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Teaching Mathematical Modeling to first-year math students: experiences of a modeling course in 2016

The goal of the curriculum reform of Math BSc program at University of Szeged in 2015 was that the students should have applicable knowledge and have better position on the job market even immediately after the BSc studies. One of the main points of the reform is the new course “Mathematical models” given in the 2nd semester, when the students have only some fundamental courses such as basic calculus and linear algebra. Although this means difficulties, with very fine “tuning”, the students learn a lot of applications and they can get an insight to the deeper fields considered only later. The project-based workstyle and the curriculum itself need their creativity, teamwork and continuous training. Consequently, the first-year students get acquainted with the workstyle they meet at their later workplaces. Concerning the content of the course, among others, we emphasize the flow of modeling, the difference between the symbolic and data-based consideration of functions, the difficulties of symbolic and necessity of numeric computations (they are not obvious for the students!), elementary discrete and continuous models, and data fitting. On our poster, we will present the main didactic goals, the curriculum and experiences of the course. We illustrate the talk with a lot of examples and demonstrations prepared in Wolfram Mathematica.