

Special Seminar

Tuesday, March 31 ♦ 4 P.M. ♦ Rm 118 Nieuwland

Integrating a Computational Perspective in the Basic Science Education

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In the last decades we have witnessed an incredible development of both computer hardware and software. Scientific problems that were previously solved on large special-purpose machines with special-purpose software can now be easily handled in general-purpose, interactive environments on standard PCs/laptops with the bonus of immediate visualization of the results. Surprisingly, the use of computers to solve mathematical problems still has little impact on university education around the world, particularly at the undergraduate level. Given today's dominance of numerical simulations in research and industry, we think it is paramount to integrate numerical tools at all levels in the educational system. In our undergraduate programs an often posed question is how to incorporate and exploit efficiently these advances in the standard curriculum in mathematics and the natural sciences, without detracting the attention from the classical and basic theoretical and experimental topics to be covered. Furthermore, if students are trained to use such tools at the very early stages in their education, do such tools really enhance and improve the learning environment? And, perhaps even more important, does it lead to better understanding and insight? In this talk I will present one possible approach from the University of Oslo in Norway. There, computational topics are included from the first semester of study into the curriculum of several undergraduate programs; from mathematics and physics to biology and life science.

Hosted by Prof. Mark Caprio