E-learning strategies in the teaching of Microbiology and Genetics for secondary schools

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With the emergence of modern molecular genetics and the rapidly growing scientific achievements in Life Sciences during the last decades, updating the knowledge and skills of Biology teachers became a major concern of numerous Universities. The presented project is an innovative initiative that aims at the development of experimental methodologies in microbiology and molecular genetics - adapted to the new Portuguese national syllabus and the logistic reality of schools – and the dissemination of these activities through e-learning strategies.

Simple experimental protocols were adapted and elaborated, that can be carried out using standard equipment of primary and secondary schools. Adequate audiovisual materials were prepared to support experiments and other text materials. Subsequently, two online courses were developed (Microbiology and Molecular Genetics), that are accessible from the site of the Department of Biology of the University of Minho (www.bio.uminho.pt) without restraint.

Each course comprises a set of topics chosen according to their scientific importance, innovative character and adaptation to the Biology curricula. Special emphasis was given on topics such as (i) general microbiological methods (ii) isolation and identification of microorganisms (iii) methods in classical genetics (iv) molecular biology. The way the courses are structured facilitates the understanding and integration of the experiments for both students and teachers.