College of Agro-Biological Resource Sciences

- Bachelor of Bioresource Science
- Bachelor of Agricultural Science

Program Educational Objectives

In the College of Agro-Biological Resources, we educate graduates who possess comprehensive knowledge of bioresources—fundamental to human survival and sustainable, prosperous living—and who can contribute to securing food supplies for Japan and the world, developing and conserving biological resources in harmony with the environment, and promoting their sustainable use, all with both regional and global perspectives.

Graduate Profile	We educate graduates who possess a multidisciplinary approach encompassing agricultural science, forestry science, applied biochemistry, environmental engineering, and socioeconomics—the core principles of bioresource science. Equipped with a global perspective and advanced expertise, they can tackle challenges ranging from local to global levels across various societal contexts, not limited to narrowly defined agricultural fields. These graduates are capable of demonstrating leadership and actively contributing to solving problems.
Career Paths after Graduation / Completion	We educate not only professionals who advance bioresource science, but also graduates who can respond to its interdisciplinary aspects and contribute across multiple fields. Approximately 70% of our graduates enter graduate school. Including those who complete graduate school, our alumni are widely active both in Japan and abroad, working in private companies, as public servants, teachers, and as self-employed individuals.

Diploma Policy

Based on the educational objectives of the undergraduate program at the University of Tsukuba, students must acquire the following knowledge and skills: communication skills, critical and creative thinking, data and information literacy, broad perspectives and international awareness, physical and mental health, humanity and critical thinking, and collaborative, proactive, and autonomous abilities. Furthermore, based on the educational objectives of our school and college, the Bachelor of Bioresource Science will be awarded to students who have acquired knowledge and skills (Competences):

Knowledge and Skills (Specialized Competences)	1. Foundational knowledge in Bioresource Science	Wide-ranging knowledge enabling comprehension of the essence of nature, humanity, and culture
	2. Foundational knowledge in Bioresource Science	Extensive knowledge enabling an appreciation of the essence of nature, humanity, and culture
	3. Advanced international knowledge in Bioresource Science	Multicultural adaptation and communication skills essential for international cooperation in the development and utilization of bioresource
	4. ICT application skills in Bioresource Science	The ability to analyze information and knowledge related to bioresource usage by leveraging information and communication technology (ICT), and to share and receive such information both domestically and internationally
	5. Ability to develop critical awareness regarding bioresources	Ability to sustain commitment to advancing agriculture and forestry, and addressing food and environmental problems
Guidelines for Assessing Learning Outcomes	The College of Agro-Bioresource Sciences has established a curriculum framework and degree granting policy to ensure that students clearly demonstrate the acquired competences upon fulfilling graduation requirements. Each lecture, experiment, fieldwork, and seminar will assess the level of achievement in corresponding specialized competences based on TWINS information.	

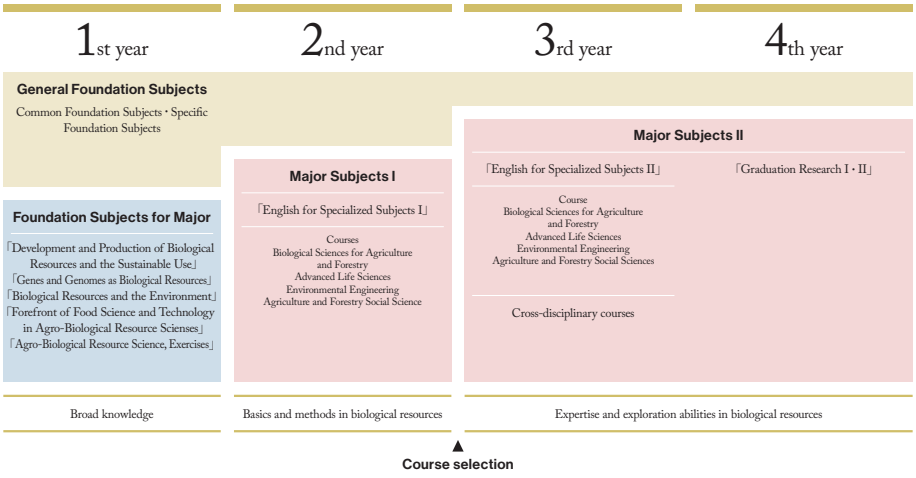
Curriculum Policy

We organize and implement curricula based on the following policies for programs that allow students to acquire learning outcomes related to Bachelor of Bioresource Science.

Curriculum Design Framework	**General policy** We offer the following four courses: Biological Sciences for Agriculture and Forestry, Advanced Life Sciences, Environmental Engineering, and Agriculture and Forestry Social Sciences as major courses in Agrobiological Sciences. During the first half of the curriculum, students study broad subjects in classes that are not classified as part of a specialized field, and common Major Subjects that constitute a foundation for the Bioresource Sciences. During the second half of the curriculum, students take specialized courses, obtain specialized course knowledge and cross-sectional understanding, organize such knowledge, and work on their graduation theses. In this way, students deepen their specialties. **Course sequence policy** – During the first year, students build foundational knowledge as experts with extensive abilities through General Foundation Subjects and Foundation Subjects for their Major. In particular, students will cultivate an interest in a wide range of fields in bioresource science, as well as cultivate problem-solving awareness through deepening their understanding of bioresource science by studying mandatory subjects in the college. – During the second year, students acquire competence with methods for deepening specialties through learning basic Major Subjects. Students mainly take course subjects to be selected during the third year, but expand interdisciplinary views by taking Major Subjects I, a cross-sectional field subject. – During the third year, students choose a single course from the four, and deepen their specialties through Major Subjects II of the selected course. Students concentrate on subjects of the course to which they belong, but also gain knowledge in associated fields through Major Subjects that which are cross-sectional field subjects. – During the fourth year, students continue studying Major Subjects II. Simultaneously, we implement a mandatory Graduation Thesis. By comprehensively applying specialized knowledge and methods learned thus far to a single research assignment, students are able to more deeply understand Bioresouce Sciences. **Implementation policy** – During the first year, students gain basic knowledge about bioresource science through Development and Production of Biological Resources and Sustainable Use, Genes and Genomes as Biological Resources, Biological Resources and the Environment, Forefront of Food Science and Technology in Agro-Biological Resource Sciences, and Agro-Biological Resource Science, Exercises. After that, students study Major Subjects. – In the four courses, students deepen specialties by systematically studying Major Subjects. At the same time, students can foster abilities for identifying and solving problems through learning experiments, practical training sessions, and seminars. – Students can deepen interdisciplinary views by learning cross-sectional subjects. The keywords here are food, environment, and internationalism.

Teaching and Learning Methods	To ensure students can fully comprehend the multidisciplinary field of Bioresource Science, we have established a program structure that progressively builds upon core subjects—including agricultural and forestry biology, applied biochemistry, environmental engineering, and socioeconomics—through a series of lectures, experiments, fieldwork, and seminars. Students can enhance their internationalism and motivation to contribute to society through hands-on experience at overseas partner universities, the International Internship Courses (training at the JICA Tsukuba Center, etc.), and the Internship on Food and Environment Course (activities at local companies and organizations).

Structure of competences to be developed and curriculums



Admission Policy

Desired Student Profile	Personnel with strong interest in bioresources, agriculture, forestry, and environmental conservation are desired, They should also have flexible ways of thinking that allow them to conduct extensive studies, be motivated to identify their own problems, work to resolve the same, convey information on the same internally and externally, and offer logical explanations.	
Student Evaluation and Selection	Individual Achievement Test First Round	In addition to general foundational academic skills and language capabilities, we comprehensively evaluate the comprehension, critical thinking, and applied skills necessary for studying disciplines related to bioresources.
	Individual Achievement Test Second Round	We select candidates based on a comprehensive evaluation of their foundational academic skills and language proficiency, along with their understanding of bioresources, motivation to learn, and ability to express thoughts logically.
	Entrance Examination by School Recommendation	Students will be selected based on outstanding academic performance in high school or exceptional achievements in extracurricular activities, along with a comprehensive evaluation of their motivation and aptitude for studying bioresources, logical thinking skills, foundational academic abilities, and language proficiency.
	Entrance Examination for IB Students	We select candidates based on their knowledge and critical thinking skills for pursuing academic goals in the field of bioresources, as well as their communication skills, including language proficiency.
	Entrance Examination for Foreign School Students	We select candidates who have an interest in bioresources—the foundation for the survival, safety, and prosperous lives of humankind—and possess the fundamental academic skills necessary to understand instruction in Japanese. Selection is based on a comprehensive evaluation of their level of understanding of bioresources, their motivation to learn, and their ability to express thoughts logically.
	Transfer examination	We select candidates who can progress in this college by comprehensively evaluating their academic abilities in foundational and specialized subjects, language proficiency, understanding of bioresources, motivation to learn, and ability to express thoughts logically. Admission is generally for the third year, though in some cases, admission to the second year may be granted.
	Japan-Expert Bachelor's Program	We will comprehensively evaluate candidates' motivation—such as an interest in bioresources as the foundation for human survivability, safety, and well-being, an interest in Japanese agriculture and forestry research and technology, and a desire to utilize such knowledge to contribute as an Agronomist at domestic or international research institutes or companies in the future—along with their Japanese language skills and social adaptability.

Learning Support Framework

Academic Support	We provide pre-enrollment education for students admitted through the Entrance Examination by School Recommendation. This pre-enrollment education encourages admitted students to shift their mindset toward university-level learning and supports them in bridging the gap after starting their studies. In the compulsory first-year fall semester course “Agro-Biological Resource Science, Exercises,” students learn the full process—from identifying problems to conducting research and delivering presentations—individually or in groups, under the guidance of their class teachers. Furthermore, we improve our classes and support services through biannual student-faculty meetings: the Class Consultation Meetings.
Opportunities for Peer Interaction	First-year Seminar in the spring semester, Agro-Biological Resource Science, Exercises, in the fall semester, and English for Specific Purposes I in both spring and fall semesters of the second year are conducted by class under the guidance of teachers, providing opportunities for interaction among students within each class. Additionally, we create opportunities for interaction among students within the same year by scheduling meetings where all classes gather together. Furthermore, the outcomes and requests arising from student are reported at Class Consultation Meetings and reflected in improvements to the college's educational curriculum and support systems.
Opportunities for Student–Faculty Interaction	Class teachers and the directors of each third-year course supervise students in their academic year, establishing classes where students can interact with faculty members and creating a point of contact for communication. Additionally, Class Consultation Meetings are held each semester to facilitate exchange and interaction between teachers and students.

Approaches to Assuring and Enhancing Educational Quality

Class Consultation Meetings are held every semester with participation of chair, class teachers for the first and second years, Faculty Development (FD) teachers of the College and class representatives to implement continuous curriculum improvements.

Student class evaluations are conducted for each course, and the results are reported to the teacher of the course, so that teaching contents and methods can be improved.

Our FD activities include class observation by other faculty members, sharing of class materials, strengthened cooperation among courses, study sessions, and meetings for class improvement.

Evaluation and improvement systems for courses and curriculum

Topic	Students	Faculty members	College of Agro-Biological Resource Sciences
Curriculum	Collect opinions on the curriculum	Review the curriculum	
	Class liaison committees		
Classes	Submit the class evaluation questionnaires	Review the teaching content and methods	Organize and disclose (within the university) class evaluation results and instructor responses
	Conduct classes		
Decision on the course and laboratory	Decide the course and laboratory and taking related courses	Brief on research details, course-taking guidance	Set requirements for course promotion and graduation research
	Course briefing session, laboratory briefing session		

Diploma Policy

Based on the educational objectives of the undergraduate program at the University of Tsukuba, students must acquire the following knowledge and skills: communication skills, critical and creative thinking, data and information literacy, broad perspectives and international awareness, physical and mental health, humanity and critical thinking, and collaborative, proactive, and autonomous abilities. Furthermore, based on the educational objectives of our school and college, the Bachelor of Agricultural Science will be awarded to students who have acquired knowledge and skills (Competences):

Knowledge and Skills (Specialized Competences)	1. Foundational knowledge in Agricultural Science	Wide-ranging knowledge enabling comprehension of the essence of nature, humanity, and culture
	2. Foundational knowledge in Agricultural Science	Extensive knowledge enabling an appreciation of the essence of nature, humanity, and culture
	3. Advanced international knowledge in bioresource science	Multicultural adaptation and communication skills essential for international cooperation in the development and utilization of bioresource
	4. ICT application skills in Bioresource Science	The ability to analyze information and knowledge related to bioresource usage by leveraging information and communication technology (ICT), and to share and receive such information both domestically and internationally
	5. Ability to develop critical awareness regarding bioresources	Ability to sustain commitment to advancing agriculture and forestry, and addressing food and environmental problems
Guidelines for Assessing Learning Outcomes	The College of Agro-Bioresource Sciences has established a curriculum framework and degree granting policy to ensure that students clearly demonstrate the acquired competences upon fulfilling graduation requirements. Each lecture, experiment, fieldwork, and seminar will assess the level of achievement in corresponding specialized competencies based on TWINS information.	

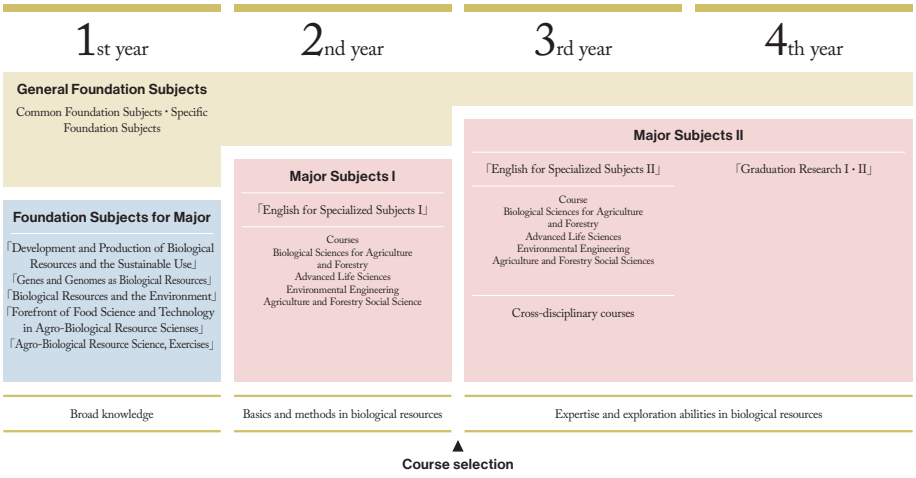
Curriculum Policy

We organize and implement curricula based on the following policies for programs that allow students to acquire learning outcomes related to Bachelor of Agricultural Science.

Curriculum Design Framework	**General policy** We offer the following four courses: Biological Sciences for Agriculture and Forestry, Advanced Life Sciences, Environmental Engineering, and Agriculture and Forestry Social Sciences as major courses in Agrobiological Sciences. During the first half of the curriculum, students study broad subjects in classes that are not classified as part of a specialized field, and common Major Subjects that constitute a foundation for the Bioresource Sciences. During the second half of the curriculum, students take specialized courses, obtain specialized course knowledge and cross-sectional understanding, organize such knowledge, and work on their graduation theses. In this way, students deepen their specialties. **Course sequence policy** – During the first year, students build foundational knowledge as experts with extensive abilities through General Foundation Subjects and Foundation Subjects for their Major. In particular, students will cultivate an interest in a wide range of fields in bioresource science, as well as cultivate problem-solving awareness through deepening their understanding of bioresource science by studying mandatory subjects in the college. – During the second year, students acquire competence with methods for deepening specialties through learning basic Major Subjects. Students mainly take course subjects to be selected during the third year, but expand interdisciplinary views by taking Major Subjects I, a cross-sectional field subject. – During the third year, students choose a single course from the four, and deepen their specialties through Major Subjects II of the selected course. Students concentrate on subjects of the course to which they belong, but also gain knowledge in associated fields through Major Subjects that which are cross-sectional field subjects. – During the fourth year, students continue studying Major Subjects II. Simultaneously, we implement a mandatory Graduation Thesis. By comprehensively applying specialized knowledge and methods learned thus far to a single research assignment, students are able to more deeply understand Bioresouce Sciences. **Implementation policy** – During the first year, students gain basic knowledge about bioresource science through Development and Production of Biological Resources and Sustainable Use, Genes and Genomes as Biological Resources, Biological Resources and the Environment, Forefront of Food Science and Technology in Agro-Biological Resource Sciences, and Agro-Biological Resource Science, Exercises. After that, students study Major Subjects. – In the four courses, students deepen specialties by systematically studying Major Subjects. At the same time, students can foster abilities for identifying and solving problems through learning experiments, practical training sessions, and seminars. – Students can deepen interdisciplinary views by learning cross-sectional subjects. The keywords here are food, environment, and internationalism.

Teaching and Learning Methods	To ensure students can fully comprehend the multidisciplinary field of Agricultural Science, we have established a program structure that progressively builds upon core subjects—including agricultural and forestry biology, applied biochemistry, environmental engineering, and socioeconomics—through a series of lectures, experiments, fieldwork, and seminars. Students can enhance their internationalism and motivation to contribute to society through hands-on experience at overseas partner universities, the International Internship Courses (training at the JICA Tsukuba Center, etc.), and the Internship on Food and Environment Course (activities at local companies and organizations).

Structure of competences to be developed and curriculums



Admission Policy

Desired Student Profile	Personnel with strong interest in bioresources, agriculture, forestry, and environmental conservation are desired, They should also have flexible ways of thinking that allow them to conduct extensive studies, be motivated to identify their own problems, work to resolve the same, convey information on the same internally and externally, and offer logical explanations.

Student Evaluation and Selection	Individual Achievement Test First Round	In addition to general foundational academic skills and language capabilities, we comprehensively evaluate the comprehension, critical thinking, and applied skills necessary for studying disciplines related to bioresources.
	Individual Achievement Test Second Round	We select candidates based on a comprehensive evaluation of their foundational academic skills and language proficiency, along with their understanding of bioresources, motivation to learn, and ability to express thoughts logically.
	Entrance Examination by School Recommendation	Students will be selected based on outstanding academic performance in high school or exceptional achievements in extracurricular activities, along with a comprehensive evaluation of their motivation and aptitude for studying bioresources, logical thinking skills, foundational academic abilities, and language proficiency.
	Entrance Examination for IB Students	We select candidates based on their knowledge and critical thinking skills for pursuing academic goals in the field of bioresources, as well as their communication skills, including language proficiency.
	Entrance Examination for Foreign School Students	We select candidates who have an interest in bioresources—the foundation for the survival, safety, and prosperous lives of humankind—and possess the fundamental academic skills necessary to understand instruction in Japanese. Selection is based on a comprehensive evaluation of their level of understanding of bioresources, their motivation to learn, and their ability to express thoughts logically.
	Transfer examination	We select candidates who can progress in this college by comprehensively evaluating their academic abilities in foundational and specialized subjects, language proficiency, understanding of bioresources, motivation to learn, and ability to express thoughts logically. Admission is generally for the third year, though in some cases, admission to the second year may be granted.
	Japan-Expert Bachelor's Program	We will comprehensively evaluate candidates' motivation—such as an interest in bioresources as the foundation for human survivability, safety, and well-being, an interest in Japanese agriculture and forestry research and technology, and a desire to utilize such knowledge to contribute as an Agronomist at domestic or international research institutes or companies in the future—along with their Japanese language skills and social adaptability.

Learning Support Framework

Academic Support	We provide pre-enrollment education for students admitted through the Entrance Examination by School Recommendation. This pre-enrollment education encourages admitted students to shift their mindset toward university-level learning and supports them in bridging the gap after starting their studies. In the compulsory first-year fall semester course “Agro-Biological Resource Science, Exercises,” students learn the full process—from identifying problems to conducting research and delivering presentations—individually or in groups, under the guidance of their class teachers. Furthermore, we improve our classes and support services through biannual student-faculty meetings: the Class Consultation Meetings.
Opportunities for Peer Interaction	First-year Seminar in the spring semester, Agro-Biological Resource Science, Exercises, in the fall semester, and English for Specific Purposes I in both spring and fall semesters of the second year are conducted by class under the guidance of teachers, providing opportunities for interaction among students within each class. Additionally, we create opportunities for interaction among students within the same year by scheduling meetings where all classes gather together. Furthermore, the outcomes and requests arising from student are reported at Class Consultation Meetings and reflected in improvements to the college's educational curriculum and support systems.
Opportunities for Student–Faculty Interaction	Class teachers and the directors of each third-year course supervise students in their academic year, establishing classes where students can interact with faculty members and creating a point of contact for communication. Additionally, Class Consultation Meetings are held each semester to facilitate exchange and interaction between teachers and students.

Approaches to Assuring and Enhancing Educational Quality

Class Consultation Meetings are held every semester with participation of chair, class teachers for the first and second years, Faculty Development (FD) teachers of the College and class representatives to implement continuous curriculum improvements.

Student class evaluations are conducted for each course, and the results are reported to the teacher of the course, so that teaching contents and methods can be improved.

Our FD activities include class observation by other faculty members, sharing of class materials, strengthened cooperation among courses, study sessions, and meetings for class improvement.

Evaluation and improvement systems for courses and curriculum

Topic	Students	Faculty members	College of Agro-Biological Resource Sciences
Curriculum	Collect opinions on the curriculum	Review the curriculum	
	Class liaison committees		
Classes	Submit the class evaluation questionnaires	Review the teaching content and methods	Organize and disclose (within the university) class evaluation results and instructor responses
	Conduct classes		
Decision on the course and laboratory	Decide the course and laboratory and taking related courses	Brief on research details, course-taking guidance	Set requirements for course promotion and graduation research
	Course briefing session, laboratory briefing session		