

Course Available for Registration for

Fall 2024

Math 518

TR 5:40–6:55, Ayres ???

MATHEMATICS In INDUSTRY

web.math.utk.edu/~vasili/518/

This is a practical, hands-on course on all aspects of **Computational Science**: modeling, computation, writing proposals, reports, giving presentations.

The goal is to gain better understanding of industrial models and processes through mathematical ideas and computations.

The course will follow a case-study approach, illustrating the various aspects of Computational Science. In each study, starting from a real-world industrial problem, we will model it, develop mathematical and numerical concepts and tools needed to analyse it, and deduce and compute useful answers (analysis and computation go hand-in-hand).

Problems to be studied include: *Crystal Precipitation, Air Pollution, Melting and Freezing, Electron Beam Lithography, etc.*

They involve fundamental phenomena (kinetics, advection, diffusion, reactions), modeled as systems of ordinary and partial differential equations.

The only prerequisites are Calculus (M141,142,241), ODEs (M231), and familiarity with a programming language (Matlab, Python, Julia, Fortran, C/C++).

Juniors, seniors, and graduate students welcome.

The course qualifies for UT's [IGMCS](#) program.

! REGISTER NOW TO ENSURE IT WILL BE TAUGHT !