Mathematics and Economics Major

Program Requirements

- **Total units required:** 57

Required Courses

Code	Title	Units
CSE 131	Introduction to Computer Science	3
Econ 1011	Introduction to Microeconomics	3
Econ 1021	Introduction to Macroeconomics	3
Econ 4011	Intermediate Microeconomic Theory	3
Econ 4021	Intermediate Macroeconomic Theory	3
Econ 413	Introduction to Econometrics	3
or Econ 413W	Introduction to Econometrics with Writing	
Math 131	Calculus I	3
Math 132	Calculus II	3
Math 233	Calculus III	3
Math 309	Matrix Algebra	3
Math 310	Foundations for Higher Mathematics	3
or Math 310W	Foundations For Higher Mathematics With Writing	
SDS 3200	Elementary to Intermediate Statistics and Data Analysis	3
or SDS 3211	Statistics for Data Science I	
or Math 493C	Probability	
Total Units		**36**

Elective Courses

Majors must complete seven electives drawn from the lists below. Three electives must be drawn from the Economics list and three electives must be drawn from the Mathematics list. The remaining elective may come from either department or from the preapproved elective list below.

Economics

One of the three Economics electives can be any Economics course with Econ 4011 or Econ 4021 as a prerequisite, including from an approved study abroad program. The other two economics electives must come from the following list:

Code	Title	Units
Econ 404	Behavioral Economics and Experimental Economics	3
Econ 407	Market Design	3
Econ 410	Macroeconomics of Inequality	3
Econ 4111	Optimization and Economic Theory	3
Econ 4151	Applied Econometrics	3
Econ 4160	Topics in Econometrics: Microeconometrics	3
Econ 4210	Topics in Financial Economics: Asset Pricing	3
Econ 4211	Topics in Financial Economics: Investments	3
Econ 435	Open Economy Macroeconomics	3
Econ 437	The Economics of Financial Intermediation	3
Econ 445	Public Finance	3
Econ 452	Industrial Organization	3
Econ 4567	Auction Theory and Practice	3
Econ 460	Urban Economics	3
Econ 467	Game Theory	3
Econ 471	Development Economics	3
Econ 480	Labor Economics	3
Econ 484	Computational Macroeconomics	3

Mathematics

The three Mathematics electives must come from the following list:

Code	Title	Units
Math 312	Differential Equations and Dynamical Systems [*]	3
Math 318	Introduction to Calculus of Several Variables [*]	3
Math 371	Graph Theory	3
Math 410	Introduction to Fourier Series and Integrals	3
Math 4111	Introduction to Analysis	3
Math 4121	Introduction to Lebesgue Integration	3
Math 415	Partial Differential Equations	3
Math 416	Complex Variables	3
Math 429	Linear Algebra	3
Math 449	Numerical Applied Mathematics	3
Math 450	Topics in Applied Mathematics	3
Math 456	Topics in Financial Mathematics	3
Math 493C	Probability [*]	3
Math 495C	Stochastic Processes	3

[*] Students choosing both Math 312 and Math 318 must complete four L24 Mathematics electives from the list above. Math 493C can be taken for elective credit in the major if SDS 3200 (or SDS 3211) is completed to satisfy the core requirements.

Preapproved Electives

One elective in the major can come from the following list:

Code	Title	Units
SDS 420	Experimental Design	3
SDS 439	Linear Statistical Models	3
SDS 4392	Advanced Linear Statistical Models	3
SDS 459	Bayesian Statistics	3
SDS 460	Multivariate Statistical Analysis	3
SDS 461	Time Series Analysis	3
SDS 462	Mathematical Foundations of Big Data	3
SDS 475	Statistical Computation	3
SDS 494	Mathematical Statistics	3

Additional Information

- Students may declare a prime or a second major in Mathematics and Economics via L24 (Math) or L11 (Econ), and that will determine their major advisor.

- Students cannot declare more than one major or minor in the Department of Economics. This restriction includes dual majors, such as Mathematics and Economics (and Economics and Computer Science). Dual majors are considered "in the department" even if they are declared in another department.

- All courses in the major must be completed with the letter grade option, and a grade of at least C- must be earned in each.

- It is possible to earn the Financial Economics Specialization in conjunction with this major (prime or second).

- It is recommended that students completing Math 203 and Math 204 should bypass Math 309 and Math 310. However, they must complete one upper-level Mathematics elective from the list above (with the exception of Math 318) in lieu of Math 309 and Math 310.

- With instructor permission, students may use any of the following for Economics elective credit: Econ 501, Econ 502, Econ 503, Econ 504, Econ 511, or Econ 513.

- Transfer credit, including study abroad approval, for mathematics courses, for probability/statistics courses, or for CSE 131 is approved by the respective departments and is accepted by the Department of Economics for major credit.

- Majors may receive a maximum of 6 units of transfer credit from other colleges/universities to replace Econ 1011 and Econ 1021 (3 units of transfer credit per course). A minimum grade of C- must be earned. Preapproval by the Academic Coordinator (dottie@wustl.edu) in the Department of Economics is required.

- Majors selecting an approved study abroad program (for one semester) may receive transfer credit for Econ 413. **Note:** Many study abroad programs in Europe do not offer the equivalent of Econ 413 in the spring semester. A grade of C (or higher) is required in study abroad course work. Preapproval from the Department of Economics' study abroad advisor is required.

- Majors selecting an approved study abroad program (for one semester) may also receive transfer credit for up to two economics electives. (Majors completing two economics electives abroad are required to complete four economics electives in the major.) A grade of C (or higher) is required in study abroad course work. Preapproval from the department's study abroad advisor is required.

- Majors selecting an approved study abroad program for a full year of study will be handled on a case-by-case basis in terms of meeting degree requirements.

- AP credit for Econ 1011, Econ 1021, Math 131, and/or Math 132 is accepted in the major. Consult with the Department of Mathematics and the Department of Economics for International Baccalaureate and British A-level policies.

- For further details on policies and procedures, please refer to the Undergraduate Guide and the Department of Economics' website, or schedule a meeting with the department's Academic Coordinator (dottie@wustl.edu).

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