Universities in the Information Society: From Today, Into the Future

Initiatives by Kyoto University

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KYOTO AND KYOTO UNIVERSITY
Kyoto: The Heartland of Japan

- Capital of Japan for over a thousand years: from 794 to 1868
- Population: 1.4 million
- A city of many faces: History, Culture, Tourism, Students, Innovation
Kyoto: A Student City

- 27 universities:
  - 3 national universities
  - 3 public universities
  - 21 private universities

- 11 private colleges (as of May 1, 2015)

- 10% of the population are college or university students

Population Pyramid of Kyoto
Source: National Census, 2010
Kyoto: A City of Innovation

- Leading companies in Kyoto: *Nintendo, Kyocera, Murata, Rohm, Horiba, Shimazu, Nidec, Omron, Wacoal etc.*

- Accumulation of small- and middle-sized industrial factories

- Kyoto-style management:
  - Keeping their headquarters in Kyoto
  - Directly approaching the global market

- Collaboration with universities

Kyoto Shisaku Net
https://www.kyoto-shisaku.com/en/about/
Established in Kyoto, Japan’s ancient capital (8–19C), in 1897, as Japan’s second national university

Nobel Laureates:
9

Fields Medalists:
2

Kyoto University (1897)

The University of Tokyo (1877)

Tokyo (東京) (Capital 19C-present)

Kyoto (京都) (Capital 8–19C)
Research & Education Facilities:
- 10 Faculties
- 18 Graduate Schools
- 35 Research Institutes & Centers

Faculty & Staff Members:
- 7,300
- 400 International Faculty & Staff

Students:
- 22,600
  - 13,200 Undergraduates
  - 9,400 Graduates
  - 2,500 International Students

(As of May 1, 2018)
• Undergraduate: 10 schools
  – 4 year programs (except medicine and pharmaceutical science, which are 6 years)
• Graduate: 18 graduate schools
  – Master’s, doctoral, and professional degree programs
Partner Institutions:
179 MOUs, 122 SEAs

Offices and Facilities:
59

2 Branch Offices (★)
57 Other Offices & Facilities (・)

Coming from Abroad
Kyoto Univ.
Going Abroad

3,403 (*) Researchers
8,400 (*)

2,474 (**) Students
2,915

(As of May 1, 2018)

(*1: FY2016, *2: As of May 1, 2018)
Kyoto University
WINDOW: A Vision for the Future

• Six Objectives
  – Wild and Wise
  – International and Innovative
  – Natural and Noble
  – Diverse and Dynamic
  – Original and Optimistic
  – Women and the World

https://www.kyoto-u.ac.jp/en/about/operation/window-a-vision-for-the-future.html
SOCIETY, UNIVERSITY, AND PROGRAMS
Universities as “Looking Glasses” of Society

Increase in Complexity

Society

Increase in Complexity

University
Undergraduate Programs

• Recent Trends in Undergraduate Programs in Japan
  – Requirement of quality assurance
  – Consideration of generic skills
  – Consideration of the first year experience

• Importance of discipline-based systematic education as the **backbone** of knowledge workers
Diversifying Graduate Programs

• **Degree Programs**
  – Two-year master’s, and three-year doctoral degree programs.
  – *Professional programs*

• **Areas**
  – Conventional disciplinary graduate programs
  – Graduate programs for *emerging and interdisciplinary issues*

• **Inter-Program Collaboration**
  – Shared certification inside the university
  – Double and joint degree programs

• **Enrollment**
  – Graduates of Kyoto University
  – *Graduates of other universities*
  – *International students*  
  – *Working people*  

*Increasing*
Diversifying Graduate Programs

Undergraduate programs

Conventional

Interdisciplinary

Professional

Students from other universities
International students
Working students

Other institutions

Joint/double degree programs
Students’ Attitude to Graduate Programs

• Science and Engineering
  – Most students take master’s programs
  – *To encourage them to go on to doctoral programs...*

• Social Sciences and Humanities
  – Most students get employed after graduation from undergraduate programs
  – *To encourage them to go to master’s programs...*

*Demonstrating the Value of Graduate Programs to students*
The Value of Graduate Programs

- Requirement of human resources for the emerging and changing information society

- Graduate Programs: Deepen disciplinary study, interdisciplinary study, and social problem solving
  Thereby meeting the needs of society.
Various Learning Opportunities provided by Universities and Other Institutions, etc.

• Other than universities, there are an increasing number of learning opportunities and forms of certification in society that:
  – Provide learners with knowledge and skills
  – Certify the student’s learning

• The Strength of Universities
  – Provide learning programs designed around the educational experience
  – Demonstrate the program’s quality through academic research
INTERFACING DEGREE PROGRAMS
Expanding and Diversifying Degree Programs and Job Opportunities

• From *Selection* to *Matching and Interfacing*

  High school → Undergraduate Programs
  Undergraduate Programs → *Graduate Programs*
  Graduate Programs → *Job Opportunities*

*Matching and interfacing become more important than simple selection in enrollment*

*To know, to find, and to prepare*
INITIATIVES BY KYOTO UNIVERSITY
Interfacing Degree Programs: Initiatives by Kyoto University

• Interfacing high schools and undergraduate programs
  – ELCAS, Kyoto iUP
  – Enhancement of liberal arts and science education

• Interfacing degree programs and society
  – Service learning and the University Social Responsibility Network
  – C-Engine, internships for doctoral students

• Online learning resources for all
  – OCW, KyotoUx, KoALA, and Knot
Interfacing Programs and Society

Institute for Liberal Arts and Sciences (ILAS)

Undergraduate Programs

Common Courses For Graduate Schools

Graduate Programs

USR Network

OCW/KyotoUx

C-ENGINE

Int’l High Schools

High Schools In Japan

ELCAS

Kyoto iUP

Arts & Science Courses

Graduate Programs

Undergraduate Programs
INTERFACING HIGH SCHOOL AND UNDERGRADUATE PROGRAMS
ELCAS
(Experienced-based Learning Course for Advanced Science)

• Inquiry based study program for high school students
• Study on campus at the weekend
• Publish their work as reviewed articles in the ELCAS journal
Kyoto iUP
(Kyoto International Undergraduate Program)

• Launched in 2017
• No Japanese language ability required for admission
• Includes a six-month preparatory course
  – Intensive Japanese course
  – Foundation classes
• Four-year undergraduate program
  – First two years: Study liberal arts and sciences in English and Japanese, and study Japanese language
  – Second two years: Study specific subjects for the students major in Japanese
Enhancement of Liberal Arts and Science Education

• Foundation of Institute for Liberal Arts and Sciences (ILAS) in 2013
• Liberal Arts and Sciences taught in English
• ILAS Seminar: inquiry-based learning courses for first year students
• Foundation of three education centers within ILAS:
  – Language Education
  – Japanese Language and Culture
  – Data Science and Innovation
• Common courses for graduate programs
Arts and Science Courses in English

• Liberal arts and sciences courses taught in English by international instructors.
• 280 courses by 70 instructors in 2017
• Cover most of the subject areas covered by Japanese courses.
Center for Innovative Research and Education in Data Science

• Government support to promote data science education (six universities have been selected)
• Center is located within ILAS
• Provides courses from basic statistics to advanced data science as:
  – Undergraduate arts and science courses
  – Common courses for graduate programs
• Open spring school and one- and two- day programs
INTERFACE UNDERGRADUATE AND GRADUATE PROGRAMS
Common Courses for Graduate Students

Common Courses by ILAS
- Research Ethics and Integrity
- Intellectual Property
- Entrepreneurship
- Information Literacy
- Data Science
- Academic Presentations, etc.
INTERFACE DEGREE PROGRAMS AND SOCIETY
Activity in USR Network

• University Social Responsibility Network:
  China-Japan-Korea SERVE Initiative 2017
C-Engine

- Research Internship Network for Graduate Students
  - To enhance the industrial sector’s understanding of the value of doctoral students
Provision of Online Learning:
OCW, KyotoUx, KoALA, and KNOT

Kyoto University Open Courseware (OCW), since 2005

KoALA: open edX based SPOC

KyotoUx: Kyoto University’s edX MOOC

KNOT: Online Resource Guide for High School Students and Teachers