Proposal “MASTER IN FORENSIC SCIENCE” (MFSc)

A.1.1.
The proposal of the Erasmus Mundus Masters Course (EMMC) that is presented here is focused to the development of an international Forensic Sciences Masters. A three-country Consortium is intended to provide a Master with a high internationalisation level, partly due to the composition of the Consortium (three European universities: Cordoba, Lisbon and Lincoln) and partly because of the potential students of the course, who will come from European or Third Countries. Another feature of this master is its multidisciplinary approach, since Forensic Sciences are a representative example of multidisciplinary field in which Chemistry, Biology, Medicine, Pharmacy, Physics, Computer Engineering, among others, combine their specific action area to solve a legally binding case. This type of studies will reinforce the benefits of internationalisation that most of Masters developed at a national level lack of, as it will be discussed below. There is an increased worldwide tendency to committing different and more sophisticated kind of crimes that emphasizes the need for a higher number of trained professionals at a high level. This professional focus does not exclude research activities, which are very necessary owing to the dynamic nature of this science. The globalisation propitiates people migrations and money and goods circulation around the world, which also extend criminal reach, so that the collaboration among European and Third countries is essential, as well as the adoption of international working standards. An example of international collaboration is the European Network of Forensic Science Institutes (ENFSI), which among other roles has to share knowledge, to exchange experiences and to establish mutual agreements between forensic laboratories at the European level. Some of the activities that this organisation performs are: development of proficiency testing schemes, publishing of best practice manuals and glossaries in several European languages, etc. It seems that a standardization process is needed and desired by forensic sciences professionals. The action of this organization is mainly located in Europe, although it has external relations with other organizations in third countries, including: the American Society of Crime Laboratory Directors (ASCLD), the American Academy of Forensic Sciences (AAFS), the Senior Managers Australian and New Zealand Forensic Laboratories (SMANZFL), the Academia Iberamericana de Criminalistica y Estudios Forenses (AICEF), EU Police Cooperation Working Party (PCWP) and Interpol. The extension of this network to other Third Countries would be desirable in order to achieve a worldwide globalisation of good laboratory practices in Forensic Sciences and to meet the socio-economic needs of companies and citizens demanding a higher competitiveness in the fight against crime. A well organized professional network in this field, would ensure the transparency and recognition of the work done by different public and private forensic services. Another example of the need for this internationalisation can be found in the recent FP-7 2010 Security call. The European Commission in its Coordination and Support Actions (area 10.1.4.) requested proposals able to suggest initiatives to “raise sufficient awareness and understanding of all relevant issues in forensic science” and “regarding harmonisation and standardisation, international and EU co-operation needs”. A Master course including this mobility and internationalisation will help to provide the different international forensic services with professionals with a common approach to common problems.

The proposed EMMC in Forensic Sciences would help to this fact because of its wide coverage (intended for European and Third Country students), its international character (three European Universities give rise to a Consortium, which is also supported by national professional bodies and private companies), and also, the multidisciplinary approach (provided by the integration of eight different areas of knowledge).

To the best of our knowledge there is not any Erasmus Mundus Masters Course developed about this topic in the portfolio offered by the European Commission, thus being profitable from a socio-economic point of view, since this initiative would overcome the lack of International Masters devoted to the Forensic field. For all the above stated reasons, the general objectives of this Erasmus Mundus Masters Course (EMMC) are:

1) Get staff trained in a multidisciplinary context: students of this course will be trained by a wide variety of specialists of the areas involved in the EMMC, such as analytical chemistry, legal medicine, botany, pharmacy, entomology, anthropology, molecular biology, among others. Professional bodies, such as Scientific Police Brigade of Cordoba, will also participate in the EMMC with seminars and/or visits to their offices.

2) Transfer of knowledge: this factor will be given by the mobility scheme of the EMMC, thanks to which students will be able to appreciate the different procedures used in each country through the professional bodies and companies that are involved, and apply this knowledge in their future professional activity.
3) **Higher specialization degree in this field of undergraduates in Chemistry, Biology, Natural and Life Sciences**: through the wide coverage of modules that allow the appropriate acquisition of the learning outcomes pursued with this EMMC, which are defined below.

4) **Training of professionals**: awareness about the witness expert role and the legal considerations bound to forensic investigations.

5) **Promotion of research**: as a means of advancing in the European Forensic scientific context. The high level of the research currently carried out by the involved institutions constitutes a solid basement.

6) **Possibility of continuing education for Masters graduates**: specially for those interested in developing further doctorate studies, thus resulting in the mentioned advances in research and development actions in this field.

The Masters Graduates would then work as independent witness experts, for private companies, such as insurance companies or as a part of professional bodies, such as police units, national forensic services, etc., as civil servants or as contracted employees in their respective countries, thus resulting in an appropriate transfer of knowledge, or will enable them to work in different countries with a European Degree awarded. Also, the relationships in this field between Europe and Third countries would be strengthened.

A.1.2

The Forensic Sciences Masters catalogue of third countries other than United States is scarce when the Web is searched, which would mean that the repercussion of this kind of multidisciplinary Masters is scarce or there is few information available about Forensic Science Masters in these countries through the Internet. Thus, there are some European and USA Masters degrees that can be taken as references to discuss the benefits of incorporating the EMMC in Forensic Sciences under application to the Erasmus Mundus catalogue, as follows:

- **Master of Science in Forensic Science, University of California, Davis**, [http://forensicscience.ucdavis.edu/](http://forensicscience.ucdavis.edu/)

  This is the only Masters Degree in Forensic Sciences in California State. This Master collaborates with the Criminalistics Institute and the Sacramento Forensic Sciences Laboratories. This programme makes special emphasis on scientific issues. The Master is integrated by compulsory and optional subjects, such as:


  **Optional subjects**: mainly related with chemistry, toxicology and genetic aspects. Some of these are: Arson Investigation, Advanced Analytical Chemistry, Failure Analysis, Quantitative and Population Genetics, Scientific Evidence, Combustion, among others.

**Forensic Sciences Masters Degrees of the consortium partner countries**

**United Kingdom**

This country has one of the strongest experiences in teaching Forensic Sciences across EU, thus existing undergraduates and post-graduates programmes. Some examples are given next:

- **MSc Forensic Science - Kings College**, London, [www.kcl.ac.uk](http://www.kcl.ac.uk)

  It is a 1-year Masters, offered by one of the 25 top universities in the world. Its tuition began in 1985, so that is the Masters of Forensic Sciences with more tradition in England. It covers a wide range of subjects, most of which are based on chemistry, biology and toxicology. The structure of this Masters is integrated by several blocks:

  1) **Forensic Sciences Principles**: devoted mainly to analytical chemistry and molecular genetics, 2) **The Forensic Process**: all the issues related with crime scene examination and evidence collection, statistics, the role of witness experts, quality assurance and sample chain of custody, 3) **Toxicology and Drugs**: Forensic Toxicology, pharmacokinetics, metabolism, driving under drugs and alcohol effects, doping in sports, etc, 4) **Forensic Biology**: Applications of genetic analysis to DNA profiling of samples from crime scene. Forensic Archaeology, Revision of future technologies, and 5) **Project in Forensic Sciences**: a 16-week project is done in a UK laboratory, but with the possibility of performing this project in US or a third country laboratories.
• MSc Forensic Science - Strathclyde University, Glasgow, www.strath.ac.uk
  This 1-year master is also a reference Master in the UK. Some topics studied are briefly summarized next:
  1) Criminalistics: statistics, spill/particulated material distribution patterns, 2) Forensic Chemistry (fire,
     explosives, glass, paints, ground, etc), 3) Toxicology, 4) Drugs of Abuse, 5) Biological Fluid Analysis: blood,
     saliva, semen, vaginal secretions, etc, 6) Hair and Fibres (natural and synthetic), 7) Document authentication.

• MSc Forensic Engineering and Science - Cranfield University, Shrivenham, www.rmcs.cranfield.ac.uk
  This Master is taught by experts from the university and from the British Army. In this university graduates
  are mostly future professionals of the British Army in this field. There are some other aspects that can be studied
  with a high specialization degree, such as: Forensic Anthropology and Archaeology, Forensic Ballistic, among
  others.

• Master in Forensic Science, University of Coimbra, Portugal (http://www.uc.pt/en
  The Masters studies are performed under a 2-year programme. During the first year, students will be committed
  to studying theoretical and practical considerations about specific subjects of forensic sciences. As it can be
  concluded from the subjects included, this Masters is mainly focusing on Medico Legal aspects (35 ECTS) rather
  than on Chemistry and Biology and criminalistics subjects. It is more orientated towards Physicians rather than to
  Chemistry or Biology graduates.
  First year: Forensic Anthropology (6 ECTS), Forensic Pathology (12 ECTS), Forensic Toxicology and Chemistry
  (6 ECTS), Forensic Psychiatry and Psychology (6 ECTS), Legal Medical Practice (18 ECTS), Medical Law and
  Deontology (5 ECTS), Forensic Biology and Genetics (4 ECTS), Criminalistics and Scientific Police (3 ECTS).
  Second Year: Dissertation (60 ECTS)

• Master in Forensic Sciences, University of Murcia, http://www.um.es/estudios/posgrado/ciencias-
  forense/
  It is a one-year official post-graduate programme (60 ECTS) integrated by compulsory and optional modules:
  Compulsory modules: 1) Principles of forensic and Legal Medicine, 2) Introduction to law and witness report, 3)
  Master thesis
  Optional modules: Complementary Physicochemical techniques, Medico-legal entomology, forensic biology and
  criminalistic, forensic toxicology, forensic psychology, microscopy techniques applied to Forensic Sciences,
  Applied entomology.

• Master in Forensic Analysis, University of Basque Country, http://www.masteranalisisforense.ehu.es/p108-
  1001/es/contenidos/informacion/analisis_forense/es_anafo102/estructura.html
  One-year masters integrated by:
  Compulsory subjects
  Doping in sports (3.0 ECTS), Characterization in Forensic analysis by crystallographic methods (4.5 ECTS),
  Introduction to Forensic Genetics (3 ECTS), Introduction to Forensic Entomology (3 ECTS).
  Optional subjects: these will be related to very different knowledge areas with duration not higher than 4.5 ECTS
  (Further information can be found in the supplied web address). Final Thesis Project (20 ECTS)

Some other Masters or Post-graduate courses, which Programmes can be also accessed through the Internet is:

• Official Master in Criminology and Forensic Sciences, Pablo Olavide University, Seville, Spain,
  www.upo.es/postgrado/
  This master is highly focused in law and criminalistics and few aspects of forensic chemistry or biology are
  included
Some differential aspects related with internationalisation, multidisciplinary, mobility and academic excellence of these Masters are summarised in Table 1 to show the benefits that the proposed EMMC would add to the some existing European and Third Country Masters. One aspect is the invitation of very well recognised invited scholars and the mobility of students, which is only compulsory in the proposed EMMC in Forensic Sciences.

Table 1. Comparison of some Third countries and European Masters at National level

<table>
<thead>
<tr>
<th>Master Title/University/</th>
<th>Duration</th>
<th>International Invited scholars</th>
<th>Involvement of professional bodies*</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSc Forensic Sciences/ University of California, Davis</td>
<td>2 years</td>
<td>No</td>
<td>Yes (Criminalistics Institute and the Sacramento Forensic Sciences Laboratories)</td>
<td>No</td>
</tr>
<tr>
<td>MSc Forensic Sciences, London, United Kingdom/ King's College,</td>
<td>1 year</td>
<td>International research leaders</td>
<td>Not specified</td>
<td>Optional (only 16-week Master project)</td>
</tr>
<tr>
<td>MSc Forensic Science Strathclyde University, Glasgow,</td>
<td>1 year</td>
<td>No</td>
<td>UK forensic laboratories</td>
<td>No</td>
</tr>
<tr>
<td>MSc Forensic Engineering and Science - Cranfield University, Shrivenham</td>
<td>1 year</td>
<td>No</td>
<td>Yes UK army</td>
<td>No</td>
</tr>
<tr>
<td>MSc Forensic Science University of Coimbra, Portugal</td>
<td>2 year</td>
<td>No</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>MSc Forensic Science University of Murcia, Spain</td>
<td>1 year</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>MSc Forensic Science University of Basque Country, Spain</td>
<td>1 year</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>MSc Criminology and Forensic Science University Pablo de Olavide, Sevilla, Spain</td>
<td>1 year</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Proposed EMMC course</td>
<td>2 years</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes 6-month periods in all Consortium countries</td>
</tr>
</tbody>
</table>

As it can be seen from the contents of these Masters and as shown in Table 1, the benefits that an EMMC in this field would report are: 1) stress on achieving a specialized education in Forensic Chemistry and Biology routes from a wide and multidisciplinary context, 2) inclusion of some complementary areas whose routine inclusion in undergraduate and Masters is scarce (Forensic Botany, Environmental Forensics and development of advanced research in Forensic Science), 3) reinforcement of some basic aspects that are crucial in any forensic context: quality assurance, forensic statistics, project development, 4) high degree of mobility. This integration results on the proposed EMMC curriculum by the Consortium, whose complexion is strongly favoured by its mobility scheme. This fact will give an added value to the current European university excellence to compete with Masters delivered in third countries, such as USA. The mobility provides the students with the opportunity to appreciate the cultural and operational differences among the countries to which Consortium partners belong. This is the main differential aspect with most of Masters included in Table 1.

A.1.3

The proposed EMMC is a 2-year degree, organised in four semesters. The first semester, will be delivered by the University of Cordoba. In semester 2, students will move to Lisbon to study the modules proposed by this University. The last theoretical/practical part of the Masters will be developed at the University of Lincoln in semester 3. Then, one third of the enrolled student on the Masters will perform the final Masters project in one of the partner universities of the Consortium, so that two third of students will move to Cordoba and Lisbon, whereas ne third will remain in Lincoln.
The University of Cordoba offers seven modules that will be included in the curricular routes proposed for EMMC: general, biology and chemistry routes (see Figure 2 for a better visual explanation of the modules taught by the three Consortium partners in each route). The Universities of Lisbon and Lincoln offer six and nine modules, respectively. There is a pre-requisite for the enrolment that ensures the equity principle for each university: students should enrol each semester in a total of 30 ECTS in each University. The general route can be achieved when few restrictions are made on the modules: there are two compulsory modules at the Universities of Cordoba and Lincoln, respectively that will be studied by all the enrolled students, and the rest of them will have an optional character. The Chemistry and Biology specialisations will be achieved by following the compulsory modules recommended by each university and choosing from some optional modules, as it happens for the Biology route at the University of Cordoba (Figure 2).

A brief and general description of the topics tackled in each module is included:


Module 2: Advanced Instrumental analysis. Instrumental separation techniques: CE, LC, GC. Hyphenated techniques: gas chromatography-mass spectrometry (GC-MS), liquid chromatography-mass spectrometry (LC-MS), capillary electrophoresis-mass spectrometry (CE-MS), liquid chromatography-inductively coupled plasma-mass spectrometry (LC-ICP-MS).


Module 6: Forensic Pathology. Forensic vs Clinical Autopsy. Autopsy report. Sudden death investigations. The pathology of wounds. Deaths in custody. Forensic autopsies performed at the Institute of Legal Medicine (Cordoba), review of anatomic structures by the use of embalmed corpses at the Faculty of Medicine, dissection techniques.
Figure 2: Proposed units and general, biology and chemistry routes

All units

- Forensic Analytical Chemistry (6 ECTS)
- Advanced Instrumental Analysis (6 ECTS)
- Quality Assurance in the Forensic Laboratory (6 ECTS)
- Forensic Pathology (6 ECTS)

Environmental Forensics (6 ECTS)
- Toxicological Analysis (6 ECTS)
- Forensic Botany I (6 ECTS)

CORDOBA

Xenobiochemistry (6 ECTS)
- Principles of Pharmacology (6 ECTS)
- Drugs of Abuse (6 ECTS)
- Forensic Botany II (6 ECTS)

LISBON

Food Toxicology (6 ECTS)
- Phylogenetic analysis in Forensic Analysis (6 ECTS)

Advanced Forensic Toxicology (6 ECTS)
- Project preparation (6 ECTS)
- Sensors in Forensic Science (6 ECTS)
- Method development and Validation (6 ECTS)

LINCOLN

(*) = compulsory module

Forensic Science: General route

- Forensic Analytical Chemistry (6 ECTS)
- Advanced Instrumental Analysis (*) (6 ECTS)
- Quality Assurance in the Forensic Laboratory (*) (6 ECTS)
- Forensic Pathology (6 ECTS)

- Environmental Forensics (6 ECTS)
- Toxicological Analysis (6 ECTS)
- Forensic Botany I (6 ECTS)

CORDOBA

- Xenobiochemistry (6 ECTS)
- Principles of Pharmacology (*) (6 ECTS)
- Drugs of Abuse (6 ECTS)
- Forensic Botany II (6 ECTS)

LISBON

- Food Toxicology (6 ECTS)
- Phylogenetic analysis in Forensic Analysis (6 ECTS)

Advanced Forensic Toxicology (6 ECTS)
- Project preparation (*) (6 ECTS)
- Sensors in Forensic Science (6 ECTS)
- Method development and Validation (6 ECTS)

LINCOLN

(*) = compulsory module

Forensic Science: Forensic Biology route

- Advanced Instrumental Analysis (6 ECTS) (*)
- Quality Assurance in the Forensic Laboratory (6 ECTS) (*)
- Forensic Pathology (6 ECTS) (*)

Environmental Forensics (6 ECTS)
- Toxicological Analysis (6 ECTS)
- Forensic Botany I (6 ECTS)

CORDOBA

- Xenobiochemistry (6 ECTS)
- Principles of Pharmacology (6 ECTS)
- Drugs of Abuse (6 ECTS)
- Forensic Botany II (6 ECTS)

LISBON

- Food Toxicology (6 ECTS)
- Phylogenetic analysis in Forensic Analysis (6 ECTS)

Advanced Forensic Toxicology (6 ECTS)
- Project preparation (*) (6 ECTS)
- Sensors in Forensic Science (6 ECTS)

LINCOLN

(*) = compulsory module

Forensic Science: Forensic Chemistry route

- Forensic Analytical Chemistry (6 ECTS)
- Advanced Instrumental Analysis (*) (6 ECTS)
- Quality Assurance in the Forensic Laboratory (*) (6 ECTS)
- Forensic Pathology (6 ECTS)

- Environmental Forensics (6 ECTS)
- Toxicological Analysis (6 ECTS)
- Forensic Botany I (6 ECTS)

CORDOBA

- Xenobiochemistry (6 ECTS)
- Principles of Pharmacology (*) (6 ECTS)
- Drugs of Abuse (6 ECTS)

LISBON

- Food Toxicology (6 ECTS)
- Phylogenetic analysis in Forensic Analysis (6 ECTS)

Advanced Forensic Toxicology (6 ECTS)
- Project preparation (*) (6 ECTS)
- Sensors in Forensic Science (6 ECTS)

LINCOLN

(*) = compulsory module


Module 22. Final Master project (30 ECTS). To be developed in each country attending to their specific research lines with application in the forensic field.

A.1.4
The completion of the EMMC should provide the students with some generic learning outcomes, which are summarised and included in Dublin’s descriptors (D1-D5) for EHEA. Students at the end of the Masters Degree should:

1. have demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with Bachelor’s level, and that provides a basis or opportunity for originality in developing and/or applying ideas, often within a research context.
2. can apply their knowledge and understanding, and problem solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study;
3. have the ability to integrate knowledge and handle complexity, and formulate judgements with incomplete or limited information, but that include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgements.
4. can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously
5. have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous

These learning competences will be developed by the students through the teaching methodology used, which will be mostly integrated by 50% theoretical and 50% practical activities: such as case studies, seminars, laboratory courses. These practical approaches will be the means to achieve some learning outcomes such as, “apply their knowledge and understanding, and solving abilities…”, “formulate judgements with incomplete information…”. These generic learning outcomes will enable the graduates to develop autonomous thinking and learning to continue their Doctorate studies. Apart from these generic learning outcomes, some others more specific (S1-S14) can be included (Students should be able):

1. To apply generic scientific principles related to Chemistry, Biology, Toxicology, Medicine, Physics, and Mathematics to solve forensic cases.
2. To document correctly evidence and results in an unambiguous way.
3. To use and select scientific methodologies to collect, classify and analyse forensic evidences and data that ensure the chain of custody and observe all the requirements of a quality assurance system, including the absence of contamination in the samples.
4. To show and apply their knowledge about analytical techniques and sample treatment in forensic analytical procedures.
5. To understand the dynamic character of toxicological, chemical or biological phenomena in the forensic field in order to correctly interpret the results and date a specific case.
6. To assimilate and understand the role of forensic scientists as expert witnesses.
7. To assess the socio-economic impact of new advances in the sciences of forensic interest.
8. To know the competences of forensic medicine and the rules to elaborate expert reports and act as expert witnesses.
9. To recognize the normal and abnormal evolution of corpses.
10. To know the fundamentals of forensic autopsy.
11. To characterize properly different toxics and agents of interest using suitable instrumentation.
12. To acquire skills in evidence sampling, preservation and identification for forensic purposes.
13. To acquire skills in the field for evidence sampling.
14. To know how to analyze the procedures useful from a forensic prospect and to project the implementation of alternative methods.

This list includes learning outcomes very desirable for future professionals in the forensic field. It encompasses theoretical and practical skills that will constitute the foundations for the professional future of EMMC graduates. Some of them are closer to the perspective of routine work in a forensic laboratory, like learning outcomes 1-6 and 8-13 inclusive. There are two additional skills (7, 14) that are intended to prepare the graduate for a future career in the research field, since they are dealing with new advances in Forensic Sciences and the development of new alternative methods. The achievement of the generic and specific competences will give the graduates an
integral education and training to be contracted by private companies, as a freelance, as a member of a professional body (after recruitment and selection by police, national institutes of toxicology, Home Office and many other public organisms across the world). The relationship between proposed modules and the learning outcomes to be acquired by students is shown in Table 2 (See next page) that includes learning outcomes based on Dublin’s Descriptors and the specific learning outcomes. As it can be seen, the integrated acquisition learning outcomes is expected to happen after the performance of the Final Masters Project, that will combine the acquisition of theoretical concepts, development of practical skills and other generic outcomes.

The teaching methodology to be used in the different EMMC modules encompasses the use of the activities shown in Table 3.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>In class</td>
<td></td>
</tr>
<tr>
<td>Lectures with a large student group</td>
<td>Presentation of theoretical contents in 50-minute lessons</td>
</tr>
<tr>
<td>Laboratory practical courses</td>
<td>Performance of guided experimental work in the presence of the teacher</td>
</tr>
<tr>
<td>Field practical work</td>
<td>Experimental work carried out on a crime scene, environmental problem, entomology-based problem to solve</td>
</tr>
<tr>
<td>Seminars</td>
<td>Solution of problems, questions posed by the teacher</td>
</tr>
<tr>
<td>Case studies</td>
<td>Thematic activities posed by the teachers that students should solve and present a written work, an oral presentation and further discussion</td>
</tr>
<tr>
<td>Seminars in computer laboratories</td>
<td>Solution of practical exercises by using computers</td>
</tr>
<tr>
<td>Workshops</td>
<td>Activities with a high practical content to develop practical skills and abilities in the students through individual or team work</td>
</tr>
<tr>
<td>Organization of conferences</td>
<td>Preparation of posters and brief oral presentations of the experimental work carried out by students with presence of other international students &amp; speakers</td>
</tr>
<tr>
<td>Autonomous activities</td>
<td></td>
</tr>
<tr>
<td>Individual</td>
<td>Study of theoretical lessons, reflection on experimental work, solution of numerical problems, case studies</td>
</tr>
<tr>
<td>Team work</td>
<td>Solution of questions, case studies, workshops</td>
</tr>
</tbody>
</table>

A.1.5
The Consortium composition is well balanced and the temporal distribution has been done according to the expertise of the staff involved and the most suitable sequence for an adequate learning process by the students: from the fundamental aspects to the most applied and those connected to the performance of the final Masters project. As it has been mentioned elsewhere, each Masters edition starts at the University of Cordoba. The fields of expertise of the staff at this University are Analytical Chemistry, Legal Medicine and Botany. Key staff selected belong to the two first areas. The contact person at the University of Cordoba (Dr. Mª Paz Aguilar Caballos) and one of the senior scientist and teachers (Dr. Soledad Rubio Bravo) are specialists in Analytical Chemistry. The contact person has experience in coordinating activities, as the coordinator of Chemistry Degree at the University of Cordoba. Dr. Rubio Bravo is Full Professor in Analytical Chemistry with more than 140 articles published, 6 supervised doctoral theses and 5 currently under supervision, the most dealing with environmental analysis and toxicology. Another key staff member is Dr. Eloy Girela who, apart from his academic career, has been the Head of the Medical Services of the Cordoba Penitentiary Centre and has developed his teaching expertise in autopsy and evolution processes of corpses. In addition, 1 full professor belonging to Botany area, 3 senior lecturers (Spanish position: profesores titulares de universidad) of Analytical Chemistry and 1 senior lecturer (Spanish position: profesores titulares de universidad) of legal medicine and 1 member of the Legal Medicine Institute of Cordoba complete the academic staff. All these lecturers have supervised one or more Ph.D. thesis. The profile of all the academic staff is quite close to the contents delivered by the University of Cordoba and they are researching currently in some of the approaches related with the teaching contents.
Table 2. Map of the defined EMMC learning outcomes in relation with proposed EMMC modules

<table>
<thead>
<tr>
<th>Subject</th>
<th>Learning Outcomes*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D1</td>
</tr>
<tr>
<td>Forensic Analytical Chemistry</td>
<td>X</td>
</tr>
<tr>
<td>Advanced Instrumental analysis</td>
<td>X</td>
</tr>
<tr>
<td>Quality Assurance in the Forensic Laboratory</td>
<td>X</td>
</tr>
<tr>
<td>Environmental Forensics</td>
<td>X</td>
</tr>
<tr>
<td>Toxicological Analysis</td>
<td>X</td>
</tr>
<tr>
<td>Forensic Pathology</td>
<td>X</td>
</tr>
<tr>
<td>Forensic Botany I</td>
<td>X</td>
</tr>
<tr>
<td>Xenobiochemistry</td>
<td>X</td>
</tr>
<tr>
<td>Principles of Pharmacology</td>
<td>X</td>
</tr>
<tr>
<td>Drugs of Abuse</td>
<td>X</td>
</tr>
<tr>
<td>Phylogenetic Analysis in Forensic Science</td>
<td>X</td>
</tr>
<tr>
<td>Forensic Botany II</td>
<td>X</td>
</tr>
<tr>
<td>Advanced Forensic Biology</td>
<td>X</td>
</tr>
<tr>
<td>Advanced Forensic Toxicology</td>
<td>X</td>
</tr>
<tr>
<td>Fire and Explosion</td>
<td>X</td>
</tr>
<tr>
<td>Forensic Entomology</td>
<td>X</td>
</tr>
<tr>
<td>Forensic Anthropology</td>
<td>X</td>
</tr>
<tr>
<td>Statistics in Forensic Sciences</td>
<td>X</td>
</tr>
<tr>
<td>Sensors in Forensic Sciences</td>
<td>X</td>
</tr>
<tr>
<td>Project Preparation</td>
<td>X</td>
</tr>
<tr>
<td>Method Development and Validation</td>
<td>X</td>
</tr>
<tr>
<td>Final Master Project</td>
<td>X</td>
</tr>
</tbody>
</table>

*D1-D5: Dublin’s descriptors, S1-S14: Specific learning outcomes described for the proposed EMMC course in Forensic Sciences
Another invited scholar will participate in the Molecular Biology and Statistics in Forensic Science modules at the University of Lincoln. Dr. Lawrence Kobilinsky, who is a public service professional from Canada with year after year success achieving growth in productivity, technological innovations and delivering high levels of customer satisfaction. He has been Deputy Director of the Scientific Services of the Centre of Forensic Sciences of Ontario and has experience in business process re-engineering, government procurement, business planning and human resource management. He has also led and motivated large and small teams to deliver high quality forensic science services to the province of Ontario. He has developed basic and applied knowledge in laboratory accreditation, strategic, operational and performance planning, Operations re-engineering and performance improvement. Dr Newton will also be collaborating in the delivery of Advanced Forensic Biology and Method Development and Validation at Lincoln.

Invited scholars

The applicant institution has invited some very well recognized scholars that will provide the course with a very high level. One of them is Dr. Lawrence Kobilinsky has been at John Jay College since September 1975 when he joined the interdisciplinary forensic science department as its forensic biologist. He received his B.S. and M.A. degrees from The City College of The City University of New York in 1969 and 1971 respectively and his Ph.D. degree from The City University of New York. As an internationally renowned forensic scientist he has served as advisor to criminalistics laboratories in several countries including Mexico, China, Brazil, the Dominican Republic and others. He is a Fellow of the American Academy of Forensic Sciences and a Diplomate of the American College of Forensic Examiners and is a Board Certified Forensic Examiner. He has received numerous honours including the Federal Law Enforcement Officers “Civilian Award.” He has published extensively on the subject of forensic DNA analysis and has made many presentations at regional, national and international meetings. He will participate in the Molecular Biology and Statistics in Forensic Science modules at the University of Lincoln.

Another invited scholar will be Dr. Jonathan Newman who is a public service professional from Canada with year after year success achieving growth in productivity, technological innovations and delivering high levels of customer satisfaction. He has been Deputy Director of the Scientific Services of the Centre of Forensic Sciences of Ontario and has experience in business process re-engineering, government procurement, business planning and human resource management. He has also led and motivated large and small teams to deliver high quality forensic science services to the province of Ontario. He has developed basic and applied knowledge in laboratory accreditation, strategic, operational and performance planning, Operations re-engineering and performance improvement. Dr Newton will also be collaborating in the delivery of Advanced Forensic Biology and Method Development and Validation at Lincoln.

The most important value added with the presence of these invited scholars will be their expertness in the Forensic field. Students would not have such as integrated education without the mobility and the contacts that partners have through their institutions.

A.1.6

Consortium partners have contacted public institutions and private companies to ask them for their collaboration with the applied EMMC. Cordoba Scientific Police Brigade has offered its collaboration and expertise to collaborate with seminars and/or visits to the police station and, also with any other tasks to which they will be asked for and do not represent any interference in their work or security. Also, there is the possibility of performing a visit to the central laboratories of national police in Andalusia that are located in Sevilla and that will be arranged by the Cordoba Scientific Police Brigade. This brigade will offer a very rigorous view of the forensic field, more specifically, about criminalistics. Humberside Police has also offered their collaboration to participate and teach in the course. Also, a spin-off company, Análisis Botánicos Mazara S.L., whose main expertise is the
Analysis of botanical trace evidences for forensic and archaeological purposes, supports this project and they will contribute to the subject Forensic Botany I with teaching by experienced staff. The Consortium has also received the support from the Cordoba Section of the Intercollegiate Andalusian Institute of Criminology that assures the wide coverage of this EMMC and the opportunities that would arise for many European and Third countries. Other private companies have also offered their expertise and resources to be added to the course. Triple A Forensics Ltd., specializes in toxicological analysis and forensic trace analysis. Their members are frequently requested to act as expert witnesses in Court. Another company which offered its expertise is Key Forensics Ltd., which has collaborated before with the School of Natural and Applied Sciences through its Document Evidence Division. This company will facilitate document evidence analysis, delivering workshops and seminars for the EMMC under application.

Government bodies have also expressed their intention to support the Masters. The Home Office Scientific Development Branch (HOSDB) has also expressed its intention to keep the support to the Consortium members and assist them in research on how to develop new forensic methodologies. The Canadian Ontario's Centre of Forensic Sciences is one of the most extensive forensic science facilities in North America and has offered their expertise and support to the Master.

A.2.1. The course is composed of 22 modules (6 ECTS) delivered separately by the Consortium partners according to a joint designed structure to make learning of the most important topics in Forensic Science more efficient. The first consideration to take into account when delivering a Forensic Science course is the wide area of knowledge that needs to be covered. Forensic Science is a multidisciplinary subject that includes different scientific disciplines such as chemistry, biology, physics, mathematics, engineering, medicine and subsidiary areas.

The design of the course has been tailored to cover the most relevant areas in Forensic Science and give the student a good learning experience to prepare them for the professional practice. There are three key elements that a Forensic Scientist needs to cover to be able to perform their duties in an efficient way: knowledge in the use of the relevant techniques, knowledge of the scientific principles behind forensic analyses and independent and critical thinking to draw valid conclusions.

The first two elements are covered during semesters 1-3, through the different taught modules. The different partners in our Consortium offer complementary experience and expertise to make the students be able to achieve this.

The different institutions have jointly designed the modular curriculum to:
(a) complement the contents taught in another partner institution adding their own expertise. i.e. forensic botany I (Cordoba) and II (Lisbon); toxicological analysis (Cordoba) and advance forensic toxicology (Lincoln); forensic pathology (Cordoba) and forensic anthropology (Lincoln)
(b) form sub-specialist areas; i.e. toxicological analysis (Cordoba), pharmacology, drugs of abuse, food toxicology and xenobiochemistry (all from Lisbon) and advanced forensic toxicology (Lincoln) will complement each other to give a broader vision of forensic toxicology.
(c) add specialist expertise in a specific topic. i.e. Environmental forensics (Cordoba), phylogenetic analysis in FS (Lisbon), fire and explosions and entomology (Lincoln)
(d) give a general knowledge of broad topics. Forensic Analytical Chemistry (Cordoba) and Advanced forensic Biology (Lincoln)

The last of the three key elements described above will be covered during the last semester, in which the students will be able to put in practice all the concepts previously learned.

All these interconnections make the course a fully integrated course, independent of the locations where it is taught and taking advantage of each partner's expertise and the mobility element. All partners assume the same teaching workload, delivering 30 ECTS per semester and accepting the same number of students for the final project (30 ECTS).
A.2.2.
At the end of the course each student will receive multiple national official awards from each of the Consortium institutions. These awards will state name of the student, title of the award, the grade obtained by the student and date of award. Together with the award, the students will receive an individual diploma supplement stating modules completed, ECTS, grade, date of completion and national award obtained associated to those modules. A joint diploma supplement will also be produced by the Applicant Institution summarising all the achievements of the student in ALL the partner institutions.

To date the course programme is fully developed and it has been APPROVED in principle by the Universities of Lincoln (UK) and Cordoba (Spain) and the Instituto Superior de Ciencias da Saude Egas Moniz ISCSEM (Portugal)(see APPENDIX I) allowing it to proceed towards full national validation, which should be concluded in February 2011, in the case of Lincoln, and June 2011, in the case of Cordoba (well before enrolment). The ISCSEM has also submitted the recognition and validation to the Portuguese Ministry of Education and it will also award a national degree that will be ready by the time the first cohort finishes. In any case, a double award is at least guaranteed.

A scheme of the validation process for the different institutions is shown in APPENDIX II.

A.2.3.
The candidates will need to accredit to have completed a Bachelor degree in Science (or equivalent) from a recognised official Higher Education Institution in order to apply. They also need to accredit a sufficient level of English to follow the course (IELTS 6.0, TOEFL 550 paper based, TOEFL 79 internet, or equivalent). Students will need to fill the application form and attach a CV stating academic and non-academic achievements and apply electronically through the website of the course.

The responsible body for admissions will be the Joint Academic Panel (JAP). This panel will be formed with the national co-ordinators and a member of the academic staff from each institution. The chair of this panel will be the applicant institution co-ordinator and will be the casting vote in case of dispute. A list with scores for the different academic (degree grade) and non-academic merits (publications, scientific communication or reports, research periods, experience in the field) will be established by the Admission Panel and it will be used to evaluate all applicants. The JAP will study every application fairly using the same evaluation criteria. No discrimination based on race, gender, marital status, age or political opinion will be made. The evaluation will be performed remotely and independently by the different members of the consortium. At the end of the process a list will be produced and this list will be discussed in a meeting of the JAP, in which a final list will be produced with the names of the selected candidates. A reserve list will also be produced. The selected candidates will be informed and an interview process will take place. Interviews will be carried out using all means available (phone, video conference and face-to-face) in the most effective way and considering each individual case. The panel for these interviews will be constituted by the coordinators only. At the end of the interview process a final list will be issued and candidates offered an unconditional offer to enrol. In case of withdrawals or resignations from the main candidates the reserve list will be activated and candidates invited for interview. In case of similar marks between candidates, the JAP will take into consideration to obtain balanced gender participation. In case of extremely uneven gender distribution the JAP would consider assigning quotas to guarantee representation of both sexes.

The admission process with temporal distribution can be seen in APPENDIX III.

A.2.4.
The ECTS system will be used in all written communication with the student and between institutions to facilitate communication. The grading system for the modules has been agreed by the members of the consortium, being ≥50% for a pass and ≥80% for distinction. The module mark will be awarded based on different assessment methods: coursework, examinations, presentations, practical sessions or work contributions to the module and it will be specified by the module coordinator in the module handbook given to the students at the beginning of the academic year. These assessment methods will be carefully chosen by the module coordinators to test the progress of students against the learning outcomes. The overall grade of the Masters at the end of the period of studies will be: Pass or distinction based on the same percentages and considering the median or average mark of the individual modules.
The examination process will be the responsibility of the module coordinator in each institution which will use the means described above and they will also be responsible for organising reassessment of the exams for those students who failed to achieve the minimum standards or have extenuating circumstances before the end of the semester. Reassessment will be performed in the institution, if possible, or administered in the next resident institution if necessary. The module coordinator will also be responsible for implementing the quality assurance policy described in A.5. At the end of the semester the Academic Panel of the Institution (API), formed by all teaching staff and chaired by the national course co-ordinator, will evaluate each student’s situation and it will inform the Applicant Organisation coordinator of those who have fulfilled progression requirements to the next stage of the course and marks achieved to be registered in the files. Together with the module coordinator, the API will also arrange the necessary means to retake failed modules for those students who have not still fulfilled the minimum standard to pass.

Two student representatives will be invited to join API discussions, when all the confidential discussion on individual students’ performance has finished, participating in the discussions and offering their views in the life of the course.

In the second year, and only after successful completion of all three taught semesters, while they are still at Lincoln (Applicant Institution), the students will be offered a selection of projects. These will cover different areas of forensic science and will be developed in different institutions. Their selection will determine the next stop of their academic journey. These projects will have been previously sent to the Applicant Institution co-ordinator during the third semester to allow him enough time to coordinate with each institution accepting the students. Each country will receive the same number of students.

At the end of the academic year, in August, the JAP will also meet to evaluate the API reports on academic progression of students and the way the course developed in the year and solve potential conflicts. This panel will also produce a list to submit to the different Universities with the necessary information for the different Institutions to produce the multiples awards. It will also make liaisons with the University to organise the Graduation Ceremony. APPENDIX IV describes in a graphic way the academic journey of a student through both years of the course and the frequency of meetings for both JAP and API.

A.2.5.

The EMMC student participation costs per semester will be 2000 € for all EU students, independent of the Institution. The fee will be 4000 € for non-EU students in Lincoln and Cordoba and 2000€ in Lisbon. All institutions will claim their part of the student participation cost according to the number of students enrolled. This amount will be transferred to them by the applicant organisation on receipt of the pertinent invoice and confirmation of student arrival and registration. Table 4 shows the justification of costs and summarises their allocation in each partner institution:

<table>
<thead>
<tr>
<th></th>
<th>EU (€)/semester</th>
<th>Non-EU (€)/semester</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lisbon</td>
<td>Cordoba</td>
</tr>
<tr>
<td>Academic fees</td>
<td>1600</td>
<td>850</td>
</tr>
<tr>
<td>Pick-up service</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>Language course</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Social Events</td>
<td>Paid fees</td>
<td>100</td>
</tr>
<tr>
<td>Cultural courses</td>
<td>50</td>
<td>75</td>
</tr>
<tr>
<td>Insurance</td>
<td>Paid fees</td>
<td>600</td>
</tr>
<tr>
<td>Travel insurance</td>
<td>100</td>
<td>75</td>
</tr>
<tr>
<td>Administration fees</td>
<td>Paid fees</td>
<td>Paid fees</td>
</tr>
<tr>
<td>Total</td>
<td>2000</td>
<td>2000</td>
</tr>
</tbody>
</table>

All extra costs that the institutions may incur due to recruiting of external examiners, travel expenses for the members of the committees and other unexpected costs from running the course will be assumed by the own Institution.

A.3.1.

All partners of the Consortium will be co-responsible for the academic delivery of the course in the same extent. The first level in the academic organisation of the course starts with the module co-ordinator, responsible for (a) the management of the resources of the module (both human and material), (b) delivery, (c) assessment and (d)
re-assessment of the module. The module co-ordinators will also be responsible for (e) ensuring that the quality assurance methodology is implemented and kept up to date. Module coordinators together with the institution coordinator and two student representatives are members of the Academic Panel of the Institution (API), which will meet twice during the semester. The missions of API are: (a) to organise the academic life during the semester, (b) to evaluate the progression of the different students at the end of the semester and produce progression reports, (c) together with the module co-ordinator to organise the timetable for re-assessment of failed modules and (d) to also check that the quality assurance material is ready for the external evaluators and external auditors. API will also meet with the external evaluators to address their comments on the different modules guaranteeing that the course is run according to the quality standards of the course (described under A.5).

The next level in the academic organisation is the Joint Academic Panel (JAP) in which all the institutional coordinators and one academic from each institution will organise and deal with major co-ordination issues between the different institutions. They will meet twice a year. JAP will be (a) responsible for admissions and submit the list of candidates to each institution for enrolment; (b) it will collect and record the decisions of the different APIs; (c) it will produce the progression list of the students; (d) it will produce the final list of students with modules and grades which will be sent to the different institutions to for the production of the different awards; (e) it will also liaise with the different institutions to organise the graduation ceremony. The organisation of the course guarantees that every member of the Consortium shares the same degree of responsibility and has the same weight in the decision making process. APPENDIX V shows a diagram with the organisational levels in the Consortium.

From a student perspective, there are different ways they will interact with the academic and the administrative staff of the course. Before arrival they will be interacting with the Joint Administrative Officer of the Course (JAOC). JAOC will answer all questions related to the application process, forms required, certificates needed, etc. The JAOC will also assist in the registration process and will be responsible for liaising with the national academic officers in the different HEIs to make the process as smooth as possible. The JAOC will assist students in all administrative issues regarding the course and it will liaise with the international and admission offices in the different institutions to assist in the VISA application, travel arrangement and bank account arrangements. This will make it easy and quick for the student and will facilitate the regularisation of the student for the different national authorities. In the case of VISA arrangement, the JAOC will obtain the requested paperwork from the national immigration agencies with the deadlines and it will provide a clear guide to the applicants on how to proceed, making the process more agile and efficient. They will also follow each student’s case to have a clear picture of their individual situation. This will allow acting quickly in case any problems arise.

Students will also liaise with the international office for all social activities, language courses, cultural courses, trips, bank arrangements, accommodation and registration with the different national authorities. Students will be allocated an academic tutor who will assist them and support them in all academic problems during their stay in the institution. They will also elect two representatives that will also meet with the API, module coordinators or institutional co-ordinators to express concerns, problems or raise complaints. National coordinators have a key role in the life of the course. They will (a) liaise with the module co-ordinators to organise timetabling and human resources, and (b) will also liaise with the officers of the institution to organise the use of facilities, allocation of funds and resources for the course. They will also provide the JAOC with the dates for panel meetings and external examiners visits and will receive information from them about the arrangement organised with the International Office to make student arrival, accommodation and settlement as easy as possible.

A draft of the consortium agreement to be implemented is shown in APPENDIX VI. The agreement also contains the withdrawal mechanism. In case of withdrawal of any of the members the remaining members of the Consortium will look for a suitable replacement and will inform the Commission of this event. In any case the rest of the members of the Consortium will guarantee the delivery of the course.

A.3.2.

The scholarship will be distributed according to the different needs, expressed by the different institutions, to fulfil the institutional budget requirements in order to cover all planned activities (see Table 4 in section A.2). The lump sum (30000€ per edition) will be used to contract the JAOC, who will provide support in administrative and secretariat duties, liaise with the administrative staff at the different institutions and assist all members of staff and
students. The JAOC will also assist in the coordinating institution financial officers with the bureaucracy to transfer the funds to each of the partner institutions. The JAOC will be recruited taking into account the need for them to fluidly communicate with the admin staff in the other institutions (they will need to speak English, Portuguese and Spanish). The procedure in which the money will be distributed is described in the draft memorandum of understanding (APPENDIX VI) which will be signed before starting negotiations with the EC. Once the money has been transferred to the different institutions, the different national co-ordinators together with the JAOC will make sure all funds are in place to guarantee the normal functioning of the course and student grant provision. The individual grants will be allocated to each individual student and transferred to their bank accounts upon confirmation of student arrival to the different teaching venues each semester.

Each institution will guarantee the required facilities for the adequate functioning of course. These facilities include the use of laboratories, library, seminar rooms, lecture theatres, computer rooms, off campus facilities for the course (such as crime houses and outdoor crime scenarios). All the instrumentation required for project work, namely consumables, chemicals and technical support, will also be provided by the Institutions and will be covered by the student contribution to the fees. The teaching team from the three institutions consists of 18 highly qualified lecturers and researchers and six members for technical support. It also includes invited scholars from the John Jay College of New York (USA) and the Centre of Forensic Science of Ontario (Canada). Speakers from different forensic companies and international official institutions, including the Scientific Police of Cordoba (Spain), Humberside Police (UK), Home Office Scientific Development Branch (UK), Key Forensic Evidence Ltd (UK), Triple A forensics Ltd (UK), Maza ra analisis botanicos SL (Spain) and the Andalusian Institute of Criminology (Spain) will provide specialist talks and workshops to complement the content of the modules with practical experience (see letters of support in APPENDIX VII).

A.3.3.
Companies and institutions working closely in the scientific programmes of the different institutions involved in the course have been approached to obtain extra funds to increase the number of scholarships available and conversations to obtain sponsorship for the whole or partial contents of the course are held at present. A commercial plan to open some of the contents offered in the course as specialist courses has also been approved. Some modules have intrinsic value for professionals in the sector who cannot commit themselves to a two-year course, but are still interested in obtaining the knowledge offered. “Quality Assurance in the Forensic Laboratory”, “Statistics in Forensic Science” and “Method Development and Validation” are the modules which have been considered to constitute stand-alone modules to be offered to external students and which will contribute to increase the economic viability of the course.

The promotion and marketing of the course will include typical activities to promote this type of course: develop a website of the course, inclusion of the course in the institutional brochures of each university, inclusion in University websites, inclusion of adverts in research and academic international mailing lists. For the previous activities all the partners in the Consortium will dedicate similar effort and resources to implement them. The network of agents of the University of Lincoln will also be used.

A.3.4.
An innovative marketing and promotion initiative will be used to achieve high number of applications using the international network of international agents of the University of Lincoln (UoL). The UoL has contacts in more than 50 countries through agents who represent it. These agents are responsible to present and promote the different courses offered by the University in different world regions, organising events in which staff members can directly promote the courses and inform about recruitment. The course will also be advertised through this network in order to increase its visibility.

The plan to extend the life of the course beyond the EC contribution includes the worldwide marketing programme and promotion of the course described above to guarantee a similar (24) or higher increase in number of students. A new Consortium agreement will be signed before the present agreement expires stating the grade of commitment of each partner and opening the possibility for new partners to join and establishing new updated conditions according to the new circumstances. Other measures that the consortium will implement include (a) facilitating information to students about grant applications to public or private institutions, such as British Council, banks (Santander, BBVA, Lloyds TSB...), Spanish Agency for Cooperation and Development, national and international grant programmes, (b) negotiating with financial institutions low interest credits for students taking our course, (c) implementing grants in each of the partner institutions to make the costs of the course more accessible and (d) delivering part of the modules of the course using on-line resources and distant learning to reduce costs.
A.4.1. All the services offered by the different institutions are consistent within the different countries. Shortly after the student has been confirmed a place in the Masters, and they have accepted, will receive a welcome pack by post with information on (a) how to proceed with VISA applications, (b) requirements they need to fulfil in order to fully register in the course, (c) list of contact emails and the JAOC contact details, (d) student handbook, (e) instructions on how, where and when they are expected to start the course, (f) cultural tips about the countries in which they will be living for two years, (g) details on how to open bank accounts, (h) information on police arrangements, (i) detailed information on the staff in charge, (j) the course contents, (k) evaluation methodology and (l) degrees awarded on completion (this information will also be advertised on the website and they can consult it previously to apply). As described previously, the application process will be done electronically and all communications will be established via email or phone. The website will also provide a way to contact the JAOC to ask any questions regarding the course they could not find in the frequently asked questions section of the website.

A.4.2. The welcome pack will also contain a copy of the student agreement in which obligations, duties and rights and that the students need to sign and submit at enrolment and always previously to the start of the course (a draft model is attached in APPENDIX VIII). The student agreement will describe the basic obligations that both the student and the institution compromise to fulfil. The student handbook will describe all elements of student life for each year of studies (see list of content of year 1 handbook in APPENDIX IX).

A.4.3. The international office of the partner universities:

• will establish contact with the student/scholars via email to arrange the pick-up service from the airport.
• will, in liaison with the JAOC, help students/scholars to make accommodation and flight arrangements to make sure that this is in place before arriving to their destinations. It will be able to arrange accommodation off campus or family houses (for students with family obligations) according to the student/scholars needs.
• will organise social events to facilitate the integration and social interaction of the students with their peers and with the rest of the University. It will also organise cultural courses to facilitate the adaptation of students with the uses and customs of the country. It will also keep the students informed on the different cultural activities that the university is offering (theatre, balls, concerts, cinema,...)
• will also organise the language courses taught in each country (English, Portuguese and Spanish).

The JAOC will also help the students with VISA, police registration, medical registration and bank paperwork to make the process agile and smooth. They will also contact the consulates of the students in the different locations to make these processes more agile.

During the course (second year) the students will be presented with the opportunity to embark on a study trip to New York (visits to FBI headquarters, UN building, NY police station, John Jay College ...) or Toronto (visits to Canadian Forensic Service, Toronto Rescue and Fire investigation headquarters, Forensic Museum,...) to enhance their knowledge on how North American forensic and law enforcement bodies work. This will allow them to establish a valuable firsthand comparison between American and European approaches to forensic science. Each student will be assigned an academic tutor at each institution who will be helping the student in all academic aspects regarding the course. They will make sure that circumstances external to the course do not affect academic performance and are taken into account when assessing the student.

A.4.4. The members of the Consortium will guarantee that at least the minimum requirements for the health and accident insurance coverage, established in the Erasmus Mundus Action1 and 2 for 2009-2013 guide, is adopted for students and visiting scholars. Each member of the Consortium will guarantee that the insurance meets both the local and international legislations and could be portable according to the different cases. The JAOC of the Consortium will also help the student to register under the different Health National Services. The UK and Spain have a universal assistance policy in health care, which implies that students will be attended
to and treated no matter what their nationalities are. Portugal has a similar policy for short term stays, but a full insurance that will be put in place at the start of the stay will guarantee that students will also have hospital coverage and treatment in Portugal. The insurance will be funded using the EC contribution to the EMMC costs, as shown in Table 4 (section A.2.). The insurance will complement the basic coverage of the student insurance that the different Universities offer their students at present to fulfill with the requested coverage for sickness/pregnancy, death, permanent invalidity, third-party liability, theft and loss of documents.

A.4.5.
The Consortium will use three languages as co-official for internal documents, national certificates, and internal communications. The official teaching language is English and all materials will be made available in English. All communications with students will be also in English. Students will receive a course in the local language for the duration of their stay in each country to facilitate integration and communication with the local communities. At the end of this course they will receive a certificate of attendance stating the results of the assessment on their written, oral and reading skills. This course will be covered within the EC contribution to the course (Table 4, section A.2.). At the end of the course students will have had the opportunity to obtain a basic knowledge of Portuguese and Spanish and to expand their communication skills in English. The International offices will also favour the use of the local languages during their social activities to encourage its use and facilitate the integration with the local student population.

A.4.6.
Given the nature of the course and how important the collaborations between the different forensic and police services all over the world are, networking in this course will be very important. Future cohorts of forensic scientists from different countries working together can yield countless benefits for future work collaborations.

The first week in each new institution will be dedicated to an induction week in which all students will be welcomed by the teaching staff and their academic tutors. They will also receive an induction in the use of the facilities such as library resources, computer systems, health and safety in the labs and to learn how to familiarise themselves with the electronic learning environment in each Institution. They will also have team building exercises, which will encourage group working and bonding.

A cultural course covering the most typical uses and customs will be also delivered during the first weeks upon arrival to the country. This course will help the students to understand the meaning of local traditions and avoid misunderstandings or confusions due to lack of knowledge.

The social events tailored to the EMMC students, such as cultural trips, gatherings, balls, concerts, will be organised by the International Offices of the different universities together with the students unions or associations to favour the integration of the students with the local student population. As full members of the different universities they will also have access to all the services offered by the University, such as careers advice, counselling services, social clubs, membership to University gyms, cultural and sport societies, religious ceremonies, etc.

At the end of the stay in Lincoln and before they separate to go to their project destinations, students and teaching staff will celebrate a gathering/lunch as a good bye event.

To facilitate future networking and affiliation, during their stay students will be offered the opportunity to obtain student membership to professional bodies, such as the Royal Society of Chemistry, Institute of Biology, UK Forensic Science Society, between others.

A.5.1.
The key principles ruling the quality assurance of the course will be:

- **Collegiality** - which means that concern for, and responsibility for, quality and standards is shared by all members of the University and by its partner institutions
- **Peer-based assessment** - which means that the quality and standards of provision will be assessed at various stages by groups composed of peers, drawing upon expertise both in the field of study
- **Externality** - which means that peer-based assessment will include the involvement of representatives of the academic and professional/vocational community
- **Stakeholder satisfaction** - which means that feedback from students, industry/commerce, professional bodies and other ‘stakeholders’ is essential information for maintaining and enhancing quality
• **Transparency** - which means that the systems and procedures by which quality is assessed will be well documented and their outcomes a matter of public record

• **Accountability** - which means that the roles and responsibilities of individuals and committees, for quality assurance and management, will be clear stated

Students will be the first ones evaluating the teaching quality of the course through the student satisfaction surveys of each of the modules of the course. Their comments will first be passed to the Academic Panel of the Institution (API) and later evaluated by the Joint Academic Panel (JAP). API will review the results and will evaluate, together with the module coordinator, those measures that can improve student satisfaction, if general dissatisfaction arise with the delivery of a specific module. API will pass the measures adopted onto JAP which will record them for quality purposes.

These student satisfaction surveys will also be evaluated by the Quality Committees of the different Universities and Schools and the course will be accountable for any actions from them.

Modules coordinators are instructed to enforce the quality measures in their modules to assure students that their work is assessed objectively and against clearly defined, published, assessment criteria. To achieve this, moderation and double and second marking of a sample of assessments will be in place:

- Double marking means the marking of work independently by two tutors where both are unaware of each other’s mark or comments followed by the formulation of a jointly agreed mark.
- Second marking is the marking of work by two tutors where the second tutor is aware of the mark given by the first tutor. The second tutor ratifies or questions the mark given.
- Moderation implies the review and potential adjustment of a set of marks for a particular module.

In principle a sample of 8 assignments will be photocopied and taken for each piece of assessment for the module. As a general rule, for all institutions a sample of the exams will be always double marked. Minor pieces of work in the module can be second marked. In all cases if deviations greater than 10% occur, the final mark needs to be agreed with the internal examiner (double marker). If this discrepancy occurred with all evaluated assessments all the work will need to be double marked or moderation put in place.

All written work for projects will be double marked and the final mark agreed by both examiners. The oral examination element of the project will also be double marked.

This internal mechanism will guarantee that all students are treated fairly and the course meets the right quality. All this material needs to be stored and kept for the duration of the course and it will be accessible to API, JAP and external examiners. During the two annual meetings, JAP will also evaluate the overall results of the modules and the general quality process.

Student representatives will have representation in the API meetings (they will not be allowed to be present in the meeting though when students marks are discussed due to confidentiality issues).

The complaint procedure is to guarantee impartiality and transparency. All complaints will be recorded. Students will raise complaints through their academic tutors (first contact point) who will try to solve them with the academic involved (usually module coordinator if it involves a module) or the national co-ordinator (if the complaint is of a general nature). If this cannot be satisfactorily resolved the next level will be the API meetings (depending on the gravity of the matter an extraordinary could be called). If the matter is still unsolved the problem can follow the general routes that the different Universities have in place to solve academic problems. All academic offenses will be treated according to the regulations of the Institutions where the offence was committed and resolved following their procedures.

The course will also be subjected to the different institutional audits performed by the different Universities and it will be accountable for their results and will follow their recommendations for improvement.

**A.5.2**

The Consortium will have a number of external key processes designed to ensure the setting of appropriate standards and maintaining the quality across its provision.

- **Annual Monitoring and Reporting**

The external examiners and collaborating professional bodies (forensic science organisations and law enforcement and government forensic services) in the Masters will receive a copy of the annual JAP report. In this report a summary of the main achievements, problems and developments of the year will be shown.
Progression figures, estimated recruitment for the following year, quality reports, academic figures and news or events developed during the year will be addressed. This report will give the external bodies a chance to suggest improvements or modifications.

- **External assessment evaluation**
  
  External Examiners will be selected between the most relevant professionals in the area of forensic science in the different countries. They will be sent adequate samples of students’ work by the API. The samples sent will cover all modules under the external examiner’s remit and will reflect a representative range of work, sufficient to make a judgement. The sample sent will include a sample of second and double marking as appropriate and a model of all assessments within each module. Based on their responses the module coordinators will revise the module or even marks awarded to make the process fairer. External Examiners will present any comments they have on the work and marking they have sampled to the API in their annual report and can contact the JAP at any time to raise comments, complaints or suggestions.

- **Relationships with Professional, Statutory and Regulatory Bodies**
  
  The appropriateness of the course contents will be revised by the JAP bi-annually (after each edition of the Master). Members of the professional bodies will be invited to submit suggestions or improvements to the teaching programme to improve the contents delivered in the course. They will also be invited to suggest new areas of recent development in Forensic Science to keep the course up to date. If, as result of quality evaluations (both external and/or internal) modifications were raised or improvements recommended the JAP will raise these to the relevant institutional boards in the University to implement these modifications according to the regulations of each institution and national regulations. The Commission will be also informed of any changes performed to improve the quality of the course.
COPY OF ENDORSMENT LETTERS
Letter of Endorsement

For Erasmus Mundus Master Course In Forensic Science

I hereby confirm that the Instituto Superior de Ciências da Saúde Egas Moniz (ISCSEM) is committed to participate in the Erasmus Mundus Masters Course in Forensic Science coordinated by the University of Lincoln. The responsible for this project will be the Prof. Doutor Alexandre Quintas and Prof. Doutora Margarida Costa.

ISCSEM accepts the general terms for the Erasmus Mundus programme as outlined in the Call for Proposals 2010 (EACEA 29/09) and confirm our agreement with the proposed Erasmus Mundus Masters Course as outlined in the project application, including the recognition of the Forensic Science Master – curriculum and the awarding of joint degrees in this programme.

I also confirm that I am authorised to endorse this letter on behalf of this institution.

For the Instituto Superior de Ciências da Saúde Egas Moniz

José Martins dos Santos, MD, PhD

President

Date: 20/4/2010

Institutional stamp or seal
Letter of Endorsement

for Erasmus Mundus Masters Course (Action 1) application, April 30th, 2010

I hereby confirm that the University of Cordoba is committed to participate in the Erasmus Mundus Master Course project Forensic Sciences coordinated by the University of Lincoln. The responsible department for this project at this University is the Department of Analytical Chemistry and the contact person will be Prof. Dr. Maria de la Paz Aguilar Caballos.

We accept the general terms for the Erasmus Mundus Programme as outlined in the Call for Proposals 2010 (EACEA 29/09) and we confirm our agreement with the proposed Erasmus Mundus Masters Course as outlined in the project application, including the full recognition of Forensic Sciences curriculum and the awarding of double degrees in this programme.

I also confirm that I am authorised to endorse this letter on behalf of this institution.

For the University of Cordoba, Spain,

Signature:

Name and title: Prof. Dr. José Carlos Gómez Villamandos, Vice Chancellor of Postgraduate Studies and Ongoing Training.

Date: April 19th, 2010

Institutional stamp or seal:
Declaration on Honour by legal representative of applicant organisation

To be completed by the person legally authorised to sign on behalf of the applicant organisation, as defined in Part A.2 of the Application Form.

I, the undersigned, certify that all information contained in the application (Masters in Forensic Science), including the description of the project, is correct to the best of my knowledge and that I am aware of the content of the annexes to the application form.

I confirm that my institution/organisation has the financial and operational capacity to carry out the proposed project.

I take note that under the provisions of the Financial Regulation applicable to the general budget of the European Communities (1), grants may not be awarded to applicants who are in any of the following situations:

a) are bankrupt or being wound up, are having their affairs administered by the courts, have entered into an arrangement with creditors, have suspended business activities, are the subject of proceedings concerning those matters, or are in any analogous situation arising from a similar procedure provided for in national legislation or regulations;

b) have been convicted of an offence concerning their professional conduct by a judgment which has the force of res judicata;

c) have been guilty of grave professional misconduct proven by any means which the contracting authority can justify;

d) have not fulfilled obligations relating to the payment of social security contributions or the payment of taxes in accordance with the legal provisions of the country in which they are established or with those of the country the contracting authority or those of the country where the contract is to be performed;

e) have been the subject of a judgment which has the force of res judicata for fraud, corruption, involvement in a criminal organisation or any other illegal activity detrimental to the Communities' financial interests;

f) following another procurement procedure or grant award procedure financed by the Community budget, have been declared to be in serious breach of contract for failure to comply with their contractual obligations;

g) in their grant application, are subject to a conflict of interest;

h) in their grant application, are guilty of misrepresentation in supplying the information required by the contracting authority as a condition of participation in the grant award procedure, or fail to supply this information.

I confirm that neither I nor the institution for which I am acting as legal representative are in any of the situations described above, and that I am aware that the penalties set out in the Financial Regulation may be applied in the case of a false declaration.

In the event that my application is successful, I am aware that the Education, Audiovisual and Culture Executive Agency / European Commission will publish my name and address of the beneficiary, the subject of the project, the future grant awards;

I declare that the organisation I represent is (please tick as appropriate):

- a public body (1)
- a private body which has financial and operational capacity to carry out the proposed action or work programme and is able to provide a Bank Guarantee for the amount of the 1st (and 2nd, if applicable) pre-financing payment(s), should the Education, Audiovisual and Culture Executive Agency request so.

By signing this application form, I accept all the conditions set out in the Erasmus Mundus 2009-2013 Programme Guide and the Call for proposals EACEA 29/09, including the general conditions published on the Education, Audiovisual and Culture Executive Agency's website. I also declare that all the partners participating in this project have agreed with the content of the application and have confirmed their intention to carry out the tasks described accordingly.

Done at: University of Lincoln, UK

Signature: [Signature]

Date 28 / 04 / 2010 (day/month/year)

Stamp of the applicant organisation:

Name and position in capitals: PROF. MARY STUART, VICE CHANCELLOR

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2 The Erasmus Mundus Programme considers as public bodies all higher education institutions specified by Member States (participating countries), and all institutions or organisations which have received over 50% of their annual revenues from public sources over the last two years, or which are controlled by public bodies or their representatives.
APPENDICES
APPENDIX I.

José Carlos Gómez Villamandos, Vice Chancellor of Postgraduate Studies and Ongoing Training of the University of Cordoba,

CERTIFIES:

That the Forensic Sciences Master Degree, partly contained in the Erasmus Mundus proposal in which this University participates, can be defined as:

- Official Master Degree approved by the University of Cordoba (Master Degrees and Doctorates Commission on February 18th, 2010), which is pending of approval by the competent Spanish institution.

Córdoba, April 19th, 2010.
15 April 2010

To Whom It May Concern

Dear Sir or Madam

UNIVERSITY OF LINCOLN
MSc Forensic Science (Erasmus Mundus) - 2 years full time for Sept 2011 start

I write to confirm that at its meeting on 30 March 2010 the University’s Portfolio, Recruitment & Educational Partnerships (PREP) Committee approved the above new programme proposal in principle allowing it to proceed towards validation for a September 2011 start.

If you require any further information or clarification please don’t hesitate to contact me.

Yours faithfully

Craig France
Secretariat Officer to the Portfolio, Recruitment & Educational Partnerships Committee
APPENDIX III

TIMELINE

- September year n-1
- January year n
- February year n
- March year n
- May year n
- September year n

Students apply through the website

JAP meeting

Decision?

- yes
  - (main list and reserve list)
  - Email selected candidates with interview appointment
  - Interviews
    - Full course?
      - no
        - Reserve list
      - yes
        - Unconditional offer
          - Enrolment
            - JAP meeting
    - no
      - Reserve list
  - no
    - Reserve list

- no
  - Email informing rejection
Appendix IV

**TIMELINE**

- **September year n**
  - Students join the course in Cordoba
  - JAP meeting
  - API meeting Cordoba

- **January year n+1**
  - API meeting Cordoba

- **February year n+1**
  - Students join the course in Lisbon
  - API meeting Lisbon

- **July year n+1**
  - API meeting Lisbon

- **August year n+1**
  - JAP meeting

- **September year n+1**
  - API meeting Lisbon
  - Students join the course in Lincoln
  - API meeting Lincoln

- **February year n+2**
  - Students hand in projects
  - API meetings
  - JAP meeting

- **July year n+2**
  - API meeting Lincoln

- **August year n+2**
  - Students are communicated results

- **September year n+2**
  - JAP meeting
Erasmus Mundus European Master Programme
MFSc
« Forensic Science »

Framework Partnership Agreement

Between the 3 Partner Universities (Higher Education Institutions)

University of Lincoln (United Kingdom)
Universidad de Cordoba (Spain),
Instituto de Ciencias da Saude Egas Moniz (Portugal)

To constitute the so-called

M.F.Sc Consortium
The present agreement aims at establishing a Full Partnership agreement between:

- The three Higher Education Institutions (HEIs): University of Lincoln, Universidad de Cordoba and Instituto de Ciencias da Saude Egas Moniz

This agreement is aimed at establishing a clear description of our common objectives and duties so as to strengthen the collaboration between European Institutions in the field of Forensic Science. Our common goal being to offer to prospective students from all over the world, a broader spectrum of perspectives and opportunities, both for their Master training and for their future professional career.

**Article 1 – General objectives of the ERASMUS MUNDUS Programme**

In the context of the creation of the European Higher Education and Research Area, also known as the Bologna process, the present agreement aims at facilitating the cooperation in teaching among the partners in the field of Forensic Science and at collaborating on the European Master programme MFSc. (Master in Forensic Science), granted by the European Commission as an Erasmus Mundus Master Course.

For the purposes of implementing the programme, the Executive Agency selects consortia composed of higher education institutions and associated partners and concludes with the coordinator of each consortium, a framework partnership agreement ("the framework agreement") that will entail specific grant agreements ("the specific agreement").

The Executive Agency shares with the partner common general objectives and wishes to establish with it a relationship of lasting co-operation ("the partnership").

The general objectives which are shared with the partner in the above-mentioned area of activity and which justify the establishment of a partnership are the following:

- to promote a quality offer in higher education with a distinct European added value, attractive both within the European Union and beyond its borders;
- to encourage and enable highly qualified graduates and scholars from all over the world to obtain qualifications and/or experience in the European Union;
- to develop more structured co-operation between European Union and third-country institutions and greater European Union outgoing mobility as part of European study programmes;
- to improve accessibility and enhance the profile and visibility of higher education in the European Union.

**Article 2 – The M.F.Sc. Consortium: Scope and definitions**

The University of Lincoln, United Kingdom is the Coordinating Institution of a Consortium of three European Universities that agreed to organize an Erasmus Mundus Masters Course (EMMC) named “Forensic Science” (M.F.Sc.) approved and funded by the Education, Audiovisual & Culture Executive Agency (EACEA) of the Commission of the European Communities (CEC) under the Erasmus Mundus Framework programme.

The M.E.S.C. Consortium is composed of five European Partner Universities with local coordinators:

the University of Lincoln, Lincoln, United Kingdom  
Dr. Jose Gonzalez-Rodriguez

the University of Cordoba, Cordoba, Spain  
Dr. MariPaz Aguilar Caballos

the Instituto de Ciencias da Saude Egas Moniz, Lisbon, Portugal  
Prof. Alexandre Quintas Luís de Matos

Botica Côrtes Quintas
All the responsibilities related to the management of the grant allocated to the Consortium by the European Commission are formalized through a contract between the EACEA and the Coordinating Institution: the Framework Partnership Agreement.

The MFSc Consortium will welcome European (EU) and Third-Country (TC) graduate students, following the initial Proposal and Action 1 of Erasmus Mundus programme. These categories are defined by the EACEA as follows:

“Third-country” graduate student means a national of a third country other than those from EEA-EFTA States and candidate countries for accession to the European Union; who has already obtained a first higher education degree; who is not a resident of any of the Member States or the participating countries; who has not carried out his or her main activity (studies, work, etc.) for more than a total of 12 months over the last five years in any of the Member States or the participating countries; and who has been accepted to register or is registered in an Erasmus Mundus Masters Course.”

“European” graduate student means a national of a country from EEA-EFTA States and candidate countries for accession to the European Union; who has already obtained a first higher education degree; and who has been accepted to register or is registered in an Erasmus Mundus Masters Course.”

Article 3 – The M.F.Sc. Master Course: Objectives and short description

Objectives: The M.F.Sc. Master Course aims at forming specialists able to face the challenges that Forensic Science presents as a multidisciplinary subject. They will have to be able to analyse, interpret, explain and process samples and information obtained from a crime scene and to communicate their findings and conclusions to the law enforcement bodies. These specialists will have received high level qualifications allowing them to enter PhD programmes all over the world, or working as researchers in Forensic Science and to enter industry as forensic advisors.

Consortium: The M.F.Sc. programme is a fully integrated Master Programme designed by three European Universities with a wide-range leadership in Forensic Chemistry and Forensic Biology. The consortium offers high quality research capabilities, teaching experience in these areas of forensic science and the wide network of professionals and practitioners collaborating with their members.

Duration: The duration of the Master programme is of 2 years, built on

- 3 semesters of Classes taught in English within the three European partner universities
- 1 semester of Master Thesis to develop in one of the Consortium countries

Mobility: Each Class, composed of 24 students, is registered within M.F.Sc. and gathers for the first time in the University of Cordoba for a six-months period in which they will develop practical skills and knowledge in forensic analysis and forensic biology. After this period they will move to Lisbon for another six-months period to obtain a deeper knowledge in pharmacology and drug analysis. The last taught semester in Lincoln will provide them with a deep knowledge in specialist areas, both in forensic chemistry and forensic biology, and will give them the basis to develop research in forensic science. The last semester of the course will allow students to develop a project in an area of their choice and face real problems that forensic scientist face when analysing forensic samples. This part will be develop in any of the three Consortium institutions.

Degree-Awarding: The completion of the curriculum is rewarded by a multiple Master Degree detailing both the interdisciplinary and specialized curriculum. A Diploma Supplement describing personal curriculum contents and mobility achieved is delivered.

Application: The Masters Course is open to European and non European (third country) excellent students having acquired a BSc (or higher) equivalent diploma in a scientific experimental discipline such as, Chemistry, Biology, Physics, Environmental Sciences, engineering and related fields. The candidates apply to M.F.Sc. by using the application procedure and forms posted on our regularly updated Web site. The Joint Application Panel (JAP) will be in charge of co-ordinating and supervising the selection and admission procedures.
The JAP, in close relation with the administrative staff of each institution, will consist of the national co-ordinator and another academic from each of the European partner Universities.

**Article 4 – The M.F.Sc. Master Course: Responsibilities of Partners**

**4a) Coordinating Institution**

The Coordinating Institution, University of Lincoln, has the financial responsibility of the programme. The M.F.Sc. Coordinator is the representative of the Coordinating Institution. He shall organize the collaboration between Partners in compliance with the Proposal. He is the link between the EACEA and the Partners and shall see to the effective application of the Proposal.

The Coordinating Institution will provide the EACEA with all the required reports on the project evolution and its financial management, according to the Framework Partnership Agreement.

The Coordinating Institution shall manage in particular the following activities:

- General coordination and initiation of M.F.Sc. programme activities in collaboration with the Partners.
- Coordination of the decision taking procedure in the JAP.
- Creation of tools shared between the Partners (website, forms, guidelines ...).
- Payment of European grants to students and scholars involved in the M.F.Sc. programme.
- Signature of the M.F.Sc. student Agreement with each of the enrolled student.
- Perception of tuition fees and distribution to Partner institutions.
- Partners’ information regarding the number of students continuing their studies in each institution, and the academic data necessary for their registration at each Partner.
- Banking facilities for enrolled students and scholars.
- Insurance coverage and contracting for all registered students.
- Students transportation (organization and payment) from country to country for compulsory mobility.
- Management and update of the mobility tracks and database in collaboration with EACEA.
- Elaboration of reports (administrative and financial) to the Consortium for each session of the M.F.Sc. course.

**4b) Partners (including the Coordinating Institution)**

The Partners shall perform and complete their share of the M.F.Sc. Programme activities in accordance with the requirements set out in the Framework Partnership Agreement. Each Partner shall carry out the work in such a way that no act or omission in relation thereto shall constitute, cause, or contribute to any breach or non-compliance by the Coordinating Institution or by other Partner of any of their respective obligations under the Framework Partnership Agreement.

Each Partner shall organize and realize the M.F.Sc. programme activities in its own institution, and specifically:

- The realization and promotion of the M.F.Sc. academic programme, both within third-countries and European countries.
- The management of the funds distributed by the Coordinating Institution: The financial administration of each Partner shall guarantee the correct use of the funding for the correct destination.
- Regarding the students and scholars visiting its institution, prior and during their stays:
  - Visa request. Each Partner shall help to obtain the documents required by its national immigration policy, by providing all the explanations and documents helpful for the applicants.
  - Supervision of students' and scholars' status regarding national immigration policy.
  - Academic admission and registration.
  - Assistance.
  - Accommodation organization and booking.
• If needed, students transportation (organization and payment) within the country of the
hosting partner (e.g., airport/ university) for compulsory mobility.
• Ensure a smooth integration of the visiting students in their respective institutions and countries by
offering close assistance, designing a tutor, providing local language courses, ....

For each Partner, a Partner Coordinator, named in Article 2, shall organize and coordinate with his/her
collaborator(s) the activities and the organisation of M.F.Sc. programme in the Partner institution. He/she is the
link between Partner institution and the M.F.Sc. Coordinator.

The partners will commit themselves to remain in the Consortium for a whole edition of the course. If any of the
partners decided to withdraw, they will have to communicate this decision with at least 6 months before the
withdraw date to allow the rest of the members to replace them. If this agreement is not respected, the partner
withdrawing will have to compensate the rest of the partner for the damage caused and reimburse the
Commission all monies received.

**Article 5 – Decision taking**

The Consortium shall adopt decisions regarding:

- The tasks described in Article 4
- The management of the M.F.Sc. programme,
- The addition of new items to the programme,
- The modification or addition of new criteria for student selection,
- Proposals for changes to the Proposal to be agreed by the EACEA.

Decisions shall be taken during meetings, video-conferences, or by mean of email, mail, or telefax consultation.

All three partners shall be consulted and vote for decisions taking during the panel meetings (JAP). Each Partner
representative shall have one vote. Decisions shall be taken by a majority of the votes. Should the Partners fail to
reach the majority (3 votes against 3), the Partner representing the Coordinating Institution shall have an extra
vote to settle the discussion.

A Partner shall request to delay the vote by thirty calendar days to consult with its institution or to produce
documents that may affect the decision.

Since a decision engages the Partner's institution, the voting Partner representative shall take every precaution to
ensure his/her decision is in agreement with his/her collaborators, institution practices, and legal obligations.

A Partner which can demonstrate that a decision goes against its administrative procedures or against the
Framework Partnership Agreement shall exercise a veto with respect to the corresponding decision or relevant
part of the decision. Its demonstration shall be supported by legal documents. In case of exercise of veto, the
Partners shall make every effort to resolve the matter which occasioned the veto to the general satisfaction of all.

On request from a Partner, formal notice, consent or approval shall be given to confirm a decision taking. Such
notices shall be signed by an authorised representative of each Partner and shall either be served personally or
sent by mail with recorded delivery or telefax with receipt acknowledgement.

**Article 6 – Funding distribution and use**

The EACEA, acting under powers delegated by the CE, is funding the Consortium yearly. The funds, referenced
in the Framework Partnership Agreement, are paid to the Coordinating Institution, and can be summarized as
follows:
– Consortium allocation: Annual flat rate of 15,000 € (fifteen thousand Euros) within the Action 1 of the Erasmus Mundus programme, to cover internal expenses of the Consortium, i.e. 30,000 € per edition (two years).

– Grants: studentships and scholarships within the Action 1 of the Erasmus Mundus programme, to distribute to students and scholars effectively involved in the M.F.Sc. mobility programme.

The students enrolled in the M.E.S.C. programme pay participation costs that include tuition fees and full medical insurance. The annual rate of the participation costs are determined for the duration of the Consortium Agreement, i.e. 6666 € for TC students and 4000 € for EU students. The participation costs shall be paid by the student to the Coordinating Institution on enrolment of each year of studies.

The participation costs shall be distributed between the Partners, including the Coordinating Institution, within 60 days after student payment and according to the number of students enrolled in each institution and subject to the invoice of the amount to the Coordinating Institution.

Should an enrolled student fail to participate to part or the totality the M.F.Sc. programme and he/she is not replaced by another student, the Coordinating Institution shall have to return part or the totality of the grant to the EACEA. If clearly required by EACEA, the Partners shall renounce to the funds due, and/or shall return the corresponding funds to the Coordinating Institution, including those corresponding to Registration if the enrolled student never came to the Partner institution.

The subsidies of the tuition fees perceived by the Coordinating Institution together with the Consortium allocation shall cover for expenses resulting from the organization and the logistic of the M.F.Sc. programme: management, communication, organisation of specific events (integration week, graduation).

Article 7 – Liability

Each Partner shall be solely liable toward the other Partners and toward third parties for loss, destruction, damage or injury resulting from its own actions in the execution of this Consortium Agreement. Notwithstanding the foregoing, a Partners’ aggregate liability shall be limited to once the Partner’s share of the total cost of the project, provided such damage was not caused by a wilful act or gross negligence.

Each Partner shall be solely liable toward the Coordinating Institution for any breach or non-compliance. If the Coordinating Institution has to pay any damages or penalties to the EACEA for such breach or non-compliance by a Partner, the Coordinating Institution shall be entitled to full reimbursement from the said Partner.

Each Partner shall be fully responsible for the performance of any part of its share of the Consortium Agreement and for the requirements of Insurance and Social Security for its personnel, involved herein.

Article 8 – Applicable law and Competent Court

This Consortium Agreement shall in all respects be in compliance with the terms of the related Framework Partnership Agreement and Specific Agreements and be governed by British law. The settlement of any difference or conflict arising from or in connection with this Consortium Agreement shall be attempted by an amicable effort from the Partners.

The M.F.Sc. student is bound to the rules and regulations from the Institutes / institutions at which she/he is enrolled.

Article 11 – Banking information

The Coordinating Institution shall transfer the funds to the bank account specified by the other two partner institutions:
APPENDIX VII

Ontario

Ministry of Community Safety and Correctional Services
Ministère de la Sécurité communautaire et des Services correctionnels

Centre of Forensic Sciences
Centre des sciences judiciaires

25 Grosvenor Street
25, rue Grosvenor
Toronto ON M7A 2G8
Toronto ON M7A 2G8
Telephone (416) 314-3200
Telephone (416) 314-3200
Facsimile (416) 314-3225
Télécopieur (416) 314-3225

April 20, 2010

Dear Sir or Madam:

I am writing this letter to support the application in which the University of Lincoln is the leading organisation for an Erasmus Mundus Master in Forensic Science.

Ontario’s Centre of Forensic Sciences is one of the most extensive forensic science facilities in North America. The central laboratory is located in Toronto, the Northern Regional Laboratory in Sault Ste. Marie. The two laboratories conduct scientific investigations in cases involving injury or death in unusual circumstances and in crimes against persons or property. Highly specialized forensic examination and analysis are conducted in the disciplines biology (DNA), chemistry, documents, electronics, firearms and toolmarks and toxicology.

The mandate of the laboratory is to provide independent scientific laboratory services to support the administration of justice and public safety programs across the province. Law enforcement officers, crown attorneys, defence counsel, coroners, pathologists and other official investigative agencies make use of the Centre’s services.

Students from the School of Natural and Applied Sciences at Lincoln have visited the Centre of Forensic Sciences as part of a North American “field trip”. In addition I have toured the facilities at Lincoln University and I am exploring the possibility of establishing a more formal collaboration in the future if the opportunity arises.

Please do not hesitate to contact me directly for additional information as required.

Yours Sincerely

Jonathan Newman
Deputy Director – Scientific Services
Tel: 416-314-3280
Jonathan.newman@ontario.ca
D. José Antonio de la Rosa Moreno  
Police Superintendent, Cordoba Police Station  
Avda. del Doctor Fleming, 2  
14004 - CÓRDOBA

As concerned with the request from Cordoba’s University, in which the collaboration of police officers from this police station is requested, to perform a Forensics University Master, from the head of this Police Station accepts to collaborate in that is asked from that Academic Organism. This aid will prosecute in the way of seminars and visits to the Forensic Science Brigade of this police station.

In the city of Córdoba, in april 19th 2010.

THE POLICE SUPERINTENDENT

[Signature]

José Antonio de la Rosa Moreno
Prof. Dr. José Luis Ubera Jiménez, as manager of the spin-off company, Análisis Botánicos Mazara S.L.,

HEREBY INFORMS:

That this company supports the application of Erasmus Mundus Master Programme in "Forensic Sciences" under the Call for Proposals 2010, EACEA 29/09. The structure and contents of this Master Course will provide the enroled students with a specialized and scientific knowledge in such a multidisciplinary context as Forensic Sciences are. This course will allow them to access the job market or to access further Doctorate studies. The contribution of the company “Análisis Botánicos Mazara S.L.) will be the development of the module “Forensic Botany I”, delivered by me and some specialized staff that are working for this company. The company has performed expert statements and personnel of the company have been acting as witness experts in cases where forensic botanic evidences are needed.

Date: April 20th, 2010

Signature:

MAZARA ANÁLISIS BOTÁNICOS, S.L.
CIF B-14.839.948
Dr. Horacio Roldán Barbero, Head of the Cordobean Section of the Intercollegiate Andalusian Institute of Criminology

HEREBY CERTIFIES:

His support to the proposal of the Erasmus Mundus Masters Degree in Forensic Sciences currently under application. The topic is relevant and it is a valuable mean to fill the gap of this kind of programmes in many European and Third countries.

Cordoba, April 19, 2010.

Signature:
To whom it may concern

16 April 2010

Dear Sir or Madam,

I am writing this letter to support the application in which the University of Lincoln is the leading organisation for an Erasmus Mundus Master in Forensic Science.

**Key Forensic Services Ltd** is a company delivering quality driven forensic science solutions with a focus on offering best value for money to both the criminal justice system and private sector. The company has been collaborating with the School of Natural and Applied Sciences through its **Document Evidence** division and we are happy to maintain this collaboration and expand it in the future if the opportunity arises.

I hope this information is of use to you. Please, do not hesitate to contact me for further clarification

Yours Sincerely

Kim Hughes
Senior Document Examiner
Dear Sir/Madam

This letter is written on behalf of the Humberside Police in support of the application by the University of Lincoln, as the lead organisation for an Erasmus Mundus Masters Degree in Forensic Science.

The Humberside Police are in partnership with the University of Lincoln in the teaching of Forensic Science and Crime Scene examination to Trainee Scenes of Crime and Detective Officers, as part of the various Crime Investigation Courses run by the Force. The University Crime Scene facility at the Riseholme Campus is an integral part of Humberside Police Crime Investigation Training.

The Force intend maintaining the current valuable collaboration with the University of Lincoln and perhaps expand it in the future as and when the opportunity to deliver an Applied Criminal Investigation Course occurs.

Yours sincerely

M ALLIBONE
Crime Training Manager
Humberside Police
Dear Sir/Madam

I am writing this letter to support the application in which the University of Lincoln is the leading organization for an Erasmus Master in Forensic Science.

Lincolnshire Police Fingerprint Bureau is one of 43 in the UK dealing with all types of reported crime, with 16 Fingerprint Officers. We have a Fingerprint Lab attached to the Bureau for the chemical enhancement of finger marks and using the most up to date equipment.

The Bureau is the lead force in the country with the remote transfer of fingerprints, receiving fingerprint images from the scene and directly searching on the national AFIS system Identi1.

Over the years we have collaborated with Lincoln University carrying out subject lectures and look forward to collaborating in the future in support of the masters.

If you require further information please do not hesitate to contact us.

Yours Sincerely

[Signature]

Ian Gledhill
Head of Fingerprint
Lincolnshire Police
Dear Sir/Madam,

I am writing this letter in support of the application from the Universities of Lincoln (UK), Cordoba (Spain) and Lisbon (Portugal) for an Erasmus Mundus Masters in Forensic Science.

**Triple A Forensics Ltd** (www.triple-a-forensics.co.uk) is a company set up in 2008 whose scientists are active court going reporters each having been employed by two of the major providers of forensic science services in the UK for over 25 years and are currently consultants to a number of forensic science providers in the UK.

I was involved with the undergraduate Forensic Science course at Lincoln from 2005 to 2009 in the role of external examiner. During that time I was impressed with the quality of the Forensic Science provision at Lincoln and the range of subjects covered in their course. I have maintained contact with the team at Lincoln since coming to the end of my time as external examiner and have noted their continuing progress. They have a very good record of placing students into relevant employment after graduation.

The development of a Masters course is a logical development from the undergraduate course and makes use of the teaching experience and comprehensive laboratory facilities that have been built up at Lincoln. The input from two universities in other countries will provide an added dimension to the student experience.

Forensic science in the UK is currently undergoing significant change and this course will provide opportunities for suitable qualified individuals who will have gained wide ranging experience of the forensic science systems in three different countries.

We have been provided with a copy of the proposed course structures and consider that the provision of three different routes will give students every opportunity to study a range of subjects of interest to them, and thus maximise the benefit of the learning experience. The course content is such that students will be suitably qualified for a range of jobs in analytical science, e.g. the pharmaceutical industry, in addition to the specialism of forensic science.

Directors: A.R.Allan, R.E.Ardrey, P.G.Ashton
Registered No. 6540892 England and Wales
VAT Registration 976 6652 61

My colleagues and I at Triple A Forensics currently provide practitioner input to the undergraduate degree at Lincoln and are pleased to offer our support and continuing input to the proposed degree.

Should you require clarification of our views please do not hesitate to contact me.

Yours faithfully,

Dr. R.E.Ardrey
Director – Triple A Forensics
APPENDIX VIII

STUDENT AGREEMENT Master in Forensic Science (MFSc)

Between:

<table>
<thead>
<tr>
<th>Name of student:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Student’s surname, followed by initials of the first name(s), so: Vries, P.R. de)</td>
</tr>
<tr>
<td>Date of birth: ……./……./19….</td>
</tr>
<tr>
<td>Gender: M / F</td>
</tr>
<tr>
<td>Nationality:</td>
</tr>
<tr>
<td>Years of study completed before departure:</td>
</tr>
<tr>
<td>Address in their country of origin:</td>
</tr>
<tr>
<td>Postal code and city:</td>
</tr>
<tr>
<td>Telephone number:</td>
</tr>
<tr>
<td>E-mail address:</td>
</tr>
<tr>
<td>Correspondence address or address of parents or guardians:</td>
</tr>
<tr>
<td>Postal code and city:</td>
</tr>
<tr>
<td>Telephone number:</td>
</tr>
<tr>
<td>(Post)Bank account number:</td>
</tr>
</tbody>
</table>

And

<table>
<thead>
<tr>
<th>Name of Institution:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erasmus Identity Code of Institution:</td>
</tr>
<tr>
<td>Country of Institution:</td>
</tr>
<tr>
<td>Duration of study:</td>
</tr>
<tr>
<td>Period of study abroad: from ….. / …. / 20… until ….. / …. / 20…</td>
</tr>
<tr>
<td>Is an internship part of the study period? YES/NO</td>
</tr>
<tr>
<td>Is ECTS used as an instrument for credit transfer? YES/NO</td>
</tr>
</tbody>
</table>

The parties above are in agreement with the following:

The student declares that within the framework of the Erasmus Mundus Programme, he/she will spend the period of time indicated above at the host institution indicated above, and that he/she agrees to the conditions laid down in this contract and for which he/she (of the next conditions, the applicable one should be marked):

- Will receive a mobility grant provided by the European Union under the terms of the Erasmus Mundus Programme.

Mutual obligations:

- The Institution is obliged to pay students their grants only after it has received the provisional mobility grants from the European Commission.
- The institution is obliged to fulfil with their teaching obligations and deliver the content of the course as advertised in the course description.

The student will receive the following documents from the Institution:
1. Student agreement. The agreement between the Institution and the student are settled here. This form needs to be finalised and signed by the student and the host institution before starting of the course.

2. Learning Agreement. This agreement between the Institution and student contains the courses the student will take and it needs to be filled in and signed before starting the course.

3. Statement of Institution. This form needs to contain the data of the Institution, the name of the student as well as the data of the Institution. The Institution must write, the course the student is undertaking, the dates of the period of study, sign and place its official seal.

4. Certificate of studies upon successful completion by the student

5. Diploma supplement upon successful completion by the student

- Any proposed change in the agreements regarding the study plan or the period of study will need to be agreed by both parties and signed. This document will be appended to the present contract.
- The student compromise to fulfil the academic requirements and regulations established in the programme of studies and conduct themselves honourably at all times.
- If prior to the period of study the student is selected, he/she is obliged to join this course. If unforeseen emergencies force the student to resign, he/she should inform the institutions concerned as soon as possible.
- In case the student fails to join the course for any reason, he/she is obliged to pay back the total Erasmus grant. If the study period abroad was shorter than planned, the student must pay back part of the money received. In case the student fails to live up to this agreement or the present contract is dissolved, the student must pay back either all or part of the grant.

Failure to comply with the conditions and agreements laid down in this student contract can be a reason for the home institution to dissolve the contract and claim back the total grant.

SIGN AS AGREED

On behalf of the home institution,  
Date: ..........................  
Place: ..........................  
Signature:  
(Name)  
(Position)  

The student,  
Date: ..........................  
Place: ..........................  
Signature:  

(Your Signature)
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