### Mathematical Modeling

Philipp Eisenhauer

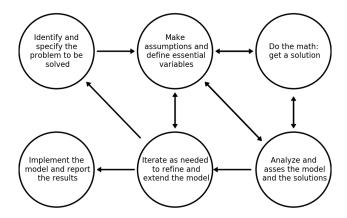
All models are wrong, but some are useful.

- 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.