



UNIVERSITA' DEGLI STUDI DI PAVIA

DIPARTIMENTO
DI
SCIENZE DELLA TERRA E DELL'AMBIENTE

MASTER'S DEGREE
(LAUREA MAGISTRALE)

IN

APPLIED GEOLOGICAL SCIENCES
SCIENZE GEOLOGICHE APPLICATE

(ACADEMIC YEAR 2016/17)

STUDENT GUIDEBOOK

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HOW TO BECOME A SPECIALIST

Applied Geological Sciences Master's Degree Course (Laurea Magistrale in Scienze Geologiche Applicate) aims to give its students a sound Geological background, so that they can easily enter the labour market and meet our society's needs.

Recently, Applied Geological Sciences Master's Degree Course has undergone restructuring, to be closer to international labour market and improve its relationship with Italian stakeholders. Our courses are taught in Italian and English, within a didactic structure designed to offer the maximum flexibility and to adapt to our students' scientific interests. For all courses, the materials shown during the lessons and all recommended books are in English. All exams can be taken in English.

The Master's Degree programme takes two years of full-time study to complete. During this time, students must get at least 120 credits (CFU) to obtain their degree. According to Italian law, 1 CFU is equivalent to 25 student's work-hours. The regulations say that 1 CFU corresponds with 8 teacher-led lesson hours, 12 laboratory hours, 16 on-field hours (field trips and geological exploration). To have access to Applied Geological Sciences Master's Degree Course, the applicant is required to hold at least a 3-year degree or a foreign qualification degree as far as it is recognized by the Authorized University Board.

The second term in the second year is mainly spent preparing degree thesis (24 CFU). Students must also get 5 credits completing a traineeship in a University laboratory, a private company or a public institution.

Traineeship

As mentioned above, the Master's Degree programme includes one five-credit traineeship; its purpose is to allow students to approach the world of work.

The traineeship is an essential part of our educational path and contributes to reaching the Master's course's objectives. It's normally carried out in companies and institutions that have a formal agreement with the University of Pavia.

Here is a list of companies and institution that have an agreement with our University:
<http://cor.unipv.it/aziende/newserchpost2013/Convenzionilist.asp>

Companies that are interested in offering a training experience to our students have the opportunity of entering in an agreement with the University of Pavia. Students can also complete their traineeship in the laboratories of the Department of Earth and Environment Sciences.

The responsible for traineeship is:
Prof. Claudia Meisina
Dipartimento di Scienze della Terra e dell'Ambiente
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DIDACTIC ORGANISATION

(Applied Geological Sciences Master's Degree)

Educational aims and objectives

Applied Geological Sciences Master's Degree Course is intended to prepare the student for more advanced study in the fields of natural resources, environmental planning, and other earth science specialties.

For this purpose, our Master's Degree Course provides for a highly flexible curriculum. Our students will learn all the skills required to find a job in the main Geological Sciences application fields, in particular:

- Geology applied to Civil Engineering;
- Environmental Geology and Territory Management;
- Research and exploitation of geological resources;
- Scientific and technological research.

Admission requirements

To apply to Applied Geological Sciences Master's Degree Course, applicants need to possess a first level Italian degree (Laurea – 180 CFU) or a foreign qualification degree, recognized as equivalent by the Italian law.

In order to be admitted, students must be adequately prepared in the following subjects: Earth Sciences basic knowledge, ICT skills, fluency in technical terminology and basic scientific English. The applicant must demonstrate possession of these requirements during an interview, which is carried out by the Didactic Council. The graduate with a minimum score of 90/110 in the first level degree in Geological Sciences at the University of Pavia will be exempt from the interview.

The interview is not a selection, because our Master's degree course doesn't have a contingent limitation, and its result can be one of the following:

- a) non-conditioned admission to the Master's Degree Course;
- b) admission to the Master's Degree Course, with indications about which courses must be included in the student's curriculum;
- c) non-admission, adequately justified.

To learn more about admission procedure, you can visit the following website:

<http://www.unipv.eu/site/en/home.html>

Credit recognition

Students who have already acquired an educational qualification post first level degree can ask for a re-evaluation of their university credits, so that their career can be shorter than the usual 2 years. Single exams are recognized according to the Didactic Regulation of the University of Pavia (art.52).

If a student has moved from another degree course or another University, the Didactic Council shall recognize his/her career.

If a student has moved from a degree course in the same class (LM-74), with not less than 50% of his/her credits already acquired in each scientific field, the Didactic Council shall recognize the degree course.

The Didactic Council can recognize, as curricular exams, no more than 12 credits of certified knowledge and skills.

If the student has studied abroad, without getting any official degree, his/her studies can also be recognized, if they are adequately documented.

The Didactic Council shall have the ultimate and final decision on whether a student may have a shorter program of study.

Each year, the Didactic Council decides how many non-EU students can apply to the Master's Degree.

Occupational fields

The graduated in the Master's Degree Course in Applied Geological Sciences can find a job in:

- planning, designing and realization of geological intervention for habitat conservation;

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- basic and thematic geological cartography, including digital cartography and territorial ICT;
 - on-going geological processes analysis, modelling and forecast;
 - underground prospection to find, exploit and protect geological energy (e.g. hydrocarbon) and non-energy (e.g. water) resources;
 - research, typecasting and restoration of geo-materials for industrial and commercial purpose;
 - environmental impact evaluation and restoration of abandoned mines;
 - geological investigation and geognostic prospection applied to civil engineering;
 - cultural heritage decline evaluation and prevention, aimed to conservation and promotion;
 - scientific research.

These skills are useful to find a job in the environmental-concerned, engineering and geosources-searching companies, in local administration, in national (Ministries) and international (UNESCO, FAO etc.) institutions, in private and public research centers (Universities, CNR, Civil Protection).

CURRICULUM

MASTER'S DEGREE IN APPLIED GEOLOGICAL SCIENCES 2016/2017 – 2017/2018

Characterizing courses: geology and paleontology (18 CFU)	year	period	credits	subject
Micropaleontologia applicata (<i>Applied Micropaleontology</i>)	1	1	6	GEO/01
Geologia strutturale (Structural geology)	1	1	6	GEO/03
<i>Basin analysis and petroleum geology</i>	1	1 and 2	12	GEO/02
Geomeccanica (<i>Geomechanics</i>)	2	1	6	GEO/03
Characterizing courses: geomorphology and applied geology (24 CFU)				
Geomorfologia applicata e impatti geoambientali (<i>Applied Geomorphology and geoambiental impact</i>)	1	1	6	GEO/04
Laboratorio di GIS (<i>GIS Laboratory</i>)	1	2	6	GEO/04
Telerilevamento e analisi spaziale (<i>Remote sensing and spatial analysis</i>)	1	1	6	GEO/04
Geologia applicata ai rischi geologici e alle acque sotterranee (<i>Geology applied to geological risk and underground water</i>)	1	1 and 2	12	GEO/05
<i>Geopedology</i>	2	1	6	GEO/04
Characterizing courses: mineralogy, petrography and geochemistry (18 CFU)				
Composizione della litosfera e prospezioni geochimiche (<i>Composition of the lithosphere and geochemical prospection</i>)	1	1 and 2	12	GEO/07
Applicazioni mineralogiche e petrografiche per i Beni Culturali (<i>Mineralogy and Petrography applied to Cultural Heritage</i>)	1	2	6	GEO/09
<i>Environmental geochemistry</i>	2	1	6	GEO/08
Petrografia applicata (<i>Applied petrography</i>)	2	1	6	GEO/09
Supplementary courses				
<u>3 courses among the following:</u>				
<i>Analytical methodologies applied to geosciences</i>	1	1	6	GEO/06
Cristallografia (<i>Crystallography</i>)	1	1	6	GEO/06
Geotecnica (<i>Geotechnics</i>)	1	2	6	ICAR/07
Gemmologia (<i>Gemmology</i>)	1	2	6	GEO/06
<i>Applied geophysics and underground surveys</i>	1	2	6	GEO/11
Paleoclimatologia e cambiamento climatico globale (<i>Paleoclimatology and global climate change</i>)	2	1	6	GEO/01

As to characterizing courses, students must get:

- 18 credits in Geology and Paleontology (GEO/01, GEO/02 and GEO/03);
- 24 credits in Geomorphology and Applied Geology (GEO/04 and GEO/05);
- 18 credits in Mineralogy, Petrography and Geochemistry (GEO/06, GEO/07, GEO/08 and GEO/09).

As to characterizing courses, students must take seven or eight exams.

They must also get:

- 18 credits in supplementary courses (3 courses);
- 12 credits in optional courses, picking them from the offer of the entire University of Pavia (geological courses included).

In the second year second period, students usually attend the Traineeship (5 credits) and prepare their Degree Thesis (24 credits). These two activities can be associated. Besides, students will get 1 credit in "Occupational Skills" if they attend a certain number of seminars.

At the end of the 2 years, the student must have completed 120 credits.

GENERAL INFORMATION

The Department of Earth Sciences and the Environment

The Department of Earth and Environment Sciences grants degree programs in Geology and Applied Geology. Classes are held at the "Cravino" campus in a modern facility equipped with classrooms, laboratories and study rooms. The staff/student ratio optimally allows for continuous interactions that are extremely profitable both in class, in the laboratory, and during the many field activities.

President of the Didactic Council

Prof. Riccardo Tribuzio

e-mail : presidente.geologia@unipv.it

Segreteria Didattica via Ferrata, 1 – 27100 Pavia

Tel +39 0382.985021 – 985244 - 985379

e-mail: didattica@dsta.unipv.it

Teachers and Students Committee

The Committee members are appointed by the Department. Its purpose is to analyze course evaluation forms filled in by students and to select course tutors.

Lesson calendar

The academic year is divided in two semesters. First semester starts at the beginning of October and ends halfway through January. Second semester starts at the beginning of March and ends halfway through June.

All courses are held in the Department of Earth Sciences and the Environment, Geology Section, via Ferrata 1.

The Lesson calendar is available on our Department's website (<http://dst.unipv.it>).

Practical activities are held in our Department's classrooms and labs. Our courses include also field trips in Italy and abroad.

ENROLMENT

To enroll, a student must have any degree in Geology recognized as suitable by the Didactic Council.

The degree must be translated and validated by the Italian embassy (or another EU embassy, if there's no Italian embassy) in the Country from which the applicant comes.

Knowledge of Italian Language

If an extra EU applicant hasn't got a C1 or C2 level CELI certification, he/she must take an Italian Language exam at the University Linguistic Center in Strada Nuova 65, Pavia, on 2nd September 2016, at 8.45.

Interview

Applicants to Applied Geological Sciences Master's Degree Course must be interviewed by a committee appointed by the Didactic Council.

The interview will be held on 30th September at 14.30, in D7 Room, Department of Earth and Environment Sciences, Earth Building, via Ferrata 1, Pavia.

In order to be interviewed using Skype, applicants must send an email to presidente.geologia@unipv.it

Applicants must send their request from 13th July to 19th September, only on the website <http://www.unipv.eu/site/home.html>. Please click on "Area Riservata" and register. Once you've got your login and password, you must access your Private Area, click on "Segreteria" and then on "Test di valutazione".

Please read the call on www.unipv.eu for further information.

INTERNATIONAL STUDENTS

Exchange programs

The University of Pavia is one of the most pioneering Italian universities when it comes to internationalising its academic system. The fact that the University was one of the first to offer places to Erasmus students, together with Siena and Bologna, serves as firm proof of this. Furthermore, the University collaborates with the Coimbra Group, a collection of the oldest universities in Europe, in numerous projects aimed at “Europeanising” the university system. The European Commission has now approved some of these projects as good practice for universities in Europe.

Therefore, UNIPV believes in creating opportunities for its students to pursue international careers by allocating grants to deserving students from Italy and abroad. We also benefit from a research-friendly environment by financing local research projects and attracting researchers from all over the world.

Through the many academic contacts it has made over the years, UNIPV has set up a network of international collaboration, which currently includes more than 500 universities and research organisations from all over the world. The result is international academic prestige for UNIPV. Furthermore, the University of Pavia allocates part of its international budget to developing countries through the University Centre for Cooperation and Development (CICOPS).

The Erasmus program

Erasmus+ is the EU's new umbrella programme for education, training, youth and sport, which has been designed to be more global and integrated than ever before. It brings together seven EU programmes and offers more opportunities for cooperation than its predecessors.



Erasmus traineeship is a new EU programme within the Erasmus + scheme.

It enables students at higher education institutions to do a work placement (traineeship/internship) at an enterprise or an organisation located in another participating country.

The main aim of the programme is to help students adapt to the requirements of the Community-wide labour market, and to improve understanding of the economic and social culture of the host country while acquiring work experience.

Erasmus Overseas: starting the year 2015/2016, Erasmus+ allows mobility to staff and students from and Extra European Countries, defined as Partner Countries.

Feel free to contact our contact person:

Prof. Elisa Sacchi - tel.: 0382-985880, fax 0382-985890 e-mail: elisa.sacchi@unipv.it

FIELD TRIPS

Our frontal lessons are integrated by many field trips, so that our students may get sound practical skills and learn to apply their knowledge.

Here is the list of 2015/16 field trips, as an example of our program activities.

First year

<i>Molato dam and its geomorphological problems and connections: studying the effect of the September flood in the Trebbia, Aveto and Nure Valleys</i> Val Tidone, Trebbia, Aveto e Nure (Piacenza)
<i>Geomorphological survey in a river bed</i> Valle Staffora (Pavia)
<i>Geo(morpho)logical heritage: geomorphosites evaluation and human activity impact</i> Sesia-Val Grande Geopark, Mergozzo (Verbania)
<i>Geosites and geotourism: geomorphosites evaluation and design of a geo-tour</i> Val Grande Geopark, Mergozzo (Verbania)
<i>Jurassic ophiolites in interior Liguria unities</i> Bonassola, Passo del Bracco (La Spezia)
<i>Ophiolites and continental crust rocks in Central and Northern Corsica</i> Corsica
<i>Connection between mantle sequences and continental crust material in sedimentary mélangé in external Liguria unities</i> Val Perino (Piacenza)
<i>Lanzo peridot range</i> Caselette (Torino)
<i>Lower continental crust sequences along Sesia River (Ivrea area)</i> Val Sesia (Vercelli)
<i>Transition from continental crust to mantle in Finero complex</i> Malesco (Verbanio Cusio Ossola - Piemonte)
<i>Resistivity and Electromagnetic Geophysical Surveys</i> Santa Giuletta (Pavia)
<i>Visit to Boario Terme hot springs and establishment – hydrogeological survey</i> Val Camonica (Brescia)
<i>Triassic basins in Dolomites</i> Val di Fassa (Trento)

Second year

<i>Geomechanical survey</i> Alta Valle Staffora (Pavia)
<i>Visit to urban water treatment plant (ASM Pavia)</i> Pavia
<i>Visit to LENA nuclear reactor</i> Pavia
<i>Monitoring a collapsing slope</i> Oltrepò Pavese (Pavia)

SERVICES AND FACILITIES

Applied Geological Sciences Master's Degree Course's classes are held in the Department of Earth and Environment Sciences, at the "Cravino" campus in a modern facility equipped with classrooms, laboratories and study rooms.

For more info please visit our website: <http://dsta.unipv.it>.

PC labs and Wi-fi

There are several computer rooms available for student use. In all, there are 17 computer rooms where students can take lessons, computer classes, and make use of self-study facilities. Faculties or departments run the computer rooms, and each of them has their own rules for access and opening times. For more information: <http://www.unipv.it/webaule>

Another service offered by the University of Pavia is a free Wi-Fi connection: connect to the internet on your own personal laptop or mobile device in almost all the buildings of the university using your atheno name and password.

Libraries

Students will be provided with a wide and complete offer of about 35 libraries run by different faculties and departments. The whole library system contains over 972.000 books and about 19.000 printed periodicals, thus covering the whole range of academic teaching and research offer. All material owned by the different academic libraries is listed in an electronic catalogue, called OPAC (On-line Public Access Catalogue).

To get more detailed information on the complete list of academic libraries and on their location, opening times and specific rules of each of them, please refer to the following website:

<http://libraries.unipv.it/>

To consult the OPAC, please refer to:

<http://opac.unipv.it/opac/ricerche.html>

Welcome Point

The Welcome Point (<http://welcomepoint.unipv.it/>) gives support and advice to incoming international students, researchers and university professors visiting the University of Pavia. It collaborates with other university offices and provides useful information on various topics of interest for our guests. In particular, it gives information on:

- Enrolment at the university
- Permit of stay (*it. permesso di soggiorno*)
- Housing
- Halls of Residence
- Fiscal code (*it. codice fiscale*)
- University canteens (*it. mensa*)
- Health insurance
- Campus info
- University Sports Centre (CUS)
- Unibus pass
- Scholarships
- Opening a bank account
- Welcome day
- Italian courses or self-study at the University Language Centre
- General information on the University of Pavia and Pavia

Language Centre

The Language Centre (<http://cla.unipv.it/>) organizes Italian courses three times a year, in September, October and February.

The courses are all taught by qualified Italian teachers to adults who study Italian as a second or foreign language. Italian courses are mainly addressed to Erasmus+ students, international exchange students and students enrolled at University of Pavia. However, they are also open to anyone who is interested in learning Italian.

EARTH AND ENVIRONMENTAL SCIENCES PhD

The PhD in Earth and Environmental Sciences, which has been running since 2013 (Cycle XXIX), offers 4 possible curricula: Earth, Environment, MARES and NASSTEC.

The **Earth** curriculum includes three possible branches of research:

- 1) Geology and Paleontology
- 2) Applied Earth Sciences
- 3) Chemistry and Physics of the Earth System

The **Environment** curriculum includes two possible branches of research:

- 1) Botany and Mycology
- 2) Ecology and Zoology

The **MARES** curriculum is part of the “Doctoral Programme on Marine Ecosystem Health and Conservation – MARES”, funded by the Erasmus Mundus project, is run by a consortium of 24 European partner institutions, including the University of Pavia. Each year the programme offers “Transferable Skills and Training Courses” on different topics including:

- Applications of fuzzy logic to marine environmental research;
- Effects of ocean acidification and global warming on Mediterranean marine organisms;
- Scientific diving and long-term monitoring projects.

The **NASSTEC** curriculum is available thanks to the EU project NASSTEC, the Native Seed Science, Technology and Conservation Initial Training Network (Marie Curie Actions ITN EU FP VII), which is run by 14 European partners (research institutions and private companies): 7 full partners and 7 associated partners. This programme will allow 11 graduates to qualify as Early Stage Researchers by the end of their PhD at the University of Pavia.

For more info, please visit our website: <http://phdsta.unipv.eu/>