

Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster



Inquiry

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HIROSHIMA UNIVERSITY



Hiroshima University takes the lead in setting global standards.

Director, The Organization of the World-leading
Innovative Graduate Education Programs

Mitsuo Ochi

President, Hiroshima University

In the process of contributing to the recovery of Hiroshima after the atomic bombing, we have developed as a comprehensive research university with a particular mission, inheriting the spirit of ‘A single unified university, free and pursuing peace’ set forth by its first president, Tatsuo Morito. Through this process, we have accumulated the results of research, both on the impact of radiation on human health, including from radiation medicine, and results from social scientific research on disaster recovery. Since 2004, we have also worked to improve the radiation medical system in Japan as a national hub for radiation disaster emergency medicine.

When the Fukushima Daiichi Nuclear Power Plant accident occurred in 2011, Hiroshima University dispatched radiation medicine support teams comprising over 1,300 staff members who engaged in various support activities. They utilized accumulated experience and knowledge to the fullest extent for the people of Fukushima.

Reflecting this experience, in 2011 our university established the doctoral program ‘Phoenix Leader Education Program for Renaissance from Radiation Disaster’. This program aims to develop global leaders who can resolve the global issue of recovery from radiation disasters based on an interdisciplinary academic field that transcends the traditional framework of academic and research disciplines. By combining the collective efforts of our university, which aims to be a world-class comprehensive research university, we intend to establish graduate education programs which serve as global standards to support the safety and security of people around the world. To nurture human resources able to share in our aim, we have developed a graduate student support system that allows our students to fully devote themselves to their studies. We welcome those willing and able to share our dreams and hopes.

The Organization of the Leading Graduate Education program, Hiroshima University, was established with the aim of recruiting excellent students to our graduate schools and developing them into leaders who have the ability to uniquely address various issues and see through to the essence of situations based on the use of their extensive knowledge which transcends the traditional framework of academic and research disciplines. With our President serving as the director, all deans of graduate schools participate in the organization of this program as committee members.



Cultivating new leaders who can assist the recovery from radiation disasters around the world

Program Director

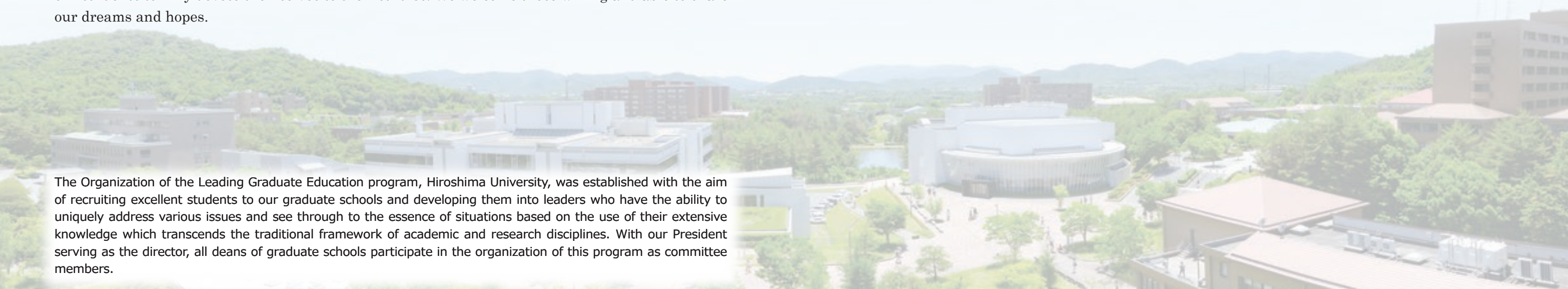
Kazuhiro Tsuga

Executive Vice President, Hiroshima University

Radiation disasters have a major impact on society, including health damage, environmental pollution, and reputational damage. Recovery from a radiation disaster requires not only knowledge and skills across a wide range of fields, but also human resources who can grasp the essence of a situation from a broad perspective and who possess strong will and leadership skills to confront these challenging issues. Since radiation disasters have an impact on a global scale, cooperation with the international community and international institutions is also indispensable.

The Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster was established through the mobilized efforts of Hiroshima University, which has supported the reconstruction of Hiroshima, the first city in the world to be hit by an atomic bomb, based on its further experience from the Fukushima nuclear disaster and recovery. Students in the program acquire knowledge and skills in a wide range of fields, and also deepen their practical skills through on-site fieldwork in Fukushima and other areas affected by a radiation disaster, as well as internship programs at international institutions. Hiroshima University has devoted maximum effort to building this exceptional research program, the only one of its kind in the world, into an internationally-recognized and world-renowned graduate school program.

It is my sincere hope that the leaders cultivated through this program will inspire and support those affected by disasters and will contribute to the restoration of a safe and secure global society.



Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster

Purpose of Program

Hiroshima University's Phoenix Leader Education Program for Renaissance from Radiation Disaster draws on over 70 years of experience to develop global leaders (Phoenix leaders) in response to the growing need for specialists in the field of radiation disaster recovery. The Phoenix Program offers training and education to develop leaders capable of appropriate action in the circumstances surrounding a radiation disaster, preparing graduates to take leadership roles in the recovery with both moral integrity and extensive knowledge of the latest developments in various relevant disciplines.

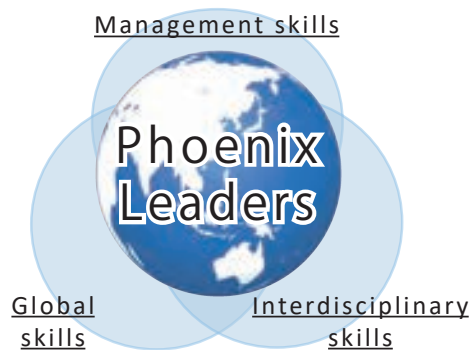
Capabilities Required for Phoenix Leaders

Three critical capabilities are required for Phoenix Leaders as global leaders in radiation disaster recovery.

Global skills
The ability to lead effectively in an international context

Interdisciplinary skills
The ability to observe the scene with a bird's-eye view, and choose when and where to apply relevant knowledge drawn from a wide range of specialties.

Management skills
The ability to develop a scientific understanding of a radiation disaster and take a leadership role in developing consensus for improving the situation



Personnel Development through Three Specialized Courses

Recovery from a radiation disaster includes three key elements: "protect human lives from radiation disasters," "protect the environment from radioactivity," and "protect children and society from radioactivity." This program develops specialists through the use of these three specialized courses of study and endows the Phoenix Leaders with a range of abilities, know-how and coping skills that allows them to successfully deal with the challenges they may encounter in a radiation disaster.

Protect human lives from radiation disasters

- Proper diagnosis and treatment of pathological conditions affected by radiation
- Evaluation of the mechanism and risks of carcinogenesis and genetic damage caused by radioactivity
- Assessment of the psychological effects of stress caused by the radiation contamination and delivery of mental care

Radiation Disaster Medicine Course

Personnel to be developed
Medical doctors, dentists, veterinarians, advanced medical specialists and professionals with knowledge and skills to respond to a radiation disaster

Protect the environment from radioactivity

- Proper analysis of nuclear fission reactions and the chemical properties of fission products
- Proper measurement, evaluation and analysis of environmental and food contamination
- Proper decontamination and disposal/preservation of radioactive waste

Radioactivity Environmental Protection Course

Personnel to be developed
Specialists in radiation protection and radiation safety who can measure environmental radiation and analyze the movement of radioactive material with the knowledge and skills needed for decontamination, and the handling and storage of radioactive waste

Protect children and society from radioactivity

- Alleviating social anxiety generated by radiation disasters and harmful rumors or misinformation
- Supporting the reconstruction of communities for affected people
- Construction of systems to support sound child rearing under the stress of radiation contamination

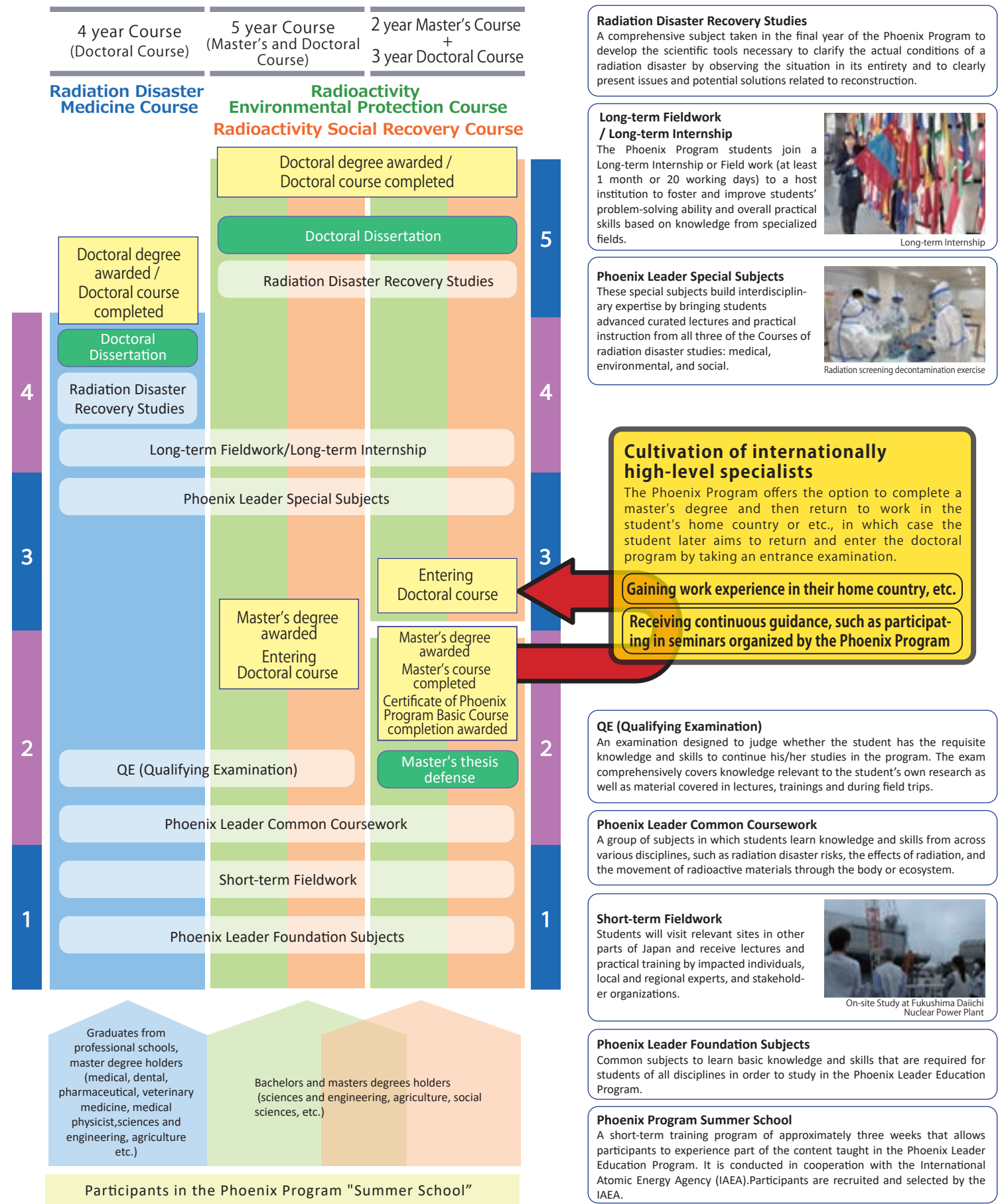
Radioactivity Social Recovery Course

Personnel to be developed
Specialists with knowledge of radiation risks and radiation protection, who can be involved in the improvement of risk communication and scientific literacy, and can contribute to community reconstruction and public policy making

Curriculum Outline

Learning model by course

The Phoenix Program offers students additional coursework beyond the standard required subjects for obtaining a Master's or Doctoral degree from their respective graduate schools at Hiroshima University.



Domestic and International Collaboration

Collaborations to foster Phoenix Leaders

The Phoenix Leader Education Program will provide opportunities for internships and practical training through its collaboration network of domestic and international industry-academia-government partners. Furthermore, specialists from major organizations participate in the program as faculty members or visiting professor, provide guidance to students, and offer advice for improving the program.

Institutions and companies that provide internships and training

International Atomic Energy Agency (IAEA), International Commission on Radiological Protection (ICRP), Centre d'étude sur l'Évaluation de la Protection dans le domaine Nucléaire (CEPN, France), Institut de Radioprotection et de Sûreté Nucléaire (IRSN, France), Memorial Sloan Kettering Cancer Center, University of Pennsylvania, Nuclear Regulation Authority, Penta-Ocean Construction Co. Ltd., National Institute for Environmental Studies, Chiyoda Technol Corporation, Mazda Motor Corporation, Minamisoma Municipal General Hospital, National Institutes for Quantum Science and Technology



On-site Study at Fukushima Daini Nuclear Power Plant



Internship at IAEA

Messages from international experts



May Abdel-Wahab Former Director of the Division of Human Health, International Atomic Energy Agency (IAEA)

As a visiting Professor at Hiroshima University, I am familiar with the excellent teaching and students in the Phoenix Leaders program. The Phoenix Leaders program students will contribute to fulfilling a significant need for global leaders and trained personnel in radiation recovery. The program is unique in that it provides hands-on practical experience and research. In addition to the core curriculum, it includes diverse specialization, whether in radiation medicine, environment and social recovery.

In addition the students are provided ample opportunities for international experience through internships at the IAEA and other venues. The quality of the students, supported by the experienced leadership from the Hiroshima University contributes to the success of the program.



Jacques Lochard Former Vice-chair of the International Commission on Radiological Protection (ICRP)

Living in a contaminated area following a nuclear accident is a complex situation that raises many questions and concerns among the affected population. The presence of the contamination in the direct environment of people is profoundly affecting all dimensions of their living conditions. In such a context the objective is not only the protection of people against the potential health consequences of radiation, but also the maintenance of sustainable living conditions including respectable lifestyles and livelihoods. The Chernobyl and the Fukushima experiences have shown that the lack of direct

engagement of the affected people in the process of rehabilitation of their living conditions inevitably leads to a shared feeling among them of loss of control over their daily life, exclusion and abandonment, disqualification of their living places and also of deep mistrust vis-à-vis experts and authorities. How to reduce the complexity characterizing post-nuclear accident situations? How to avoid perverse mechanisms inducing distrust, loss of autonomy and de-mobilization of the affected population? These are the main challenges associated with the rehabilitation of living conditions in contaminated territories after a nuclear accident. Addressing these challenges is not only a matter of science, technology and standards, it is also a matter which call for respecting the fundamental values of freedom, justice and dignity of the affected people.

In this respect, the Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster is a unique doctoral program offering to students from all over the world a comprehensive insight of the scientific and human dimensions of a nuclear accident.

Admissions

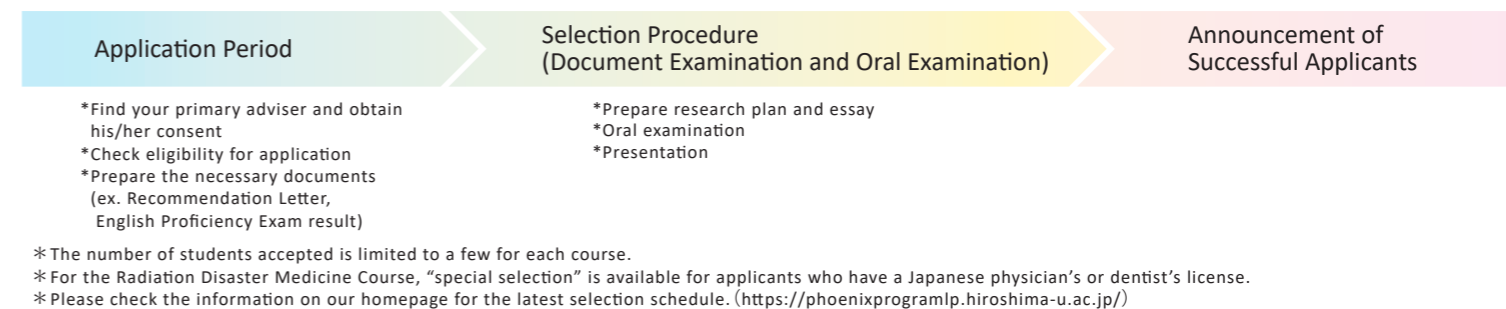
Admission Policy

The prospective applicants should:

- (1) Have a desire to contribute to social development with interdisciplinary knowledge and skills
- (2) Understand the suffering of others and wish to contribute to radiation disaster recovery
- (3) Wish to be leaders playing an active role in regional and global society
- (4) Have enthusiasm, determination, responsibility and people skills

An Overview of Candidate Selection Methods

Based on the admission policy, the program has the following selection methods:
Oral examination will be conducted in English



Program students

Students from a variety of countries study, research, and develop together.



Voice from Program Students

- I feel that my student life has given me a lot of knowledge and new insights into modern techniques and methods in various scientific fields, which will enhance my knowledge and skills in the future.
- I feel that this program will be very useful for my next career move. The Phoenix program offers a wide range of studies, not only in the field of radiation disaster medicine, but also in radiation science, environmental studies, and even communications.

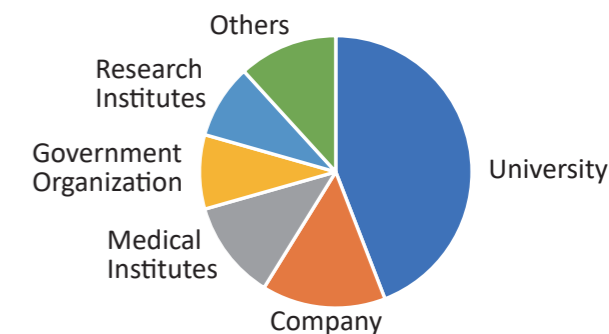
Student Support

Students enrolled in the Phoenix Leader Education Program will receive the following financial support in accordance with University regulations.

- Scholarship
- Tuition Waiver
- Expenses required for program study (※ There is a possibility of change in the content of support, etc.)

Program Alumni

Program alumni are active in a wide range of fields, including educational and research institutions, and companies both in Japan and overseas.



Voice from Alumni

- I believe that the interdisciplinary approach to problem-solving has been very useful in my work.
- The experience of learning across disciplines and discussing with students, faculty, staff, and others inside and outside the program has been very meaningful, and the experience I have gained in English in my current work
- has been very helpful in writing papers and other publications. I was able to learn how to connect, bridge, and collaborate to achieve mutual understanding, and how to resolve concerns, problems, etc.

Various support

Multiple faculty advisor system

In addition to the primary advisor, a study support system has been established with secondary advisors from three different courses.

Career Path Support

Matching support during internships, seminars by leaders in various fields, etc.