

# Department of Astronomy and Space Science

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## What is Astronomy and Space Science?

In the 21st century, our knowledge in the universe will be further expanded by space observations, and diverse space technologies will become an essential part of our daily life. Manufacture and operation of spacecrafts and payloads, analysis of data obtained by in situ measurements and remote observations and developing theories with analytic and computational tools are tasks of space science and astronomy. Astronomy as an academic discipline of understanding the universe is no more a heavenly, speculative science. On one hand, it touches the most fundamental philosophical questions, for example, how our world was created and how we have come to exist, and on the other hand, it provides the most practical information, for example, that related to safety of astronauts and spacecrafts. Application of space science is not limited to satellite communication and astronomical observations as in the past. The GPS is already embedded in our daily life, and the remote sensing can even provide information on the interior of the earth, to say nothing of its atmosphere and surface. Our department trains students to take part in all those endeavors into space and pioneer the final frontier of the mankind, the universe.

## Astronomy and Space Science at Kyung Hee

The Department of Astronomy & Space Science was established in 1985. It is the only university department that provides balanced education in both astronomy and space science in Korea. It has been featured by the largest optical telescope operated by a university in the country. The research area of our department has encompassed astrodynamics, stellar and galactic astronomy, extragalaxies and cosmology, radio astronomy, infrared astronomy, planetary astrophysics, solar physics, magnetospheric physics and heliospheric physics. Now we are expanding into manufacture and operation of satellites and payloads, in situ space observations, and development of satellite watch systems. Although our history is not very long, our alumni are now playing key roles in space research in Korea. Owing to the ongoing expansion of our department, our graduates are also expected to lead space industries in Korea in the near future.

## Degree Requirements

To receive the Bachelor of Science degree in Astronomy and Space Science, a student must:

- acquire a minimum of 130 credits.
- satisfy the general requirements set by the University for academic degrees.
- complete 12 units of compulsory courses in Astronomy and Space Science.
- complete 37 units of electives in Astronomy and Space Science and related fields.
- complete 48 units (maximum 56 units) among general culture courses and humanities/social science electives, and.
- attain a designated minimum score in an English proficiency test equivalent to 650 points in TOEIC.

## Courses

### Year 1

Calculus 1 & 2, Physics 1 & 2, Linear Algebra, Astronomy & Space Science for Freshmen

## Year 2

Introduction to Astronomy & Lab 1, Introduction to Astronomy & Lab 2, Solar System Exploration, Space Numerical Computation, Introduction to Space Electronics & Lab 1, Celestial Mechanics, Space Observation I, Advanced Mathematics I, Advanced Mathematics II, Introduction to Space Electronics & Lab 2, Data Processing of Astronomical Images, Introduction to Space Electromagnetism

## Year 3

Astrophysics I, Astrophysics II, Space Observation 2, Satellite & Propulsion Device, Space Flight Dynamics, Application and Experiment of Space Electronics I, Application and Experiment of Space Electronics II, Solar-Terrestrial Physics I, Solar-Terrestrial Physics II, Galaxies and the Universe

## Year 4

Magnetohydrodynamics, Astrophysical Thermodynamics, Astronomical Instruments 1, Numerical Simulations, Advanced Earth and Space Sciences, Satellite Orbit Computation, Cosmic Radiowaves, Rocket System, Remote Sensing, Astronomical Instruments 2

## Careers and Graduate Destinations

Graduates from our Department are working as professors at universities, as researchers at national research institutes (Korea Astronomy and Space Science Institute, Korea Aerospace Research Institute, etc.) and as research and administrative staffs in diverse industries (Korea Aerospace Industries, Korea Telecom, Korean Air, Samsung Data Systems, GEO Tech., IST Korea, etc.).

## Faculty

Gwang-Son Choe, Ph.D., University of Alaska Fairbanks, 1995, Associate Professor, Solar and Heliospheric Physics, Plasma Physics, Numerical Simulation, gchoe@khu.ac.kr

Min-Hwan Jang, Ph.D., Georgia State University, 1995, Professor, Space Instrumentation, Galactic Astronomy, Variable Stars, Solar Physics, mjang@khu.ac.kr

Ho Jin, Ph.D. Kyung Hee University, 2004, Assistant Professor, Space Payloads, Astronomical Instrumentation, IR Astronomy, Variable Stars, benho@khu.ac.kr

Kap-Sung Kim, Ph.D. Kyoto University, 1988, Professor, Solar and Heliospheric Physics, Radiative Transfer, Celestial Mechanics, kskim@khu.ac.kr

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