**Abstract**

We present here the results of a decade of experience (2000-2010) using Concept Maps (CM) to support teaching and learning processes of topics on Theoretical and Computational Physical Chemistry (FQM-BFQ03) in the context of a Biochemistry Degree at the Faculty of Sciences, University of the Republic, Uruguay.

CMs are incorporated to the instructional design of this introductory-level course as a central tool for promoting week after week the construction of deep understanding, well organized by concept’s hierarchy and linked in a way connected to the student’s biochemical background. The proposed strategy has been successful in enabling student’s novice knowledge to scientific expert knowledge, aimed to facilitate the process of constructing significant meanings with a good integration and balance between quite abstract and complex aspects on theories and models on molecular structure and physicochemical properties and a computational practice in molecular modeling labs. This constitutes one of the features of the course most appreciated by the students.

Along these years, the collaborative construction of CMs in the classroom -lesson by lesson- actively guided and supported in all the instances by the head of the academic area (who provides instant feedback in a personalized way quite infrequent within similar introductory populated contexts at our University) has also become the most relevant tool employed to follow step by step the academic progress of our 70-100 students.

**Didactic Configuration & Learning Environment Design**

The 9 Expert Scaffolding Concept Map Sessions are grouped into.

**References & Acknowledgments**


