KYOTO UNIVERSITY
KYOTO iUP FACULTY GUIDE 2019

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Five Divisions for developing unique human resources
The Faculty of Integrated Human Studies is the undergraduate college of the Graduate School of Human and Environmental Studies, and it consists of five Divisions: Human Sciences, Cognitive and Information Sciences, Multi-Disciplinary Studies of Civilizations, Cultural Environment Studies, and Natural Sciences. Each Division sets its own education and research objectives; at the same time, the five Divisions share a common goal of developing new and unique types of human resources. In order to achieve this goal, the Divisions cooperate with each other to provide a dynamic and interdisciplinary environment where students can learn about human beings and their surroundings from broad perspectives.

* See the next page for more details on each division.

Selecting a major specialization in the second year from a wide range of academic fields
Most high school students in Japan need to decide on their field of study at university before applying for university; however, the Faculty challenges this widespread convention. The Faculty provides an education in a wide range of academic fields spanning the humanities, social sciences, and natural sciences, and freshmen can fully take advantage of such an education by being exposed to various academic disciplines and exploring their interests. In the second year, students select their major specializations from among the five Divisions and continue their study toward graduation research. The Faculty’s interdisciplinary nature can always benefit the students during their school years.

Four-year integrated curricula combining liberal arts education and specialized courses
The Faculty has developed curricula that link “general courses” for helping students develop flexible and broad knowledge, and “specialized courses” provided by each of the five Divisions. The integrated curricula offer both liberal arts education and interdisciplinary study of specialized courses throughout the four-year program. General and specialized courses are taught by the first-rate professors from the Graduate School of Human and Environmental Studies and other graduate schools to ensure that students receive education at the highest level. The Faculty offers the Professor Advisory System to support students with guidance on course selection and advice on student life.

The minor specialization system providing students with broad perspectives and creativity
The Faculty offers the minor specialization system that allows students to take courses outside their field of major specialization. The system aims to nurture students with broad perspectives and creativity, enabling them not only to acquire advanced expertise in their major specializations, but also to deepen knowledge in other academic fields. Students can decide on their minor specializations with the help of consultation with their academic advisors. At graduation, students completing minor specializations will receive certificates acknowledging their completion of the minor program in addition to their degree in major specializations.

Continuing study at the Graduate School of Human and Environmental Studies and other institutions
Nearly 40% of the graduates of the Faculty continue their study/research at the Graduate School of Human and Environmental Studies. (Graduates can also pursue their graduate study at other graduate schools at Kyoto University or at other academic institutions.) The Graduate School of Human and Environmental Studies comprises three Departments: Human Coexistence, Cultural Coexistence, and Interdisciplinary Environment. The three Departments provide a total of 14 integrated courses combining the humanities, social sciences, and natural sciences where students can engage in advanced research.

Features of the Faculty of Integrated Human Studies, Kyoto University

Holistic understanding of human beings and their surroundings through interdisciplinary curricula

Freshman Welcome Camp for the Faculty of Integrated Human Studies
Division of Human Sciences

The Division of Human Sciences aims at comprehensive and fundamental understanding of human beings that have accumulated vast amounts of knowledge throughout history. The Division focuses on three main dimensions: “thoughts,” “society,” and “culture.” The “thoughts” dimension explores human existence from philosophical and ethical perspectives; it also explores creative activities from a historical perspective. The “society” dimension tries to understand human development and social behaviors from empirical and theoretical perspectives. The “culture” dimension examines cultural representations from historical and social perspectives. Research in the Division is pursued in the form of six fields of study mentioned below, seeking to redefine human intellect through the organic linkage among them.

Psycho-Social Development, Social Behavior, Social Studies of Arts and Culture, Human Ontology, Theory of Creative Arts, Literary Arts and Representation

Division of Cognitive and Information Sciences

People-to-people and people-to-environment interactions are achieved via cognitive and behavioral control mechanisms using the brain, body, and language as their interfaces. Based on this premise, the Division of Cognitive and Information Sciences studies the information processing system, used by human beings and machines, including human health, brain functions, human cognition, behavior emergence, and language features. The students in the Division carry out research on their own topics while studying fundamental sciences on exercise, metabolism and nutrition, information, and mathematics. This comprehensive approach helps young researchers gain critical and scientific methods based on an in-depth understanding of the human cognitive behavior and diversified creativity.

Cognitive and Behavioral Sciences, Mathematical Informatics, Linguistic Science, Foreign Language Acquisition, and Education

Division of Multi-Disciplinary Studies of Civilizations

The social sciences and humanities are sometimes criticized as being incapable of coping with serious issues of the modern society, having lost flexible thinking and cooperation with other academic domains. In response to such criticism, the Division of Multi-Disciplinary Studies of Civilizations explores research on civilizations including the histories and cultures of Japan, other Asian countries, and Western countries, while addressing related modern social issues in an interdisciplinary way. Through such an approach, the Division provides its students with both an extensive “liberal arts education” in the true sense of the word, and practical training which enables students to acquire specialized expertise through flexible thinking.

Interdisciplinary Social Sciences, Social Cultural History

Division of Cultural Environment Studies

The Division of Cultural Environment Studies aims to examine the bases of human activities and habitation in this globalized world where region-specific ethnicities and characteristics form the basic units of the society. It also seeks to establish the concept of habitation in the future society. The students in the Division examine and compare regional characteristics of civilizations; they track interactions among civilizations and their cultural products. The Division places a critical importance on field-based work in studying civilization, culture, and the environment. It also emphasizes that civilization, culture, and the environment keep changing through interactions with each other, while people’s core identities remain unchanged.

Comparative Studies of Civilizations, Cultural, Regional and Historic Studies on Environment

Division of Natural Sciences

The Division of Natural Sciences aims to establish a new intellectual paradigm where the concept of nature, obtained from the study in natural sciences, and the concept of human beings, obtained from the study in the humanities and social sciences, are integrated. The Division helps students understand materials, lives, the earth and fundamental principles that control the universe, as well as the correlations among them. The Division’s five fields (see below) provide students with opportunities to construct a repository of ideas and knowledge in each academic field while encouraging them to break the walls among the established domains in their study and research.

Physical science, Chemistry, Material science, Biological science, Geosciences
Develop students’ ambition to ensure and promote humanity

One primary objective of the Faculty of Education is to guide students as they acquire expert knowledge about hearts, minds, human beings and society, through learning various ways to interpret diverse phenomena at the intersection of education and human society. Another goal is to encourage them to contribute to constructing a global society where people with different backgrounds can co-exist peacefully. The key outlook we seek to cultivate is one of wide perspective, understanding of diverse experience, synthetic thinking and critical judgement.

Three divisions analyzing education from various perspectives

The Faculty of Education at Kyoto University consists of one department (Department of Educational Sciences) and three divisions. As undergraduate students need comprehensive understanding, this institutional structure allows us to provide them with the fundamental knowledge concerning the various fields related to education. In addition, our study trajectory of gradual specialization allows them to address the complex and multilayered issues that modern education faces from multiple viewpoints.

*See the next page for details on each division.

Gradual specialization during a four-year program of study

In the first year, students study Liberal Arts and Sciences Courses to acquire a broad general education. As the year progresses, they are introduced to basic subjects for their specialized fields and subjects.

In order to foster a broader view and multifaceted thinking, the faculty recommends that students also enroll in Liberal Arts and Sciences Courses offered by other faculties.

<Outline of the study trajectory>:

- **First year** / Students take courses such as "Introduction to Educational Studies" (required) and "Informatics" (recommended). They might also benefit from enrolling into courses from the teacher training program, or Liberal Arts and Sciences Courses and ILAS seminars (small group education) offered by the Faculty of Education.
- **Second year** / Students mainly take basic courses in specialized fields and, based on their interest and aptitude, start thinking about the divisions they will affiliate themselves with during their third year.
- **Third year** / Students take specialized courses from within their chosen division: Studies on Educational Foundations, Educational Psychology, or Interdisciplinary Studies of Educational Systems.
- **Fourth year** / Students write a graduate thesis — the culmination of their studies up to this point. For those that will go on to graduate school, writing the graduate thesis will be the first step to becoming a researcher.

Curriculum Tree

- Pedagogy
- School curriculum
- History of Education
- Human Developmental Studies
- Guidance

Studies on Educational Foundations

Faculty of Education
Department of Educational Sciences

Educational Psychology

- Cognitive Psychology of Education
- Clinical Psychology
- Psychotherapy

Interdisciplinary Studies of Educational Systems

- Sociology of Education
- Media Studies
- Lifelong Education
- Comparative Education
- Library and Information Science
- Educational Administration and Finance
Multiple perspectives on complex issues in modern education

Studies on Educational Foundations

The courses in this division have been created for students interested in the following areas: working at schools; participating in the development of school curricula and educational assessments; examining emotional development or disorders from the preborn period; and, studying educational issues from a historical or philosophical viewpoint.

<Main subjects>

● Philosophy of Education, History of Education / Students analyze various educational issues from psychological and historical viewpoints (e.g., Why do we need education? What types of schools are desirable?). They also study the establishment of the school educational system, attitudes toward education from a historical viewpoint, and explore changes to education over time. Students obtain knowledge in general and concerning educational methodology in preparation to present their ideas on new learning experiences and forms of education.

● Study of Educational Methods, Developmental Science / Students learn the established theories and practices on curriculum, classroom instruction, and assessment. They also explore human physical and emotional development based on developmental science in areas where the humanities and science intersect. Overall, students should aim to discover appropriate and effective educational methods. This subject emphasizes fieldwork.

● Educational Anthropology, Clinical Education / Students primarily study thoughts by exploring the themes present under educational anthropology including the arts, the body, and languages. Students develop a sensitivity towards the deeper meanings of “words” and the ability to think practically in the field.

Broad-based knowledge and innovative thought on the mechanisms and functions of mind

Educational Psychology

This Division intends to foster broader knowledge and flexible thinking on the mechanisms and functions of the mind. It has an extensive curriculum that focuses on educational and cognitive psychology and clinical psychology, providing active educational and research activities in cooperation with other units or professors of psychology in other faculties.

<Main subjects>

● Cognitive Psychology of Education / Students learn established theories and develop their base of knowledge on aspects of higher-level cognitive processes, including memory, language, assumption, decision-making, intelligence, understanding of the ‘other’, empathy, and social cognition. Students also acquire and apply knowledge on psychological aspects closely related to educational activities, such as teaching and learning methods, motivation, use of media and computers, and the development of higher-level cognitive processes. They build a foundation for psychological research by performing psychological experiments, surveys, and data analysis.

● Clinical Psychology / Students learn psychotherapy, psychological assessment techniques, survey methods, and the methods of image representation, such as drawing and play therapy, to deepen their understanding of themselves and acquire the skills to support others mentally. Such expertise and skills are valued in multiple fields of work and will help interested students obtain certification as clinical psychologists through the master’s course at the Graduate School.

Connecting education and society for the future

Interdisciplinary Studies of Education Systems

In the 21st century, not only schools, but the entirety of society plays a role in education. As a result, flexibility and networking for education have become important issues. Therefore, students in the Division of Interdisciplinary Studies of Education Systems embark on creative explorations of the connections between education and society. The Division curriculum focuses on important issues that society and the next generation are anticipated to encounter and tackles these in unique courses, including small-group seminars and lectures.

<Main subjects>

● Sociology of Education / Students study the effects group education has on society and develop the sociological skills to examine related issues, such as a society based on academic credentials, juvenile problems, and educational changes.

● Life-Long Education / Students analyze education and culture from perspectives beyond compulsory schooling. Specifically, they study issues concerning social education, library and information science, and media culture.

● Comparative Education, Educational Policy / Students explore various education systems comparatively, through examination of policies, practices, and theories in countries across the world. This comparative research is done in conjunction with studying educational administration, financial systems, and concrete policy development from a policy science perspective.
Fostering talent for business, law, government, and many other spheres of society

The name “Faculty of Law” often makes people think of a place for the training of professional lawyers, like law schools in the United States. But faculties of law in Japan have long functioned as places to foster talent for the business world. At most, only one in every four graduates from the Kyoto University Faculty of Law enters the legal profession. Most of the remaining three quarters pursue careers in private companies. Many have taken up executive posts at major Japanese corporations and been leading Japanese industry. This is one of the reasons that the Kyoto University Faculty of Law has gained such an enviable reputation.

Studying major courses in law and political science

The Faculty of Law offers introductory major courses for first-year students, but students start to take most of the major courses in their second year. The curriculum centers on courses in law and political science (in the ratio of around three to one), but students can also take up to about ten courses from the Faculty of Economics. These courses enable students to gain broad insights into society, the corporate world, and the nation-state, and especially the rules that govern them. Since Japanese companies place a high value on students who have undergone this type of training, as mentioned above, most graduates of the Faculty of Law go on to work in the business world.

Honing your research, presentation, and debating skills in seminars

The Faculty of Law offers small-group courses called “seminars” for students in their third and fourth years. In seminars, all students pursue research on a pre-determined theme, report their findings to the class based on a research paper, and discuss their report with the instructor and other students in the class. By proactively engaging in these courses, students can expect their skills of research, presentation, and debating to improve dramatically. For this reason, the Faculty of Law strongly encourages students to take seminar courses, and in reality almost all of its students do (it is possible to take one seminar course each semester with a maximum of up to three in total). English is designated as the language of instruction in some seminars.

Solid, incremental curricular requirements combined with respect for students’ autonomy in learning choices

In order to encourage solid progress through the curriculum, the Faculty of Law sets limits (caps) on the number of credits students can take each semester; and with a view to incremental learning, the major curriculum available to second-year students is limited to a range of foundational courses. However, as none of the major courses are mandatory, students are free to make their own course choices in line with their individual plans for the future. In this way, students take the initiative for selecting their courses and planning their studies based on the idea that “all students design their own future.” This is another distinctive feature of the Faculty of Law at Kyoto University.
Major Subjects

The Faculty of Law at Kyoto University offers the following elective major subjects aimed at broadening students’ perspectives and developing individuals capable of re-evaluating the concepts of country and society, and taking leadership roles in organizations:


● **Political Science** / Principles of Political Science, Political Process, Comparative Politics, American Politics, International Politics, Analysis of International Political Economy, Political History, Political and Diplomatic History of Japan, History of Political Thought, Public Administration, Public Policy Analysis, Introduction to Political Science I, Introduction to Political Science II

● **Research on Foreign Literature** / Research on Foreign Literature (English/German/French)


● **Economic Relations** / Microeconomics 1, Microeconomics 2, Political Economy 1, Political Economy 2, Public Finance, Economic History 1, Economic History 2, Tax System, Money and Banking, Monetary Policy, Basic Statistics, Economic Statistics, Accounting 1, Accounting 2, History of Economics, Economic History of Japan, Theory of Social Policy

Seminars

Our seminars prepare students to engage in vigorous debates and discussions and have been prominently featured since the establishment of the Faculty of Law. Seminars can be taken in the following areas:


● **Political Science** / Principles of Political Science, Political Process, Comparative Politics, American Politics, International Politics, Analysis of International Political Economy, Political History, Political and Diplomatic History of Japan, History of Political Thought, Public Administration
Develop creativity with clear goals

The Faculty of Science, Kyoto University, has two educational objectives for nurturing students to take the responsibility for the future progression of the natural sciences in the next generation:

1. Provide opportunities to learn the fundamental knowledge of the natural sciences and develop students' ability to creatively apply that knowledge.
2. Develop students' ability to integrate knowledge into new intellectual values.

To achieve these educational objectives, we provide a liberal academic culture and encourage creative scientific activities and autonomous learning. We have established a one-faculty system, which allows students to first engage in a process of “gradual specialization” and then move forward to the forefront of the sciences.

Years 1 and 2: Focus on the Liberal Arts and Sciences Courses and the basics in specialized fields

All the students in the Faculty of Science of Kyoto University learn common subjects (subjects learned by the entire faculty) in Years 1 and 2, comprising mainly Liberal Arts and Sciences Courses and the basics in specialized fields. Liberal Arts and Sciences Courses include eight groups: Humanities and Social Sciences, Natural Sciences, Languages, Informatics, Health and Sports, Career Development, Interdisciplinary Sciences, and Seminars in Liberal Arts and Sciences (academic staff from the Faculty of Science provide lectures in many natural science subjects). The basic subjects for the specialized fields lay the foundation for more specialized major studies in Year 3 and later. The first two years provide students with opportunities to develop basic knowledge and skills to excel in specialized sciences, to explore various academic disciplines, and to broaden their horizons.

Years 2 and 3: Five majors of targeted expertise in the natural sciences

Students select one of the five majors at the end of Year 2 and begin studying in their specialized fields in Year 3. In the majors, students take specialized subjects, including seminars, experiments, and practicums, to acquire the most advanced knowledge accumulated by the Faculty of Science, Kyoto University.

- Mathematical Sciences Major: Mathematics subjects
- Physics and Astrophysics Major: Physics and Astrophysics subjects
- Earth and Planetary Sciences Major: Geophysics and Geology Mineralogy subjects
- Chemistry Major: Chemistry subjects
- Biological Sciences Major: Zoology, Botany, and Biophysics subjects

* For details on the majors see the next page.

Year 4: Graduation work

All the students are required to submit a final piece of research in Year 4. The students are provided with personalized instruction from their supervisors to learn research methods and develop their ability to summarize results. Through these activities, their motivation to engage in more advanced specialized research is expected to increase.

Application for Graduate School at Year 3

The Division of Mathematics and Mathematical Sciences and the Division of Chemistry, Graduate School of Science provide undergraduate students who have studied in the faculty for at least three years with admission to apply to the master's degree program if the candidates have been in excellent academic standing for the specified subjects. Graduates who are enrolled in the doctoral program may be granted a doctoral degree within the combined five-year master’s and doctoral program period if they demonstrate remarkable achievements.
Mathematics Sciences Major: Students learn the basics of higher mathematics and explore cutting-edge mathematical theories
Mathematics is a discipline that aims to understand the laws governing changes in numbers, figures, and quantities, and has a long disciplinary history. Nowadays, many new mathematical problems have arisen, including those in other disciplines, such as physics, earth planetary science, chemistry, and biological science, requiring new theories to solve them. Additionally, because of its universal nature, mathematics maintains close ties not only with the natural sciences, but also with many social science fields, such as informatics and economics. Within the context of mathematics, the Major provides a broad education on the basics of algebra, geometry, mathematical analysis established in the first half of the 20th century, as well as encourages students to explore the latest mathematical theories.

Physics and Astrophysics Major: Provides a wide range of research and programs, including theoretical examinations, experiments, and observations
Physics seeks to determine the universal laws of nature and to understand the various phenomena that result from differences in types of substances and scales of time, space, and energy. Based on the scientific nature of the discipline, the Physics and Astrophysics Major is divided into three departments. The Department of Physics I focuses on the structure and properties of substances. The Department of Physics II studies the basic structure of space-time, elementary particles, nucleus, gravity, and cosmology. The Department of Astronomy focuses on various scales of phenomena that can be observed, from the sun to the farthest known galaxies. Those departments are devoted to a wide range of research and educational activities, including theoretical exploration, experiments, and observations.

The Earth Planetary Sciences Major: Committed to educational and research activities around apparent but profound and far-reaching events
The Major deals with the Earth, the planet where we live, and the space between the planets surrounding the Earth. Courses encompass a wide scope of research, covering topics such as: 1) the atmospheric flow’s effect on cloud movement; 2) oceanic flows that occur deep below the Pacific Ocean beside Japan; 3) crustal movements inside the Earth, which cause earthquakes and form volcanos; 4) particles reaching the Earth from the sun that cause auroras and affect the Earth’s magnetic field; 5) mantle flow, which built the Himalayas and split the continents of South America and Africa; 6) high-temperature and high-pressure environments, which created diamonds; 7) the evolution of organisms that originally existed as “rose algae” 3.5 billion years ago into their present forms and 8) the existence (past or present) of organisms on other planets. Although relatively familiar, these topics are related to profound and far-reaching events covered in the major.

Chemistry Major: Seeks creation of useful new substances based on understandings of nature
Chemistry works to discover structures, nature, and reactions at the atomic level and to create useful new substances based on scientific findings of nature. The Chemistry Major covers investigation of all the substances existing in nature, ranging from atoms to molecules and organisms to space, with vastly unexplored areas. Research methods and approaches vary greatly depending on the subjects and fields involved; ranging from the fields centered on experiments (synthesis, analysis, and measurements) to the theoretical and calculation-based fields. The wide variety of the fields and methods characterizes the varieties in chemistry, and students can select the major according to their interests and career objectives.

Biological Sciences Major: Applies diverse methodologies to understand organisms and the environment holistically
The Major focuses on the various ways organisms exist on the Earth and the underlying phenomena of life. Macroscopic approaches are used to address ecology, behavioral science, phylogenetic taxonomy, anthropology, natural history, and outdoor research and seek to clarify the mechanisms underlying biological diversity. Life sciences are now shifting to a new stage of exploring the new frontier of genome decoding. Microscopic approaches used in cell biology, embryology, molecular biology, and structural biology have also produced creative works and contributed to our understanding of various life phenomena at the molecular level. The major seeks to understand organisms, taking their environments into account and using methodologies from both microscopic and macroscopic viewpoints.
Development of problem solving skills and execution of ideas

The Faculty of Engineering, Kyoto University, aims not only to provide students with opportunities to acquire expertise in a specific field, but also aims to nurture young researchers who can envision future scientific and technical developments and contribute to the creation of new fields. Therefore, all six divisions focus on providing a solid base of knowledge, cultivating critical thinking, and evaluating the growth potential of ideas.

Flexible learning to foster creativity

Creativity through flexible approaches to problems incorporating research, development, and technology is essential for the success of students embarking on study in the Undergraduate Schools of Industrial Chemistry, Engineering Science, Electrical and Electronic Engineering, Informatics and Mathematical Science, Global Engineering, and Architecture. Based on this premise, respective Divisions have based their curricula on a commonality of flexibility with the goal of encouraging creative thinking. In addition to the basic curriculum, students can broaden their knowledge by studying specialized subjects from other divisions and faculties based on their interests.

Contributing to society through original thinking and innovative engineering

Features of the Faculty of Engineering, Kyoto University

Focusing on Liberal Arts and Sciences Courses

The first- and second-year students of the Faculty primarily learn Liberal Arts and Sciences Courses centered around cultural education with the objective of broadening their individual perspectives. Liberal Arts and Sciences Courses are classified into eight subject groups: Humanities and Social Sciences, Natural Sciences, Languages, Informatics, Health and Sports, Career Development, Interdisciplinary Sciences, and Seminars in Liberal Arts and Sciences (small group education). During the first two years, students strengthen their foundation of knowledge in preparation for studying advanced specialized fields.

Gradual transition to advanced specialized subjects

In the Faculty, first-year students of almost all divisions are introduced to the basic subjects in their area, while the second-year students primarily focus on specialized subjects. Specialization, begun in the second year, intensifies for third-year students who primarily take advanced courses dealing with specialized subjects. By gradually transitioning from basic to advanced specialized subjects, students steadily develop their intellectual capabilities and make flexible use of their solid knowledge base.

Creative research toward graduation

Fourth-year students undertake specialized research in their own subjects called “Special Research” under the instruction of subject teachers. This is a major project required for graduation with research results presented in the form of a bachelor’s thesis. In order to complete this project, each student works in a laboratory to experience creative research activities while engaging in discussions with teachers and graduate students.
Introduction of the six divisions

Supporting rational global development and conservation, as well as sustainable human development

Undergraduate School of Global Engineering

Global Engineering consists of three fields: the technical system of resources and energies necessary for civilization, the technical system of infrastructure (social infrastructure) that supports civilization, and the technical system that maintains the balance of the natural environment and includes organic integrated fields. The Undergraduate School of Global Engineering thus covers a wide variety of science technologies and aims to support rational global development and conservation as well as sustainable human development based on the well-known principle of “Think Globally and Act Locally”. Education offered by the Division intends to develop students’ perception for understanding the comprehensive nature of science technologies that extend into a wide variety of areas. Concerning more specialized science technologies, students will also develop their ability to execute advanced research and practical operations while acquiring cutting-edge knowledge in the field. This Division offers an International Course wherein all classes are provided in English as a way to develop international engineers.

Learning about human technologies imbedded in every aspect of human civilization

Undergraduate School of Architecture

Architecture, which is responsible for creating human living environments and is relied upon to develop safe, healthy, and comfortable living, involves creative endeavors integrating multiple technologies. It can also be referred to as “human” technology because of its deep connection to every aspect of our lives. Because of these characteristics, the education offered by the Undergraduate School of Architecture covers a wide range of natural sciences, humanities, and social sciences. Graduates have diverse career options, including architectural design and construction, structural consulting, equipment environment engineering, building administration, new technologies research, and consulting for a wide variety of development businesses. Therefore, the Division welcomes not only students who are interested in natural sciences, but also those who are interested in humanities, social sciences, and the arts by providing a broad-based education to fully cultivate their skills.

Five interdisciplinary courses aimed at cultivating individuals who create new technologies

Undergraduate School of Engineering Science

There are great expectations for 21st century engineering science with regard to the development of new systems, materials, and energy sources, as well as for the resolution of issues, such as utilization of cosmic space. To create new technologies that can meet such needs, students need to have a deep understanding of basic subjects. Based on this philosophy, the Undergraduate School of Engineering Science promotes education and research focusing on grasping the basics. In addition, five courses—Mechanical and Systems Engineering Course, Materials Science Course, Aeronautics and Astronautics Course, Nuclear Engineering Sub-course, and Energy Science Sub-course—collaborate closely to offer an interdisciplinary education. Furthermore, the Graduate School of Engineering (to which most students proceed) has departments, such as Mechanical Engineering and Science, Micro Engineering, Aeronautics and Astronautics, Nuclear Engineering, and Materials Science and Engineering, which are affiliated with the departments within the Graduate Schools of Energy Science and Informatics and other affiliated research centers allowing students to conduct basic research and advanced interdisciplinary study.

Supporting science technologies required by all industries and infrastructures

Undergraduate School of Electrical and Electronic Engineering

Electrical and Electronic Engineering supports science technologies essential to all industries of modern society and underpins much of social behavior. In addition, it plays an important role required to enrich 21st century society, such as building sophisticated and safe information and telecommunications networks, creating elements and devices with new functions based on nanotechnology, developing precise and sophisticated diagnostic technology, producing human-friendly medical technology, and using energy in highly efficient ways. Based on such needs, the Division aims to develop individuals with a wide range of integrated knowledge and expertise, as well as vision broadened by multiple aspects, excellent creativity, and a sense of morality. Therefore, the curriculum is designed in such a way that students learn the basic elements in great detail and are gradually introduced to their select specialized subjects. This approach enables young researchers to acquire the knowledge and techniques required to develop electrical and electronic engineering further.

Solving complex system issues in accordance with the developments of an advanced information society

Undergraduate School of Informatics and Mathematical Science

As society becomes more information-oriented, information systems are becoming bigger and more complex. As a result, big data, an enormous collection of information obtained through complex systems, requires analysis. To complete this task, students must be able to identify how the systems function and the information flow, as well as propose efficient design solutions based on these factors. iUP students in the Undergraduate School of Informatics and Mathematical Science enter the Computer Science Course, and acquire a comprehensive education from the basics up to the advanced level. By developing a mathematical method of thinking, students are able to solve various problems related to complex systems, as well as design and utilize computer hardware, system software, and information systems.

A foundation of cutting-edge science technologies which supports comfortable living

Undergraduate School of Industrial Chemistry

Chemistry, which studies the reactions and processes of various artificial substances, as well as physical properties that determine the functions of materials, ensures a level of comfort in modern lifestyles and is the foundation of cutting-edge science technologies. Based on this premise, the Undergraduate School of Industrial Chemistry provides education aimed at developing individuals involved in research, development, and technology who will play active roles in a wide range of chemistry-related fields. Specifically, first-year students learn natural science-related basic subjects, such as chemistry, physics, and mathematics, while concurrently learning languages, the humanities, and social science subjects. Second-year students primarily learn basic specialized subjects of the Division in the first semester and then choose to join either the Frontier Chemistry Course, the Fundamental Industrial Chemistry Course, or the Chemical Process Engineering Course in the latter half of the academic year. They then receive specialized education in Years 3 and 4. Fourth-year students strengthen their foundation as either a researcher or an engineer by undertaking sophisticated work in their laboratory required for graduation.
Four departments offer opportunities to acquire academic and advanced knowledge and develop broadened perspectives.

The objective of the Faculty of Agriculture is to provide opportunities to learn about agriculture and related knowledge and to nurture individuals with a solid sense of social responsibility. The Faculty supports the following objectives: (1) to ensure students develop broad perspectives enabling them to envision scientific solutions to address the challenges that mankind are facing, (2) to ensure students understand the significance of the agriculture, forestry, and fisheries industries, including the importance of food- and life science-related industries for society, and (3) to ensure students understand the latest developments in both natural and social sciences related to life, food, and environment.

To achieve these objectives, the Faculty of Agriculture has six departments, all of which strive to create a liberal academic culture, one of the Faculty’s most respected characteristics, intent on nurturing graduate, who view issues with an open mind and seek holistic solutions to problems.

Human society coexists with various organisms, such as animals, plants, and microorganisms, on the Earth for our survival. To use these bioresources more sustainably, it is essential to acquire a deep understanding about the mechanisms, by which organisms maintain their life and the ways, in which ecosystems are constructed. Additionally, analysis through technological expertise and social science methodologies is also needed to ensure human activities support vital ecosystems. Students are required to obtain fundamental knowledge offered by the individual department, in which they major and to make active efforts to broaden their vision by extending their interest related fields.

In next academic year, 4 of 6 Departments, namely the Department of Bioresource Science, Department of Applied Life Sciences, Department of Agricultural and Environmental Engineering and Department of Food and Environmental Economics, offer opportunities to study in Faculty of Agriculture.

Year 1 / Introductory learning

In the Faculty of Agriculture, students are enrolled in the individual department upon admission and follow a four-year education program specified by their departments. In addition to knowledge about natural sciences, such as biology, chemistry, and physics, methodologies used in social sciences must also be learned to study the agricultural sciences. The departments have established integrated curricula (lecture programs) that incorporate liberal arts subjects together with specialized subjects. It is important for first-year students not to limit their study within the disciplines selected in their departments in order to expand their base of knowledge. Therefore, first-year students should primarily concentrate on general education subjects, including subjects in natural sciences, humanities/social sciences, and foreign languages. They can also participate in health and physical education courses or add other subjects, including courses in international education, which provide opportunities for social exchanges with international students.

Years 2 and 3 / Enhanced learning

Second-year students take the basic courses in their specialized subjects in the second semester of Year 2 (autumn and winter) and prepare for a more intense specialized education in Year 3. In addition to lectures, the Faculty preferentially offers students opportunities to participate in specialized courses offering experiments, practical exercises, and seminars. In this way, students receive high-quality training in experimental techniques and methods, in preparation for specialized study later in their respective departments. The Faculty is one of the most enthusiastic at Kyoto University in terms of encouraging international exchange activities, sending many undergraduates to international institutions. In the third year, students only take specialized subjects. Year 3 is an important year as the students take their first significant steps toward becoming researchers. The third year is when students must determine their study fields (laboratories). Third-year students are required to investigate their future career options by visiting laboratories and attending lectures with regularity. The departments have well-designed mechanisms to help assign third-year students to their laboratories.

Year 4 / Finalized learning

In Year 4, students work on research assignments in their research fields throughout the year and prepare graduation theses. This is the first step they take as researchers by working on contemporary topics with graduate students under the supervision and mentorship of academic staff. Therefore, fourth-year students are devoted to their own research, as well as assigned work in their study field seminars. Students intent on pursuing advanced studies also need to prepare for the Graduate School entrance examination. The students who earn the required credits are awarded a bachelor’s degree (in agriculture).
Department of Bioresource Science: Devoted to multi-faceted studies on the efficient use of bioresources

The Department provides educational and research programs aimed at improving the productivity and quality of the bioresources that subsist in terrestrial and aquatic habitats in a manner compatible with the environment. Specifically, the Department focuses on: development of technology for protecting bioresources against invasive species and diseases; measures for sustainably conserving environments favorable for growth and inhabitation; consideration of methods to effectively employ useful substances and genes, and; discovering new species that are viable in extremely poor environments where agricultural production was historically unlikely. The Department is engaged in a range of scientific research studies, both basic and applied, on bioresources.

Learning areas / Crop science, threematoiology, vegetable and ornamental horticulture, fruit and tree science(pomology), plant production systems studies, plant production control science, plant genetics, plant physiology, crop evolution studies, quality analysis and assessment, food quality design and development science, animal breeding and genetics, reproductive biology, nutritional science of animals, animal physiology and functional anatomy, animal husbandry resources science, bioresource informatics, fisheries and environmental oceanography, marine stock-enhancement biology, marine microbiology, marine environment microbiology, marine bioproducts technology, marine biological function science, weed science, tropical agriculture science, soil science, plant pathology, insect ecology, insect physiology, microbial environmental control science, and ecological information science.

Department of Agricultural and Environmental Engineering: Contributing to food production in harmony with the environment and promoting affluence in the 21st-century

The Department provides educational and research programs to: develop engineering technologies for efficient food production in harmony with the environment; resolve environmental and energy challenges on the global scale; and, create an environmentally symbiotic rural society. Specifically, it focuses on the following: controlling water circulation for rationalized use of valuable water resources; enhancing production environments via asset management (efficient maintenance and management of agricultural irrigation facilities); creating atmospheric, water, and soil environments in harmony with the ecosystem; community-building through rural planning and resident initiatives; energy conversion and utilization for sustainable food production; plant factories and precision agriculture for achieving maximum efficiency with minimum input; automation of agriculture; farming and fishery operations, and; bio-sensing. The Department contributes to the comfort of people in the 21st century through a variety of research initiatives.

Learning areas / Agricultural facilities engineering, water resources engineering, hydrological environment engineering, rural planning, agricultural systems engineering, field robotics, and bio-sensing engineering.

Department of Applied Life Sciences: Exploring unknown chemical and biological principles for the production, processing, utilization, and conservation of bioresources

The Department provides educational and research opportunities to examine the chemical and biological principles underlying various aspects of bioresource production, processing, utilization, and conservation, as well as the application of those principles. Specifically, the focus of the Department is on thoroughly understanding the biological phenomena and life functions of organisms, including microorganisms, plants, and animals, using findings from different disciplines, such as chemistry, biology, biochemistry, physics, physiology, and molecular biology. Faculty members in the Department also seek to apply those bioscience achievements to advanced production and to find sustainable uses for the substances that are beneficial to society, including those in agriculture, medicine, food, and chemical products as an aspect of biotechnological undertakings. The Department is devoted to basic education and advanced research to attain these goals.


Department of Food and Environmental Economics: Providing education and research programs focused on food and environmental issues central to people's lives

The Department provides education and research programs focusing on food and environmental problems that are most closely related to our lives. Problems are addressed not only on the national scale, but globally as well. Areas that are investigated include poverty in developing countries, global overpopulation, technology development and spread, food safety, forestry and fishery products, and socioeconomic life in rural areas. The Department is concerned with exploring the characteristics of a sustainable resource recycling society that will ensure the conservation of limited environmental resources. Broad research themes are developed through interdisciplinary in a comprehensive manner. This approach makes the Department unique.

Learning areas / Agri-food system management, farm managerial information and accounting, regional environmental economics, food and environment policy, forest policy and economics, international rural development, comparative agricultural history, and philosophy of agricultural science.