Graduate School of Frontier Biosciences

Educational Objectives

Under the Educational Objectives of the University of Osaka, the Graduate School of Frontier Biosciences aims to uphold the mission to contribute to society through its doctoral degree program by exploring biological functions and principles with the intent to produce individuals that will carry the future of science and industry and who possess sophisticated transcultural communicative abilities, advanced research capabilities, and an integrated approach to science, engineering, and medicine.

To achieve this aim to foster high-caliber specialists with leadership roles in diverse sectors of society responsible for the next generation of cutting-edge research, the Graduate School of Frontier Biosciences facilitates the personal growth of students in an interdisciplinary environment while allowing the use of their free ideas to be at the forefront of developing the world's most advanced research.

Cutting-edge, advanced specialized knowledge and outstanding academic expertise

Acquire cutting-edge, advanced expertise and the skills necessary to conduct research at the forefront of life science.

Advanced broad-based knowledge and deep critical thinking

Acquire basic knowledge, broad opinions, deep critical thinking, and the ability to be proactive toward interdisciplinary research.

Sophisticated international mindset

Develop the ability to lead their field of research from an international perspective.

Advanced design prowess

Develop the ability to promote research with originality.

Individual educational objectives

The Graduate School of Frontier Biosciences was established through laboratories engaging in unique research in different fields coming together under the motto “Doing fun and exciting research.” It actively supports self-guided, student research and nurtures individuals who can develop well-designed hypotheses using their deep critical thinking skills and who have an interest in a pursuit of truth stemming from their own curiosity.

Degree Awarding Policy (Diploma Policy)

Under the Diploma Policy of the University of Osaka, the Graduate School of Frontier Biosciences confers a Doctoral Degree in Philosophy on individuals who have earned the stipulated number of credits, received necessary research guidance, and passed the final examination upon the completion of the five-year doctoral degree program, provided that students with exceptionally outstanding academic performance may be awarded a Doctoral Degree even before completing the five-year program, and students who have met certain requirements and passed the interim examination may be awarded a Master's Degree in Science.

Through explorations of the functions and principles of biology, the Graduate School of Frontier Biosciences aims to develop individuals who can acquire advanced research skills and perspectives with interdisciplinary approaches and contribute to many sectors of society, including the scientific community and industry, and nurture advanced specialists and researchers with the following qualities:

Cutting-edge, advanced specialized knowledge and outstanding academic expertise

Individuals shall possess knowledge and techniques in highly specialized fields and the creativity to pioneer new fields with their ability to deepen their expertise and understanding of interdisciplinary research.

Advanced broad-based knowledge and deep critical thinking

Individuals shall be driven by determination and curiosity to explore the truth with a strong sense of ethics and the ability to take independent actions to clarify the truth.

Sophisticated international mindset

Individuals shall have leadership capabilities endowed with an international perspective as well as a sense of responsibility and duty toward society.

Advanced design prowess

Individuals shall organize researchers and experts to take on issues and find solutions together.

Teaching and Learning Policy (Curriculum Policy)

In line with the Curriculum Policy of the University of Osaka, the Graduate School of Frontier Biosciences offers a curriculum designed to guide students to acquire advanced research skills and specialized knowledge through its five-year doctoral degree program consisting of basic subjects to acquire fundamental knowledge and skills; major subjects to deepen specialized knowledge in individual fields of specialty, including cutting-edge research fields; research guidance given by world-class researchers in a first-class research environment; and research activities in a field other than their specialty.

< Principles of Curriculum Design >

Subjects, such as Advanced Liberal Arts education subjects to cultivate the ability to create new fields of study by combining medicine and life sciences with engineering and physics; and Advanced Global Literacy education subjects to cultivate fundamental capabilities to play active roles internationally as well as to acquire cutting-edge knowledge and skills under professors who play leading roles in the relevant fields in Japan and overseas; are systematically designed and provided by combining lectures, seminars, and/or practical training sessions as appropriate in a manner that integrates multiple disciplines—mathematics, physics, chemistry, biology, and medical science—to nurture the next generation of world-class individuals that can pioneer leading life science fields and who are capable of applying the results of research conducted at the Graduate School of Frontier Biosciences back to society.

< Contents and Methods of Education >

Students are required to take elective courses to acquire knowledge in interdisciplinary fields integrating mathematics, physics, chemistry, biology, and medical science.

Students are required to take elective courses in English to develop the ability to play active roles globally.

Project Research Subjects offer students opportunities to conduct research proactively at a laboratory other than their home laboratory or a graduate school other than the Graduate School of Frontier Biosciences to acquire cutting-edge knowledge, skills, and experience in multiple disciplines and develop an understanding of the needs of society, thereby helping them foster the ability to create new technologies and/or fields, and apply their research results to society in diverse ways.

To develop the ability to formulate well-designed hypotheses based on a high level of education while also cooperating with various academic disciplines and conduct self-guided, original research that explores the truth, students are required to take research subjects taught by their supervisor from the laboratory to which they have been assigned.

< Academic Performance Evaluation Method >

The academic performance of students is evaluated by assessing class attendance and practical training reports.

Each master's thesis and doctoral dissertation is strictly reviewed and evaluated in terms of the level of knowledge, skills and the ability to further develop and use such knowledge and skills.