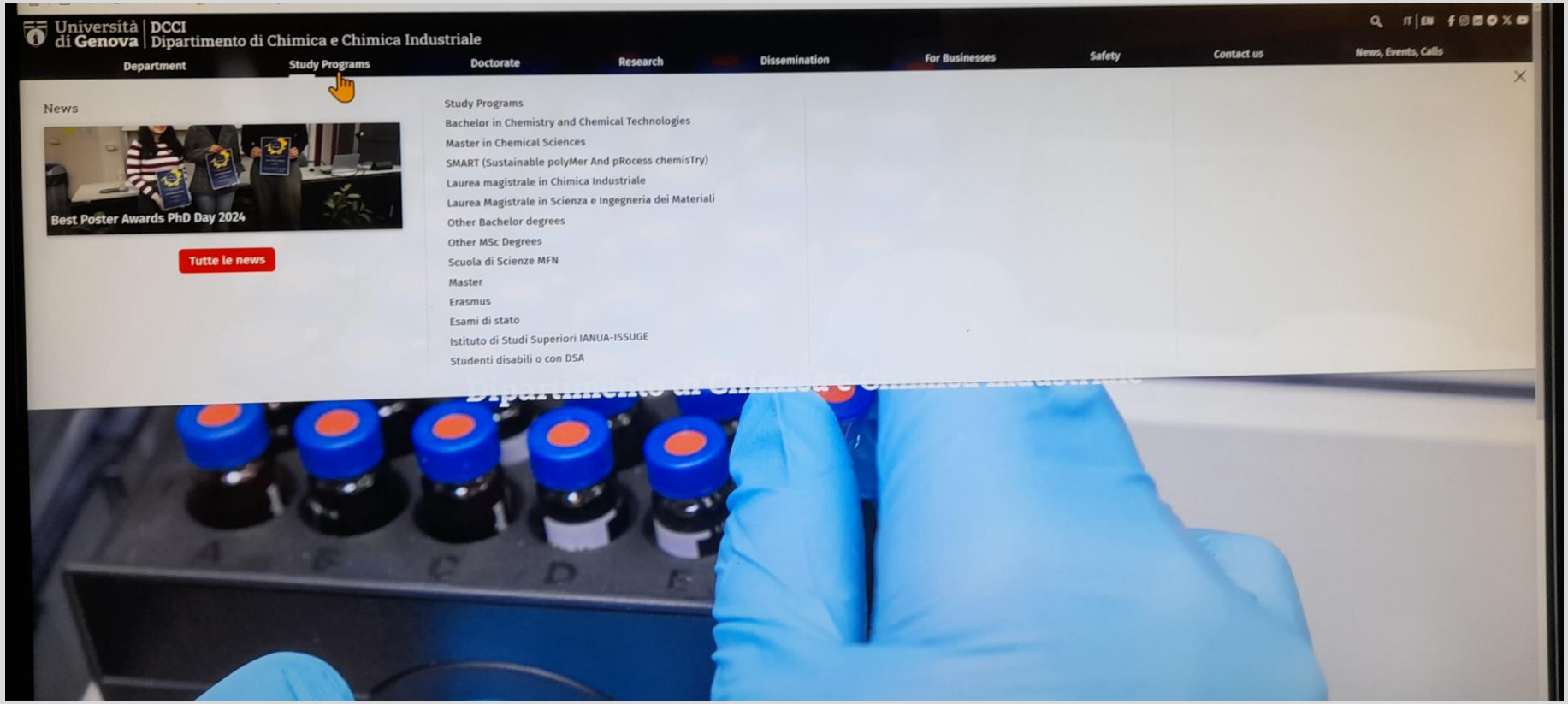
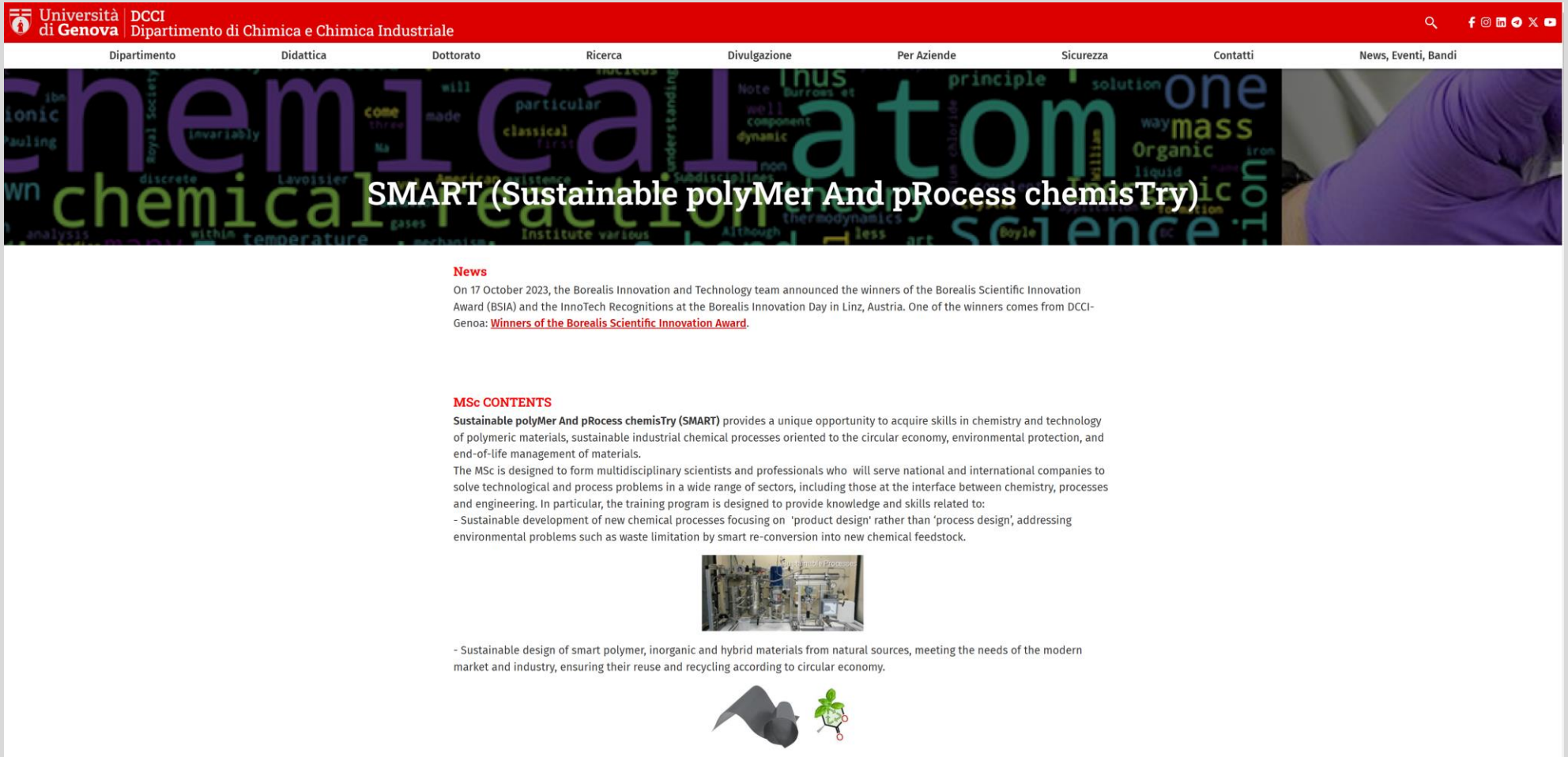
https://chimica.unige.it/node/1816



Sustainable polyMer And pRocess chemisTry Master of Science organization

https://chimica.unige.it/node/1816



- Go there for SMART description and additional documents

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https://chimica.unige.it/node/1816

FURTHER READINGS

In order to possess a minimum background to tackle the SMART MSc programme, applicants might read:

BOOKS (fundamental issues)

- Introduction to Synthetic Polymers by, Ian M. CAMPBELL, Oxford University Press, 2000
- Elements of Chemical Reaction Engineering by H. Scott FOGLER, Pearson, 2020
- Mass Transfer Operations, Robert TREYBAL, McGraw Hill, 1980

PAPERS

- Nature Communications volume 8, 15611 (2017)
- Nature Communications volume 9, 2157 (2018)
- Scientific Reports volume 8, 4666 (2018)
- Chem. Eng. News, 2018, 96(12); 5
- Xin Lu et al., Nature 606, 511–515 (2022)
- https://closetheglassloop.eu/
- Environ. Sci. Technol. 2018, 52, 8, 4835–4841
- European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, Grohol, M., Veeh, C., Study on the critical raw materials for the EU 2023 – Final report, Publications Office of the European Union, 2023, https://data.europa.eu/doi/10.2873/725585
- https://eurometaux.eu/media/20ad5yza/2022-policymaker-summary-report-final.pdf
- https://op.europa.eu/en/publication-detail/-/publication/57318397-fdd4-11ed-a05c-01aa75ed71a1
- Current Opinion in Green and Sustainable Chemistry 2018, 13:1–7

Additional suggestions are available on request.

Allegati

SMART Leafleft (287.27 KB)
SMART Overview (2.6 MB)

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Meeting 18.10.2024

SMART student problems & VISA problems

- Housing:
- https://www.cercoalloggio.com/genova
- ALISEO: https://www.aliseo.liguria.it/foreign-students/

Aliseo
Agenzia ligure per gli studenti e l'orientamento

- Before flying to Genova, ask sass@unige.it, subject: INFO ACCOMODATION - Sustainable polymer and process chemistry

- Concerning VISA, We are aware of problems occurring, in particular for selected countries.
- However, we don't have tools to solve them

University Scholarship
Economic Benefits Service
Accommodations
Accommodations with fee
Rental contribution
Accommodation for undergraduate students
Summer accomodation
Canteen Service
Forms

Notizie
Archivio notizie
Avvisi
Gare

FOREIGN STUDENTS

ALiSEO is the Regional Agency for students and guidance of Liguria.

Body of the Regional sector of the Liguria Region, ALiSEO was established with regional law n. 25 of 5th December 2018 and started its activity on 1st January 2019 with the aim of helping students to reach the highest levels of education and support them in their choices through guidance activities and youth policies.

The offered services are **economic benefits** provided for by regional and national laws for students of all levels.

ALiSEO also promotes and carries out guidance activities in the choice of training courses and interventions in the field of social and youth policies

ALISEO SERVICES

- Scholarship
- University study hall
- Student restaurants
- Accommodation
- Cultural and sport activities.

Meeting 18.10.2024

Any other business