

REPORT ON REALIZATION OF THE TRAINING

Innovative teaching methodologies for mathematics and sciences in the University of Oviedo

The realization of this course was related activity 1.3 (**Reviewing experiences in the use of PMT in T&L at the EU HEIs**).

General data: Within a workshop format, different initiatives of the University of Oviedo for promote educational innovation as well as practical examples of innovative project in several fields were presented and discussed.

The course material was provided to the participants in terms of different presentations and demos of software.

The objectives of the course: University and college teachers of natural and mathematical sciences from PC HEI's were introduced into the innovative framework of the University of Oviedo.

The realization of the course:

Mode of delivery: The course was delivered within a workshop format in Oviedo.

Dates: The duration of the full course was of 25 hours. It was on December 25th-29th March 2019.

Agenda:

Monday 25th March

17:00	Welcome and presentation of the workshop
18:00	Promenade through Oviedo

Tuesday 26th March

9:30	Food control, Citizen Science and Gaming as educational tools alternatives to improve transversal competences when teaching Biology (Dr. Yaisel Borrell)
10:45	Coffee break
11:15	Active teaching and learning of Mathematics in higher education (Dr. José Ángel Huidobro and Dr. María Luisa Serrano)
12:30	Experiences with flipped learning and video vignettes for future mathematics teachers (Dr. Luis J. Rodríguez-Muñiz and Dr. Laura Muñiz-Rodríguez)
16:00	Programming quiz as an additional tool for learning Python (Dr. José Ramón Villar and Noelia Rico)

Wednesday 27th March

9:00	Institutional reception by the Rector
10:30	Coffee break
11:00	The Innovation Center of the University of Oviedo (Dr. Aquilina Fueyo)
12:00	The INIE: Institute for Educational Research and Innovation (Dr. Emilio Álvarez Arregui)
16:30	A whole group discussion of a geometric task: Instructional Quality Assessment (IQA) (Dr. Itz'iar García-Honrado)

Thursday 28th March

9:45	Teaching and learning resources employed in the chemistry degree to enhance student learning and to promote multidisciplinary skills (Dr. José Manuel Costa and Dr. José Manuel Fernández-Colinas)
10:45	Coffee break
11:15	Teaching Classical Mechanics with Smartphones: acceleration and trajectory (Dr. María Vélez)
12:30	Moodle workshop for Informatic Tools (Dr. César Alonso and Dr. Irene Díaz)
16:00	Meeting of partners from Serbia and Albania

Friday 29th March

9:00	Summary and conclusions of the workshop
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Course participants: The total number of course participants who attended the course was 27 (9 women and 18 men) from partner universities.

Yaisel Borrell

Yaisel Juan Borrell Pichs holds a Degree in Biochemistry from the University of Havana, Cuba, and he was the Best Graduate of the Faculty of Biology in 1996. He is PhD Doctor from the University of Oviedo (2002) (AECI Grant 1998-2002) with Cum laude and Extraordinary Doctorate Award of the University of Oviedo. He has been a University Professor for a period of more than 15 years (1996-2004 / 2009-2019). At the University of Oviedo he was Prof. Ayudante Doctor (2011-2016) and Prof. Contratado Doctor (i) until 2018. He is currently Professor (Prof. Titular, 10/07/2018) in the area of Genetics at the University of Oviedo. He has taught 2300 teaching hours and has successfully supervised 41 works that include Bachelor's Thesis, Final Degree Projects, Master's Thesis and 6 Doctorates (Outstanding/Cum laude). He is currently the Coordinator of the Masters in Marine Conservation and the Erasmus mundus IMBRSea Master at the University of Oviedo. He is part of the staff of the of the Natural Resources Classroom Research Group (ARENA) (2013-), Marine Observatory of Asturias



(OMA), Biotechnological Institute of Asturias (IUBA) and member and Spanish Society of Genetics (SEG).

Laura Muñiz Rodríguez

Laura Muñiz-Rodríguez has a degree in Mathematics and a PhD in Mathematics and Statistics (University of Oviedo) and in Educational Sciences (Ghent University). She is an assistant professor at the Department of Statistics and Operational Research and Mathematics Education of the University of Oviedo. Her research focuses on the field of initial and continuous training of future mathematics teachers, the use of games and manipulatives for the teaching and learning of mathematics, and the role of feedback in the teaching and learning process.



Noelia Rico

Noelia Rico has a Bachelor degree in Software Engineering (University of Oviedo) and a Master degree in Research in Artificial Intelligence (International University Menéndez Pelayo). Her research interests are computational social choice optimization, the incorporation of the aggregation methods define in this field into machine learning algorithms and also its application for data analysis in real problems.



Luis J. Rodríguez Muñiz

Luis J. Rodríguez-Muñiz is Associate Professor (with accreditation for Full Professor) in the University of Oviedo from 2003, within the Department of Statistics and Operations Research and Mathematics Education. Bachelor's and Ph.D. Degree in Mathematics (awarded with the Extraordinary Doctoral Prize). His late research interests are focused on mathematics education, within two research lines. The first one is statistics and probability education: analysis of textbooks, resources, and curriculum analysis, and students' difficulties. The second line is the initial and continuous teacher training, particularly, the initial training of secondary mathematics teachers. He is the coordinator of the Mathematics Education Research Group (MERG), which is certified by the Spanish National Agency. From 2018 he is the president of the Education Commission of the Royal Spanish Mathematical Society (RSME). He is also a member of the Spanish Society for Research in Mathematics Education (SEIEM).

Aquilina Fueyo

Aquilina Fueyo is a Professor at the University of Oviedo, where she has taught different subjects such as "Educational Technology", "Virtual Teaching-Learning Scenarios", "Design, Development and Innovation of the Curriculum", "Human Rights: Diversity, Immigration and Education", "Gender and Education", "Literacy for the Media and for Information and Communication Technologies", as well as tutoring students during their internships. Aquilina Fueyo has a PhD in Pedagogy (2001), a Master's degree in "Education, Diversity and Cooperation for Development" (1988), and a degree in Pedagogy from the University of Oviedo (1986). She was Dean of the Faculty of Educational Sciences at the University of



Oviedo between 2001 and 2008. From 1988 to the present, she has carried out various teaching activities as a university professor in the areas of Educational Technology, Education for the Media, New Technologies for Education and its Innovation and Practicum.

Emilio Álvarez Arregui

Teacher since 1981 and has worked at all educational levels in the last 40 years. He has been principal investigator in regional, national and international projects. He is currently working on the development of skills development models with universities, research institutes, companies, administrations and innovation acceleration platforms from different American and European countries. He has several hundred magazine and book publications. He has made stays at universities in Seville, Huelva, León, Balearic Islands, Jaén, UNED, Uruguay, Chile, Mexico, Latvia, Portugal, USA, United Kingdom, Ireland, Brazil, Switzerland. He is a member of the Spanish Society of Pedagogy, of the “Universities and Inclusive Education” Group, of the “Spanish Service for the Internationalization of Education (SEPIE)”, of the “European Network of Inclusive Education and Disability incluDed”; of the “European Forum of Education Administrators (FEAE)”;

José Manuel Costa

- **Full Professor in the area of Analytical Chemistry at the Department of Physical and Analytical Chemistry in Oviedo University.**
- He completed his **PhD in Analytical Chemistry** in December 1998.
- During the period 1999-2000, was a **postdoctoral researcher at the Department of Chemistry of the University of Indiana (USA).**
- After his return to the University of Oviedo, the research that has been developing is focused mainly in two topics:
 1. Development of photoluminescent sensors based on nanomaterials.
 2. Use of elemental mass spectrometry for the characterization and detection of inorganic nanoparticles in Bioanalytical applications.

He has been vice-Dean of chemistry in the Faculty of chemistry of the University of Oviedo between October 2008 until October 2016. Currently he is coordinator of the Master in analytical and bioanalytical sciences of the University of Oviedo and serves in the Editorial Board of *Spectrochimica Acta* part B.