



## TOXICOLOGICAL OPEN EDUCATIONAL RESOURCE AND MOOCs (MASSIVE OPEN ON-LINE COURSES) IN E-LEARNING

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**Introduction:** Remarkably, owing to the lack of European MOOCs (massive open on-line courses) [1] in the field of the Toxicology and major differences in the teaching and learning of this important subject at various European faculties, we will present our Toxicological Open Educational Resource (TOX-OER) European project which develop a scientific and pedagogical joint between research in the field of toxicology and MOOC pedagogical design (i.e. a guideline to support partners during: a) the creation of accessible Open Educational Resources, b) course & module management, c) the implementation, monitoring and evaluation of individual and social learning activities) [2].

**Materials and Methods:** TOXOER project is coordinate by Universidad de Salamanca and partners are: Alma Mater Studiorum - Università di Bologna, Italy; Universitatea Transilvania din Brasov, Romania; Univerzita Karlova V Praze, Czech Republic; Universidade do Porto, Portugal; Space Research and Technology Institute, Bulgaria; Kymenlaakson Ammattikorkeakoululu Oy, Finland.



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**Results and Discussion:** Modules: 1-General Concepts; 2-Pharmaco-Toxicokinetics; 3-Principal Groups of Xenobiotics; 4-Environmental Pollutants; 5-Target Organ Toxicity and Biomarkers; 6-Environmental Toxicology; 7-Patents and Patent Application.

Example of Script structure, 2 ECTS (56 hours total activity): - Textual introduction to the course - 1x video introduction to the course [3 minutes] - 4x video lessons [15 minutes for each video] and/or commented slides [15 minutes for each video] - 4x intermediate test or active online learning

activities (only when MOOC scenario releases a certificate of participation without legal value or ECTS credits) - 8x hours of further readings (text-based learning resources) - 1x final test (only when MOOC scenario releases a certificate of participation without legal value or ECTS credits) – Bibliography.

**Conclusion:** This procedure will contribute to the promotion of using the learning outcomes in the design and delivery of educational programmes and activities in favour of students, trainees, pupils, adult learners and young people. Furthermore, the TOX-OER project could create the conditions for the RECOGNITION and CERTIFICATION (ECTS credits) of learning achievements, at least among partners. Finally, throughout the duration of the project, the partners involved in the educational tasks will manage a virtual space (server) within which the MOOC platform will be installed and where all the Open Educational Resources will be available.

[1] Chiappe, A., & Arias, V. (2015). Understanding reusability as a key factor for open education: A review. *The International Review of Research in Open and Distributed Learning*, 16(1). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/2042> ISSN: 1492-3831

[2] <https://www.youtube.com/watch?v=U9lHtNLHP4Y>