

2017
Kyoto University
Graduate School of Agriculture
Master's Program

Guidelines for Applicants
Special Admissions for Privately Financed International Students

The master's program of the Graduate School of Agriculture corresponds to the two-year first term of the doctoral program, as stated in the Standards for the Establishment of Graduate Schools.

1. Eligibility Requirements for Applicants

Applicants must hold a residence status of "college student" (including students who are expected to acquire this status at the time of admission), and must satisfy any of the following requirements (or satisfy any of the following requirements by the end of March 2017):

- (1) Those who have graduated from a university
- (2) Those who have been awarded a bachelor's degree according to Article 104, Section 4 of the School Education Law
- (3) Those who have completed 16 years of school education in a foreign country
- (4) Those who, by studying relevant subjects in Japan via a correspondence course provided by a school in a foreign country, have completed 16 years of school education of the said country
- (5) Those who have completed an undergraduate course (limited to courses whose graduates are regarded as having completed 16 years of school education of the relevant foreign country) of a foreign university that is accredited under the school education system of the relevant foreign country as offering undergraduate courses and which is designated by the Minister of Education, Culture, Sports, Science and Technology
- (6) Those who have completed an advanced professional course designated by the Minister of Education, Culture, Sports, Science and Technology, conducted by a higher vocational school, after the date determined by the Minister of Education, Culture, Sports, Science and Technology
- (7) Those specifically designated by the Minister of Education, Culture, Sports, Science and Technology, pursuant to Bulletin No. 5, Ministry of Education, 1953
- (8) Those who have been enrolled in a university for three years or longer, or have completed 15 years of school education in a foreign country and who are recognized by the Graduate School of Agriculture of Kyoto University as having earned specified credits with excellent grades
- (9) Those who are qualified, through individual entrance examination by the Graduate School of Agriculture of Kyoto University, are judged to have an academic ability equivalent or superior to university graduates, and have reached 22 years of age

Applicants who qualify under (8) or (9) above must submit to a preliminary eligibility screening. Such applicants must apply to the Student Affairs Office, Graduate School of Agriculture, Kyoto University (hereinafter, the Student Affairs Office).

2. Enrollment Capacity and Subjects of Academic Examination

(1) Enrollment Capacity

| Division | Enrollment Capacity |
|--------------------------------------|--------------------------------------|
| Agronomy and Horticultural Science | A few for each division (laboratory) |
| Forest and Biomaterials Science | |
| Applied Life Sciences | |
| Applied Biosciences | |
| Environmental Science and Technology | |
| Natural Resource Economics | |
| Food Science and Biotechnology | |

For brief information about each division, see the attached “**Outline of Graduate School of Agriculture.**”

(2) Subjects of academic examination

(1) English

Submitted English language qualification (TOEFL-iBT or IELTS score) will be converted into a mark.

(2) Specialized subjects (a specialized field of your choice and related fields)

※Division of Natural Resource Economics, Food Science and Biotechnology has Specialized subjects(1)and(2)

For details regarding specialized subject examination, see the attached “Explanation regarding Specialized Subject Examination.”

In the exam, you are allowed to use a dictionary (one dictionary only) between your native language (excluding English) and Japanese (for example, Chinese-Japanese and Korean-Japanese). The use of an electronic dictionary is not permitted.

(3) Interview

(3) Selection method

- ① The selection of students is based on the submitted documents and the results of academic examination.
- ② For each subject of the academic examination, the pass criteria have been set. To be admitted, you must meet the pass criteria for all subjects.
- ③ If the number of applicants for the laboratory you are applying for exceeds the quota, even if your score is above the minimum passing score for the relevant laboratory, you may not be selected.

3. Documents to Submit

| | |
|--|--|
| (1)Application form for admission | Enter all necessary items in designated form yourself. Paste your photo (taken within past 3 months, half-length, full-faced, no background) on specified section of Photograph Card and Examination Voucher. Photos on Photograph Card and Examination Voucher should be identical. |
| (2)Evidence of payment for application fees | After carefully reading attached document “Instructions regarding Payment of Entrance Examination Fee,” take designated Payment Request Form for Application Fees to a bank and pay examination fee (30,000 yen). After completing payment, enclose Evidence of Payment for Application Fees with other application documents. |
| (3) English Score Sheet | The original document is required. We accept only TOEFL-iBT or IELTS as an English language qualification taken within two years from the beginning of the application period. (For the entrance exam in January 2017, the date of taking English exam must be later than November 30, 2014.) See Notes on English score sheet (TOEFL-iBT or IELTS) below for further details. |
| (4) Detailed educational background and employment history | Provide your detailed educational background and employment history via designated form. |

| | |
|---|---|
| (5) Academic transcript and graduation (expected graduation) certificate (original) | If this document is not written in English, Japanese translation must be attached. <ul style="list-style-type: none"> • Designated form by your university (Those who are currently enrolled in or have graduated from the Faculty of Agriculture, Kyoto University must submit the academic transcript and graduation (expected graduation) certificate (学業成績及び卒業 (見込) 証明書)) • In case the applicants have earned credits at other university than their home university and those credits have been recognized, they must submit the academic transcript of the university where they earned the credits. • Those who qualify under Eligibility Requirement (8) must submit the certificate of enrollment as substitute for graduation (expected graduation) certificate. |
| (6) Copy of university diploma | Applicants who have not graduated from university at the time of application must submit a copy of university diploma upon graduation. |
| (7) Abstract of graduation thesis, or summary of experiments/ practical training/ seminars | Prepare abstract (A4-size paper, write horizontally, 1,000 characters or less in Japanese or 200-300 words in English). Do not forget to write your name and names of division and laboratory you wish to enter. |
| (8) Certificate of Residence or copy of Residence Card (both side) | Submit either which shows your residence status and permitted period of residence in Japan. |
| (9) Copy of passport | |
| (10) Address label | Use designated form. |
| (11) Self-addressed envelope with a 362-yen stamp affixed | Write your address, name and postal code on designated envelope and affix 362-yen stamp (for express mail). |

(Note) Applicants who qualify under Eligibility Requirement (2), i.e. those who have been awarded a bachelor's degree according to Article 104, Section 4 of the School Education Law, must submit a copy of Degree Certificate or Certificate of Degree Conferred.

Also, those who are enrolled in the advanced courses of either junior colleges or technical colleges, and are expected to qualify under Eligibility Requirement (2) must submit the expected graduation certificate. They are also requested to submit a document issued by their colleges to certify that they are going to apply for the bachelor's degree, in addition to those listed above (free format, must include the statement that they notify the failure in obtaining the degree immediately once it is revealed).

Notes on English score sheet (TOEFL-iBT or IELTS):

1. It is the applicant's responsibility to apply for and take the examination at his/her own expense.
2. Submit the original document of TOEFL-iBT Test Taker Score Report or IELTS (Academic Module) Test Report Form when applying. A photo-copy of the sheet is not acceptable.
3. The submitted English score sheet will be returned to the applicant along with his/her Examination Voucher in the middle of December.
4. Submit one score sheet only if an applicant has taken TOEFL-iBT and/or IELTS (Academic Module) multiple times.
5. We accept only TOEFL-iBT or IELTS (Academic Module) as an English language qualification taken within two years from the beginning of the application period, i.e. the date of taking the English exam is later than November 30, 2014 for the entrance exam in January 2017. Note that other types of English proficiency examination such as TOEFL ITP (Institutional Testing Program) cannot be accepted.

6. If an applicant cannot submit his/her English score sheet when applying, he/she needs to submit a written notice to that effect and a print-out copy of their online score page. The original English score sheet must reach us no later than December 28 (Wed) in person or by recorded delivery. A self-addressed stamped envelope to return the original document must be enclosed too (Long-form #3 envelope (H235 x W120 mm / portrait format). Enter the applicant's name and postal address with a zip code, and affix a JPY 512 postage stamp to the envelope for domestic recorded delivery in Japan). Contact the Student Affairs Office when the original document is to be returned to an overseas address (Tel: +81-75-753-6014). If we do not receive the original document by the date stated above, his/her English score is considered as zero.
7. If the submitted English score sheet turns out false, we retroactively revoke the admission even after entering the school.

4. Application Procedure

- (1) Applicants must submit the above-listed required documents during the application period. When mailing the documents, use registered mail and write "Application Form for Master's Program for Privately Financed International Students (Special Admissions) enclosed" in red on the front of the envelope.

Application documents should be sent to:

**Student Affairs Office,
Graduate School of Agriculture, Kyoto University
Kitashirakawa Oiwake-cho, Sakyo-ku, Kyoto 606-8502, Japan**

- (2) Applicants filing under Eligibility Requirements for Applicants (8) or (9) must submit the documents listed below to the Student Affairs Office by November 22 (Tue), 2016, and follow the directions.

[Applicants filing under (8)]

- ① Application for Eligibility Screening (designated form)
- ② Academic Transcript (designated form)
- ③ Number of subjects the applicant is expected to complete and credits the applicant is expected to earn in the third year (self-report, using designated form)

Applicants filing under this requirement and who pass the entrance examination shall be deemed provisionally admitted, and will be officially admitted after marks/grades and credit points earned in the third year are confirmed at the end of March. Such applicants are required to submit an academic transcript by March 10 (Fri) 2017. Provisionally admitted applicants will be selected from among applicants whose academic examination results have been particularly good.

[Applicants filing under (9)]

- ① Application for Eligibility Screening (designated form)
- ② Graduation Certificate and Academic Transcript issued by the institution from which the applicant last graduated
- ③ Record of Research Achievements (designated form)

Eligibility screening is conducted by oral examination. The date and time of the oral examination will be communicated later.

- (3) Applicants with special needs who require any arrangements for examinations or while on campus should contact in advance the Student Affairs Office.

5. Application Period

November 30 (Wed) to December 2 (Fri), 2016 (Due NLT 17:00)

Late applications, including those sent by postal mail, will not be accepted for any reason.

However, the applications which have been sent by registered express mail ("書留速達郵便") and postmarked on or before November 30 (Wed), 2016 by the originating post office will be accepted even in the case that they arrive after the due date.

6. Date and Place of Examination

| Date | Time | Examination Subject | Place |
|---------------------------|--|---|--|
| Jan. 21, 2017 (Sat) | 13:30 - 15:00 | Specialized subject (Applicants to Divisions of Agronomy and Horticultural Science, Forest and Biomaterials Science, Applied Life Sciences, Applied Biosciences, Environmental Science and Technology) | Graduate School of Agriculture, Kyoto University Kitashirakawa Oiwake-cho, Sakyo-ku, Kyoto (walk north from Kyoto City Bus "Kyodai Nogakubu-mae" bus stop) |
| | 16:00 - 17:30 | Specialized subject (1) (Applicants to Division of Natural Resource Economics, Food Science and Biotechnology) | |
| 16:00 - 17:30 | Specialized subject (2) (Applicants to Division of Natural Resource Economics, Food Science and Biotechnology) | | |
| Jan. 22, 2017 (Sun) | 13:00 - 17:00 | Interview | |

(Note) Please be aware that examination schedule varies by division.

7. Notification of Screening Result

The results will be posted on the **bulletin board in front of the Student Affairs Office in the Faculty of Agriculture Main Building** on January 26 (Thu), 2017 17:00.

Announcement of Successful Applicants will be mailed to all admitted applicants on January 27 (Fri), 2017. Telephone inquiries about the screening result will not be accepted.

The information of successful applicants will be announced on Graduate School of Agriculture website on January 27 (Fri). Please refer to

http://www.kais.kyoto-u.ac.jp/english/admission/div_adm_info

8. Entrance Examination Fee

Entrance examination fee: 30,000 yen

Payment period: November 22 (Tue) to December 2 (Fri), 2016

(Please note that payment will not be accepted after the payment deadline; only entrance examination fee receipts with the receipt seal of the bank bearing the date of receipt, which falls within the prescribed payment period, are acceptable.)

- How to pay the entrance examination fee: see the attached sheet "**Instructions Regarding Payment of Entrance Examination Fee.**"
- An applicant whose main academic expense supporter severely suffered from the 2011 Great East Japan Earthquake and/or the 2016 Kumamoto Earthquake in regions subject to the Disaster Relief Act may be exempted from the entrance examination fee, in the case a disaster victim certificate (*risai shomeisho*) can be submitted. For more information, please contact the Student Affairs Office by November 15 (Tue), 2016.

9. Admission Fee and Tuition

Admission fee: 282,000 yen

Yearly tuition fee: 535,800 yen

*The amount shown at left may be revised at time of enrollment.

*The amount shown at left may be revised at or after time of enrollment.

10. Notes

- (1) In selecting a laboratory, communicate in advance with the supervisor of the laboratory you wish to enter, after carefully reading the Outline of Graduate School of Agriculture.
If you have any questions in selecting a laboratory, please contact the **Student Affairs Office**.
(Tel: +81-75-753-6014)
- (2) When making a correction to the document, cross out the relevant part with double lines and write the correct information above it.
- (3) Instructions regarding examination, including examination room, will be posted on the **bulletin board in front of the Student Affairs Office in the Faculty of Agriculture Main Building** at 9:00. on January 20 (Fri). Be sure to check the bulletin board and the Faculty and Graduate School of Agriculture's website.
- (4) Applicants who are employed at a company, public agency or research institution: Even if such applicants have passed the entrance examination, unless they resign or take a leave of absence from their work, they will not be admitted to the Graduate School.

(5) Other

- (a) The Graduate School of Agriculture provides the long-term study program for doctoral students who are (1) engaged in a full-time employment, (2) required to take care of infants or other family members in special need, or (3) handicapped in any ways. This program allows students with such conditions to extend their period of study up to six years and to complete the course in a structured way. If you wish to apply, please contact the **Student Affairs Office**.
- (b) To receive a copy of Guidelines for Applicants by mail, write to the address below, enclosing a 250-yen stamped and self-addressed (name, address and postal code), envelope (kakugata No. 2,330 mm×240 mm).
Be sure to write “Request for Guidelines for Special Admissions for Privately Financed International Students (Master’s Program)” in red on the front of the envelope.

**Request for a copy of the Guidelines for Special Admissions should be addressed to:
Student Affairs Office, Graduate School of Agriculture, Kyoto University
Kitashirakawa Oiwake-cho, Sakyo-ku, Kyoto 606—8502, Japan**

- (c) Contents of the submitted application documents cannot be changed for any reason.
Please also note that paid examination fee will not be returned under any conditions.
 - (d) The University does not provide accommodation services (arrangements for hotels etc.) for applicants.
- (6) Handling of personal information
Personal information (name, gender, date of birth, address etc.) provided in application documents is used only for ① entrance examinations, ② admission procedures, scholarship etc., ③ preparation for accepting students.

November 2016

Graduate School of Agriculture, Kyoto University

2017

Kyoto University Graduate School of Agriculture

Master's Program Entrance Examination

(Special Selection of Privately Financed International Students)

Outline of specialized subject exam questions

| Division | Outline of examination questions | | | | | | | | | | | | | | | | | | | | |
|--|---|--|--|-------------------------|-------|-------------------------|---------------------------------------|--------------------|--|---|-------------------|--|--|--------------|--|--|----------------------|--|---|---------------|--|
| Agronomy and Horticultural Science | <p>In the specialized subject examination, questions will be asked from each discipline (or laboratory): Crop Science, Plant Breeding, Vegetable and Ornamental Horticulture, Pomology, Weed Science, Plant Production Systems, Food Quality Design and Development, Quality Analysis and Assessment, Plant Production Control).</p> <p>*Answer only questions from the discipline (or laboratory) of your choice.</p> | | | | | | | | | | | | | | | | | | | | |
| Forest and Biomaterials Science | <p>In the specialized subject examination, questions will be asked from each discipline (or laboratory): Forest Resources and Society, Tropical Forest Resources and Environments, Forest Utilization, Forest Biology, Landscape Architecture, Erosion Control, Biomaterials Design, Wood Processing, Fibrous Biomaterials, Tree Cell Biology, Chemistry of Composite Materials, Chemistry of Biomaterials, Forest Information, Silviculture, Biomass Morphogenesis and Information, Active Bio-based Materials, Sustainable Materials, Innovative Humano-Habitability, Structural Function.</p> <p>*Answer only questions from the discipline (or laboratory) of your choice.</p> | | | | | | | | | | | | | | | | | | | | |
| Applied Life Sciences | <p>In the specialized subject examination, questions from each scientific field will be asked, as shown in the table below. Find your discipline and identify its field.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Discipline (Laboratory)</th> <th style="width: 33%;">Field</th> <th style="width: 33%;">Scope of exam questions</th> </tr> </thead> <tbody> <tr> <td>Bio-Analytical and Physical Chemistry</td> <td>Physical Chemistry</td> <td>Chemical thermodynamics, Chemical equilibrium, Reaction rate</td> </tr> <tr> <td>Bioregulation Chemistry, Chemical Ecology, Biofunction Chemistry, Chemistry of Molecular Biocatalysts</td> <td>Organic Chemistry</td> <td>Reaction synthesis, Structure analysis, Biologically active substances</td> </tr> <tr> <td>Cellular Biochemistry, Biomacromolecular Chemistry, Applied Structural Biology, Biomass Conversion</td> <td>Biochemistry</td> <td>Structure and function of genes, Structure and function of proteins, Sugar/lipid chemistry, Enzyme chemistry/Reaction theory</td> </tr> <tr> <td>Fermentation Physiology and Applied Microbiology, Microbial Biotechnology, Bioenergy Conversion, Molecular Microbial Science</td> <td>Applied Microbiology</td> <td>Types and characteristics of microorganisms, Multiplication of microorganisms, Metabolism of microorganisms, Fermentative production, Utilization of microbial enzymes</td> </tr> <tr> <td>Plant Nutrition, Plant Gene Expression, Metabolic Science of Forest Plants and Microorganisms</td> <td>Plant Science</td> <td>Absorption/metabolism/functions of nutrients in plants, Subcellular organelles, Photosynthesis</td> </tr> </tbody> </table> <p>*Answer only questions from the discipline (or laboratory) of your choice.</p> | | | Discipline (Laboratory) | Field | Scope of exam questions | Bio-Analytical and Physical Chemistry | Physical Chemistry | Chemical thermodynamics, Chemical equilibrium, Reaction rate | Bioregulation Chemistry, Chemical Ecology, Biofunction Chemistry, Chemistry of Molecular Biocatalysts | Organic Chemistry | Reaction synthesis, Structure analysis, Biologically active substances | Cellular Biochemistry, Biomacromolecular Chemistry, Applied Structural Biology, Biomass Conversion | Biochemistry | Structure and function of genes, Structure and function of proteins, Sugar/lipid chemistry, Enzyme chemistry/Reaction theory | Fermentation Physiology and Applied Microbiology, Microbial Biotechnology, Bioenergy Conversion, Molecular Microbial Science | Applied Microbiology | Types and characteristics of microorganisms, Multiplication of microorganisms, Metabolism of microorganisms, Fermentative production, Utilization of microbial enzymes | Plant Nutrition, Plant Gene Expression, Metabolic Science of Forest Plants and Microorganisms | Plant Science | Absorption/metabolism/functions of nutrients in plants, Subcellular organelles, Photosynthesis |
| Discipline (Laboratory) | Field | Scope of exam questions | | | | | | | | | | | | | | | | | | | |
| Bio-Analytical and Physical Chemistry | Physical Chemistry | Chemical thermodynamics, Chemical equilibrium, Reaction rate | | | | | | | | | | | | | | | | | | | |
| Bioregulation Chemistry, Chemical Ecology, Biofunction Chemistry, Chemistry of Molecular Biocatalysts | Organic Chemistry | Reaction synthesis, Structure analysis, Biologically active substances | | | | | | | | | | | | | | | | | | | |
| Cellular Biochemistry, Biomacromolecular Chemistry, Applied Structural Biology, Biomass Conversion | Biochemistry | Structure and function of genes, Structure and function of proteins, Sugar/lipid chemistry, Enzyme chemistry/Reaction theory | | | | | | | | | | | | | | | | | | | |
| Fermentation Physiology and Applied Microbiology, Microbial Biotechnology, Bioenergy Conversion, Molecular Microbial Science | Applied Microbiology | Types and characteristics of microorganisms, Multiplication of microorganisms, Metabolism of microorganisms, Fermentative production, Utilization of microbial enzymes | | | | | | | | | | | | | | | | | | | |
| Plant Nutrition, Plant Gene Expression, Metabolic Science of Forest Plants and Microorganisms | Plant Science | Absorption/metabolism/functions of nutrients in plants, Subcellular organelles, Photosynthesis | | | | | | | | | | | | | | | | | | | |
| Applied Biosciences | <p>In the specialized subject examination, questions will be asked from each discipline (or laboratory): Plant Genetics, Crop Evolution, Plant Pathology, Insect Ecology, Insect Physiology, Animal Breeding and Genetics, Animal Reproduction, Nutritional Science of Animals, Animal Physiology and Functional Anatomy, Animal Husbandry Resources, Fisheries and Environmental Oceanography, Marine Stock-Enhancement Biology, Marine Molecular Microbiology, Marine Environmental Microbiology, Marine Bioproducts Technology, Marine Biological Function, Coastal Fisheries Ecology.</p> <p>*Answer only questions from the discipline (or laboratory) of your choice.</p> | | | | | | | | | | | | | | | | | | | | |

| Division | Outline of examination questions |
|--------------------------------------|--|
| Environmental Science and Technology | <p>In the specialized subject examination, questions will be asked from each discipline (or laboratory): Comparative Agricultural Science, Forest Ecology, Forest Hydrology, Forest Biochemistry, Tropical Agriculture, Soil Science, Terrestrial Microbial Ecology, Ecological Information, Agricultural Facilities Engineering, Water Resources Engineering, Hydrological Environment Engineering, Rural Planning, Radiation Safety and Control, Agricultural Systems Engineering, Field Robotics, Bio-Sensing Engineering.</p> <p>*Answer only questions from the discipline (or laboratory) of your choice.</p> |
| Natural Resource Economics | <p>The specialized examination comprises two parts: (1) common questions from natural resource economics in general and (2) discipline-specific questions.</p> <p>(1) Common questions from natural resource economics in general will consist of a short essay on a topic relating to biological resource economics and questions asking about technical terms.</p> <p>(2) Discipline-specific questions will be asked from each discipline (or laboratory): Agri-food System Management, Farm Managerial Information and Accounting, Regional Environmental Economics, Agricultural and Environmental Policy, Forest Policy and Economics, International Rural Development, Comparative Agricultural History, Philosophy of Agricultural Science.</p> <p>*Answer only questions from the discipline (or laboratory) of your choice.</p> |

| Division | Outline of examination questions | | | | | | | | | | | | | | | | | | | | |
|--------------------------------|--|---|--|---|-------------------|--|--------------------|---|--------------------------------|-----------------------|---|-------------------------|-------------------------|-------------------------|---|----------------------|---|---------------------|---|--------------|---|
| Food Science and Biotechnology | <p>Specialized subject (1): Questions will be asked from the three fields of [Biochemistry], [Organic Chemistry] and [Physical Chemistry]. Answer all questions.</p> <p>Specialized subject (2): Twelve questions will be asked from the six fields of [Bio-organic Chemistry], [Food and Bioengineering], [Biochemistry/Enzymology], [Applied Microbiology], [Nutritional Science] and [Food Science]. Select and answer four questions.</p> <p>The scope of examination questions for each field is shown in the table below. Questions are to test the applicant's basic academic ability. (*)</p> <table border="1" data-bbox="347 465 1433 1440"> <tbody> <tr> <td data-bbox="347 465 523 909" rowspan="3" style="text-align: center;">Specialized subject (1)</td> <td data-bbox="523 465 890 607">Biochemistry</td> <td data-bbox="890 465 1433 607">Structure of proteins, saccharides, and lipids Glycolytic system Citric acid cycle Electron transfer system Biosynthesis of gene and proteins</td> </tr> <tr> <td data-bbox="523 607 890 801">Organic Chemistry</td> <td data-bbox="890 607 1433 801">Structure and chemical bonding of organic compounds Stereochemistry Acid-base reactions and dissociation constants Oxidation-reduction reaction Basic organic chemical reactions (addition, elimination, substitution)</td> </tr> <tr> <td data-bbox="523 801 890 909">Physical Chemistry</td> <td data-bbox="890 801 1433 909">Physical properties of gas and solution Thermodynamics Chemical equilibrium (chemicals and ions) Reaction kinetics</td> </tr> <tr> <td data-bbox="347 909 523 1440" rowspan="6" style="text-align: center;">Specialized subject (2)</td> <td data-bbox="523 909 890 999">Bio-organic Chemistry</td> <td data-bbox="890 909 1433 999">Organic chemical reactions (all-round) and their reaction mechanism Structure determination by instrumental analyses</td> </tr> <tr> <td data-bbox="523 999 890 1077">Food and Bioengineering</td> <td data-bbox="890 999 1433 1077">Food and Bioengineering</td> </tr> <tr> <td data-bbox="523 1077 890 1133">Biochemistry/Enzymology</td> <td data-bbox="890 1077 1433 1133">Structure and function of biomolecules Metabolism and energetics</td> </tr> <tr> <td data-bbox="523 1133 890 1245">Applied Microbiology</td> <td data-bbox="890 1133 1433 1245">Classification, morphology (structure) and proliferation Metabolic control and fermentative production Principles of genetics and signal transduction</td> </tr> <tr> <td data-bbox="523 1245 890 1335">Nutritional Science</td> <td data-bbox="890 1245 1433 1335">Digestion and absorption of nutrients Energy metabolism Nutrient metabolism</td> </tr> <tr> <td data-bbox="523 1335 890 1440">Food Science</td> <td data-bbox="890 1335 1433 1440">Chemistry and function of food ingredients Changes in food components during food storage and processing Food quality</td> </tr> </tbody> </table> <p>(*)Basic and comprehensive knowledge will be questioned in the specialized subject (1), whereas more applied and specialized questions can be selected in the specialized subject (2).</p> <p>Information of the scope of examination questions will be also shown in the homepage of the Division of Food Science and Biotechnology (http://www.food.kais.kyoto-u.ac.jp/).</p> | Specialized subject (1) | Biochemistry | Structure of proteins, saccharides, and lipids Glycolytic system Citric acid cycle Electron transfer system Biosynthesis of gene and proteins | Organic Chemistry | Structure and chemical bonding of organic compounds Stereochemistry Acid-base reactions and dissociation constants Oxidation-reduction reaction Basic organic chemical reactions (addition, elimination, substitution) | Physical Chemistry | Physical properties of gas and solution Thermodynamics Chemical equilibrium (chemicals and ions) Reaction kinetics | Specialized subject (2) | Bio-organic Chemistry | Organic chemical reactions (all-round) and their reaction mechanism Structure determination by instrumental analyses | Food and Bioengineering | Food and Bioengineering | Biochemistry/Enzymology | Structure and function of biomolecules Metabolism and energetics | Applied Microbiology | Classification, morphology (structure) and proliferation Metabolic control and fermentative production Principles of genetics and signal transduction | Nutritional Science | Digestion and absorption of nutrients Energy metabolism Nutrient metabolism | Food Science | Chemistry and function of food ingredients Changes in food components during food storage and processing Food quality |
| Specialized subject (1) | Biochemistry | | Structure of proteins, saccharides, and lipids Glycolytic system Citric acid cycle Electron transfer system Biosynthesis of gene and proteins | | | | | | | | | | | | | | | | | | |
| | Organic Chemistry | | Structure and chemical bonding of organic compounds Stereochemistry Acid-base reactions and dissociation constants Oxidation-reduction reaction Basic organic chemical reactions (addition, elimination, substitution) | | | | | | | | | | | | | | | | | | |
| | Physical Chemistry | Physical properties of gas and solution Thermodynamics Chemical equilibrium (chemicals and ions) Reaction kinetics | | | | | | | | | | | | | | | | | | | |
| Specialized subject (2) | Bio-organic Chemistry | Organic chemical reactions (all-round) and their reaction mechanism Structure determination by instrumental analyses | | | | | | | | | | | | | | | | | | | |
| | Food and Bioengineering | Food and Bioengineering | | | | | | | | | | | | | | | | | | | |
| | Biochemistry/Enzymology | Structure and function of biomolecules Metabolism and energetics | | | | | | | | | | | | | | | | | | | |
| | Applied Microbiology | Classification, morphology (structure) and proliferation Metabolic control and fermentative production Principles of genetics and signal transduction | | | | | | | | | | | | | | | | | | | |
| | Nutritional Science | Digestion and absorption of nutrients Energy metabolism Nutrient metabolism | | | | | | | | | | | | | | | | | | | |
| | Food Science | Chemistry and function of food ingredients Changes in food components during food storage and processing Food quality | | | | | | | | | | | | | | | | | | | |