

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

Physics

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 (see <http://www.universityofcalifornia.edu/admissions/transfer/preparation-paths/>). 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.



Physics is the study of the most fundamental interactions between time, space, energy and matter. It provides the foundation for all of the physical sciences, modern biology and engineering, as well as the other natural sciences.

Majors

Each UC campus offers a variety of majors in Physics, from those that cover the broadest range of subject matter to those targeting specific aspects of the field. This path focuses on the following broad-based majors:

BERKELEY: Physics, B.A.

DAVIS: Applied Physics, B.S. and Physics, A.B. and B.S.

IRVINE: Physics, B.S.

LOS ANGELES: Physics, B.S. and Physics, B.A.

MERCED: Physics, B.S.

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

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

SANTA BARBARA: Physics, B.A. and B.S.

SANTA CRUZ: Applied Physics, B.S. and Physics, B.S.

Specializations and Related Majors: You can focus your study within the majors listed above 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., Astrophysics). For more information on both of these options, see the UC Campus-Specific Transfer Preparation Paths at www.uctransfer.org/campus_paths.html.

Starting Your Physics 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 Physics that may be satisfied with approved community college courses unless otherwise specified.

Common Requirements

- Calculus-based Physics (UCM requires three semesters)
- Calculus
- Multivariable Calculus

!!! 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.

- General Chemistry
(recommended at UCB; one quarter required for Physics, B.S. and in certain concentrations for Applied Physics, B.S.; additional courses highly recommended for these B.S. degrees at UCD; not required at UCI; College Chemistry also accepted at UCLA; required for B.S. degree only at UCSD; required for Applied Physics, B.S. only at UCSC)
- Linear Algebra
(not required at UCR or UCSC)
- Differential Equations
(not required at UCSC)

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: Physics, B.A.

- An introductory computer science course is recommended for students not familiar with a computer programming language

DAVIS: Applied Physics, B.S. and Physics, A.B. and B.S.

- Astronomy (recommended for Applied Physics B.S. and Physics B.S. -Astrophysics only)
- Computer Programming (not required for Physics, A.B.)
- Vector Analysis
- Modern Physics

IRVINE: Physics, B.S.

- Modern Physics (recommended)
(may be completed at UCI)
- Fundamentals of Experimental Physics (recommended)
(may be completed at UCI)
- C Programming
(may be completed at UCI)
- Mathematical Methods for Physical Sciences
(may be completed at UCI)

LOS ANGELES: Physics, B.S. and Physics, B.A.

- Modern Physics

MERCED: Physics, B.S.

- UCM–approved course in Computer Programming

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

- Computer Programming
- Modern Physics

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

For Physics, B.A.

- Biology and/or General Chemistry
- Computer Programming
- Vector Calculus

For Physics, B.S.

- Computer Programming
- Vector Calculus

SANTA BARBARA: Physics, B.A. and B.S.

- None required beyond common requirements (see above)

SANTA CRUZ: Applied Physics, B.S. and Physics, B.S.

- Computer Programming

Becoming Competitive for Admission to Physics

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). Important information on selection requirements for admission to the major including 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

- It is recommended that you complete as many lower-division major-preparatory courses as possible prior to transfer, particularly the entire physics sequence, because two years are required to complete the major requirements on campus after transfer.
- 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 and one year of Calculus-based Physics for Engineering and Physics majors (with laboratory) prior to transfer.
- You **must** have a minimum overall UC transfer gpa of 2.8 and a minimum gpa of 3.0 in major preparation courses.

LOS ANGELES

- It is recommended that you complete as many lower-division major-preparatory courses as possible prior to transfer.
- You **must** take all courses for a letter grade.

MERCED

- As a new campus UCM is in growth mode and can accommodate students who are eligible to transfer to UC.

- It is recommended that you complete, at minimum, as many lower-division major-preparatory courses as possible prior to transfer.
- For the most current information related to transfer admission, please visit www.transfer.ucmerced.edu.

RIVERSIDE

- Transfer students **must** complete courses comparable to the 3 following UCR year-long sequences prior to transfer in order to meet selection criteria into this major: Chemistry 1A-1B-1C/1LA-1LB-1LC (**must** be completed with a grade of C or higher); Math 9A-9B-9C (**must** be completed with a grade of B- or higher); Physics 40A-40B-40C (**must** be completed with a grade of B- or higher)
- It is recommended that you complete as many lower-division major-preparatory courses as possible prior to transfer.
- You **must** have an overall GPA of 2.7 or higher in all UC-transferable coursework.

SAN DIEGO

- It is **strongly** recommended that you complete as many lower-division major-preparatory courses as possible prior to transfer.

SANTA BARBARA

- It is recommended that you complete one year of Calculus and at least one year of Calculus-based Physics with laboratory prior to transfer.

SANTA CRUZ

- You are **strongly** advised to complete Calculus-based Physics (full sequence with labs) and Calculus (full sequence, single variable and multivariable) prior to transfer.
- You must have an overall GPA of 2.7 or higher on the full sequence of calculus-based physics courses. At least two of these courses must be passed on the first attempt.
- You must take all courses for a letter grade.

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

Satisfying General Education in Physics

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 Physics 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. The UC Davis GE requirement will change effective fall 2011 and a summary will be published in the fall 2011 UC Davis General Catalog Supplement.

IRVINE

- If time permits while or after taking your major preparation, you should take courses to fulfill either IGETC or UCI breadth requirements.

LOS ANGELES

- It is **strongly** recommended that you complete IGETC requirements, UCLA's GE requirements or another UC campus's breadth requirements prior to transfer.

MERCED

- If time permits, you should take courses to fulfill either IGETC or UCM's GE requirements in addition to completing your major preparation. If you think that you will not complete IGETC prior to transfer, fulfill courses for the UCM GE requirements for the School of Natural Sciences. UCM's GE requirements do not have to be completed prior to transfer.

RIVERSIDE

- If time permits after completing major preparation, you should choose courses from the UCR GE/ breadth pattern for the College of Natural and Agricultural Sciences (available on www.assist.org). IGETC is not recommended for this major. In order to be ready for upper-division coursework, it is most important that you finish all sequences of lower-division major-preparation coursework. If you do not finish major-preparation sequences prior to transfer, it may delay graduation up to an entire year. It is also recommended that you save some of your breadth courses to be taken with major coursework in your junior and senior years, for a more balanced course load.

SAN DIEGO

- While completing your major-preparation courses, you should also be working toward completion of IGETC or UCSD's GE courses. If it appears you may not complete IGETC prior to transfer, you should satisfy as many UCSD GE requirements as possible. IGETC is accepted at John Muir, Earl Warren, Thurgood Marshall and Sixth College 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

- If time permits while or after taking your major-preparation coursework, you should take courses to fulfill either IGETC or UCSB's GE requirements. If you think that you will not complete IGETC prior to transfer, fulfill courses for UCSB's GE requirements for the College of Letters and Science.

SANTA CRUZ

- Completion of lower-division major-preparation courses should take precedence over completion of GE requirements.
- You may satisfy GE requirements with either IGETC or UCSC's GE requirements.