HOKKAIDO UNIVERSITY
Graduate School of
GLOBAL FOOD RESOURCES

北海道大学
大学院
国際食資源学院
平成29年4月
設置

Graduate School of Global Food Resources Hokkaido University

Starting in Apr 2017

2018 - 2019 Admission Guidebook

入試希望者向けガイドブック



なぜ今「国際食資源学院」なのか??


Why choose learning at the "Graduate School of Global Food Resources"?

① Learn how to deal with the global challenges

世界の問題にチャレンジする

Global demand for food is rapidly increasing. At the same time natural resources are under increasing pressure. Problems such as water shortages and pollution, loss of soil fertility and forests, degradation of coastlines and climate change are now becoming global challenges. This school aims to produce graduates who are ready to challenge these issues.

② "All English" curriculum

すべて英語で学ぶ

All the lectures will be given in English. For non-English speakers, it may be difficult at the beginning but learning in English will help you to develop a global career.

③ Studying in different countries while your studies

海外で学ぶ

Studying in different countries is a part of the course in this school. Learning different food production systems under different culture and climate help you understanding the issue of global food security and environment.

④ Develop broad knowledge and multifaceted perspectives

広い知識と大きな視野を持つ

Our curriculum covers very broad area, including social science, economics to molecular science. When you challenge different global issues in different parts of the world, the broad knowledge is very helpful to plan the strategies against them and to let different type of people act towards the solution.

⑤ Cutting-edge research in the food resources and environment

食資源に関する先端研究

Our faculty members carry out cutting-edge research in the area of the Production, Environment and Governance. Students will learn how to tackle current problems in the food resources and environment by conducting the research with our research team.

⑥ Beautiful campus and good facilities

美しいキャンパスと充実した環境の中で学ぶ

We are located 7 minutes from the biggest train station in Hokkaido, Sapporo. The New Chitose International Airport is approximately 40 minutes from Sapporo station. Hokkaido is a famous spot for delicious locally produced foods which means our research environment is perfect to study "food resources".

Curriculum / Program structure

カリキュラムの特徴と履修モデル

The Graduate School of Global Food Resources will provide an interdisciplinary international education that surpasses conventional curricular boundaries by integrating the humanities and the sciences. To acquire an overall understanding of the impacts of production, environment and governance on multi-layered food resource-related global issues, we will train international leaders with broad perspectives and high level of expertise who can identify, solve, and provide solutions to those problems.
A big feature of the curriculum is that students can learn at research institutes in Japan and abroad in "Wandervogel" study and from world level foreign faculty members invited from these institutes.
To complete the course, students have to acquire the required number of credits and to pass the examination for the research results of the master's thesis or of research on a specific theme.

33-credit master's degree

Students are required to complete
21 credits as compulsory subjects,
6 credits compulsory elective subjects (theme subjects),
2 credits compulsory elective subjects (fieldwork subjects)
and 4 credits from other subjects.

Some of the compulsory subjects

◎Introduction to Global Food Resources
◎Production in Global Food Resources
◎Environmental Sciences in Global Food Resources
◎Governance in Global Food Resources
◎Ethics in Global Food Resources
◎Wandervogel Study in Global Food Resources
◎Seminar in Global Food Resources
◎Dissertation Research in Global Food Resources (year 2)

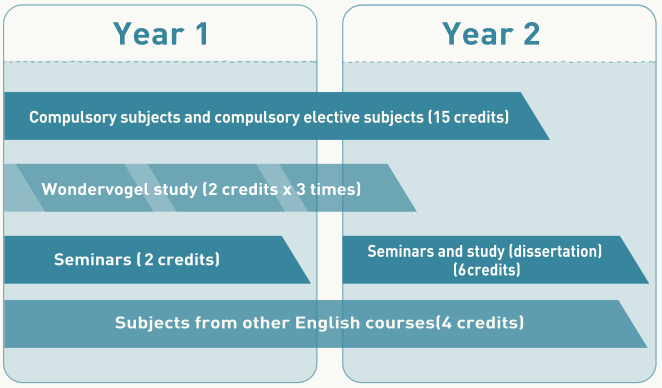
Some of the compulsory elective subjects

◎Bio-production and Technology
◎Food and Health
◎Environmental Resources Science
◎Soil and Water Management
◎Global Food Resource Economics
◎Comparative Rural Sociology

Some of the elective subjects

◎Research Communication in Global Food Resources
◎Food and Gastronomy
◎Water-energy-food Nexus

Example course structure



Dissertation Research Process

- Based on lectures and experiences you have during the 1st year, you will complete a research proposal and it will be read by your supervisors
- Once the proposal has been approved by your supervisor, you can start your own research.
- You may also apply for a fund to expand your research with your supervisor's help.

Wondervogel (oversea) study

All students are required to attend multiple "Study Trips" in overseas.
Some of the possible destinations for the trips are;

◎ Aarhus University – Denmark
◎ Pathein University – Myanmar
◎ The International Rice Research Institute – Philippine
◎ The University of Sydney
◎ Lincoln University – New Zealand

About Wandervogel Study

Wandervogel Study is a practical study facing and experiencing problems on global food resources on site. This will provide students opportunities of recognition of the problem and participation for the solution establishment, and many suggestions for study development by connecting those problems and interest of each student.

Denmark

Wandervogel Study I in Denmark

The aim of Wandervogel Study in Denmark is to give students insight into the roles of research, consultancy, and legislation in the integrated nutrient management in Denmark, how they contributed to reducing the impact of agriculture on the water environment and what the future prospects are for further reducing nutrient loadings.

Goals and Activities

Students will acquire knowledge and experiences that can help themselves to describe the role of environmental concerns for the development of modern agriculture, describe what integrated nutrient management in agriculture means in the Danish agricultural context, and furthermore from

-Group Discussions, works, presentation with students from Aarhus University
-Lectures from various collaborators
-Field researches and etc.

Wandervogel Study I Report

Students will have an opportunity to report what they learn in Denmark.

Comment from Student

> Wandervogel Study in Denmark was the unforgettable experience for me. We were asked to have a presentation by a group. For each group, there were Danish students and German students were attended with us. We associated and cooperated to make slides for presentation. It was a good chance to practice our skills, such as communication and English researching, and presentation. Most importantly, we did the presentation just in front of Danish students and professors, so it was good experiences to get advises from them.

ワンダーフォーゲル実習について

ワンダーフォーゲル実習では、食資源に関わる現実課題と向き合い、国外・国内の現場を体験します。世界の食資源問題を認識することで、これを自己の課題として取り組むためのきっかけとなり、また、主体的・積極的に自身の関心とも関連づけて学習を発展させていくための様々な機会になることを期待しています。

Myanmar

Wandervogel Study Ⅱ in Myanmar

The aim of Wandervogel Study in Myanmar is to give students insight into current problems on agriculture, fishery, and environment in Myanmar, such as development of agricultural production technology, accumulation and logistics of fishery products, and floods.

Goals and Activities

Students will acquire knowledge and experiences that can help themselves to learn the current problems on food resources on site, communicate and cooperate with foreign students using English, and furthermore from

-Group Discussions, works, presentation with students from Pathein University
-Lectures from various collaborators
-Homestay at villages
-Field researches and etc.

Wandervogel Study Ⅱ Report

Students will have an opportunity to report what they learn in Myanmar.

Comments from Students

We stayed and lived together with local people in rural village. At first, I got confused about the local culture and custom, but my host family was very kind and they taught me plain Myanmar language. On the night of the homestay, the village people performed traditional dances for us, then we joined in the dancing together. I couldn't forget this experience. I think this opportunity will surely be helpful in communicating with foreign people in the future.

I was highly motivated for future study and wider range of trials for my carriers. I'd like to continue to make an effort not only for the research but also for living the life what I desire.

I enjoyed Myanmar life. Because I could communicate with Myanmar students, and I actually stayed Myanmar village. Thus, I could have precious experience and live the full time.

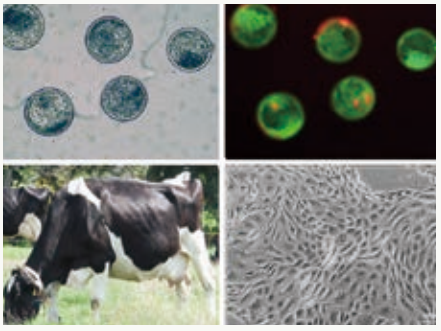
Food and health: Functional foods for animals and human

外部環境により引き起こされる活性酸素などの酸化ストレスによる傷害の低減は、健康な生活や食資源生産活動の継続に重要な課題です。私たちは、未利用生物資源などからの抗酸化物質の探索と酸化ストレス低減による健康増進や動物生産性の向上を目指しています。

Environmental stresses such as chemicals, foods, and high ambient temperature cause harmful effects to human health and livestock productivity. These harmful effects correlate with oxidative stress caused by reactive oxygen species (ROS). Increased ROS induces DNA damage, protein and lipid oxidations, alteration of gene expression, and epigenomic changes. These molecular and cellular damages might trigger diseases, aging, malfunction of both productive, reproductive performances to human and livestock.
Antioxidants are known to reduce ROS based oxidative stress to improve cell, tissue or organ functions. Natural resources such as plants, seaweeds or byproducts contain undermined potential antioxidants.

Thus our mission is to improve health and livestock productivity by reducing oxidative stress-related cellular damages with potential antioxidants
from natural resources.

Researchers :
Prof. Masashi Takahashi,
Assoc. Prof. Seiji Takeda,
Assist. Prof. Taichi Takasuka



Biomass refinery: Development of novel crop & Enzyme

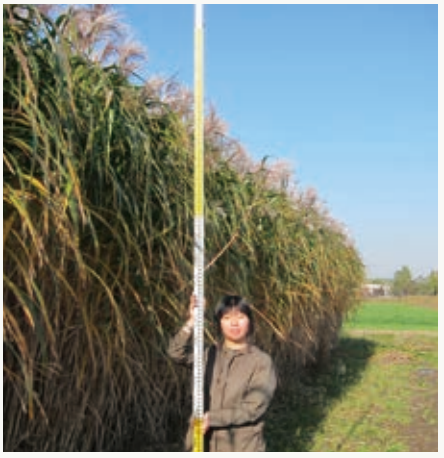
バイオマスリファイナリー技術の確立は未来の持続的なエネルギー確保に不可欠な問題です。私たちはバイオリファイナリー技術の実現を新しいバイオマス資源作物の作出と新規バイオマス分解酵素の発見および応用の両面から目指しています。

The world population is estimated to reach over the 10 billion in the next 50 years, and we need to ensure the food resources as well as energy supply for our future generations. However, the peak oil has been observed in the past 10 years, and the availability of fossil fuel is not expected to be adequate in the future.

Thus, our mission is to establish the ways to produce sustainable energy from nonedible feedstocks such as grass, strew, and new dedicate biomass crops, that are readily degradable.
Furthermore, the chemical pretreatment and enzymatic hydrolysis that suited to particular crops will be developed by both chemical and biochemical approaches.

Altogether, we will aim to produce sustainable and clean bioenergy to alter fossil fuel production to secure the future human life.

Reserchers :
Prof. Toshihiko Yamada,
Prof. Brian G. Fox,
Assoc. Prof. Shota Atsumi,
Assist.Prof. Taichi Takasuka



Winemaking: Influence of global warming on “Terroir”

ワインは最もシンプルな発酵プロセスで作られ原料ブドウの特徴が品質に大きく反映されるので、地域ごとの特徴「テロワール」を持ちます。地球温暖化がワインのテロワールに及ぼす影響を解析していきます。

Wine is one of the most popular alcoholic beverage produced and consumed worldwide. The fermentation process of wine is simple and reflects local characteristics of grapes and other factors, called “Terroir” . The global warming will affect climate, one of the most important factors for the Terroir.

In the project, we will analyze many aspects of winemaking such as soils, vines, and fermentations using plant physiology, microbiology and chemistry to find the variations caused by the climate change. These analyses will provide us novel knowledge on winemaking. Suggestion of suitable grape varieties for a particular location and water management, and microbial characterization of Terroir are the examples of expected outputs of the project.

Reseachers :
Prof. Roger Boulton,
Prof. Teruo Sone,

Designing sanitation value chain

2050年の世界人口は約90億人と推定されています。「人の健康・環境負荷低減・食糧増産・資源管理の関係性の中で、し尿・排水をどう扱かえばよいか？」この問の答えが必要とされています。

Sanitation systems are essential for promoting public health, preventing pollution of soil and water system, conserving ecosystem, and recycling resources.

The question of how to handle the excreta and wastewater from 10 billion people on the earth is therefore highly relevant to the global environment.

The goal of our project is to propose the concept of "Sanitation Value Chain" as a common solution of both developing and developed countries. We have organized the project team with specialists from Global Health, Sanitary Engineering, Agriculture, Economics, Sociology and Anthropology.

Researcher:
Assist. Prof. Guizani Mokhtar

Biosensing technologies to investigate small world

環境中の微生物・化学物質・重金属などの作用機序を解明するためには、生体細胞内あるいはその近傍における遺伝子・糖・タンパク質・酵素などの微小物質の挙動を理解することが重要です。センシング技術を開発するとともにバイオセンサの実用化を目指しています。

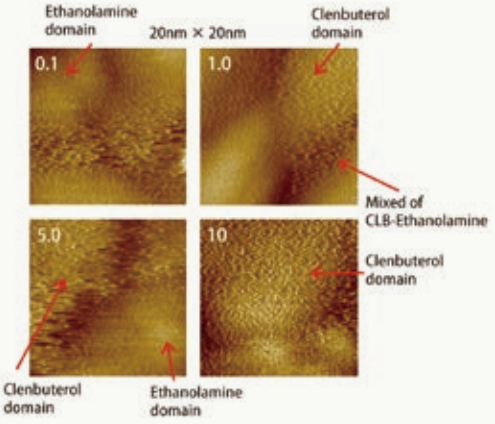
Our mission is to develop the practical biosensors under the collaborations with companies, institutes, and other universities.

Biochemical reactions such as gene, sugar, protein, enzyme, chemicals etc., are not so complicated in an ideal condition, but it is very difficult to understand their behavior in practical condition.

For example, biochemical species forms a conjugate with a large matters in blood sample.

We aim to understand the basic response mechanism of biochemical species in ideal and practical conditions.

Researcher:
Assoc. Prof. Toshikazu Kawaguchi



Monitoring and predicting the effects of environmental changes

農地、森林などは、大気との間で熱、水、炭素などの物質を交換し、地球環境を整えるのに役立っています。この複雑なシステムを、プログラミングや野外観測、リモートセンシングなどを利用し研究しています。

Terrestrial ecosystem, composing of cropland, forest, rangeland, etc., is a quite large component in Earth's climate system.

Temporal and spatial distributions of exchange rates of heat, water, CO2 and other materials between ecosystem and atmosphere form global climate.

To know the current and future status of those materials' cycling, we conduct the field and satellite observations as well as ecological model simulation.

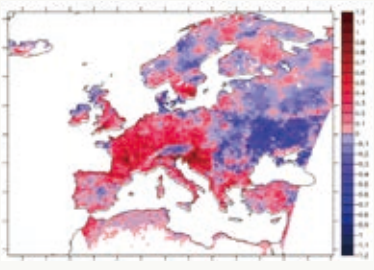


Fig. Simulated Future Vulnerability in Plant Production under Heat Wave

Researchers:
assoc. Prof. Tomomichi Kato,
assoc. Prof. Yoshitaka Uchida

Fishery stock assessment in data poor situation

水産資源を持続的に利用していくために、資源量の把握が不可欠です。細かな漁獲物組成が得られれば、高度な解析ができますが、このような情報が得られない地域も少なくありません。データが不十分な状況でも、適切な資源管理を実施できるような資源量推定法を研究しています。

Population and its productivity of fishery stock are the key information for the sustainable fishery management.

Age based methods are widely used in northern countries, but are sometimes difficult to apply because of the difficulty of the age determination, and also the lack of the collecting system of fishery information.

We are examining the validity of Schaefer's production model applying to mixed species data. The model is designed for single species, but in data-poor situation, catch statistics for each species is not available.

By using simulation study, we found that the recommended catch quota (MSY) calculated from the mixed data is near to the total of the single species MSY.

Researcher:
Prof. Takashi Matsuishi

Tragedy and Survival of Peasants in Developing Countries

今日の発展途上国の農村問題には、どのような政策矛盾が起因しているのか問題提起します。植民地から独立後の開発独裁の農業政策、つまり近代化によって、農村が変容を遂げた歴史的検証が必要になります。また、途上国の農村は、グローバリゼーションの中で周縁化し、格差に苦しみ、時に暴力的政治集団に巻き込まれています。

Why have the rural communities in the developing countries been marginalized by the Globalization today? We need to verify how the prototype of rural community in the developing countries did not adapt to the modernization during the colonization and development dictatorship. This contradictory process brought many economic problems and social and political conflicts.

Multidisciplinary approaches (political, anthropological, economical and sociological) are used to criticize how the modernization (Nation State, production system, law and moral value) and agricultural policy of Development Dictatorship after the independence influenced the rural community' s social structure.

Causality of this acculturation between internal and external elements will be clarified.

Researcher:
Assoc. Prof. Takako Nabeshima

Agricultural Economics: Supporting Farmers with Evidence-based Policy Evaluation

農業経済学では、グローバル化する経済環境において小規模農家や事業者が国際市場で生き残る上で不可欠な、新たな市場の開拓や農村組織の強化、生産性の向上をとおした農村開発・地域振興策の提言を行います。また、様々な政策オプションがある中、データや統計分析にもとづく実証的な政策評価のできる人材を育成します。

Our goal is to find ways to improve the welfare of smallholder famers in the globalization era. For instance, increasing their productivity, improving their access to global markets, and establishing organizations to provide agricultural services are considered to be effective to enhance their likelihood to survive the global competition. By learning economics and statistics necessary to evaluate economic impacts of such policy measures, students in our program will develop their skills to engage in evidence-based policy-making.

Researchers:
Assoc. Prof. Kuniyuki Kobayashi,
Lecturer Yoko Saito

Meet the Faculty

Production

Shuso KAWAMURA

Agricultural and Food Process Engineering

Teruo SONE

Applied Microbiology

Masashi TAKAHASHI

Animal Reproductive Physiology

Toshihiko YAMADA

Crop Production Science

Seiji TAKEDA

Health Functional Foods

Itsuro TAKAMURE

Plant Breeding

Taichi TAKASUKA

Biochemistry, Microbial Sciences Protein Sciences

www.agr.hokudai.ac.jp/takasuka/index_en.htm

Environment

Takashi INOUE

Land and Water Management

Kazunobu ISHII

Applied Bioproduction Engineering

Yoshitaka UCHIDA

Environmental Biogeochemistry

www.uchidalab.com

Toshikazu KAWAGUCHI

Sensor and Environmental Engineering

http://env.world.coocan.jp/env/Index.files/slide0003.htm

Tomomichi KATO

Plant Ecology, Agricultural Meteorology

Junichi KASHIWAGI

Soil Conservation

Guizani MOKHTAR

Water Treatment Reuse and Resources Recovery

Governance

Takashi MATSUISHI

Fish Stock Assessment

http://matuisi.main.jp/

Kuniyuki KOBAYASHI

Rural Development, Food Network and Cooperatives

Takako NABESHIMA

Political Science of Rural Community

Yoko SAITO

Agricultural Economics

Hajime KUBOTA

Mathematical Economics

This school offers a Master's degree and the number of students to be admitted in year 2019 will be 15.
本学院は修士課程学生を募集しており、2019年度は15名の学生を募集しています。
We may not administer the second exam when the number of successful candidates has reached the capacity after the first exam.
合格者が定員に達した場合、2次募集を行わない場合があります。

Important dates 入試日程

2018

Early June 2018	Enrollment starts
17 July - 23 July	Application period
27 Aug 1st day	Essay-type test
28 Aug 2nd day	Presentation and interview
7 Sept	Announcement of exam results

2019

※Second exam 2次募集

Early Nov 2018	2nd enrollment starts
17 Dec - 21 Dec	Application period
2 Feb	Essay-type test
2 Feb	Presentation and interview
15 Feb	Announcement of exam results

To keep you updated

最新情報はウェブでチェックしてください

The tables above are tentative thus please follow us on;

Twitter:@GFR_HU
Facebook:@GFR.HU
HP:http://www.gfr.hokudai.ac.jp

Application Procedure 出願から合格発表まで

1 Preliminary contact

事前に指導を希望する教員と入学後の学修について相談のうえで出願してください。

- Applicants are required to make contact with a preferred academic advisor before submitting application materials.
- Read "Research themes (p5-7)" and grasp the idea of this graduate school.
- Read "Meet the Faculty(p8)" and look at their websites, if available.
- For contact information, please send an e-mail to the Administrative Office of Agriculture and Global Food Resources (kyomu@agr.hokudai.ac.jp).

2 Take the TOEFL or TOEIC test

出願時、TOEFL又はTOEICのスコアの提出が必要です。下記の有効なスコアや取得しておくことが望まれる点数を確認し、必ず事前に受験してください。

- Submit copy of an official score certificate within the application period. Be sure to take the TOEFL or TOEIC test early enough to get your score in time.
- Valid Score Sheets for Admission in April 2019
  (First-Term Exam): A score sheet on examination taken in or after August 1 2016.
  (Second-Term Exam): A score sheet on examination taken in or after February 1 2017.
- Any of the followings:

1)TOEFL-iBT or TOEFL-PBT
2)TOEIC Listening & Reading Test score

* TOEFL-ITP, TOEIC-IP, TOEIC Speaking & Writing Tests, TOEIC Speaking Test and TOEIC Bridge Test are not accepted.

- It is preferable that you have earned a score of 57 or higher on the TOEFL-iBT, or 550 or higher on the TOEIC L&R. The school offers all lectures, tutorials, and seminars in English.

3 Obtain the application form and prepare the documents for submission

募集要項は下記の窓口又は郵送で請求し、必要書類を準備してください。

- The application guidelines of general category are available at the address below.
- If you request the guidelines by mail, send an envelope with "Request for the application guidelines for the Master's Course of the Graduate School of Global Food Resources" written in red ink on the envelope to the address below. The envelope should contain a self-addressed stamped envelope (24 cm × 33.2 cm; be sure to write your zip code, address and name, and use stamps to the value of 205 yen for standard mail or 485 yen if you would like express mail).

郵送の場合は、郵便番号、住所、氏名を明記し、205円分（速達希望の場合は485円分）の切手を貼付した角形2号の返信用封筒を同封して下記宛てに送付してください。請求封筒の表面左下には「国際食資源学院修士課程学生募集要項請求」と朱書きしてください。

【Address】Student Affairs Section, Administrative Office of Agriculture and Global Food Resources, Hokkaido University
Kita 9, Nishi 9, Kita-ku, Sapporo 060-8589, JAPAN

北海道大学農学・食資源学事務部教務・学生担当
〒060-8589 札幌市北区北9条西9丁目

4 Apply directly or mail with TOEFL or TOEIC score

出願期間中に指定の様式とTOEFL又はTOEICのスコアを含む必要書類を農学・食資源学事務部へ提出してください。

Applicants must submit the official application form and required documents to the Administrative Office of Agriculture and Global Food Resources within the application period.

5 Examination

試験科目は小論文と口頭試問です。

1)Essay-type test with specific theme (English or Japanese)
2)Presentation and interview (English)

- General theme of essay will be given prior to the admission, and specific theme will be given on the day of admission.
- Presentation should include your past research experience and your intention of future research.

6 Announcement of results

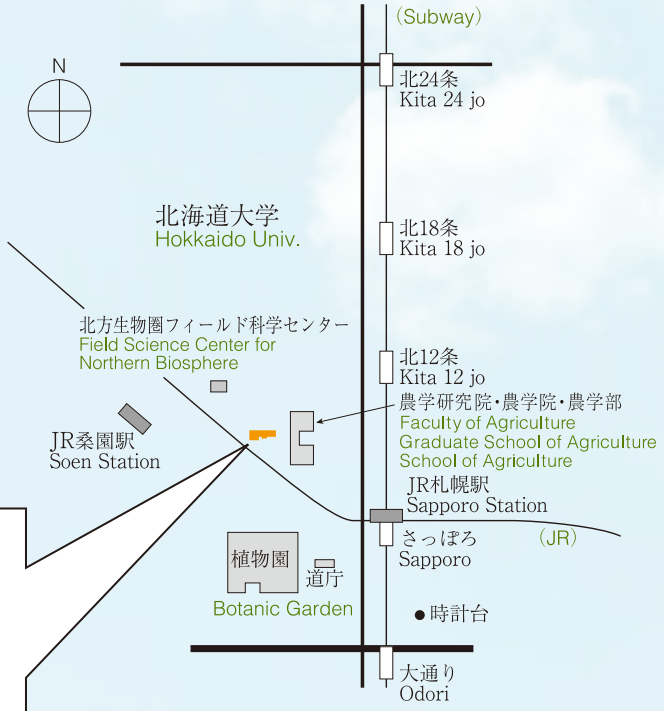
受験者に合否が通知されます。

Applicants will be informed of the exam results.

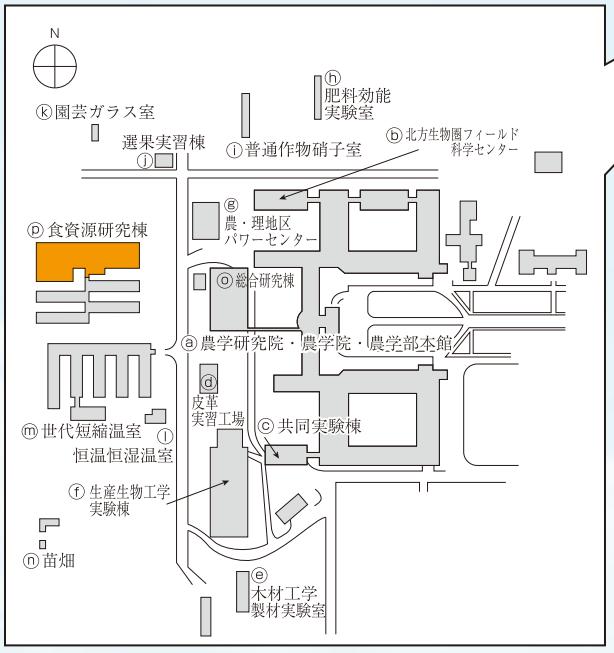
北海道大学大学院国際食資源学院

Hokkaido University Graduate School of Global Food Resources

Kita9, Nishi9, Kita-ku, Sapporo

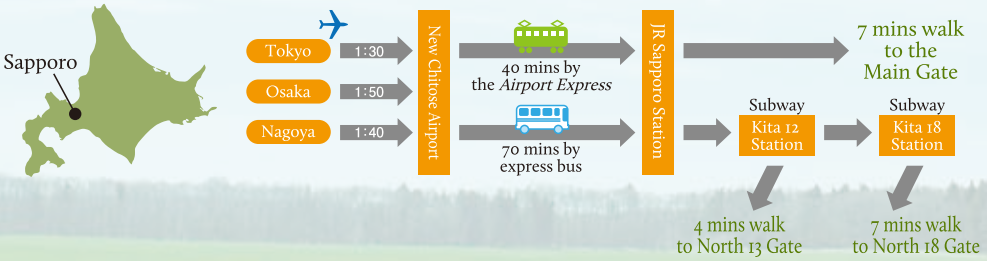


大学院国際食資源学院
Graduate School of Global Food Resources



ⓐ Faculty of Agriculture
Graduate School of Agriculture
School of Agriculture
ⓑ Field Science Center for Northern Biosphere
ⓒ Common Experiment Building
ⓓ Practical Leather and Fur Workroom
ⓔ Laboratory of Wood processing
ⓕ A Production Bionics Experiment Ridge
ⓖ Power Center
ⓗ A Manure Effect Laboratory
ⓘ Ordinary Crops Glass Room
ⓙ The Training Ridge Which Sorts Fruits (Experimental Farms)
ⓚ Gardening Glass Room
ⓛ Controlled Enviromental Greenhouse
ⓜ Greenhouse for Forced Regeneration of Plants
ⓝ Experimental Nursery
ⓞ Bioscience and Biotechnology Building
ⓟ Food Resources Research Building

Getting to Sapporo Campus



More information:

Twitter : @GFR_HU Facebook : @GFR.HU
HP : http://www.gfr.hokudai.ac.jp
Student Affairs : kyomu@agr.hokudai.ac.jp
General Affairs : shomu@agr.hokudai.ac.jp