

PREPARATION FOR FDPE'S 1ST YEAR COURSES

A prerequisite for success in FDPE's first year (micro, macro, econometrics) courses is good preparation. In practice this means that the student should spend a significant amount of time before September both getting to know the analytical tools, and in getting to know the material to be taught. Below is a list of reading for each of the three courses, recommended by current and past teachers of FDPE's first year courses. Note that these courses are method-oriented: the aim is to teach research tools that are deemed necessary regardless of your later specialization. Regarding the material that is detailed below, the idea is *not* that you read all of it. Rather, the books that are mentioned under any one heading are mostly substitutes, and you can pick the one(s) that suit you best. As always with mathematical methods, the best way to learn them by oneself is to do lots of exercises.

Microeconomics

Tools: you need basic knowledge material detailed at <https://cie.hkkk.fi/MI0405/Math%20preliminaries.htm> : basics of analysis, multivariate calculus, and optimization.

Books that cover at least parts of this are:

- Simon, C., and Blume, L., 1994, Mathematics for Economists.
- Mas-Colell A., Whinston, M. and J. Green, 1995, Microeconomic Theory, Oxford University Press. Read the Mathematical appendix.

Substance:

- Jehle, G., Reny, P. Advanced microeconomic theory, Addison Wesley, 2001.
- Mas-Colell A., Whinston, M. and J. Green, 1995, Microeconomic Theory, Oxford University Press.

Macroeconomics

Tools: you need basic knowledge of differential and difference equations, dynamic optimization, calculus of variations, optimal control theory, and dynamic programming.

- Simon, C., and Blume, L., 1994, Mathematics for Economists.

- Chiang, A., Fundamental methods of mathematical economics, parts 3-5 (not 1. 18).
- Kamien, M., and Schwartz, N., Dynamic optimization, chapters 1-3, 9, 17, part II, and appendixes A and B.
- Others that may also be studied:
 - Salo, S. Optimiohjausteoria ja variaatiolaskenta. HKKK 2001.
 - Dixit, A.K., Optimization in Economic Theory, Oxford 1991.
 - de la Fuente, Angel, Mathematical Methods and Models for Economists, Cambridge 2000.
 - Intriligator, M. Mathematical Optimization and Economic Theory, Prentice Hall 1971.

Substance:

- Heijdra, B., and van der Ploeg, F., 2002, Foundations of modern macroeconomics, OUP.
- P. Birch-Sørensen and H.J. Whitta-Jacobsen, Introducing Advanced Macroeconomics: Growth and Business Cycles, McGraw-Hill 2005.
- L. Arnold, Business Cycle Theory, Oxford 2002.

Econometrics

Tools: you need basic knowledge of matrix algebra, distribution theory, and probability theory. This material is covered for example in

- Greene, W., Econometric Analysis, 5th edition, appendixes A (Matrix algebra) and B (Probability and distribution theory).

Substance:

1. Introductory level

- Wooldridge, J., Introductory econometrics, A modern Approach, 2nd edition.
- Stock, J.H. and M.W. Watson, Introduction to Econometrics.

2. Advanced level

- Johnston, J. and J. DiNardo, Econometric Methods.
- Greene, W., Econometric Analysis, 5th edition. This book is a graduate level book and a likely course text.