



## ΕΘΝΙΚΟ ΜΕΤΣΟΒΙΟ ΠΟΛΥΤΕΧΝΕΙΟ ΣΧΟΛΗ ΧΗΜΙΚΩΝ ΜΗΧΑΝΙΚΩΝ

### ΕΠΙΤΡΟΠΗ ΣΕΜΙΝΑΡΙΩΝ

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### ΣΕΜΙΝΑΡΙΟ ΧΗΜΙΚΗΣ ΜΗΧΑΝΙΚΗΣ

- Χρόνος: Δευτέρα 4 Μαΐου, 13:00
- Τόπος: Αίθουσα Σεμιναρίων «Ν. Κουμούτσου»
- Ομιλητής: Δρ. **Μιχάλης Νικολάου**, Professor  
Department of Chemical & Biomolecular Engineering  
University of Houston, Houston, TX, USA
- Τίτλος: Modeling: Art, Science, and Engineering

Περίληψη: "All models are wrong, but some are useful!", said George Box, masterfully capturing in a succinct if provocative phrase an important truth that may at times be forgotten when building models. As exciting as the exercise of building mathematical models of the real world may be, it requires an explicit statement of a model's intended use at the outset. It is only then that the quality of a model can be assessed and the modeling exercise can be fruitful. In this talk, we will discuss our modeling experience in three different cases. The first case involves a bacterial population for which the help of a model is invoked to predict whether an antibiotic can eventually eradicate all bacteria based on limited-time experimental data. The second case refers to any ill-conditioned multivariable system for which a model must be developed experimentally for subsequent use in an advanced controller. And the third case entails a hydrocarbon well with multiple branches for which it is desired to allocate production from each branch given limited measurements. The underlying purposes of modeling for each case will be discussed, and the value of each modeling approach will be highlighted.