

Mathematics Requirement and Econ 204
UC Berkeley Department of Economics
July 22, 2024 - August 14, 2024

Econ 204 is a required course for all students including new admits, course work only, and exchange students visiting through concurrent enrollment.

Econ 204 assumes that students come with the minimum mathematical preparation for graduate study in Economics: knowledge of multivariate calculus, basic matrix algebra, and differential equations. It will be assumed that students in Econ 204 have completed a two-year math sequence, which emphasizes proofs and derivations, such as Math 1A, 1B, 53 and 54 at Berkeley. Here are the course descriptions of these math classes at Berkeley:

MATH 1A: This sequence is intended for majors in engineering and the physical sciences. An introduction to differential and integral calculus of functions of one variable, with applications and an introduction to transcendental functions.

MATH 1B: Continuation of 1A. Techniques of integration; applications of integration. Infinite sequences and series. First-order ordinary differential equations. Second-order ordinary differential equations; oscillation and damping; series solutions of ordinary differential equations.

MATH 53: Parametric equations and polar coordinates. Vectors in 2- and 3-dimensional Euclidean spaces. Partial derivatives. Multiple integrals. Vector calculus. Theorems of Green, Gauss, and Stokes.

MATH 54: Basic linear algebra; matrix arithmetic and determinants. Vector spaces; inner product spaces. Eigenvalues and eigenvectors; linear transformations. Homogeneous ordinary differential equations; first-order differential equations with constant coefficients. Fourier series and partial differential equations

The text for 1A, 1B and 53 is James Stewart, *Calculus: Early Transcendentals*, Brooks/Cole. The text for 54 is Boyce and Diprima, *Elementary Differential Equations and Boundary Value Problems*.

Some institutions offer a summer “math camp” in the hope of providing a quick review of this essential prerequisite material. In Berkeley’s view, it is impossible to correct significant deficiencies in this essential prerequisite material in a couple of weeks.

ECON 204 is not a “math camp,” and if your math is rusty, you will need to review it yourself before arriving at Berkeley.

In Econ 204, it is assumed that students know the prerequisite mathematical material. The course builds on this material to develop a more abstract and more powerful treatment of analysis and linear algebra. The ability to recognize and write proofs is stressed, since this is an essential skill in reading current research papers in many areas of Economics.

The text is Angel de la Fuente, *Mathematical Methods and Models for Economists*, Cambridge University Press.

Classes run July 22, 2024 - August 9, 2024; the final exam is Wednesday, August 14 (9am – 12pm).

Lecture:

MTWThF, 10am-12noon, Davis 534.

Sections:

101: MTWThF 9-10am, Davis 534

102: MTWThF 1-2:30pm, Dwinelle 243

103: MTWThF 2:30-4pm, Dwinelle 243

Waivers:

If you have taken a proof-focused real analysis class, equivalent to Math 104 at Berkeley, with a grade of B or better, you may if you wish to apply for a waiver of the 204 requirement. You will need to submit a transcript (unofficial is fine) and the syllabus or catalogue description of the class, including the text. Please submit this by email to Haluk Ergin <hie@berkeley.edu> no later than June 21, 2024.