

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
On Track - Undergraduate Space Education (3)

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DEVELOPING AND CONDUCTING A SCIENCE EDUCATION PROGRAM ON HUMAN SPACE
ACTIVITIES

Abstract

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The Unit of Synergetic Studies for Space at Kyoto University is developing a unique education program on human space activities for undergraduate students. The aim of this program is to cultivate the next-generation human resources with high expertise and to contribute to the further expansion of space activities in the near future.

Human space activities can be defined as cooperative activities by humans in the extreme environment of outer space. The activities require not only the most advanced science and technology but also the supports by a vast number of experts in various disciplines as well as governmental and public supports.

The volume of human space activities has been steadily increasing since the start of the full operation of the International Space Station in 2011. Along with the increase of the activities of the commercial utilization of outer space in the low earth orbit, the governmental space exploration efforts have also been extending to the proposals of human lunar, asteroid, and Mars explorations. The area of human space activities covers not only natural science and technology such as rocketry, communication, robotics, and space science but also other academic disciplines such as medical science, biology in the extreme environment of space, social sciences, and legal and ethical studies. There is, however, no educational program that covers all of the various disciplines related to human space activities.

The education program we are developing consists of two phases. The first phase is aimed at providing the basic knowledge through a series of lectures. The second phase covers more advanced disciplines and practical trainings, including hands-on training for astronomical observations, simulated microgravity experiments, the psychological aspects in closed environments, and public engagements.

This program will provide the undergraduate students with unique opportunities to learn the holistic picture of human space activities, associated academic disciplines and their societal impacts. The future path of the students who complete the program will be diverse: proceeding to graduate schools to develop their expertise, and going to industry or public sectors in which they can contribute to the development of future society both on Earth and in outer space.