EMAS

Earth and Marine Sciences International PhD

CONSORTIUM AGREEMENT

The contracting Founding Parts:

a) Università degli Studi di Ferrara, Ferrara, Italy, (from now on Ferrara University) represented by Prof. Pasquale Nappi, Rector (Coordinating Institution);

b) Università degli Studi di Cádiz, Cadiz, Spagna, (from now on Ferrara University) represented by Prof. Eduardo González Mazo, Rector (Founding partner);

CONSIDERING THAT

- The University of Ferrara and the University of Cadiz agree to the establishment of an International Doctorate in Earth and Marine Sciences - EMAS (hereafter also "Course");
- The University of Ferrara and the University of Cadiz agree that the main objective of the course is to provide high level skills, suitable for high quality research in public and private entities, as well as of free profession, contributing to the realization of the European Space of Higher Education and the European Space of Research;
- The University of Ferrara and the University of Cadiz agree that the academic relationship governed by this act is in accordance with the provisions of the European Charter for Researchers;
- The University of Ferrara and the University of Cadiz agree on the following definitions:
    - The term "Coordinating institution" refers to the Ferrara University;
    - The term "Partners" refers to the institutions that will sign the present agreement;
    - The term "Home Institution" refers to the Institution Partner from which Doctoral students will develop their principal training and research activities and their Academic Supervisor belongs;

- The term "Host Institution" refers to the academic or research institution, even if not included in the partners list, where doctoral students will develop additional training and research activities, upon authorization;

CONSIDERING for the Italian side

• art. 4 of Law No 3 July 1998. 210;

• The Decree of the Ministry of Education, University and Research, February 8, 2013 n. 45 "Regulations laying down the procedures for the accreditation of offices and doctoral courses and criteria for the establishment of doctoral courses by accredited bodies";

• Regulations on Doctoral Research of Ferrara University issued with the Rector's Decree repertoire 798/2013 prot. n. 16380 of 3 July 2013.

CONSIDERING for the Spanish side

Real Decree No. 1002/2010 of 5 August, which regulates the expedition of official Universitary Titles.

Real Decree 99/2011, of 28 January, which regulates the official doctorate teaching (*BOE* no. 35, fo 10 February 2011), modified by Real Decree No. 534/2013, of 12 July (BOE No. 167, of 13 July 2013).

Agreement of the Govern Council of the University of Cádiz of 21 November 2012, by which the Memory for the creation of the International Doctorate School on Marine Studies (EIDEMAR) was approved (BOUCA No. 152, of 21 December 2012).

Regulations UCA/CG10/2012, of 21 November, of Inner Regime of the International Doctorate School on Marine Studies within CEI-MAR (Govern Council Agreement of 21 November 2012, published on BOUCA No. 152, of 21 December 2012).

Agreement of the Andalusian University Council (Andalusia Government) of December 2012 by which EIDEMAR entered into force.

Specific Convention of Joining of the universities of Almería, Cádiz, Huelva, Málaga and Algarve (Portugal), of 12 December 2012, for the Constitution of the International Doctorate School on Marine Studies (EIDEMAR).

The parties agree to accept the following terms and conditions, including those reported in the attachments that constitute integral part of the present act.

IT IS AGREED AS FOLLOWS

Article 1 - Objectives of the present Agreement

The Parties intend to establish a joint international doctorate program entitled "**Earth and Marine Sciences, EMAS**", in accordance with the Italian Ministerial Decree 8 February 2013 no 45, particularly Article 10 of the Decree.

Establishment and activation of the doctoral course is conditioned on the Italian side, by the outcome of the accreditation when the course will be submitted at ANVUR, in accordance with the constraints imposed by the Ministerial Decree 45/2013 for the accreditation of courses and offices.

The educational and research program, as well as the facilities and equipment made available by each Party and the composition of the Joint Academic Board of the course are set out in Annexes A, B, C which are an integral and essential part of this act.

Each year the above mentioned annexes will be verified and, if necessary, integrated by the Coordination Committee, see Art. 10. These integrations or modifications will not imply a new rewriting of the present agreement.

With distinct act, approved by the Parties in accordance with their regulations in force, the management and organizational aspects shall be governed, as well as aspects of the educational curriculum and the contribution of scientific and academic parts for all matters not provided for in this agreement.

Article 2 - Entry into force and duration

This Agreement shall enter into force upon signature of the parties involved. It will remain in force for five years. The act may be renewed and modified by mutual agreement between the parties. All changes and modifications must be in writing and authorized by the representatives of each Party.

In the event that one of the Party wishes to withdraw from the Convention before the end, it shall notify in writing within six months before the end of the period of validity of this agreement, unless the withdrawal is due to reasons of force majeure.

Article 3 - Objectives and general characteristics of the EMAS Program

The International Earth and Marine Sciences - EMAS PhD is an international doctorate program, jointly sponsored and chaired by the Founding Partners, the University of Ferrara and the University of Cadiz, founding institutions of the Consortium.

The Coordinating Institution is the University of Ferrara.

Additional institutions may be eligible to participate in the EMAS program as Partners and / or associated, only upon the verification of the fulfillment of the aforementioned characteristics of high qualification in the field of Earth and Marine Sciences from the Joint Academic Board and the agreement of the two Founding Members.

The EMAS program is addressed to highly qualified candidates from all European and non-European nations, and has as the main objective to train young researchers of high scientific level. All of the lines of research of the PhD students will be adhering to EU Framework Programme for Research and Innovation, the European Horizon 2020 initiative.

The EMAS program is open to all applicants, regardless of nationality, holding a degree valid for access to the third level of university education, according to the regulations in the Partner Institutions, or holding an equivalent academic qualification (second level qualification) considered relevant by the Joint Academic Board for admission to the PhD. Candidates are required to produce appropriate certification of qualifications, in accordance with the national legislation on access to PhD courses.

The participation to EMAS program require a full time commitment, although, in some cases the Joint Academic Board could authorize the development of working activities, assuming that those activities do not conflict with the research and teaching commitment foreseen by the doctorate course program.

For the objective of providing excellent academic quality for EMAS program, all the Parties commit themselves to provide specific expertise, lessons and supervisors for study and research activities in the field of Earth and Marine Sciences, all commensurate to the specific role of the parties.

The complementary of the research expertise developed by the Parties and the integration of the international program are guaranteed also through compulsory mobility program for the doctorate students, either between the Parties or within the research network related to the Parties.

For the compulsory mobility of doctoral candidates, the parties agree to define through an internal regulation agreement the minimum period of formation and research activity that the student should spend at a "host institution", in order to achieve the PhD title. The formation and research activities

to be developed in the "Host institution" must be previously authorized by the academic supervisor and declared to the Joint Academic Board.

With "Host Institution" the Parties agree to be understood any Higher Education Institution and/or International Research Institution, highly qualified in the research fields covered by the course.

Each cycle of the course has a duration of 3 academic years. The Academic year begins the 2nd of November and finishes on the 31st of October of the following year.

For each of the cycles activated during the period of accreditation, the course includes a total number of 4 (four) places available through competition funded with grants and research contracts made available by the parties.

Article 4 - Admission to EMAS program

Admission to EMAS program is based on a public selection. The University of Ferrara, as Coordinating Institution and as required by its administrative procedures, will collect the applications for the participation in the selection process. At the end of the period of registration for the selection process, the Coordinating Institution will transmit to the Partner Institutions appropriate information on the applications received.

The Parties agree not to charge any registration fees for the selection process.

The selection procedure is an assessment of the candidates' qualifications. It will consist of an evaluation of the candidate educational qualifications and of an interview, which could also be done through videoconference.

The Rector of the University of Ferrara, upon proposal of the Joint Coordinating Committee, according to art. 10 of this agreement, appoints the joint evaluation committee whose composition should ensure a fair/equal representation of the Parties.

According to art. 1 of this act, the parties will agree on the composition of the evaluation committee, the list of documents to be considered, grades to assign, and the way of conducting the interview, through and internal regulation.

All information related to admission procedures and application submissions are governed by the call for application issued by the University of Ferrara on behalf of the Rectors of the Partner Institutions, and will be posted on the websites of the Parties.

Article 5 - Enrolment in the EMAS program

The Parties agree that the eligible candidates, admitted to the course, will be enrolled from all Partner Institutions in the respect of each administrative procedures.

At the end of the selection process the Coordinating Institution will provide to the Partner institutions the results of the competition, together with a copy of the admnistrative documents presented by the candidates admitted to the course, in order to allow the enrolment in each single institution.

Each institution may require, to interested parties, additional documents to those already submitted for the competition, in accordance with the national regulations in force. For the purpose of submission of any additional documentation, i.e. the recognition of qualification titles by the national bodies, the Parties take charge of ensuring adequate timing, and however, pending receipt of the request by the respective national and/or local authorities, the Partner Institution agree to register "sub condicione" the interested parties to ensure their attendance to the course.

The tuition fees for the participation in the EMAS program, referred to in art. 6, shall be paid by the candidates admitted to the course only to a single Partner Institution of the Consortium. Suitable flow of documents between the Parties will be activated in order to certify the enrollment of candidates for the Consortium and the payment of the "tuition fees".

For the following years, upon positive evaluation of the work by the Joint Academic Board for the continuation of the program, doctoral students must register and pay the "annual tuition fees" to the Coordinating Institution.

Article 6–Tuition fees

The Parties agree to establish a single and common amount for the participation at the EMAS program, called "tuition fee".

Tuition fees should be annually approved by the Academic authorities of the Coordinating Institution upon proposal of the Joint Coordinating committee as defined in art. 10.

The "tuition fees" must be paid by the candidates admitted to the course only to the "Coordinating Institution" according to modes clearly defined and in accordance with the "Coordinating Institution" timing. The procedures and deadlines for the payment must be clearly shown on the Call for Applications and in the websites of the Partner Institutions.

The Coordinating Institution, after verification of the payment made by the students, will transfer to the Partner Institutions the due amount based on the following scheme:

- For PhD students belonging to the Partner University, tuition fees would entirely be transferred

- For PhD students belonging to the Coordinating University, only the amount corresponding to the enrollment fees of the national doctorate course would be transferred.

Article 7 – Educational activities planned for EMAS program

At the end of the selection process, the Joint Academic Board, upon interview of the student, will include the PhD student in a research group. A Scientific Tutor (Supervisor) will be chosen and assigned within this research group to the student.

The tutor belongs to the "Home institution" of the PhD student, where he/she will develop the great majority of his/her formation and research activities, beside the obligation for mobility foreseen in the Art 3 of the present agreement.

The academic program includes the acquisition by the students of specific scientific expertise, both disciplinary and inter-disciplinary of high qualification, aimed at developing a research project on specific topic that must result in the writing of a research thesis that contributes to advancement of knowledge or methodologies in the chosen field of the study.

The education and research activity, developed under the guidance of the Supervisor, is subjected annually to at least one review by the Joint Academic Board which, with reasoned judgment, deliberates to admit the PhD student to the following year of the program, and to the discussion of the final dissertation.

In order to facilitate the integration of the future doctors into the labour market, the doctorate can benefit from the assistance of Associate Partners, public agencies of education and research, and production companies, ensuring that they identify research, internships, sponsorships and work opportunities.

The Associated Partners can contribute to the development of the specific activities and to the definition of the topics of the thesis. In case that a PhD student carries out part of its research activities with an associated institution, the latter shall provide to the PhD student a supervisor, indicating his/her name to the Supervisor.

The scientific, organizational and teaching responsibility of the program competes at the Joint Academic Board, which by its internal rules, in accordance with art. 1 of the Agreement, defines the plan of activities articulated along the three years of the course, the number of hours/credits of compulsory attendance as well as the types and methods of verification, at least once per year, of the acquired preparation.

In order to achieve the Doctorate title, the student must acquire at least 600 hours of formation to research by producing research papers and attendance to courses, stages, congress, workshop, etc.;

among these, a minimum of 100 hours (4 credits) should be acquired in specific courses proposed by UCA, UNIFE and/or other associated institutions. The courses would be chosen upon advices of the Supervisor with the aim to achieve and adequate formation to the PhD student. The Joint Academic Board will evaluate and recognize the amount of hours to be associated to each course and activity. Once the evaluation of the Joint Academic Board be available, the official recognition of the activities as well as the formative gap to be filled in order to proceed to the final presentation of the thesis, the procedure in force in each Partner Universities of the Consortium will be formalized.

Moreover for the admittance to the final examination, within the three years of the course the PhD student should present at least an original research paper, published or accepted for print by an international, high impact journal (included in the SCI list or in other internationally reckoned scientific journal list). The work must derive from his/her doctorate study. The Joint Academic Board will evaluate the number of hours that can be associated with each paper and will officially recognize them.

Article 8 - Preparation of the thesis and final examination

Candidates should discuss the thesis within three (3) months after the end of the course, except for unexpected postponement required by the referees external to the Joint Academic Board, following the procedure foreseen in the last comma of the present article.

In any case the thesis must be discussed no later than nine (9) months after the end of the course.

The academic degree of Doctor is awarded by all Partner Institutions, at the conclusion of the PhD program, following the positive evaluation of a research thesis that contributes to the advancement of knowledge or methodologies in the chosen field study.

The PhD thesis is written in English, although it can be also written in another language upon approval of the Joint Academic Board. In this case the thesis must contain an extended abstract written in English. A summary of the activities developed by the student during the three years of the course, including the published papers, will be attached to the thesis.

The final examination for the award of the title of Doctor consists in a public defense of the research thesis, by the candidate in front of the Joint Examining Committee.

The Joint Examining Committee shall be composed by at least three and no more than five members, chosen among university professors and senior researchers, specifically qualified in the relevant research fields to which the Course is referred.

The composition of the Joint Thesis Examining Committee is proposed by the Joint Coordination Committee and appointed by the Rector of the Coordinating University.

For the purpose of the student's admission to the final examination, the thesis is subject to prior evaluation by at least two highly qualified referees, external to the Joint Academic Board and the Parties of this convention. The referees, appointed for each student by the Joint Academic Board, may require the deferment of the discussion of the thesis for a period not exceeding six (6) months if significant additions or corrections to the final thesis are needed.

Article 9 - Granting of the Title

The Parties agree to grant a single degree, namely a diploma of PhD.

For candidates who meet the conditions of the program and successfully discuss their thesis, the University of Ferrara, as Coordinating Institution, will release the degree of Doctor in "Earth and Marine Sciences", bearing the logos of all the Partner Institutions members of the Consortium, and signed by the Rector; in accordance with the normative rules of the Partner countries, the diploma will include a comment declaring the legal correspondence between the title released by the University of Ferrara and those of the Partner Institutions, duly signed by the legal representative of the above mentioned institutions.

Upon request of the PhD student, the University of Cadiz could release the national diploma that certifies the achievement of the PhD title in “Ciencias y Tecnologías Marinas”. Together with this diploma a supplementary certification could be released in which is reported the personal curriculum followed by the student during the entire course.

Article 10–Governance

The Parties agree that the complex structure of the EMAS program and its ambitions of excellence require an extensive coordination to carry out academic, administrative and financial aspects. Despite being firmly engaged in the exchange of information and firmly believing in an informal cooperation whenever it would be necessary, the Parties have established the following structure of the Consortium.

§ 1 The Joint Coordination Committee. The Joint Coordination Committee is composed by the Course Coordinator and by ten (10) other members appointed upon proposal of the Program Coordinator and consulting the Joint Academic Board. The members of the Joint Coordination Committee are chosen within the Joint Academic Board. Their choice should balance as much as possible both disciplines and provenance from Partner Institutions.

The Joint Coordination Committee is appointed by the academic authorities of the Coordinating Institution, upon ratification of the similar academic authorities of the Partner Institutions.

The Coordination Committee oversees the proper management of the EMAS program and, in particular:

a) compiles and approves the internal regulations of the course, pursuant to art. 1 of the present Convention, upon ratification of the Joint Academic Board;

b) defines the procedures for admission to the EMAS program in accordance with its internal rules as well as with national and local regulations on doctoral research;

c) proposes the appointment of the Examining Committee for the evaluation and admission of candidates to the EMAS program;

d) proposes the appointment of the Thesis Examining Committee for the final examination of each PhD student;

e) decides the strategies of implementation of the EMAS Program;

f) decides the marketing and advertising strategies of the EMAS program;

g) appoints eligible Institutions as Associate Members;

h) evaluates the possible admission of new partners in the Consortium;

i) monitors the quality of the program, also through evaluation forms filled in by the candidates;

j) prepares a detailed report on the quality trend of the Program at the end of each cycle, including the financial aspects, and transmits it to the competent Academic Bodies of each Partner Institution.

Unless otherwise specified by national regulations, the Joint Coordination Committee decides with a simple majority of votes. Decisions are made preferably with unanimous vote. The Coordination Committee meets at least twice a year, also via videoconference. In case a member of the Joint Coordination Committee is unable to attend the meeting, he/she may ask to be replaced by a member of the Joint Academic Board.

§ 2 The Program Coordinator. The Joint Academic Board proposes the Program Coordinator among the members of the Joint Academic Board belonging to the Coordinating Institution. The Program Coordinator is appointed by Rectoral Decree of the same institution for a period of three (3) years. A second re-election is possible.

Specifically, the Program Coordinator:

a) chairs the meetings of the Joint Academic Board and of the Joint Coordination Committee;

b) supervises annually the proposal for the activation of the new doctorate cycle and presents it to the Joint Coordination Committee;

c) organizes the agenda of all meetings, in collaboration with the Vice-Coordinator and with the Joint Coordination Committee;

d) takes minutes of the meetings of the Joint Academic Board and of the Joint Coordination Committee and supervises the implementation of the decisions taken at the meetings;

e) implements the marketing strategies, the development of a network among students and increase the relationships with the labour market.

§ 3 The Vice-Coordinator. The Vice-Coordinator is indicated by the Program Coordinator within the members of the Joint Coordination Committee belonging to Partner Institutions diverse from that of the Coordinator. The Vice-Coordinator is appointed by Rectoral Decree of the Coordinating Institution and maintains his/her role until the end of the duty of the Coordinator. He/she is responsible for the coordination and organization of the daily needs, as well as for the operations needed to realize the EMAS program. He/she is also the contact point for the Partner Institutions for any matter related to the realization of the EMAS Program. Specifically, the Vice-Coordinator:

a) Refers to the Joint Coordinating Committee about the quality trend of the Program and proposes the actions that can improve its quality;

b) Supervises the communication among the Partner Institutions of the Consortium;

c) Supports the administrative offices of the Partners Institutions to the aim of a right development of the Program;

§ 4 The Joint Academic Board. The Joint Academic Board of the EMAS Program is responsible for ensuring the quality of the program, as well as for defining the formative and research path of each individual PhD student.

The members of the Joint Academic Board of the PhD course will be identified jointly by the Parties, among professors and researchers belonging to the macro-sectors coherent with the educational objectives of the course, so as to ensure the satisfaction of the requirement of art. 4, c.1, letter. a) of the Italian Ministerial Decree 45/2013, as well as an equilibrated presence of lecturers belonging to each Partner Institution.

At startup, the Joint Academic Board of the PhD course is composed as specified in Annex B.

Members of the Joint Academic Board can be: professors and senior researchers of the Partner Institutions, of the Associate Institutions and if approved in advance by the Joint Coordination

Committee, senior lecturers, researchers or experts with proven skills not directly belonging to the member Institutions of the Consortium.

At least once a year, two representatives of the PhD students are invited to attend the meetings of the Joint Academic Board and to propose suggestions, complaints and proposals for the improvement of the program.

The Joint Academic Board of doctoral program meets at least once a year, also through videoconference, for the following tasks:

a) assignment to each PhD student admitted to the EMAS Program, the Supervisor, the co-Supervisor and the home institution where he/she will mainly develop his/her formative and research activities;

b) assignment to each PhD student admitted to the EMAS Program the individual formative program, upon suggestions of the Supervisor, the co-Supervisor (if present) and the PhD student;

c) assignment to each PhD student admitted to the EMAS Program the topic of the thesis, upon suggestions of the Supervisor, the co-Supervisor (if present) and the PhD student;

d) decision about if the performance of the candidates is sufficiently adequate for their continuation within the program;

e) organization of dedicated workshops;

f) facilitation of the creation of a network among previous years and current students and their relationship with the labour market;

g) authorization of students to carry out paid work during the three years of the PhD program;

h) authorization and validation of plans for the mobility of students;

i) development of contacts with the private sector;

j) promotion of search for additional sources of funding of the Program;

k) admission of PhD students to the dissertations of the thesis;

l) monitoring of the quality of the program, also through evaluation forms filled in by the PhD students.

Once a year the Joint Academic Board will propose to the Joint Coordinating Committee a summary of the activities, underlying failures and critiques, as well as providing comments and suggestions to improve the quality of the Course.

Article 11 – Responsibilities

Article 11a – The Coordinating Institution

§ 1. The Coordinating Institution has the responsibility for submitting the International Doctorate in Earth and Marine Sciences - EMAS to accreditation, in accordance with the Italian Ministerial Decree no. 8 February 2013. 45, as well as for monitoring its development in order to ensure the maintenance of the accreditation itself.

§ 2. Upon request, the Coordinating Institution will provide to national or local authorities of the Partner Institutions, as well as to the Partner Institutions themselves, all the required reports regarding the evolution and the scientific, administrative and financial management of the EMAS Program.

§ 3. Each year the Coordinating Institution will prepare the institution and activation, as well as the Call for Applicants for the EMAS program as required by the national regulation.

Article 11b – All parties (including the Coordinating Institution)

§ 1. The Parties shall execute and complete the activities foreseen in the Program of the International PhD in Earth and Marine Sciences - EMAS as laid down in the present Convention, the national and local regulations, the rules of procedure of the course and the annual Call for Applicants. Each Party shall perform the work in such a way that no act or omission may in any way constitute, cause or contribute to any violation or failure by the part of the Partner Institutions or other parties relating to the obligations arising from the regulations in force concerning PhD programs in the respective countries.

§ 2. Upon request, the Parties shall deliver, on schedule, to the Coordinating Institution, or the Partner Institutions, the information needed to prepare the reports required by national governments or local authorities. The Parties should be aware that the payment of scholarships and funds for each subject involved, as well as the "tuition fees" and any additional contributions required to participants, are subject to regular monitoring by the Partners.

§ 3. Each Party must organize and implement the EMAS program activities within its institution and in particular:

a) provide courses and supervision as indicated in the announcement and required by this agreement and by the internal rules of the course;

b) provide PhD students with the necessary information and help in obtaining the documents required by the national immigration policies;

c) provide PhD students with the services and support necessary for the legal recognition of admission titles by the national bodies;

d) constantly communicate with all PhD students, informing them of activated activities during the study period within their universities;

e) after appropriate warnings, report to the Joint Coordinating Committee and the Program Coordinator of any serious problem related to the disreputable behavior of the PhD students.

When PhD students are hosted, Partners or Associates must be sure that candidates are in compliance with national rules on immigration.

§ 4. The Partner Institutions agree to contribute to the program, funding every year as far as possible through their budgetary funds, grants, research contracts and/or mobility contributions in the minimal manner as indicated in the next art. 12.

§ 5. Each Party shall be responsible to the other Parties and third parties about loss, destruction, damage or injury resulting from their action during the implementation of this Convention.

§ 6. Each Party is fully responsible for its activities within the Consortium, in accordance with the requirements of Insurance and Safety for their staff, involved in the present document.

Article 12 - Financing of the mobility of the students admitted to the program

The Parties agree that for each of the academic cycles activated during the period of validity of this Convention, within the total number of available positions, not less than four (4) will be financially supported by grants and/or research contracts.

Throughout the duration of this agreement, the parties agree as follows:

- The University of Ferrara will provide to the program not less than three (3) scholarships for every doctoral cycle, determined in accordance with art. 4 of Italian Law no. 210/98. The amount of each scholarship, whose minimum is set by the Italian Ministerial Decree of 18 June 2008, as amended, for the academic year 2015/16 - first cycle of application of this Convention - amounted to € 13,638.47 per annum, to which the University of Ferrara adds as provided by the Italian law in the field of social security, contributions payable by the issuing institution
- The University of Ferrara, for each of the above mentioned scholarships, will also provide the additional sum of € 12,301.22 for the three - year duration of the program, in order to ensure coverage of any increase in the scholarships of 50% required by the Italian law for

periods spent abroad from the scholarships beneficiaries PhD students, up to a maximum of 18 months over the three years

- The Department of Physics and Earth Sciences of the University of Ferrara, for each of the available positions as a "Home Institution", with or without a scholarship, guarantees with its own funds the availability of adequate and stable funding for the support of the research in the context of which is expressed the activities of the PhD students. The annual amount payable to the individual PhD student at the request and on the basis of adequate supporting documents, is € 1,364.00, in accordance with the provisions of the Academic Bodies of the University of Ferrara, in accordance with the wording of Articles 4 and 9 of the Italian Ministerial Decree of 8 February 2013 no. 45.
- The University of Cadiz, through the Vice-Rectorate of Teaching and Formation, and the Vice-Rectorate of Research will provide the course at least 1 research contracts for each doctoral cycle. Each year, within the schedule fixed for the accreditation process of the Program, the University of Cadiz will communicate to the Coordinating Institution, by means of dedicated act containing the deliberative details, the number and the amount determined for the financial support of the program. Within the same act the University of Cadiz shall indicate if the foreseen financial support will be directly given to the Coordinating Institution or if the contribution will be given directly to the PhD students who have the University of Cadiz as "Home Institution".
- The University of Ferrara and the University of Cadiz, as "Home Institution" for each PhD students assigned, with or without a scholarship, will take the commitment to support, if available, via any existing financial resources in the university budget or through external support, the research within which the PhD students perform his/her activities.
- The University of Ferrara and the University of Cadiz will deliver the pertaining amounts to their own PhD students on a monthly basis, according to the forms and procedures laid down by the respective regulations.
- The University of Ferrara and the University of Cadiz agree to annually inform Partners on the sums respectively paid.
- Provided that the aforementioned minimum numbers and amounts remain unchanged, all the Parties agree to provide annually to the Founding Partner Institutions, by letter, signed by the legal representatives of the concerned institutions, formal communication indicating the number and amounts of scholarships, research contracts or other equivalent form of

financial support for the doctoral cycle to be set up within the terms useful to accreditation of the curse and for the publication of the Call for Applicants.

Article 13 – Reference regulations and eventual disputes

For the matters not specified in this agreement it is referred to the laws in force in the respective countries, and in particular to the internal regulations in the field of doctoral studies issued by the parties.

The Parties commit to solve amicably any dispute arising under this Convention.

For any dispute that would arise between the Parties related to interpretation, execution and solving of the present agreement the competent Forum is that of the administrative location of the course.

Article 14 – Annexes

The following annexes are an integral part of this Agreement:

Appendix A: Definition of research topics and educational objectives

Appendix B: Facilities and equipment made available at each institution

Appendix C: Joint Academic Board

Date

Cadiz University

The Rector

Date

University of Ferrara

The Rector

IL RETTORE
(Pasquale NAPPI)

EMAS

Earth and Marine Sciences International PhD

ALLEGATO A

definizione delle tematiche di ricerca e degli obiettivi formativi

Richiamati i requisiti necessari per l'accreditamento dei corsi e delle sedi di dottorato, di cui al DM n. 45/2013 art.4 c.1 e in particolare le lettere a) e f) che prevedono rispettivamente:

- *"la presenza di un collegio del dottorato composto da almeno 16 docenti, di cui non più di 1/4 ricercatori, appartenenti ai macrosettori coerenti con gli obiettivi formativi del corso. (...). Ai fini del rispetto del requisito di cui alla presente lettera ciascun soggetto può essere conteggiato una sola volta su base nazionale."*
- *"la previsione di attività, anche in comune tra più dottorati, di formazione disciplinare e interdisciplinare e di perfezionamento linguistico e informatico, nonché, nel campo della gestione della ricerca e della conoscenza dei sistemi di ricerca europei ed internazionali, della valorizzazione dei risultati della ricerca e della proprietà intellettuale."*

l'Università di Ferrara e la Cadiz University

in relazione al Corso di dottorato di ricerca in Earth and Marine Sciences - EMAS realizzato in convenzione ai sensi dell'art.10 del sopra citato DM n.45/2013, come regolamentato dalla presente convenzione, definiscono i seguenti obiettivi formativi del corso:

OBIETTIVI FORMATIVI DEL CORSO	
Descrizione obiettivi	
ITALIANO (max 1500 caratteri compresi gli spazi)	**INGLESE**
Il percorso formativo del Dottorato Internazionale in Scienze della Terra e del Mare è finalizzato all'acquisizione di competenze scientifiche altamente qualificate in tutti gli ambiti disciplinari delle Scienze della Terra: mineralogico, petrologico, geochimico, paleontologico, geologico-stratigrafico e sedimentologico, geologico strutturale, idrogeologico, geomorfologico, giacimentologico e geofisico che costituiscono competenze integrative anche per le Scienze e Tecnologie per l'Ambiente e la Natura, Chimiche, Fisiche, Tecnologie per la Conservazione ed il Restauro dei Beni Culturali, Ingegneria, Architettura ed Agraria. Le tematiche di ricerca sviluppate all'interno del Corso riguardano principalmente la cristallochimica dei minerali; la genesi dei magmi anche in relazione allo sviluppo degli apparati vulcanici; geochimica ambientale e sue applicazioni all'agricoltura; la stratigrafia e le associazioni di facies sedimentarie	The International PhD in Earth and Marine Sciences is aiming at providing to the students high qualified scientific competences in all the disciplines encompassing the Earth and Marine Sciences: mineralogy, petrology, geochemistry, paleontology, stratigraphy and sedimentology, structural geology, applied geology and hydrogeology, geomorphology, physical oceanography, coastal dynamics, marine geology, economic geology and geophysics. These disciplines will also constitute integrative knowledge for Science and Technology for the Nature and Environment, Chemistry, Physics, Technology for Preservation and Restoring of Cultural Heritage, Engineering, Architecture and Agronomy. The topics of the researches developed within the PhD course will be mainly addressed to mineral crystallochemistry; magma genesis also in relation to the development of volcano apparatus; environmental geochemistry and its

con importanti applicazioni per la geologia degli idrocarburi e degli acquiferi; la paleobiologia degli ecosistemi marini in rapporto alle variazioni climatiche e paleobiogeografiche; le deformazioni terrestri passate e attive e i relativi campi di sforzi; la stabilità dei versanti, la dinamica di corsi d'acqua e delle coste per una migliore gestione del territorio. Tutte queste tematiche sono anche finalizzate alla valutazione della pericolosità dei fenomeni naturali ed antropici quali frane, alluvioni, erosione costiera, eventi sismici, eruzioni vulcaniche ed emergenze ambientali. Il Corso fornisce un bagaglio culturale approfondito in questi settori che oggi sono di rilevante interesse sia per la ricerca di base che per quella applicata.	applications to agriculture; stratigraphy and the sedimentary facies association with fundamental applications for the geology of hydrocarbons and aquifers; the paleobiology of marine ecosystems in relation to climatic and paleogeographic changes; past and present terrestrial deformations in relation to deformational fields; slope stability, river and coastal dynamics also aimed to a better management of the territory; physical oceanography and marine geology. All these topics are also aimed to the evaluation of the natural and anthropic phenomena hazard such as landslides, floods, coastal erosion, earthquakes, volcanic eruptions, tsnumani and environmental emergencies. The EMAS PhD provides a well-defined cultural background in these sectors that nowadays are relevant both for basic and applied research.

The institutions ar involved to support research activity and formation related to the following topics:

TOPICS	**HOME INSTITUTION**
"Environmental geochemistry"	UNIFE
"Mineralogy and Crystal chemistry"	UNIFE
"Petrology and applied petrography"	UNIFE
"Marine Geology and Stratigraphy and Sedimentology"	UCA
"Coastal dynamics and management"	UCA
"Geodesy and geophysics"	UCA – UNIFE
"Physical Oceanography"	UCA
"Paleontology and Paleoecology"	UNIFE

"Applied Geology and Geomorphology"	UCA – UNIFE

Per la Universitá di Cadice le equivalence tra line de ricerca serà:

Línea de ricerca del Programa de Doctorado UCA	**Tematiche**
Física y Geodinámica del Océano y de la Tierra	Physical Oceanography
	Marine Geology and stratigraphy and sedimentology
	Coastal dynamics and management
	Applied Geology and Geomorphology
Geofísica y Geodesia	Geodesy and geophysics
Sedimentación en ambientes marinos	Marine Geology and stratigraphy and sedimentology
	Mineralogy and crystal chemistry
	Petrology and applied petrography
	Environmental geochemistry

Descrizione delle tematiche di ricerca

"Environmental geochemistry" (include part of Marine and environmental mineralogy and geochemistry of Cadice)

This thematic will use the most innovative and technologically advanced techniques for the analyses of major, trace elements and isotopes in rocks, sediments, soils, water and air to be used as indicators of environmental changes. This research line provide a robust knowledge base to evaluate the impact on the environment caused by human activities, such as organic and inorganic civil, industrial, agricultural and zootechnical wastes for detecting and studying the properties of pollutants in marine and continental environment. Through a detailed analysis of soils and water It also furnish a tool to trace the provenance of plants and food, providing an useful tool

against the mystification of highly renewed aliments. It develops innovative studies i) on the answer of the plants at different chemical composition of the soil; ii) to the effects of natural and anthrophic GHG (GreenHouse Gases) emission on climate and their outcomes on hazards of natural phenomena such as heavy rain, tornado and floods; iii) the study of metal pollution and distribution in sediment, also in relation to abandoned and active mining areas; iv) geochemical prospecting for the exploitation of mineral raw materials and for the production of thematic maps; v) geochemical study of air particulate and fluid emissions and vi) geochemical study for the identification of the geoterritoriality and for preservation of brand products.

"Mineralogy and Crystal chemistry" (include part of Marine and environmental mineralogy and geochemistry of Cadice)

This research line covers the applications of modern mineralogy and mineral crystallography to both fundamental and applied studies. Among these studies, the crystallochemical investigation of rock-forming minerals has many important petrological and geophysical implications. Crystal-structure analysis at non-ambient conditions provides a window to the Earth interiors and processes. Applied mineralogy topics include: i) the investigation of a wide range of geomaterials and their likes (asbestos, ceramics, geopolymers, cements, matrices for nuclear waste, materials for energy efficiency of buildings, etc); ii) the development of microporous materials, based on minerals and their synthetic analogs, for energy harvesting and storage, and for treatment and recovery of water resources; iii) the conservation studies of cultural and environmental heritage; iv) the study of processes involved in , industrial production (e.g. in heterogeneous catalysis); v) the characterization of gems and similar materials.

It also covers the analysis of specific mineralogical species as palaeoenvironmental indicators in recent, Quaternary and historical sedimentary records, mainly in lacustrine and marine sequences, where sedimentary continuity is usually higher and mineralogical processes occurring inside these water bodies are sensitive to climatic changes and/or to human interventions in the basins connected to them. This line also includes the interest of some minerals as technological basis for the carbon capture and storage and their role in the possible mitigation of the present global warming.

"Petrology and applied petrography"

Thanks to the use of the most innovative an technologically advanced instruments for the whole rock and in situ analyses of elements and isotopes, this research line is dedicated to develop basic and applied studies on:

- magma genesis and evolution also in relation to volcanism and volcanic hazard;

- Earth mantle petrological, geochemical and geophysical characteristics;

- magma sources and petrological processes related to the various geodynamic environments;

- georesources finding (ornamental stones, ceramic products, industrial minerals , etc...) and their physico-chemical characterizations;

- petrographic and geochemical characterization of geological material of industrial interest;

- historical and preservative Petroarcheometry addressed to the study of lithoid materials and stones and degradation assessments.

"Marine Geology" (include Stratigraphy and Sedimentology of UniFE)

This research line includes different geological aspects related to the modern marine environments and its fossil counterparts, with a main emphasis on sedimentology, stratigraphy, geodynamics and geological structures. It covers fields like the structure of continental margins and their tectonic and sedimentary evolution during the Mesozoic, Cainozoic, and with special attention to Quaternary times. The research mainly refers to the evolution of Mesozoic and Cenozoic carbonate platforms in circum Mediterranean area: Triassic of Dolomites; Jurassic, Cretaceous and Tertiary in northern and southern Italy, Spain and Caribbean area; Tertiary of south Alpine and Salento. Other stratigraphic studies include the Mesozoic depositional successions of North and East Africa. Recently, new research line are activated on the fluvio-deltaic and alluvional plain successions of the Po Plain and Adriatic area.

This line is based on the use of different sources of data: bathymetric surveys using single beam, multibeam and side scan sonar (bathymetry, seabed nature and features), geophysics (seismic profiling) and drilling, through the combination of which valuable information is obtained about the structure of the marine substratum and about palaeoceanographic processes which acted in the recent past and are currently acting on the sea-bed. In more shallow zones diving and sediment sampling

is also used, together with other techniques which give data on the present processes acting on the sea floor. This line also includes several applied aspects like the identification of hydrocarbon indicators in continental margins, recent and present tectonic and volcanic activity in marine environments, or the recognition and mapping of seabed and benthic geohabitats of European interest, as well as the safety of offshore structures (oil rigs and pipelines).

"Coastal dynamics and management" (include part of Geomorphology di UniFE)

This line covers those geological and oceanographical aspects most directly applied to the coastal processes and their consequences to the human activity. It includes fields such as the recent evolution and present trends of the coastline, coastal erosion processes and natural hazards on the coast, quantification and modelling of coastal erosion, transport and sedimentation processes, due to wave and wind action, environmental mapping of littoral zones, coastal defense works, coastal pollution modelling, and in general, coastal planning and risk and impact assessment of a wide range of human activities in the coastal zone, such as tourism, offshore drilling, offshore aquaculture, etc. An outstanding aspect of this line is that related to the analysis of socio-political strategies for a correct coastal management, by combining data from littoral dynamics with the activities and aims of the social agents responsible for the use of coastal resources. A further aspect is the reconstruction of past historical storminess and the prediction of future scenarios induced by climate change. Coastal dynamics also plays a key role for the conservation and management of the underwater cultural heritage.

"Geodesy and Geophysics"

This line includes the application of geodetic and geophysical techniques to the study of the global marine environment and dynamics: high resolution models for the definition of the geoid, sea level determination through the use of remote sensing techniques, remote assessment of polar zones, etc. More specific lines are the geophysical analysis and modelling of marine and continental natural hazards, especially in the case of active volcanism: geothermometry, geomagnetism, high resolution seismics, gravimetry, modelling of active tectonic and volcanic processes, site effect estimation for seismic risk mitigation and evaluation of groundwater quality.

"Physical Oceanography"

This line includes different topics related to the physics of the oceans and their role in the global and coastal marine environment: currents, tides, waves, stratification, mixing processes, ocean-atmosphere interaction, ocean climate, ocean biogeochemistry and the hydrodynamics of bays, estuaries and straits. Especially relevant is the application of remote sensing and numerical modelling techniques to the oceanographic studies and their relationship to the natural marine environment. This research line include also the investigation of the role of internal waves and internal tides in creating some sedimentary structures (hummocky cross stratification, sand waves) and for the development and architecture of benthic communities, such as coral reefs and red algae, both in modern and fossil environments. Operational oceanography systems can be developed/upgraded as a tool providing marine data information and operative support to other research lines.

"Paleontology and Paleoecology"

This research line is addressed to develop studies on paleobiologic topics with the aim of:

- improving the knowledge of the biologic evolution and marine paleo ecosystems, in relation to the climate and paleo bio-geographic changes of the Earth;

- promoting and highlighting the role of paleontological heritage in protection , development and cataloguing of cultural and environmental heritage.

"Applied Geology and Geomorphology"

The research line "Applied Geology and Geomorphology" is addressed to improve the knowledge of the dynamic phenomena occurring on the Earth' surface due to climatic changes, at global and local scale, and to the effects of the progressive, heavy, anthropogenic activities. Correlated researches include analysis of slope stability, hydrogeological models, fluvial dynamics and climate forecasting in order to provide a better planning and management of the use of the territory, reducing the impact and

the risk levels. The used tools are geological and geomorphological fieldwork and mapping, interpretation of aerial photos and satellite images, geographic information systems (GIS), field experimental activities and laboratory analysis.

ALLEGATO B - STRUTTURE E ATTREZZATURE

MESSE A DISPOSIZIONE DA CIASCUNA SEDE CONVENZIONATA

Richiamato il requisito necessario per l'accreditamento dei corsi e delle sedi di dottorato, di cui all'art.4 c.1, lett. e) del DM n. 45/2013 che prevede: "*la disponibilità di specifiche e qualificate strutture operative e scientifiche per l'attività di studio e di ricerca dei dottorandi, ivi inclusi, relativamente alla tipologia del corso, laboratori scientifici, un adeguato patrimonio librario, banche dati e risorse per il calcolo elettronico*"

l'Università degli Studi di Ferrara e la Cadiz University

in relazione al Corso di dottorato di ricerca in Earth and Marine Sciences - EMAS, realizzato in convenzione ai sensi dell'art.10 del sopra citato DM n.45/2013, come regolamentato dalla presente convenzione

si impegnano a mettere a disposizione le seguenti Strutture operative e scientifiche:

Tipologia		Descrizione sintetica
Attrezzature e/o Laboratori		Laboratory of: Archeometry, Astrophysics, Physic of the atmosphere, medical and of the plasma, Magnetic material, Electronics, Laser, Vacuum polarization, Radioactivity, Particle detectors, Sensors, Spectrometry, Micropaleontology, Microscopy, Cartography and GIS, Geochemstry, Photogeology, Geophysics and Tectonics, Hydrogeology, Paleontology Sedimentology, Thin sections, Diffraction and XR fluorescence, Ioncromotography, Thermogravimetric, Fluid inclusions, Plasma Mass Spectrometry, Material sciences and metallurgy, Geodesy.
Patrimo	consistenza in	Theoretically all the library resources of the two

nio librario	volumi e copertura delle tematiche del corso	Universities are of interest for the developments of the themes treated in the EMAS PhD. In December 2014 the number of monographies owned by the Scientifc and Tecnology Library (UniFE) and Rio San Pedro in Puerto Rea (Cadiz) exceeds 100.000 volumes.
	abbonamenti a riviste (numero, annate possedute, copertura della tematiche del corso)	The number of scientific reviews related to the topics of the PhD course between the two universities are more than 20.000. All this patrimony can be accessed by the PhD student from the computer they have in their rooms.
E-resources	**Banche dati** (accesso al contenuto di insiemi di riviste e/o collane editoriali)	The EMAS PhD Course give the opportunity to the student to access the following library and scientific database: - 3 package from Elsevier, Springer-Kluwer and Wiley-Blackwell; -7 scientific databases (JSTOR, Scopus, American Chemical Society, Science online, ISI-Web of Science, CAS Scifinder, UNI Normative); - the geological and geophysical database gathered during the several oceanographic campaign; - satellite database from the receiving antenna NOAA and METEOSAT from CACYTMAR;
	Software specificatamente attinenti ai settori di ricerca previsti	- specific software for the analyses of data oceanographic, geographical (GIS), seismic and bathymetric for the morphodynamic modelling of the coasts; - several programmes for 3D geological modelling of the superficial and deep processes and for the geological cartography. These software are continuously used and updated by the researchers of the departments and made available to the students.
	Spazi e risorse per i dottorandi e per il calcolo	There are about ten informatics rooms for a total capacity of more than 150 students. The students can have lessons on specific software in these rooms or have

	elettronico	access to the electronics resources of the universities. Each students have also a computer in his/her own room from which access the electronics resources of the departments.
Altro	- There are rooms for seminars and formative advanced activities - There are rooms equipped for teleconference and teaching for a total capacity of about 50 people - In Cadiz exist also a nursery for the children of the professors that can be used also for PhD students if necessary	

ALLEGATO C – COLLEGIO DEL CORSO DI DOTTORATO

Richiamato il requisito necessario per l'accreditamento dei corsi e delle sedi di dottorato, di cui all'art.4 c.1, lett. a) del DM n. 45/2013 che prevede: "*la presenza di un collegio del dottorato composto da almeno 16 docenti, di cui non più di 1/4 ricercatori, appartenenti ai macrosettori coerenti con gli obiettivi formativi del corso. (...). Ai fini del rispetto del requisito di cui alla presente lettera ciascun soggetto può essere conteggiato una sola volta su base nazionale.*"

l'Università degli Studi di Ferrara e la Cadiz University

in relazione al Corso di dottorato di ricerca in Earth and Marine Sciences - EMAS, realizzato in convenzione ai sensi dell'art.10 del sopra citato DM n.45/2013, come regolamentato dalla presente convenzione

individuano il Collegio del Corso di Dottorato, nella sua formulazione iniziale, composto dai seguenti docenti:

Membri del collegio (Personale Docente delle Università Italiane)

n	Cognome	Nome	Ateneo	Dipartimento	**Ruolo** (componente dei 16 Altro componente)	Qualifica	Settore concorsuale	Area CUN-VQR,	SSD	In presenza di curricula del corso, indicare l'afferenza
1.	CRUCIANI	GIUSEPPE	UniFE	Physics and Earth Sciences		PO	04/A1	04	GEO 06	
2.	MARTUCCI	ANNALISA	UniFE	Physics and Earth Sciences		PA	04/A1	04	GEO 06	
3.	SIENA	FRANCA	UniFE	Physics and Earth Sciences		PO	04/A1	04	GEO 07	
4.	COLTORTI	MASSIMO	UniFE	Physics and Earth Sciences		PO	04/A1	04	GEO 07	
5.	VACCARO	CARMELA	UniFE	Physics and Earth Sciences		PA	04/A1	04	GEO 09	
6.	BONADIMAN	COSTANZA	UniFE	Physics and Earth Sciences		PA	04/A1	04	GEO 07	
7.	SACCANI	EMILIO	UniFE	Physics and Earth Sciences		PA	04/A1	04	GEO 07	
8.	BIANCHINI	GIANLUCA	UniFE	Physics and Earth Sciences		PA	04/A1	04	GEO 09	
9.	MORSILLI	MICHELE	UniFE	Physics and Earth Sciences		PA	04/A1	04	GEO 02	
10	GIANOLLA	PIERO	UniFE	Physics and Earth		PA	04/A1	04	GEO 02	

				Sciences						
11	POSENATO	RENATO	UniFE	Physics and Earth Sciences		PO	04/A1	04	GEO 01	
12	LUCIANI	VALERIA	UniFE	Physics and Earth Sciences		PA	04/A1	04	GEO 01	
13	BASSI	DAVIDE	UniFE	Physics and Earth Sciences		RC	04/A1	04	GEO 01	
14	MANTOVANI	FRANCO	UniFE	Physics and Earth Sciences		PO	04/A1	04	GEO 04	
15	CIAVOLA	PAOLO	UniFE	Physics and Earth Sciences		PA	04/A1	04	GEO 04	
16	SIMEONI	UMBERTO	UniFE	Physics and Earth Sciences		PA	04/A1	04	GEO 04	
17	BILLI	PAOLO	UniFE	Physics and Earth Sciences		PA	04/A1	04	GEO 04	
18	CORBAU	CORINNE	UniFE	Physics and Earth Sciences		RTD	04/A1	04	GEO 04	
19	GHIROTTI	MONICA	UniFE	Physics and Earth Sciences		PA	04/A1	04	GEO 05	
20	MASTROCICCO	MICOL	UniFE	Physics and Earth Sciences		Docente a contratto	04/A1	04	GEO 05	
21	CAPUTO	RICCARDO	UniFE	Physics and Earth Sciences		PO	04/A1	04	GEO 03	
22	SANTARATO	GIOVANNI	UniFE	Physics and Earth Sciences		PA	04/A1	04	GEO 11	
23	GARCIA	ENRIQUE	UCA	Chemistry					CHIM 02/12	
24	BARBERO	LUIS	UCA	Earh Sciences					GEO 07	

25	MATA	PILAR	UCA	Earh Sciences					GEO 06	
26	SANTOS	ALBERTO	UCA	Earh Sciences					GEO 06	
27	FERNANDEZ	M. CARMEN	UCA	Earh Sciences					GEO 3-11	
28	VAZQUEZ	J. TOMAS	IEO	Earth Sciences					GEO 3-11	
29	DIAZ DEL RIO	VICOTR	IEO	Earth Sciences					GEO 2-11	
30	LOPEZ	NIEVES	IEO	Earth Sciences					GEO 2-11	
31	MORALES	JUAN ANTONIO	UNIV. HUELVA	Earth Sciences					GEO 2-11	
32	BERROCOSO	MANUEL	UCA	Physics					FIS 06/ GEO 10	
33	ORTIZ	RAMON	IGEO, UCM-CSIC	Physics					FIS 06/ GEO 10	
34	GARCIA	ALICIA	IGEO, UCM-CSIC	Physics					FIS 06/ GEO 10	
35	FERNANDEZ ROS	ALBERTO	UCA	Physics					FIS 06/ GEO 10	
36	ANFUSO	GIORGIO	UCA	Earth Sciences					GEO 4	
37	BENAVENTE	JAVIER	UCA	Earth Sciences					GEO 04	
38	DEL RIO	LAURA	UCA	Earth Sciences					GEO 04	
39	GRACIA	F. JAVIER	UCA	Earth Sciences					GEO 04	
40	MUNOZ	JUAN JOSÉ	UCA	Civil engigneering and Architecture					ICAR 02/ GEO 12	
41	MACIAS	ANA	UCA	Hystorical sciences					M-GGR 01-02	
42	BARRAGAN	JUAN MANUEL	UCA	Hystorical sciences					M-GGR 01-02	

43	ARCILA	MANUEL	UCA	Hystorical sciences					M-GGR 01-02	
44	GARCIA LAFUENTE	JESUS	UNIV. MALAGA	Earth Sciences					GEO 12/ BIO 07	
45	GOMEZ	JESUS	UCA	Earth Sciences					GEO 12	
46	IZQUIERDO	ALFREDO	UCA	Earth Sciences					GEO 12	

Membri del collegio (Personale non accademico dipendente di altri Enti e Personale docente di Università Straniere)

n.	Cognome	Nome	**Ruolo** (componente dei 16 Altro componente)	Ateneo Ente di appartenenza	Tipo di ente: (1)	Paese	Dipartimento istituto	Qualifica (2) di cui all'art. 6, c.4	Settore scientifico disciplinare ATTRIBUITO	Area CUN-VQR	In presenza di curricula del corso, indicare l'afferenza
1	IVALDI	ROBERTA		ISTITUTO IDROGRAFICO MILITARE					GEO 04		
2	BONAZZA	ALESSANDRA		ISAC-CNR		RC				GEO 09 PE_10	
3	SABBIONI	CRISTINA		ISAC-CNR		DIRIGENTE				GEO 09 PE_10	
4	SANZ	F. JAVIER		IGME						GEO 06	

5											
6											
7											
8											