

POST GRADUATE MASTER COURSE

Meteorology and Climatology

II Edition 2008/2009



UNIVERSITÀ DEGLI STUDI
DI TORINO



The II Level International Post Graduate Master Course in “**Meteorology and Climatology**” (2nd edition 2008-2009) is established by Università degli Studi di Torino (Italy), managed in Torino by COREP in partnership with Arpa.

COREP – Consortium for the Research and Permanent Education – is a no-profit consortium created in 1987 on the initiative of the three Piedmont Universities – Polytechnic of Turin, University of Eastern Piedmont “A. Avogadro” – local bodies and important Italian industries and associations. One of the main goals of COREP is to provide high qualifying training services to young graduates in order to facilitate their entrance in the labour market, promoting the cooperation between universities and socio-economic actors.

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The Post-Graduate Master Course has been approved and funded by the European Social Fund
Bando Regionale per Master Universitari di I e II livello 2008/2009 – D.D. n. 345 del 04/08/2008

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1. WHY THIS MASTER?

The II level Master in "**Meteorology and Climatology**" builds up professionals with high scientific level able to:

- Direct and coordinate several activities within the frame of the meteorological services and of the national and international governmental bodies with competences related to the weather and climate
- Carry out scientific research at international level

The master provides a solid competence and a quantitative preparation: on the physical processes governing the weather systems; on the variables and processes that influence the climate; on the physical, mathematical, experimental and numerical methodologies of the activities studied; on the techniques used for the numerical simulation of meteorological and climatic systems at global and regional scale; on the elaboration and interpretation of data and experimental results. To reach this goals, among the main aims of the master, there are: the training of experts to be included in the main activities of the meteorology and climatology (weather forecasting, extreme events warning, quality of the environment, agrometeorology, biometeorology, support to the transportation system and tourism); the update and the improvement of the technical skills of officers and managers of governmental and private bodies who have the responsibility of planning and managing the environment and its resources (especially concerning the evaluation and control of the air quality), the territory, the infrastructures, the transports, the tourism, the agriculture and the communications.

2. JOB OPPORTUNITIES

At the end of the Master, the student will have the ability to:

- become an officer or manager, coordinator of the forecasting and research activities in the national and regional meteorological services, and in the governmental and private bodies that have competence in the activities mentioned among the objectives of the Master (among the others: the Ministries of agriculture and forestry, environment and health, bodies for the agricultural, forestal, environmental and sanitary development);
- carry out research in universities and in other public and private, national or international, environmental institutions in the field of meteorology, climatology, but also of agricultural, forestry and environmental sciences;
- work as consultant in the environmental and agricultural fields;
- fit into the activities of bodies and institutions for control, surveillance and intervention;
- carry out consultant studies in the environmental and agricultural fields, or for insurance companies, law firms and private companies dealing with services related to meteorology, evaluation of environmental impacts, land protection, sustainable management of agro-ecosystems, development of software and hardware for the environment management;
- deal with the diffusion of the problems of climatology and meteorology.

3. WHO CAN ATTEND

The Master, for his substantial interdisciplinary approach, is addressed **to 2nd level graduates in Physics, Mathematics, Engineering for the environment and the territory, and all degrees of the Faculty of Engineering.**

The Scientific Committee, for the only purpose of admission to the Master, may consider the nominations of people with qualifications equivalent (also obtained in foreigner countries) that are in possession of knowledge and cultural and professional skills able to allow them to follow profitably the Master lessons.

4. PERIOD AND VENUE

The Post-Graduate Master Course on “Meteorology and Climatology” will be held **from January 2009 to December 2009**.

Lectures will be held in COREP (Corso Trento 13, Torino) and stages will be performed in companies/public bodies.

5. PROGRAMME

The Post-Graduate Master Course last **1 year**, and involves about **532 hours of face-to-face lessons, 100 hours of alternative education and 375 hours of stage**.

The class lessons last 8 hours a day (from Monday to Friday, from 9.00 to 13.00 and from 14.00 to 18.00).

The official language of the course is English.

The **main areas** are:

- Physics of the atmosphere
- Chemistry of the atmosphere
- Meteorology
- Climatology
- Hydrology
- Biometeorology
- Agrometeorology
- Numerical modelling
- Statistics
- Physics of the climate
- Paleoclimatology

6. SCIENTIFIC COMMITTEE

The Scientific Committee is made up of:

Prof. Claudio Cassardo - Director, Scienze M.F.N. Faculty, Università degli Studi di Torino
Prof. Arnaldo Longhetto, Scienze M.F.N. Faculty, Università degli Studi di Torino
Dott.ssa Silvia Ferrarese, Scienze M.F.N. Faculty, Università degli Studi di Torino
Dott. Nicola Loglisci, ARPA Piemonte - Area di Prevenzione e Monitoraggio Ambientale
Dott.ssa Renata Pelosini, ARPA Piemonte - Area di Prevenzione e Monitoraggio Ambientale
Dott. Christian Ronchi, ARPA Piemonte - Area di Prevenzione e Monitoraggio Ambientale

7. HOW TO APPLY

In order to apply for a Master or a specializing Course please fill in the Subscription Form (download at <http://www.meteo.formazione.corep.it/meteo08/application.html>) and send it by the deadline in one of the following way:

- by electronic mail (**iscrizioni@corep.it**)
- by fax (+39 011 0905110)
- hand delivered to Master Corep Secretariat (Corso Trento, 13 – 10129 Turin, ITALY)
- by ordinary mail. Please send a closed envelope to: Segreteria Master Corep (Corso Trento, 13 – 10129 Turin, ITALY)

The deadline to apply is: **November 14th, 2008**

The application is unbinding. It only aims to be admitted to the selection.

Following documentation (the list of documents is also provided in Italian at the **note 1**) must be provided in attachment:

- **ALL STUDENTS** must also enclose:
 - the Subscription Form (download: [.doc](#) or [.pdf](#))
 - Copy of the MSc (or MSc equivalent) degree together with the transcript of records of the sustained examinations
 - Curriculum Vitae according to the European standard (Europass CV in [.doc](#) or [.pdf](#) format). It must include the authorization to the treatment of the personal data (Italian DL 196/2003). In any case **the curriculum must be sent in electronic format** to iscrizioni@corep.it.
 - 1 passport photo with name and surname reported on the back (if the application has been sent by email, the photo is not mandatory, but has to be provided in case of admission.)
 - Copy of a passport or identity card valid
 - Copy of "Codice Fiscale" (Italian individual tax code)
It is obtainable at the "**Agenzia delle Entrate**" local office (Italian Internal Revenue Service) by presenting a document of identification (foreigners must present Passport or Permit of Stay).
Residents abroad can refer also to Italian Consulates.
For further information
(<http://www.agenziaentrate.it/ilwwcm/connect/Nsi/Servizi/Codice+fiscale+-+Tessera+Sanitaria/Codice+fiscale+faq/>)
 - Title of the MSc (or MSc equivalent) final project together with a short summary of its contents (max one page)
 - Self certification Module (in [.doc](#) or [.pdf](#) format).
 - Form: "Main Professional Condition" (in [.doc](#) or [.pdf](#) format).
- **STUDENTS WITH ITALIAN DEGREE** must also enclose:
 - Degree thesis with all exams. For final year student it is sufficient a certificate of exams with marks. It's also accepted the self declaration ex art. 445/2000, articles 46-47 ([.doc](#) or [.pdf](#))
- **STUDENTS WITH FOREIGN DEGREE** must also enclose:
 - declaration of value and certificate with the translation of all the passed exams.
This declaration must be requested to the Italian Consulate in the country where the student had the degree.
Community citizens may submit certified copies of the titles about the Declaration of Value.
Extra-community citizens have to submit originals of the titles about the Declaration of Value.
- **FOREIGN STUDENTS FROM COUNTRIES INDICATED IN THE VISA SYSTEM AND THE ENTRY OF ALIENS INTO ITALY AND THE SCHENGEN AREA (www.esteri.it/visti/home.asp) LIVING IN ITALY** must also enclose:
 - Entry Visa and residence permit
- **FOREIGN STUDENTS FROM COUNTRIES INDICATED IN THE VISA SYSTEM AND THE ENTRY OF ALIENS INTO ITALY AND THE SCHENGEN AREA (www.esteri.it/visti/home.asp) NOT LIVING IN ITALY** must also enclose:
 - a motivational letter if, according with the Selection Commission, the interview will not be in presence;

Incompletes application forms won't be considered as valid.

The COREP Secretariat Office will send an acknowledge of receipt (by phone or by e-mail) of the application in 3 working days. If you don't receive any communications, please contact our Office by phone or e-mail.

For more info please call the Info-Point: Tel +39 011 0905107. E-mail: formazione@corep.it

Note ¹

- Domanda di Iscrizione (in formato [.doc](#) o [.pdf](#))
- Certificato di laurea con esami; per laureandi certificato degli esami con voti. È ammessa anche l'autocertificazione (in formato [.doc](#) o [.pdf](#));
- Curriculum vitae secondo lo standard europeo (Europass CV in formato [.doc](#) o [.pdf](#)). Il curriculum dovrà riportare in calce l'autorizzazione al trattamento dei dati personali (D.Lgs.196/2003);

- 1 fotografia formato tessera con indicati nome e cognome sul retro (se la domanda viene spedita in formato elettronico, la fotografia non è obbligatoria, ma deve essere consegnata in caso di selezione);
- Copia di un documento di identità in corso di validità (Carta di Identità o Passaporto)
- Copia del Codice Fiscale
Richiedibile presentandosi all'Ufficio locale dell'Agenzia delle Entrate con un documento di riconoscimento (gli stranieri devono presentare passaporto o permesso di soggiorno).
- I residenti all'estero possono rivolgersi anche ai Consolati, se collegati al sistema informativo dell'Anagrafe Tributaria.
Per maggiori informazioni (<http://www.agenziaentrate.it/ilwwcm/connect/Nsi/Servizi/Codice+fiscale+-+Tessera+Sanitaria/Codice+fiscale/>)
- Titolo della tesi accompagnato da una breve sintesi (massimo una pagina) della medesima;
- Modulo "Condizione Professionale Prevalente"(in formato .doc o .pdf).

CONFIRMATION OF REGISTRATION

At the end of the selection a definitive classification list of the eligible candidates will be written. These candidates will receive, subject to available places, the proposal to be registered to the Master. The student will regularize the registration through the apposite form("Confirmation of registration").

It is correct to specify that:

- **STUDENTS WITH ITALIAN DEGREE** will have to deliver copy of the original of the Thesis Degree.
- **FOREIGN STUDENTS FROM COUNTRIES INDICATED IN THE VISA SYSTEM AND THE ENTRY INTO ITALY OF ALIENS AND THE SCHENGEN AREA** (www.esteri.it/visti/home.asp) before to regularize the registration about the form ("Confirmation of registration"), must give to the Secretary, within expiration date, the Visa of entrance for study reason type D with multiple entrances and the residence permit.

Further information about documents for foreign students are available on the site: www.esteri.it/visti/home.asp

Personal data will be used by COREP according to Italian laws (Article n. 13 Legislative decree n. 196/03).

8. SELECTION OF APPLICANTS

The selection is based on the curricula of the applicants (degree thesis vote, thesis defended, working experiences similar to the themes of the Master, etc.) and oral interviews. A Selection's Board, made up of the Director, the COREP Organizational Coordinator of the Master and some representatives of the Educational Board, will examine all submitted application forms and curricula and reject those not complying to the general requests to be enrolled in the Master Course.

The selected applicants will then be admitted to an oral interview in English. During this interview, knowledge about Informatics (Internet, E-mail, Windows, Word and Excel), if not certified by given exams, will be tested. At the end of the selection process a list of the successful applicants will be produced. These will be enrolled in the Master Course according to the position in the list and to the number of available places.

Foreign students, satisfying the admission requirements, are not obliged to come personally for the oral interview and they can be evaluated by the Commission on the basis of the curriculum vitae and of a motivational letter.

The knowledge of English language is mandatory to be admitted to the Post graduated Master Course, and it need to be certified through an auto-certification and will be evaluated during the selection process.

A maximum number of 16 participants is foreseen.

Ten places will be reserved for students coming from abroad or outside the Piedmont Region.

9. TUITION FEE

The PostGraduate Master Course has been approved and funded by the European Social Fund (Bando Regionale per Master Universitari di I e II livello 2008/2009 – D.D. n. 345 del 04/08/2008).

The tuition fee for students is **1.000 Euro** (universitary taxes included).

The Master will take place if the minimum number of 10 participants is reached.

The Scientific Committee may decide to activate the Post Graduate Master Course with a reduced participant's number, in case the budget is sustainable.

All Italian students enrolled in Post-graduated Master Courses managed by COREP can get an "**ad honorem loan**" for an amount of **5.000 Euro** per year given by UniCredit Bank. To get the loan it is sufficient to present an Enrolment Certification to the Master, without other requirements.

Further information can be asked to the COREP Master Secretariat.

10. ATTENDANCE, EVALUATION AND DEGREE AWARDING

In order to get the Post Graduated Master Course Degree by University of Turin in "**Meteorology and Climatology**" (66 University Credits), the participants have to attend at least to 2/3 of the lectures hours (certificated by signature), to pass all foreseen examinations and to successfully conclude the stage and thesis activities.

Students who are concluding their University studies and enrol to the Post Graduated Master Course will get the University Post Graduated master course award only in the case in which they will got the Master Diploma before the beginning of lectures.

Participant who will attend the course without having the requirements to be enrolled to the University, will receive a **COREP Certificate of Attendance**.

To be entitled to obtain the University Master Degree, the Italian students must comply to the Italian requirements stated by the law on education T.U. of 1933 art. 142 (simultaneous enrolment in other universities courses, doctorates, etc...is not admitted).

11. COURSE ORGANIZATION

METEOROLOGY BASIC CONCEPTS

Number of lecture's hours: 152

Atmospheric physics

Number of lecture's hours: 32

Number of Credits: 3

Atmospheric boundary layer physics

Number of lecture's hours: 22

Number of Credits: 2

Fluid dynamics

Number of lecture's hours: 22

Number of Credits: 2

Clouds and precipitation physics

Number of lecture's hours: 24

Number of Credits: 2

Dynamic meteorology

Number of lecture's hours: 22

Number of Credits: 2

Micrometeorology

Number of lecture's hours: 16

Number of Credits: 1

Atmospheric convection
Number of lecture's hours: 12
Number of Credits: 1

THE METEOROLOGICAL PHENOMENOLOGY AND ITS APPLICATIONS

Number of lecture's hours: 106

Sustainable development elements
Number of lecture's hours: 16

Alpine meteorology
Number of lecture's hours: 20
Number of Credits: 1

Hydrometeorology
Number of lecture's hours: 22
Number of Credits: 2

Tropical meteorology
Number of lecture's hours: 12
Number of Credits: 1

Radiation and optics in atmosphere
Number of lecture's hours: 24
Number of Credits: 2

Air-sea interactions
Number of lecture's hours: 12
Number of Credits: 1

PHYSICS AND ENVIRONMENTAL CHEMISTRY

Number of lecture's hours: 56

Atmospheric Chemistry
Number of lecture's hours: 22
Number of Credits: 2

Pollutants transport and diffusion processes in the atmosphere
Number of lecture's hours: 22
Number of Credits: 2

Dust transport
Number of lecture's hours: 12
Number of Credits: 1

CLIMATOLOGY CONCEPTS AND CORRELATED ELEMENTS

Number of lecture's hours: 134

Biometeorology and bioclimatology
Number of lecture's hours: 22
Number of Credits: 2

Agrometeorology and agroclimatology
Number of lecture's hours: 30
Number of Credits: 2

General and regional climatology
Number of lecture's hours: 22
Number of Credits: 2

Physics of climate

Number of lecture's hours: 22

Number of Credits: 2

Paleoclimatology

Number of lecture's hours: 16

Number of Credits: 1

Theory of climate changes

Number of lecture's hours: 22

Number of Credits: 2

CLIMATOLOGY CONCEPTS AND CORRELATED ELEMENTS

Number of lecture's hours: 158

Satellite, radar and remote sensing observations of meteorological phenomena

Number of lecture's hours: 30

Number of Credits: 2

Statistical methods and analyses in meteorology and climatology

Number of lecture's hours: 34

Number of Credits: 2

Numerical modelling in meteorology and climatology

Number of lecture's hours: 38

Number of Credits: 2

Synoptic meteorology

Number of lecture's hours: 30

Number of Credits: 2

ORGANIZATIONS IN METEOROLOGY AND WORLD OF THE JOB

Number of lecture's hours: 48

Organizations in meteorology and climatology

Number of lecture's hours: 22

Number of Credits: 2

Exploitation of personal resources

Number of lecture's hours: 16

Equal opportunities

Number of lecture's hours: 10