

# Academics

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## Education

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Department of Earth and Planetary Science covers an exceptionally wide research area. In terms of physical space, research domain involves the solid earth consisting of crust, mantle, and core, the fluid earth including ocean and atmosphere, biosphere that extends along the boundary between the solid and liquid layers of the earth, and their assemblage, the earth system; it further extends into solar system including its planets, satellites, and planetary space. In time scale, the research area ranges from more than 4.6 billion years ago before the birth of the solar system through the present to the future. We also employ various approaches, including field survey and observation that are essential for recognizing and describing the diversity and complexity of the nature, experimental, analytical, and theoretical approaches that are indispensable to extract universality from the obtained data, and modeling and simulation that are useful to understand the observed diversity and complexity under the unified concept of the earth system.

Recently, rapid advance in science and technology surrounding the earth and planetary sciences has gradually been enabling us to analyze the earth along the time sequence from its origin and evolution through predictive changes in the future through an understanding that the earth comprises a single system consisting of the solid earth, surface environments, and surrounding planetary space that interact with one another intricately.

In order to sustain and further develop such major trends in the earth and planetary sciences, it is necessary to keep

training experts highly specialized in research, engineering, and research administration in the fields of earth and planetary sciences. Such experts should also possess a wide scope, highly sophisticated technical knowledge and ability, and an international mind. On the other hand, principles and techniques of earth and planetary sciences have been increasingly applied to fields such as prevention of natural hazards and environmental protection and assessments, leading to more demands by the general public and industries for experts with a wide scope and highly sophisticated technical knowledge and ability in earth and planetary sciences.

## **Goals and Principles of Our Education**

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We aim to produce researchers possessing wide scopes, deep technical knowledge, and high creativity who lead new development in earth and planetary sciences described above, as well as engineers with wide and solid technical knowledge who can deal directly with environmental issues and natural hazards such as earthquakes, volcanic eruptions, and abnormal weathers and can respond to social needs. In order to achieve these educational goals, we have established the following programs.

### **Undergraduate Programs**

We have two undergraduate programs, Earth and Planetary Physics Program and Earth and Planetary Environmental Science Program. Through interactions between these programs, our education emphasizes on understanding and acquiring the basic concepts and skills in earth and planetary sciences.

### **Master's Program**

In our master's program, we have two courses. One is for students who aim to proceed to the doctorate program and become researchers, and emphasizes on graduate course works in

basic and advanced classes. The other is for those who aim to become science engineers, and emphasizes mostly on a wide range of basic classes.

## **Doctorate Program**

In our doctorate program, we aim to provide students with a variety of education, including seminars consisting only of a few students and giving advices for each student's research, so that each student will become a researcher with high creativity through nurturing a wide scope of research and sophisticated technical knowledge.