

The UC Statewide Transfer Preparation Paths make it easy to compare the coursework requirements for similar majors across all nine University of California undergraduate campuses.

Each path summarizes the lower-division courses—the ones typically taken in the first two years of a bachelor's degree—that count toward graduation in that major at each University of California campus. The paths highlight which coursework is common across UC campuses and which is distinct. The paths also provide detailed information about which courses can, should or must be completed prior to transferring to a specific campus.

Transfer Preparation Path

Mathematics

How to use the Transfer Paths

The Transfer Preparation Paths are designed to help you identify community college coursework that will prepare you for your major at multiple UC campuses. Why is this important? Two reasons: First, you may not be sure yet which UC campus you want to attend, but you know you need to start preparing for your major; second, you may not be admitted to your first-choice campus, so being well prepared for other campuses ensures you have options.

As you plan your community college coursework, here are some strategies you can follow, using the paths as a guide:

- 1) Start with courses that are common preparation for your major at all UC campuses or at the ones you are considering attending. The “Lower-Division Major Requirements” section on the next page lists the common requirements (as well as those that are specific to each campus). Link to www.assist.org to find the equivalent courses at your community college.
- 2) Next, focus on which of that coursework your chosen campuses will require you to complete **before** you transfer, including the grades you must earn and the term by which you must complete the work. Any requirements listed as “musts” should be given special attention.
- 3) Remember that while you are preparing for your specific major, you’ll also need to meet the systemwide eligibility requirements for transfer admission (these are detailed in the “UC Transfer Preparation Overview” available at uctransfer.universityofcalifornia.edu/pdf/overview.pdf). Some courses may meet eligibility, general education and major-preparation requirements. To help ensure you’re taking courses that do the most work for you, consult a college or university adviser.



Mathematics

A mathematics degree is excellent preparation for graduate study in schools of business, education, law and medicine, as well as for advanced study in such fields as mathematics, statistics, computer science, industrial engineering and operations research, logic, physics and economics. In addition, a mathematics degree also prepares students (particularly those who have included some numerical analysis, statistics and computer science courses in their programs) for post-baccalaureate positions in industry, government and finance.

Majors

Each University of California campus offers majors in the area of Mathematics. You can focus your study within the Mathematics majors listed below by pursuing specializations, emphases or concentrations in the upper-division coursework you take once enrolled at UC. Additionally, each campus offers a number of related majors (e.g., Statistics, Economics). For more information on both of these options, see the UC Campus-Specific Transfer Preparation Paths at www.uctransfer.org/campus_paths.html.

BERKELEY: Mathematics, B.A.

DAVIS: Applied Mathematics, B.S., Mathematical and Scientific Computation, B.S. and Mathematics, A.B. and B.S.

IRVINE: Mathematics, B.S.

LOS ANGELES: Mathematics, B.S.

MERCED: Applied Mathematical Sciences, B.S.

RIVERSIDE: Mathematics, B.A. and B.S. and Mathematics for Secondary School Teachers, B.S.

SAN DIEGO: Mathematics, B.A. and B.S.

SANTA BARBARA: Mathematics, B.A. and B.S., and Mathematical Sciences, B.S.

SANTA CRUZ: Mathematics, B.A

Starting Your Mathematics Degree

Lower-Division Major Requirements

From UC's perspective, community college is where you begin working on the first two years of your bachelor's degree. This includes taking lower-division coursework specifically related to your field of study that can be applied toward graduation in your major. Listed below are the lower-division requirements for Mathematics that may be satisfied with approved community college courses.

!!! IMPORTANT !!!
All of these requirements do not necessarily have to be completed **before** you transfer. See the next section of this path for what you must do to be competitive for admission.

Common Requirements

See www.assist.org for details regarding course levels and unit requirements.

- Calculus
(for UCB, UCM and UCSD: three courses; for UCD, UCI, UCLA, UCSC: four courses; for UCR: five courses; for UCSB: two courses for Mathematics, B.A. and four courses for Mathematics, B.S. and Mathematical Sciences, B.S. **Note:** The unit value of Calculus varies from campus to campus; some campuses have 5-unit courses and some have 4-unit courses.)
- Linear Algebra
(for UCB and UCM this course is taught with Differential Equations; for UCD: Advanced Linear Algebra is required; for UCR: taught at the upper-division level and required for Mathematics, B.S. only—see www.assist.org or your counselor for possible lower-division equivalencies)
- Differential Equations
(for UCB and UCM this course is taught with Linear Algebra; not required for pure mathematics or mathematics education concentration at UCSC)
- Computer Programming
(not required at UCB or UCSC; for UCM: Introduction to Computing is required; for UCSD: required for certain math majors; for UCR: upper-division statistics course can be substituted for this requirement for Mathematics, B.A. only)

FIND YOUR COURSES

Every course at your community college that can be used to meet any of the lower-division major requirements is listed at www.assist.org

Campus-Specific Requirements

BERKELEY: Mathematics, B.A.

- None required beyond common requirements (see above)

DAVIS: Applied Mathematics, B.S., Mathematical and Scientific Computation, B.S. and Mathematics, A.B. and B.S.

Applied Mathematics, B.S., Mathematics, A.B. and B.S. and Mathematical and Scientific Computation, B.S.

- Precalculus (or high school equivalent)
- Advanced Calculus

Additional lower-division requirements for **Applied Mathematics, B.S.**

- Computer Programming (one additional course)
- One of the following two-course sequences: Classical Physics; Introduction to Biology; General Chemistry; Basic Statistical Analysis through Computers and an upper-division statistics course once at UC Davis; Microeconomics and Macroeconomics

Additional lower-division requirements for **Mathematical and Scientific Computation, B.S.**

- Computer Programming (one additional course)

Additional lower-division requirements for **Mathematics, A.B.**

- Non-mathematics courses chosen from the natural sciences area

Additional lower-division requirements for **Mathematics, B.S., Plan 1: General Mathematics**

- Physics

Additional lower-division requirements for **Mathematics, B.S., Plan 2: Mathematics for Secondary Teaching**

- Physics or Statistics

IRVINE: Mathematics, B.S.

- General Chemistry or Physics (one series)

LOS ANGELES: Mathematics, B.S.

- Physics
- Two additional courses from: Chemistry; Microeconomic Theory (this course **must** be taken at UCLA); Logic; Physics; Evolution, Ecology and Biodiversity

MERCED: Applied Mathematical Sciences, B.S.

- Calculus-based Statistics
- Physics (two courses)
- Chemistry
- Contemporary Biology (a grade of B or better is required) or Introduction to Earth Systems Science or Introduction to Biological Earth Systems

RIVERSIDE: Mathematics, B.A. and B.S.

Additional lower-division requirements for **Mathematics, B.A.**

- None required beyond common requirements (see above)

Additional lower-division requirements for **Mathematics, B.S., all tracks**

- Computer Programming (one additional course recommended)

Additional lower-division requirements for **Mathematics, B.S., Applied Math track, Biology option**

- Cell and Molecular Biology
- Organismal Biology
- Evolution and Ecology

Additional lower-division requirements for **Mathematics, B.S., Applied Math track, Chemistry option**

- General Chemistry (one series)
- Physics (one series)

Additional lower-division requirements for **Mathematics, B.S., Applied Math track, Economics option**

- Microeconomics (recommended)

Additional lower-division requirements for **Mathematics, B.S., Applied Math track, Environmental Science option**

- General Chemistry (one series)
- Environmental Economics
- Physical Geography (recommended)

Additional lower-division requirements for **Mathematics, B.S., Applied Math track, Physics option**

- Physics (one series)

Additional lower-division requirements for **Mathematics, B.S., Applied Math track, Statistics option**

- Statistics (recommended)

Additional lower-division requirements for **Mathematics, B.S., Computational Math track**

- Discrete Structures
- Computer Programming
- Data Structures and Algorithms

Additional lower-division requirements for **Mathematics, B.S., Pure Math track**

- None required beyond common requirements

Additional lower-division requirements for Mathematics for Secondary School Teachers, B.S.

- None required beyond common requirements (see above)

SAN DIEGO: Mathematics, B.A. and B.S.

- None required beyond common requirements (see above)

SANTA BARBARA: Mathematics, B.A. and B.S., and Mathematical Sciences, B.S.

- Discrete Mathematics
- Physics

SANTA CRUZ: Mathematics, B.A.**Additional lower-division requirements for Mathematics, B.A, Education concentration**

- Statistics

FIND YOUR COURSES

Every course at your community college that can be used to fulfill either IGETC or campus-specific GE/breadth patterns is listed at www.assist.org

Becoming Competitive for Admission to Mathematics**Selection Requirements**

All UC campuses strongly recommend that you complete as many lower-division major requirements as possible before you transfer. Some UC campuses will allow you to transfer with a portion of the lower-division coursework completed (and the remainder to be completed after transfer). Specifics on what each campus advises applicants to complete—and by when and with what GPA—are outlined below. It is important to note that meeting these requirements does not necessarily guarantee admission to a campus or major. The stronger your major preparation, the more competitive you will be.

BERKELEY

- The College of Letters and Science requirements (Reading and Composition, Quantitative Reasoning and Foreign Language) or IGETC, strength of academic preparation and GPA are the primary selection criteria for admission.
- By the end of the spring term preceding fall enrollment, you **must** complete either the College of Letters and Science requirements or IGETC, and as many lower-division major-preparation courses as possible.

DAVIS

- To be a competitive applicant, you **must** have an overall transfer GPA of 2.8 or higher.
- You are **strongly** advised to complete as many lower-division major-preparation courses as possible prior to transfer. Although completion of all major-preparation courses is not an admissions requirement, completion, or near completion, of these courses will help you move more efficiently toward graduation.

IRVINE

- You **must** complete one year of approved Calculus with a GPA of 3.0 and have a minimum overall GPA of 2.8.

LOS ANGELES

- You are **strongly** advised to complete as many lower-division major-preparation courses as possible prior to transfer, based on the availability of courses. All courses must be taken for a letter grade.

MERCED

- For the most current information related to transfer admission, please visit www.transfer.ucmerced.edu.
- Before transferring to UCM, you are advised to complete at least one semester of Calculus, one year of General Chemistry and one semester of Calculus-based Physics.

RIVERSIDE

- You **must** have an overall minimum transferable GPA of 2.7.
- You are advised to complete as many lower-division major-preparation courses as possible prior to transfer. Doing so will help you move more efficiently toward graduation.

SAN DIEGO

- You are **strongly** advised to complete as many lower-division major-preparation courses prior to transfer. Doing so will help you move more efficiently toward graduation.

SANTA BARBARA

- It is **strongly** advised that you complete the following courses at minimum prior to transfer: first two Calculus courses, Linear Algebra, Differential Equations and Computer Science.
- Please note, you will be admitted initially to the pre-major. You will not be admitted to full Mathematics-major status until you have completed all pre-major courses at UCSB or at your community college if courses are articulated. Pre-major courses in mathematics taken at UCSB or another UC campus **must** be completed with a cumulative GPA of at least 2.50.

SANTA CRUZ

- You are advised to complete as many lower-division major-preparation courses as possible prior to transfer.

Satisfying General Education in Mathematics

General Education Requirements

While all UC campuses urge you to focus on your lower-division major requirements while in community college, it is important to remember that general education (GE), or “breadth,” requirements for your bachelor’s degree may also be met with approved community college courses. In fact, some majors require completion of lower-division GE coursework as part of your preparation prior to transfer. The good news is you may be able to double-count some of your lower-division major coursework for related GE requirements.

The Intersegmental General Education Transfer Curriculum (IGETC) is a series of courses at California community colleges that students may complete to satisfy GE requirements. Certain students, however, may not be well served by following this GE option. Specific information about satisfying GE requirements as a Mathematics major is listed below.

BERKELEY

- You **must** satisfy GE/breadth requirements with either IGETC or the College of Letters and Science requirements (Reading and Composition, Quantitative Reasoning and Foreign Language) by the end of the spring term preceding fall enrollment.

DAVIS

- You are advised to complete lower-division major-preparation coursework prior to completing GE requirements. IGETC is accepted for GE requirements.

IRVINE

- You are advised to complete IGETC.

LOS ANGELES

- You are advised to complete IGETC.

MERCED

- You are encouraged to focus on major-preparation courses in mathematics and science, filling in your schedule with admission requirements such as English Composition and some GE/breadth courses in social sciences, humanities and the arts. UCM encourages you to choose your GE courses strategically by selecting courses that count for both the School of Natural Sciences GE pattern and IGETC. You can double-count your major-preparation courses for related GE/breadth requirements. To see courses that can be applied to both the School of Natural Sciences GE pattern and IGETC, consult the official articulation agreement for your college, available online at www.assist.org.

RIVERSIDE

- Completion of lower-division major-preparation coursework **must** take precedence over completion of GE/breadth requirements. You are not required to complete GE/breadth requirements prior to transfer.
- If time permits after completing your major preparation, you should choose courses from UCR's GE/breadth pattern for the Mathematics major under the College of Natural and Agricultural Sciences. This breadth pattern is available at www.assist.org.
- IGETC is not an acceptable way to complete GE/breadth requirements for this major.

SAN DIEGO

- While completing your major-preparation courses, you are advised to work toward completion of IGETC or UCSD's GE requirements. If you are unable to complete IGETC prior to transfer, you are advised to satisfy as many UCSD GE requirements as possible. IGETC is accepted at John Muir, Earl Warren, Thurgood Marshall and Sixth colleges only. Students completing IGETC are welcomed at Eleanor Roosevelt and Revelle colleges; however, they **must** also fulfill the specific GE requirements of those colleges. At UCSD, all majors are available to students in each college, so students who choose IGETC will not be restricted in their choice of major.

SANTA BARBARA

- You are advised to satisfy GE requirements with IGETC.

SANTA CRUZ

- You may satisfy GE requirements with either IGETC or UCSC's GE requirements.