

## **Joint Master Degree in Biomedical Laboratory Sciences (MARBLE)**

The clinical laboratory has a vital role in informing medical decisions and delivery of healthcare. However it is an almost invisible part of the healthcare system. Clinical laboratory science and technology have advanced significantly over the last few decades. This has placed ever growing demands on the clinical laboratory and has driven the development of new specialist disciplines in biomedical science. The role of the biomedical laboratory scientist (BLS) has also evolved - increasingly specialist skills and competencies are required to meet the requirements for patient diagnosis and treatment. However, the capacity to provide advanced education in this field has not kept pace and there is significant potential for a future skills gap in this sector. There is a lack of appropriate postgraduate training programmes capable of delivering the required knowledge, skills and competencies. There is thus a risk of a mismatch between the requirements of the profession and the availability of suitably qualified staff which may potentially threaten the provision of high quality patient care.

Therefore we propose to establish a high-quality European transnational master program in biomedical laboratory science that will provide a route for specialist postgraduate education. The Joint Master Degree in Biomedical laboratory Sciences (JMD MARBLE) will give students access to a unique economic, political and educational space in the European Union.

This programme will involve cooperation between leading educational providers in Austria (Wien University of Applied Sciences-FH Campus), Ireland (Dublin Institute of Technology), Portugal (ESTeSC-Coimbra Health School) and Sweden (University of Gothenburg). These four educational institutions will form the consortium responsible for the joint degree.

The JMD MARBLE will provide advanced education to prepare highly qualified BLS in areas such as clinical pathology, transfusion medicine, transplantation, clinical biochemistry, hematology, microbiology and cytopathology among others.

The JMD MARBLE will enhance professional competence and skills; offering the students innovative possibilities for professional development and career progression, along with employers, to increase patient safety.

The established consortium has several associated partners, ranging from companies, organizations to higher education institutions. The International Federation of Biomedical Laboratory Sciences (IFBLS), the European Association for Professions in Biomedical Sciences (EPBS) and Tartu Health Care College are associated partners that will promote and contribute to the dissemination of the programme. The laboratory company SIEMENS will contribute with expertise knowledge and the employers view. Associated higher education institutions inside and outside Europe will contribute with expertise and with promotion of the programme.

The JMD MARBLE consortium has carried out an extensive research to identify existing master programmes in the same or closely related field in Europe and worldwide, using publically available information. JMD MARBLE would be a unique programme offering biomedical laboratory specialization, taught in different countries and with the opportunity to carry out an internship in world leading laboratories and/or companies. The MARBLE programme offers academic and scientific excellence, an international approach and a very close connection with the laboratory medicine.

The responsible teachers at the four institutions of the consortium developed their main scientific/professional activities in the fields they are teaching in the master programme. The majority are recognized internationally. The programme emphasizes both the technical and the scientific dimension, and prepares students either different future career.

The consortium will offer full personal and academic support to students through an individual and personalized Students Mentoring Programme (SMP). An initial introduction module – Integrated EU studies in biomedical laboratory science - will help students to have a comprehensive view of the programme and of Europe. Students will also have the opportunity to attend local language and local culture courses to facilitate their integration in the mobility countries.

The JMD MARBLE will start at Coimbra Health School, with the introduction module. The Coimbra Health School will be the coordinator institution. At the middle of the first semester the students will travel to Viena for the module molecular cell biology and diagnostic techniques and application II (DTA II). Several modules will use blended learning and web based techniques for learning and these modules will run in parallel with campus modules.

The second semester of the first year will start in Gothenburg with the module diagnostic techniques and application III (DTA III) together with the module project design and academic writing thought on-line. At the middle of the second semester students will travel to Dublin

where they will attend the module diagnostic techniques and application IV (DTA IV) and pathology. The first academic year will finish in Coimbra the presentation of the project plan for research projects. (Figure 1 and 2)

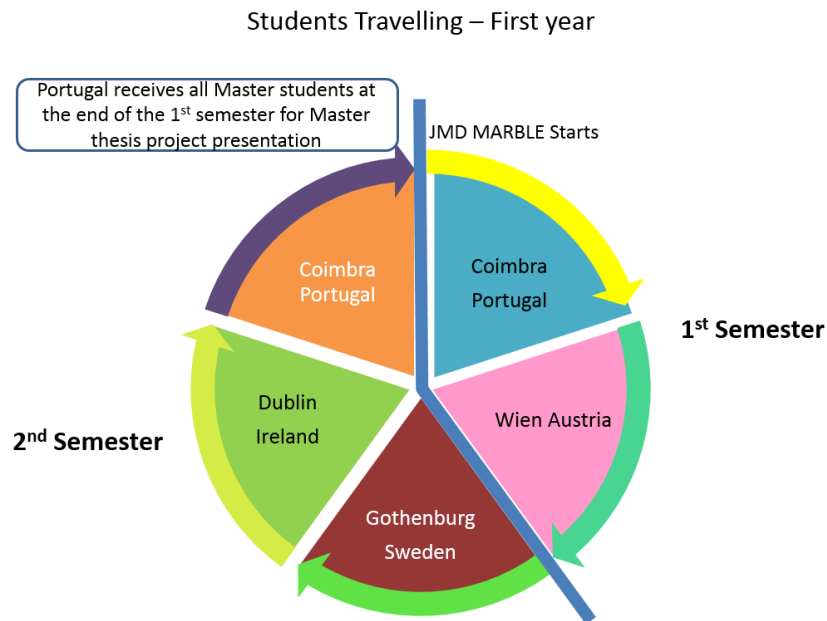


Figure 1

The second year the students will attend, by blended learning, the module laboratory design and management and in order to obtain a specialization the students will have a specialist practice module with supervision in selected laboratories. The master thesis project should be carried out in the same field of specialization as the specialist module. The specialist practice and the thesis project can be done with a consortium member or with an associated partner institution.

The second year of the programme will end with the thesis defense. All students will meet in the coordinator institution, Coimbra Health School in June. (Figure 2)

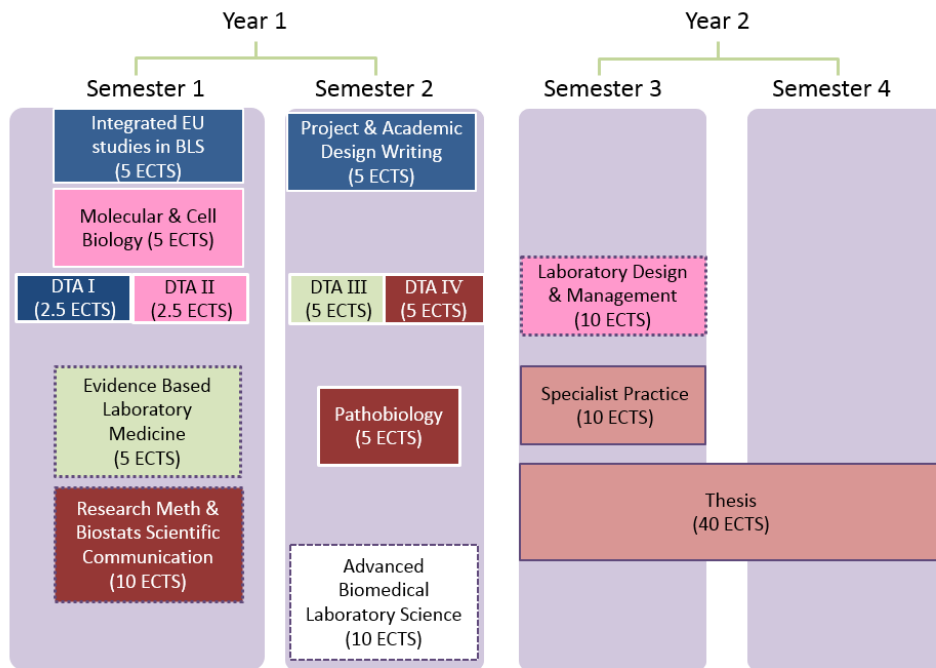


Figure 2

The student will obtain a joint master degree with specialization in a biomedical laboratory science discipline. The degree will be signed and recognized by all the institutions of the consortium, one certificate signed by the four institutions.