ECONOMICS AND MATHEMATICS

DIRECTORS OF UNDERGRADUATE STUDIES:
Ebonya Washington (ebonya.washington@yale.edu) (Economics), Rm. 36, 37 Hillhouse Ave., 432-9901; Qazi Azam (qazi.azam@yale.edu) (registrar); Yifeng Liu (yifeng.liu@yale.edu) (Mathematics), DL 410; associate director of undergraduate studies: Miki Havlickova (miki.havlickova@yale.edu) (Mathematics), DL 446

The Economics and Mathematics major is intended for students with a strong interest in both mathematics and economics and for students who may pursue a graduate degree in economics.

PREREQUISITES
The major has prerequisites in both mathematics and economics: MATH 120; ECON 110 or 115; and ECON 111 or 116. With permission of the directors of undergraduate studies (DUSes), upper-level courses may be substituted for prerequisite courses. Upper-level courses substituted for prerequisites do not count toward the total of twelve term courses (beyond the introductory level in economics and mathematics) required for the major.

REQUIREMENTS OF THE MAJOR
A total of twelve term courses is required beyond the introductory level in economics and in mathematics: seven term courses in economics and five term courses in mathematics. These courses must include:

1. One intermediate microeconomics course chosen from ECON 121 or 125, and one intermediate macroeconomics course chosen from ECON 122 or 126.
2. A year of mathematical economics, ECON 351 and one of ECON 350, 417, or 433.
3. Two courses in econometrics, ECON 135 and 136 (with permission of the DUS in Economics, S&DS 241 and 242 may be taken instead of ECON 135, in which case they count as one economics course and not as mathematics courses).
4. Students in the Class of 2021 and the Class of 2022 are required to take one course in linear algebra, MATH 222 or 225 (or 230 and 231, for two course credits). Students in the Class of 2023 and beyond must take an additional course in vector analysis, MATH 250 (or 230 and 231 for two course credits).
5. An introductory course in analysis, MATH 300 or 301.

A course must be listed with a MATH number to count toward the mathematics requirements—substitutions from other departments are not allowed.

DISTINCTION IN THE MAJOR
To be considered for Distinction in the Major, students must meet minimum grade standards, as specified in The Undergraduate Curriculum, and submit a senior essay in Economics that earns a grade of A or A-.. One-term essays may be written in either an Economics department senior seminar or in ECON 491. Two-term senior essays may be written in either an Economics senior seminar and ECON 492 or in ECON 491 and 492. (The paper must be written in a course or courses taken in the senior year.) For details see Economics. All courses beyond the introductory level in Mathematics and Economics are counted in the computation of grades for Distinction.

CREDIT/D/FAIL
Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

SENIOR REQUIREMENT
Students must take the senior seminar in mathematics, MATH 480. A senior essay in Economics is optional.

ADVISING
Students interested in the major should consult both DUSes, and verify with each that their proposed program meets the relevant guidelines. Registration forms must be signed by both DUSes each term.

REQUIREMENTS OF THE MAJOR

- **Prerequisites**: MATH 120; ECON 110 or 115; ECON 111 or 116
- **Number of courses**: 12 term courses beyond prerequisites (incl senior req)
- **Distribution of courses**: 7 courses in econ and 5 in math
- **Specific courses required**:
  - ECON 121 or 125; ECON 122 or 126; ECON 135, 136; ECON 350, 417 or 433; ECON 351; MATH 222 or 225 (or MATH 230 and 231); MATH 300 or 301; MATH 250 for students in the Class of 2023 and beyond
- **Substitution permitted**:
  - S&DS 241 and 242 for ECON 135, with permission of DUS in Econ; MATH 230 and 231 may substitute for MATH 222 or 225, and MATH 250
- **Senior requirement**:
  - Senior sem in math (MATH 480); optional senior essay in economics