

Extensive Knowledge and Deep Understanding on Dryland Science

Diverse and International Lectures that is unique to our department



Top Scientist Lecture

Through the lectures given by world's front-line researchers, students acquire advanced and practical knowledge of the field of dryland science, while improving their scientific English skills.

Examples of Lectures and Professor's Countries

- Environmental and Ecological Problems in the Grassland Ecosystems (China)
- Omnibus Lecture Series by Visiting Int'l Professors at Arid Land Research Center (Sudan etc.)
- Omnibus Lecture Series by Researchers from the International Center for Agricultural Research in the Dry Areas (ICARDA) (Jordan)

Overseas Practice Exercises

Overseas fieldwork is available for 2nd-year master's students. At the research platform of ICARDA in Morocco, students learn about the sustainable farming methods and the relationship between livestock and agriculture in drylands while exchanging opinions with local researchers and farmers.



Curriculum

The department offers a wide range of expertise in the sustainable society and drylands, such as the field of Land Management, Environmental Conservation, Irrigation and Drainage, Meteorology and Medicine.

Common Subjects

Core Subjects

The purpose of the subjects is to develop students' broad understanding of sustainability and ability to take a bird's eye view on global problems.

- Researcher Ethics
- Introduction of Sustainability Science
- Technologies in Sustainability Science, etc.

Minor Subjects

To acquire a wide range of expertise, students learn various study fields comprehensively.

- Advanced Review of Dryland Science (Environment, Food, Agriculture, Human Development)
- Advanced Community
- Basic Ideas and Advanced Usage of Sustainable Resources, etc.

Major Subjects

Core Subjects

Students acquire the expertise that is essential for the master's programs.

- Top Scientist Lecture 1-4
- Scientific Writing
- Scientific Writing Advanced, etc.

Advanced Subjects

Students develop segmented expertise.

- Advanced Theory of Land Management in Drylands
- Advanced Theory of Dryland Climatology and Meteorology
- Advanced Theory of Dryland Animal Ecology
- Advanced Theory of Water Resources in Dryland
- Advanced Theory of Irrigation and Drainage Facilities Engineering in Dryland
- Advanced Theory of International Health and Medicine
- Overseas Practice Exercises, etc.

Research (Lab work and Field work)

Develop Advanced Research and Analytical Skills for the Field Work

Students conduct both laboratory work and field experiments at overseas research plots.

Lab Work

Various data analysis and experiments are conducted in each lab sessions. Students proceed with their research and analysis through the discussion with their supervisors.



Field Work

Students sometimes visit domestic and international target field with professors to conduct field research with local researchers.



List of Professors and Research Topics

<http://www.ipdre.tottori-u.ac.jp/dds/member/>

Our faculty members offer a variety of learning experiences

With a total of 30 faculty members, the Graduate School of Sustainability Science provides a comprehensive education and research system for dryland science. Education and research guidance will be provided by a professors' team per student, consisting of a primary supervisor and two co-supervisors. Supervisors and students engage in highly specialized discussions.



No.	Field of Education and Research / Professor's Name	Keywords
1	Sustainable Land Management Ngusie Haregeweyn AYEHU	Land degradation / Sustainable land management / Integrated watershed management / Spatial analysis / Hydrologic modeling
2	Soil and Water Management Koji INOSAKO	Restoration of farm land / Soil-plant-atmospheric continuum system / Irrigation and drainage / Desalination / Environmental biophysics
3	Dryland Environmental Resources Tsuneoyoshi ENDO	Soil resources / Irrigated agriculture / Behavior of salts / Soil salinization / Environmental remediation
4	Construction and Management Engineering of Facility in Rural Regions Hidehiko OGATA	Irrigation and drainage facilities / Farm road / Functional diagnosis / Stock management / Frost damage
5	Dryland Climatology Yasunori KUROSAKI	Climatology & meteorology / Aeolian dust / Wind erosion / Climatic variation / Desertification
6	Agricultural Water Use and Management Katsuyuki SHIMIZU	Agricultural water use / Field hydrology / Assessment of water delivery performance / Soil salinization / Micro hydropower
7	Molecular Breeding Hisashi TSUJIMOTO	Wheat / Stress tolerance improvement / Genoplasm enhancement / Chromosome engineering / Food shortage
8	Conservation Informatics Atsushi TSUNEKAWA	Environmental evaluation and modeling / Remote sensing / GIS / Regional environmental planning / Sustainable Land Management
9	Climate Risk Management Mitsuru TSUBO	Agrometeorology / Micrometeorology / Crop model / Drought / Climate-smart agriculture
10	Crop Production in Drylands Eiji NISHIHARA	Medicinal plants / Allelopathy / Mitigation of replant problem / LED light in plant factory / Biochar
11	Irrigation and Drainage in Drylands Haruyuki FUJIMAKI	Water-saving irrigation / Water harvesting / Leaching / Salinization / Erosion
12	Agricultural Development Studies Kumi YASUNOBU	Area studies / Farm management studies / Technology diffusion / Rural development / Common resource management
13	Plant Nutrition Satoshi YAMADA	Salinity / Mineral absorption / Crop quality / Aquaponics / Water saving
14	Revegetation Science in Drylands Norikazu YAMANAKA	Revegetation in arid areas / Ecosystem restoration / Forest ecology / Drought and salt tolerance of woody plants / Water relations of plants
15	Environmental Soil Science Sudhahiro YAMAMOTO	Conservation oriented agriculture / Salt affected soils / Soil quality assessment / Soil organic matter / Soil formation and classification

No.	Field of Education and Research / Professor's Name	Keywords
16	Plant Eco-Physiology Ping AN	Environmental stresses / Tolerance Mechanisms / Dry lands agriculture / Saline soils / Halophytes
17	Dryland Health and Medicine Shinji OTANI	Global health / Environmental medicine / Travel medicine / Infectious disease / Noncommunicable diseases
18	Dryland Restoration and Conservation Ecology Toshihiko KINUGASA	Acid and semi-arid grassland / Global environmental change / Human disturbance / Secondary succession / Plant matter production
19	Meteorology in Drylands Reiji KIMURA	Climatology/Meteorology / Land atmosphere interaction / Atmospheric boundary layer / Satellite / Hazard map
20	Land Environment and Conservation Tadamori SAITO	Soil water and solute movement / Interaction among soil, water and vegetation / Soil erosion / Environmental measurement techniques / UAV/drone
21	Renewable Energy Engineering Kotaro TAGAWA	Solar and wind energy / Energy generation and conversion / Evaluation of energy system / Desalination / Heat and mass transfer
22	Microbiology in Drylands Takeshi TANIGUCHI	Microbial ecology / Ecosystem restoration / Use of rhizosphere microorganisms / Metagenome / Mycorrhizal fungi
23	Dryland Salinity and Landscape Restoration Kristina TODERICH	Biochar agriculture / Global drylands pastoralism / Phytoremediation / Cattle-livestock interaction / Food and gender
24	Facilities and Environmental Materials Masahiro HYODO	Buried pipe / Evaluation of the residual strength / Environmental materials / Restoration of aquatic environment / Industrial by-product
25	Global Change Ecology Fai PENG	Global change / Land degradation / Ecosystem ecology / Plant-soil interactions / Carbon-Nitrogen cycling
26	Applied Meteorology in Drylands Shoaxiu MA	Land surface modeling / Climate modeling / Big data analysis / Climate change / Remote sensing
27	Plant Cyto genetics Takayoshi ISHII	Genoplasm enhancement / Wide hybridization / Chromosome elimination / Genome editing (CRISPR) / New breeding techniques (NBT)
28	Animal Ecology Takehiko ITO	Mammal / Grassland ecosystem / Conservation biology / Animal-plant interaction / GIS (Geographic Information System)
29	Terrestrial Carbon Cycle Munemasa TERAMOTO	Global warming / Soil respiration / Carbon cycle / Terrestrial ecosystems / Greenhouse gas
30	Agricultural Extension Studies Asres Elias BAYSA	Agricultural extension studies / Gender and development / Agricultural economics / Rural development / Africa

Admission Information

Check Here for More Information!



Admission Period	Selection Method	Application Period	Selection Period	Results Announcement Period	Admission Capacity
April Admission	General Entrance Examination	Mid-Late June	Early July	Late July	General Course & Special Course 20 person
	Special Examination for Mature Students				General Course & Special Course A few
	General Entrance Examination	Early Sep.	Late Sep.	Late Oct.	General Course & Special Course A few
	Special Examination	Mid-Nov.	Early Dec.	Late Dec.	General Course & Special Course A few
October Admission	General Entrance Examination	Late Apr.	Late May	Early July	Special Course only A few

【URL】 <http://www.admissions.adm.tottori-u.ac.jp/graduate>

Department of Dryland Science, Graduate School of Sustainability Science, Tottori University

<http://www.ipdre.tottori-u.ac.jp/dds/english/>

Inquiries

General inquiries

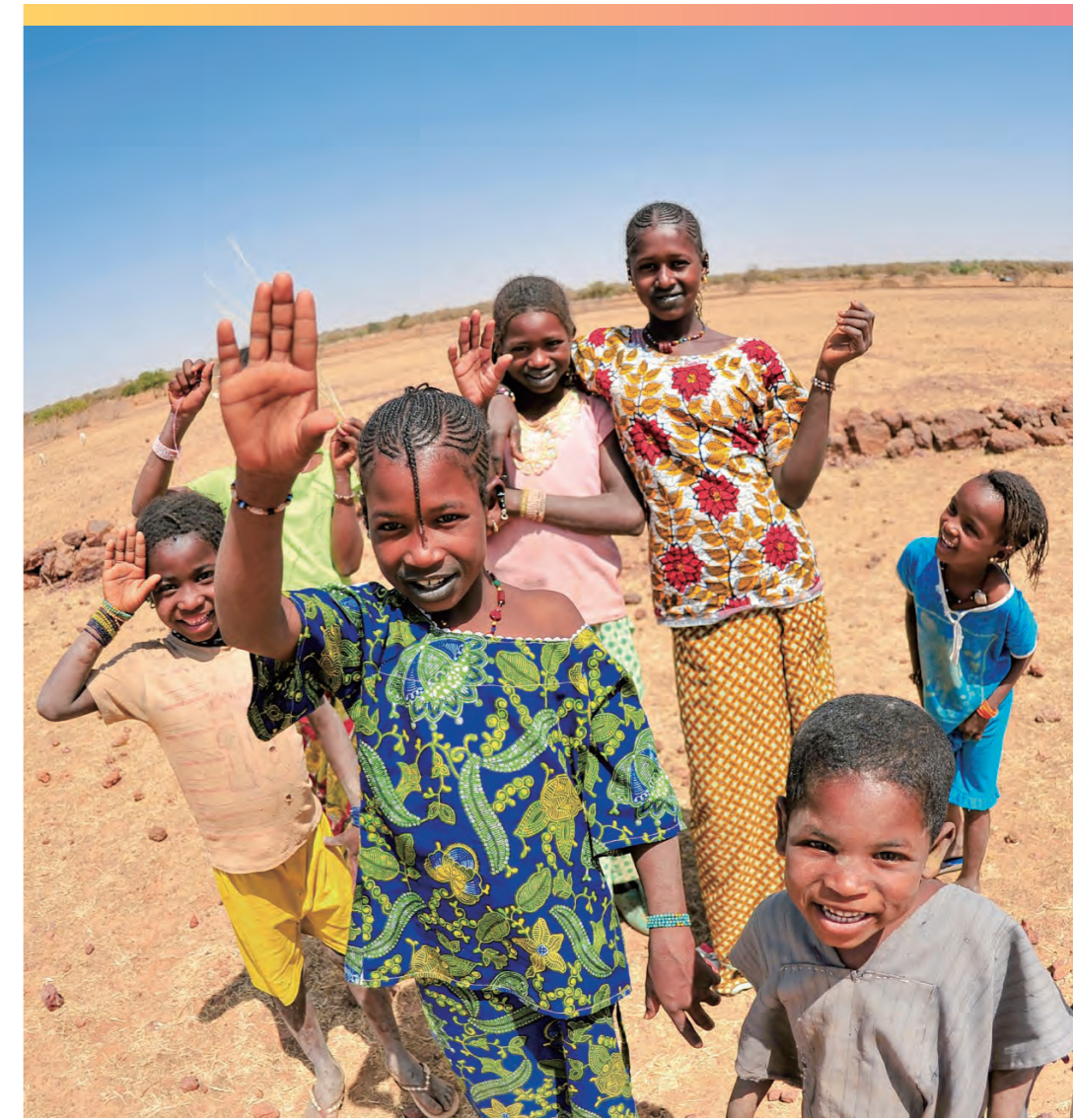
International Platform for Dryland Research and Education's Office
1390 Hamasaka, Tottori City, 680-0001
TEL: 0857-30-6316
Email: ipd-zim@ml.adm.tottori-u.ac.jp

Admission inquiries

Academic Affairs Section of Faculty of Agriculture, Tottori University
4-101 Koyamachominami, Tottori City, 680-8553
TEL: 0857-31-5342
e-mail: ag-kyoumu@ml.adm.tottori-u.ac.jp



Department of Dryland Science, Graduate School of Sustainability Science, Tottori University





CHU ZONGHUI

Year of Enrollment: 2017
From Harbin, China

[Alma Mater]
Northeast Agricultural University (China)
Major in Biotechnology at College of Life Science

[Current Research Topic]
Characteristics of plant waste biochar under different pyrolysis conditions and its effects on clay behavior under sodic condition

"I want to dedicate my knowledge gained here to my country"

From China to Japan. Working hard on my research with my friends
China, where I grew up, has a lot of arid area, and soil degradation is progressing due to the over cultivation caused by population growth. I decided to enroll in this course to gain special knowledge of soil improvement for my country. There are nine students in my research lab, and I am the only international student. All of us are working hard on research topics supporting each other. My supervisor always supports us considering each student's personality. When you are on your research, you may not get the results you expected, or may feel that research is not progressing. In that case, keeping yourself positive is very important.

Life in Tottori

On my days off, I often spend time with reading novels and historical stories. I also enjoy sightseeing and eating delicious local food around Tottori. This winter, I went skiing for the first time ever!

Gaining knowledge to work in the world's arid regions
After finishing my Master, I would like to proceed to the Doctoral Course and work on the soil management. Visiting arid regions around the world to have experiments for soil improvement and increasing crop yields is also one of my future goal.
The important thing for master's students is to continue working without giving up even in difficult situations. I want to encourage all of you who are planning to enroll this course to believe in yourselves and do your best. It's important to consider deeply which field you really want to study for, and to decide the lab that suits you. Professors are always there for you.



HIROKI UCHIDA

Year of Enrollment: 2019
From Osaka Pref.

[Alma Mater]
Department of Agricultural, Life and Environmental Sciences, Faculty of Agriculture, Tottori University

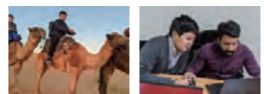
[Current Research Topic]
A study on water distribution management and water-saving potential in a large scale irrigation district
Case study of Beni Amir irrigation district, Morocco

"Studying abroad in Morocco changed my life"

Joining the International Training Program was my dream
Since I was little, I have been interested in studying abroad. I chose this course because students can join TIJ-TP (International Training Program), which allows us to study at international institutions.
I have been studying in Rabat, Morocco for 10 months this training program since October 2019. My research topic is how to solve the serious water shortage problem in Morocco. It is very important not only to proceed with the research by myself but also to understand and respect farmers' opinions. Sometimes things don't go as planned and I cannot express myself well in English, and it brings me a lot of difficulties. However, I will keep on doing my best to improve the farmer's life in Morocco.

Having so much fun in Morocco
On my days off, I often travel around European countries since Morocco is very close to Europe. I also participated in Japanese

language classes organized by JICA office in Morocco. Recently I'm into cooking spicy curry with Moroccan ingredients!
Great environment to study and grow
I feel that I became more positive and active after coming to Morocco. Expressing yourself and your opinions are essential especially when you communicate with foreign people. This environment helps me to grow so much. Eventually I would like to acquire higher English skills and advanced expertise to work globally as a researcher.
This course allows you to gain a wide range of knowledge in unique environment. I am definitely looking forward to working with you all here at the Department of Dryland Science.



SAYO FUKAI

Year of Enrollment: 2017
From Kanagawa Pref.

[Alma Mater]
Department of Agricultural, Life and Environmental Sciences, Faculty of Agriculture, Tottori University

[Current Research Topic]
Effect of micro-catchment water harvesting on soil moisture condition and shrub establishment in Jordan's Badia

"The time you spend with your friends is a big treasure"

Building the Relationship
A lot of conversations with my friends and research team members during my lab work are the most unforgettable and precious memories for me. I spent a lot of time with my fellow researchers in Jordan, and with friends in my lab in Japan. It is crucial to build good relationship that makes it easier for you to ask for their help when you have trouble or questions in your research. That is why I always try to communicate with my supervisor and research team members. Over the past two years, I have acquired the ability to talk to anyone without hesitations.

Research Never Stops

Research cannot be too much. Until the last minutes of the due date, I was always working on revising or improving my presentation. It was truly a hard experience. However, it also makes me feel very proud to deal with the cutting-edge research, especially when I realized that it will benefit many people in the future. I will join a private company after my

graduation. In the future, regardless of my research topic, I would like to be involved in the international projects to contribute to foreign countries.

Let's jump into the field you are interested in

Person who is open-minded and eager to learn various things can enjoy studying at our department. Interested in studying abroad? The lecture topics sound interesting? Reasons to join this course can be very simple. If you are interested in Dryland Science, come join us!



BENEDICT NZIOKI MAURICE

Year of Enrollment: 2018
From Kihii, Kenya

[Alma Mater]
School of Biosystems and Environmental Engineering, Jomo Kenyatta University of Agriculture and Technology (Kenya)

[Current Research Topic]
Effects of land uses and conservation measures on soil properties and sediment concentration in drylands: A case study on paired watershed in Kenya

"Studying for the future of African countries"

Studying in Japan -combating desertification-
I enrolled in this course to learn how to deal with desertification, which is a serious problem in my country Kenya. I thought the course with a variety of lectures and topics would be perfect for achieving my future goals.
My laboratory has 14 members including many international students, mainly from Ethiopia, Sudan and China. We are learning from each other to develop our research skills. I always read a lot of books related to my research topic to keep myself updated on the latest knowledge.

Thinking of my family and home

One of my unforgettable experience in this course was the field research in Kenya. It was my first experience to conduct all research activities by myself using my own budget and managing experiments schedule.

My wife and children are living in Kenya, and sometimes I miss them especially when I am busy with experiments in Japan. However, I will keep doing my best because I believe

the results of my work will benefit my home country and my family in the future.

Future goals

I will proceed to the doctoral course since my supervisor recommended me to get Ph.D. degree. After finishing my doctoral course, I would like to participate in a research internship to develop my research skills more. I certainly recommend this course to everyone who is interested in Dryland Science. Your professors offer you a lot of opportunities to learn. No matter what you're studying, hard work is the key to success. Do your best!



From Tottori to the world. Be a person who contribute to the world solving global issues.

"Dryland" takes up around 41% of the Earth's surface. 35% of the global population lives on there. It may seem that Tottori and dryland have nothing to do with each other. However, many of the food we eat today, for example, are imported from arid regions. Droughts, floods, and food crises in arid regions are big problems for us too. As a member of international community, it is crucial for us to think about and solve the global environmental problems. We are looking for students who can contribute to the achievement of the SDGs (Sustainable Development Goals) set by the United Nations and to solve global issues.

Our Keyword

- Food Crises
- Climate Change
- Water Resources
- Desertification
- Asian Dust
- Poverty
- Global Warming
- Developing Countries
- Energy
- SDGs

SUSTAINABLE DEVELOPMENT GOALS

- 1 NO POVERTY
- 2 ZERO HUNGER
- 6 CLEAN WATER AND SANITATION
- 7 AFFORDABLE AND CLEAN ENERGY
- 13 CLIMATE ACTION
- 15 LIFE ON LAND

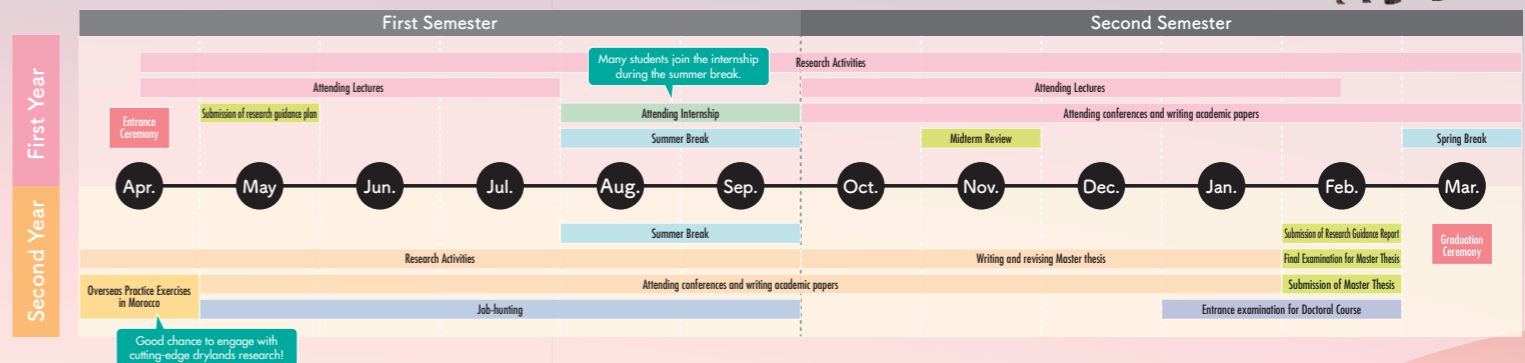
What you can learn

Students obtain the knowledge of climate, agriculture, lifestyles and ecosystems in drylands, and acquire the ability to create practical solution for various global issues in both natural and social environments.

Recommend for those:

- Who are interested in environmental problems
- Who are interested in global warming
- Who are interested in Africa, China, and Mongolia
- Who want to work globally in the future
- Who want to collaborate with foreign researchers
- Who are interested in international cooperation

Schedule for 2 years in Master Course



Course Composition and Features

General Course

To use the knowledge as tools and develop skills to solve problems
The course trains students to solve the problems in drylands with their expertise

Special course

To be the world's front-line specialist
All programs will be given in English. The course trains students to be able to work globally and practically

Degrees

Upon receiving the designated number of credits and passing the final examination for the master thesis, students will obtain the degree of Master of Science (Agriculture or Science).

The Department of Dryland Science provides educations and academic supports at two campuses, Tottori Campus and Hamasaka Campus.



Tottori Campus (Faculty of Agriculture)



Hamasaka Campus (Arid Land Research Center)