

# Mathematical Modeling

Philipp Eisenhauer

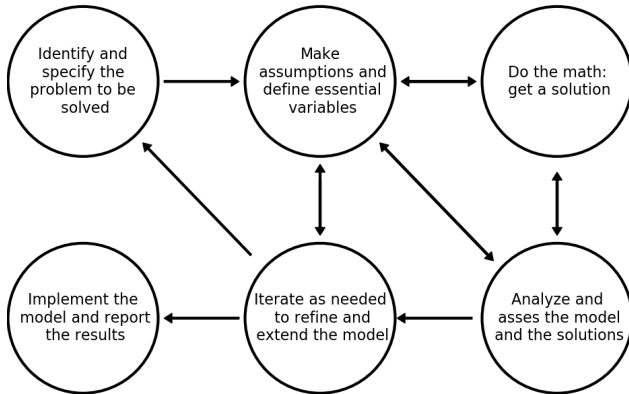
*All models are wrong, but some are useful.*

- Box (1987)

Economic models facilitate experiential learning.

- ▶ What question are they designed to address?
- ▶ What are the underlying economic mechanisms?
- ▶ How robust are the conclusions?
- ▶ What is missing?
- ▶ ...

Figure: Modeling process



## Famous examples

- ▶ **Lemons model (Akerlof, 1970)**, market unraveling in presence of asymmetric information
- ▶ **Roy model (Roy, 1951)**, static model of self-selection and comparative advantage
- ▶ **Career decisions model (Keane & Wolpin, 1997)**, dynamic model human capital investment with schooling and on-the-job training
- ▶ ...

# **Appendix**

# *References*

- Akerlof, G. A. (1970). The market for "lemons": Quality uncertainty and the market mechanism. *Quarterly Journal of Economics*, 84(3), 488–500.
- Keane, M. P., & Wolpin, K. I. (1997). The career decisions of young men. *Journal of Political Economy*, 105(3), 473–522.
- Roy, A. D. (1951). Some thoughts on the distribution of earnings. *Oxford Economic Papers*, 3(2), 135–146.