

DIVISION OF MATHEMATICAL AND PHYSICAL SCIENCES

COLLEGE OF LETTERS AND SCIENCE

Applied Mathematics • Applied Physics • Chemistry • Computer Science
Geology • Mathematical and Scientific Computation • Mathematics • Natural Sciences
Physics • Statistics • Undeclared—Physical Sciences • Other Major Options

The mathematical and physical sciences focus on the application of theory and experimental data to the solution of real-world problems in areas from environmental restoration to the design of spacecraft. As the one language in which absolute meaning can be expressed, mathematics is an important means of communication in every science; and applications of mathematics are important in statistical analysis, chemistry, astronomy and astrophysics.

MATHEMATICAL AND PHYSICAL SCIENCES MAJORS

Applied Mathematics

As any scientific field develops, such as engineering, physics, economics, biology or statistics, more sophisticated mathematical models are needed to formulate and solve basic problems. Applied mathematics students learn how to use mathematics to answer questions that are integral to the advancement of knowledge in any of these scientific fields. They then focus their studies on how math relates to topics in a specific science of their choice.

Questions? Contact an adviser at studentservices@math.ucdavis.edu, math.ucdavis.edu.

Applied Physics

This major is intended for the student who desires a thorough introduction to a particular concentration in applied physics (e.g., computational, materials science, chemical physics) but who also wants a solid foundation in fundamental physics. The applied orientation of this program will be an asset for the student who plans to enter the job market upon completing the Bachelor of Science degree. It will also enable the student interested in advanced work to immediately begin graduate studies.

Questions? Contact an adviser at 225 Physics/Geology Bldg., (530) 752-4092, physics.ucdavis.edu.

Chemistry

From the twitch of a muscle fiber to the silent explosion of a supernova, every happening in the universe is linked at an atomic level by the principles of chemistry. Chemists work in laboratories, on oil rigs, at wilderness research stations and in classrooms. Our Department of

Chemistry gives you the flexibility to choose a Bachelor of Science degree (with more rigorous scientific preparation) or Bachelor of Arts degree (ideal for professional school preparation or for students considering teaching).

Questions? Contact an adviser at 108 Chemistry Bldg., (530) 752-0503, www.chem.ucdavis.edu.

Computer Science

As the trend toward globalization connects people in every part of the world economically, culturally and politically, digital networks and systems are increasingly responsible for processing and delivering the massive amounts of information that keep communication flowing. Computer scientists design, maintain and improve upon these vital information systems. As a computer science major, you will focus on designing systems for application in science, industry and management. The emphasis in this program is on software, although you will master essential concepts of hardware as well.

Questions? Contact an adviser at 2063 Kemper Hall, (530) 752-7004, ugradinfo@cs.ucdavis.edu, cs.ucdavis.edu.

Geology

Geology is the study of the Earth and, in particular, its history, structure and the processes that have molded our planet, its biosphere and other planets of the solar system. Geology involves the origin of continents and ocean basins; earthquakes and volcanoes; variations in global climate; and how these physical changes impact the evolution of life. All of these planetary processes are viewed

through the prism of “deep time,” a perspective unique to geologists, and one that distinguishes geology from most other physical sciences. A significant component of geology addresses interactions between humans and the Earth. This aspect includes the study of resources such as minerals, petroleum and water; identification and mitigation of Earth hazards such as earthquakes, landslides and volcanic eruptions; identification and mitigation of polluted ground water; land use planning; and the study of ancient and modern climate change.

Questions? Contact an adviser at 174 Physics/Geology Bldg., (530) 752-0350, geology.ucdavis.edu.

Mathematical and Scientific Computation

This major is the ideal choice for students who are interested in the interplay between mathematical theory and modern computational tools for applications. Students will study computational principles of computer science and will develop a facility with important tools such as programming. Moreover, they will gain a solid foundation in mathematics that will enable them to model or analyze complicated systems or problems (e.g., earthquakes, economic models, biological systems). The major has two emphases. The computational and mathematical biology emphasis is geared for students interested in using mathematics to model biological systems (e.g., how proteins cluster, how population grows, how species and ecosystems interact and evolve). Students interested in other sciences, pure mathematics (e.g. using computers to discover new mathematical

knowledge), or engineering should choose the computation and mathematics emphasis.

Questions? Contact an adviser at studentservices@math.ucdavis.edu, math.ucdavis.edu.

Mathematics

Mathematics is much more than simple arithmetic and equations; it is the study of abstract structures, space, change and the interrelations of these concepts. Mathematics provides a single framework for modeling and precisely expressing a wide range of scientific ideas and phenomena. Mathematicians work to address some of science and society's most pressing questions. This struggle to express scientific intuition mathematically is the enterprise of a mathematician — a profoundly interesting and important endeavor full of many deep surprises.

Questions? Contact an adviser at studentservices@math.ucdavis.edu, math.ucdavis.edu.

Natural Sciences

Natural Sciences is an interdisciplinary major that provides significant breadth in biology, chemistry, earth sciences, physics and mathematics, while offering additional depth in two of the natural sciences. It is designed to meet the needs of prospective science teachers, but will also serve those who wish to study multiple scientific fields for careers in professions such as business, journalism, and law. Drawing from the latest research in biology, geology, chemistry and physics, students will learn to appreciate the way these sciences integrate to help explain phenomena of the natural world.

Questions? Contact an adviser at 174 Physics/Geology Bldg., (530) 752-9100, naturalsciences@ucdavis.edu, naturalsciences.geology.ucdavis.edu.

Physics

From subatomic particles through the variety of materials that surround us, to galaxies with billions of stars, physics studies what the universe is made of and how it works. As a physics major at UC Davis, you will learn about our present understanding of the universe and also have the opportunity to join with our faculty in the research programs that push forward the frontier of knowledge. This research ranges from the very smallest distances associated with elementary particle physics through nanophysics, superconductivity and magnetism, and on to the structure and evolution of the entire universe.

Questions? Contact an adviser at 225 Physics/Geology Bldg., (530) 754-4092, physics.ucdavis.edu.

Statistics

Statisticians seek to survey representative samples of individuals in order to make inferences about entire populations. Whether estimating the extent of a pest infestation in an agricultural crop or predicting the outcome of a presidential election, statisticians use scientific methods to make useful generalizations. As a statistics major at UC Davis, you'll have the chance to apply your knowledge to fields in the biological, agricultural or computer sciences.

Questions? Contact an adviser at 4117 Mathematical Sciences Building, (530) 752-2361, www.stat.ucdavis.edu.

Undeclared—Physical Sciences

If you'll be entering UC Davis as a freshman and you're undecided on your major, consider the College of Letters and Science's undeclared—physical sciences option. You'll benefit from professional guidance as you investigate possible majors and develop new personal strengths. Visit the Counseling Center for personal interest assessment testing, or use the Internship and Career Center's computerized career assessment tools to help you find majors that align with your interests.

Questions? Contact an adviser at 200 Social Science & Humanities Bldg., (530) 752-0392, advising.ucdavis.edu.

Other Major Options

The College of Letters and Sciences offers an individual major for students who want to forge their own academic path. Students with strong interests in more than one academic discipline may wish to consider a double major. All UC Davis colleges offer academic minors, as well.

The individual major program is designed for the student with multiple interests and educational goals not satisfied within the limits of an already established undergraduate major. The program essentially integrates courses from two or more specialization areas. The major is designed by the student and is subject to approval by faculty advisers and appropriate college committees.

Another approach to individualized academic planning that allows a student to combine two or more interests is the minor program. For most students, the minor either complements the major and/or covers a field of study significantly different from the major. The minor is certified on the student's transcript.

The double major program is still another alternative, but one which leaves even less time for elective courses. The double major requires approval by the appropriate faculty advisers and dean, and students must show that there is a significant difference between the disciplines and requirements of both majors involved. Cross-college majors can be developed with majors in two different colleges.

Questions? Contact an adviser at 200 Social Science & Humanities Bldg., (530) 752-0392, advising.ucdavis.edu.

Want to hear from students and faculty in these majors? Visit admissions.ucdavis.edu/majors.

LOOK FOR US ON FACEBOOK, MYSPACE AND YOUTUBE

Prepared and distributed by Undergraduate Admissions, University of California, Davis, 178 Mrak Hall, One Shields Avenue, CA 95616-8507, (530) 752-2971, admissions.ucdavis.edu

The University of California does not discriminate on the basis of race, color, national origin, religion, sex, sexual orientation, handicap, age, veterans status, medical condition, or marital status. The University of California is an affirmative action/equal opportunity employer. Call (530) 752-2070 for more information.