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Leading the Way
From Premier National University
to World-Class University
As the cradle of Korean agricultural sciences, the College of Agriculture and Life Science (CALS) of Seoul National University is proud of our century-long tradition of excellence. The CALS aims to contribute human resource development through research and education in agriculture and life sciences, nurturing future generations of outstanding scholars, leaders in bio-industry, leaders in sustainable agriculture and rural development, and individuals with creative mind and humanity. Our vision is to be the pre-eminent college for teaching, research, and extension of agriculture and life sciences.

The CALS originated from the College of Agriculture, Commerce and Engineering founded in 1904 from which the College of Agriculture and Forestry separated in 1906. In 1946, the College of Agriculture and Forestry was merged into Seoul National University and commenced as the College of Agriculture. In 1991, the college achieved the current name.

The CALS has 8 departments with 17 major programs and interdisciplinary programs. Numerous academic facilities, research institutions, interdisciplinary units and programs support students and faculty members, and are directly accessible to all members of the CALS and even to non-members of our community. Majority of equipments are state-of-the-art in the respective fields of science.

A total of 28,717 alumni, including 21,103 B.S./B.A., 5,629 M.S./M.A., and 1,985 Ph.D., are playing pivotal roles in various fields. Especially, without their significant contribution for agricultural development and reforestation after the Korean War in 1950s, Korea would not have been able to achieve impressive industrialization and fast economic development in the world.

The CALS is fully committed to high-quality education and research to cope with the global and local challenges in agriculture as trans-disciplinary sciences and convergence of technologies. It is the very right place for students who pursue their careers as scientists and professionals in agriculture, biotechnology and environmental sciences in the 21st century.
Brief History

1900
- 1904 9 Foundation of the College of Agriculture, Commerce and Engineering
- 1906 9 Separation of the College of Agriculture and Forestry from the College of Agriculture, Commerce and Engineering
- 1907 1 Relocated campus to Suwon
- 1918 3 Renamed as Suwon College of Agriculture and Forestry
- 1922 3 Renamed as Suwon High School of Agriculture
- 1937 4 Foundation of the Department of Veterinary Medicine and Animal Science

1940
- 1943 4 Foundation of the Department of Irrigation, Drainage and Reclamation Engineering
- 1946 3 Foundation of the Department of Agricultural Chemistry
- 1948 8 Merged into Seoul National University Renamed as the College of Agriculture of Seoul National University
- 1949 8 Foundation of the Department of Agricultural Biology
- 1949 8 Department of Irrigation, Drainage and Reclamation Engineering was renamed Agricultural Engineering
- 1947 9 Separation of the Department of Veterinary Medicine from the Department of Veterinary Medicine and Animal Sciences

1950
- 1956 3 Foundation of the Department of Sericulture
- 1959 4 Foundation of the Department of Agricultural Home Economics

1960
- 1962 3 Merged with the College of Veterinary Medicine Renamed the College of Veterinary Medicine as Department of Veterinary Medicine
- 1962 12 Foundation of the Department of Agricultural and Extension Education
- 1965 12 Establishment of Ph. D. programs in Agronomy, Forestry, Agricultural Biology, Animal Science, Agricultural Engineering, Agricultural Chemistry, and Agricultural Economics
- 1967 8 Establishment of the Institute of Agricultural Science
- 1967 12 Foundation of the Department of Horticulture and the Department of Food Science and Technology
- 1967 12 Separation of the Department of Agricultural Biology into a program in Plant Pathology and a program in Entomology
- 1967 12 Separation of the Department of Agricultural Engineering into a program in Agricultural Engineering and a program in Agricultural Machinery and Process Engineering
1970

1970 2  Foundation of the Department of Forest Products and Technology
1971 3  Separation of the Department of Agricultural and Extension Education into a program in Agricultural Education and a program in Agricultural Extension Education
1971 6  Foundation of the University Arboretum
1973 3  Foundation of the Department of Landscape Architecture
1975 2  Renamed the Institute of Agricultural Science as the Institute of Agricultural Science and Development
1976 3  Separation of the Department of Veterinary Science from the College of Agriculture, Foundation of the College of Veterinary Medicine
1978 2  Establishment of MS programs in Horticulture, Forest Processing Engineering, and Food Science and Technology Separation of MS programs in Agricultural Biology into a program in Plant Pathology and a program in Entomology Separation of MS programs in Agricultural Engineering into a program in Agricultural Engineering and a program in Agricultural Machinery and Process Engineering

1980

1980 12  Establishment of MS program in Ecological Landscape Architecture Establishment of Ph.D. program in Agricultural Education
1981 2  Promoted the Adjunct Institute of Agricultural Science and Development to legal organization
1982 11  Establishment of Ph.D. programs in Horticulture, Forest Products, and Food Science and Technology
1985 11  Establishment of Ph.D. programs in Agricultural Biology (a program in plant pathology and a program in Entomology) and Agricultural Engineering (a program in Agricultural Machinery and Process Engineering)
1989 8  Foundation of Agricultural Education & Research at the college of Agriculture in Seoul National University
1990 10  Renamed the Department of Sericulture to the Department of Natural Fiber Science

1990

1990 3  Renamed the Program in Agricultural Extension Education to the Program in Rural Adult Education Establishment of Interdisciplinary Ph.D Program in Landscape Establishment of an interdisciplinary program in Agricultural Biotechnology
1991 1  Establishment of the Research Center for New Bio-materials in Agriculture
1992 6  Establishment of the Institute of Forestry and Forests Products Establishment of the Institute of Animal Science and Technology
1993 3  Renamed the College of Agriculture as the College of Agriculture and Life Sciences The Departments of Forestry, Animal Husbandry, and Forest Processing Engineering was separated into the Departments of Forest Resources, Animal Science and Technology and Department of Forest Products Establishment of Ph.D. programs in Agricultural Home Economics
11  Establishment of the National Instrumentation Center for Environmental Management (NICEM)
1996 2  Consolidation of the Undergraduate Program in Plant Pathology and Entomology
1997 4  Foundation of the Agricultural Science Museum
1999 2  Promoted the National Instrumentation Center for Environmental Management (NICEM) to legal organization
1999 3  Reorganization of the school system: four schools and five departments Consolidation of the Department of Agricultural Home Economics into the College of Human Ecology
1999 9  Establishment of the Institute of North Korean Agriculture
1999 7  Establishment of the Center for Plant Molecular Genetics and Breeding Research
2000

2000 3 Consolidation of the Schools of Agricultural Chemistry, Food Science and Technology, Animal Science and Technology, and Applied Biology into the Graduate School of Agricultural Biotechnology
10 Renamed the Department of Agricultural and Rural Adult Education to the Department of Agricultural and Vocational Education

2001 2 Establishment of the Business Incubator
9 Establishment of the Research Institute for Agriculture and Life Sciences (Abolition of the Institute of Agricultural Science and Development, the Institute of Forestry and Forest Products, the Institute of Animal Science and Technology, and the Institute of North Korean and Foreign Agriculture; the Research Center receives all of the abolished rights and liabilities of the Research Institutes)

2003 9 Relocated campus to Seoul

2004 3 Relocated NICEM Integration of the Department of Forest Resources, the School of Biological Resources, and Materials Engineering (Dept. of Forest Products) into the Department of Forest Resources and Forest Products
12 Construction of Public Welfare Hall

2005 2 Relocated Agriculture and Life Sciences Library to the Public Welfare Hall
3 Reorganization of the academic system: Renamed 7 Departments and 15 Programs

2006 3 Renamed the Program in Crop Science to the Program in Crop Science Biotechnology

2007 3 Renamed the Program in Community Development to the Program in Regional Information
11 Renamed the Korean name of NICEM and enlarged of the organization of structure

2008 8 Establishment of the Plant Genomics and Breeding Institute
9 Establishment of the Center for Fungal Pathogenesis

2009 9 Foundation of the Major of Biomodulation
11 Construction of the ‘SPC Science Research Building’ Establishment of the National Center for Agrometeorology

2010

2010 11 Establishment of the ARC (Agricultural Research Center)
– Center for Food Safety and Toxicology – Vegetable Breeding Research Center

2011 4 Establishment of the Institutes of Green Bio Science and Technology
5 Renamed the Program in Agricultural Economics to the Program in Agricultural and Resource Economics
8 Establishment of the Interdisciplinary Program in Agricultural and Forest Meteorology

2012 6 Renamed the Program in Horticultural Science to the Program in Horticultural Science and Biotechnology
9 Renamed the Center for Agricultural Biomaterials to the Center for Food and Bioconvergence
12 Abolition of the Interplinary Program in Agricultural Biotechnology Establishment of the Interplinary Program in Agricultural Genomics

2014 6 Completion of the PyeongChang Campus (Experimental Animal Farm)
9 Foundation of the Internatinoal Agriculture Technology Graduate School
Organization

Dean

Administration Office (Academic Affairs)  Administration Office (Student Affairs)  Administration Office (Research Affairs)  Administration Office (Planning & Coordination)  Administration Office (General Affairs)

Departments and Programs

Department of Plant Science
- Program in Crop Science and Biotechnology
- Program in Horticultural Science and Biotechnology
- Program in Vocational Education and Workforce Development

Department of Forest Sciences
- Program in Forest Environmental Science
- Program in Environmental Materials Science

Department of Food and Animal Biotechnology
- Program in Food Science and Biotechnology
- Program in Animal Science and Biotechnology

Department of Applied Biology and Chemistry
- Program in Applied Life Chemistry
- Program in Applied Biology

Department of Landscape Architecture and Rural Systems Engineering
- Program in Landscape Architecture
- Program in Rural Systems Engineering

Department of Biosystems and Biomaterials Science & Engineering
- Program in Biosystems Engineering
- Program in Biomaterials Engineering

Department of Agricultural Economics and Rural Development
- Program in Agricultural & Resource Economics
- Program in Regional Information

Department of Agricultural Biotechnology
- Program in Biomodulation

Interdisciplinary Program in Agricultural Genomics

Interdisciplinary Program in Agricultural and Forest Meteorology

Research Institutions

- Research Institute of Agriculture and Life Sciences
- Center for Food and Bioconvergence
- Plant Genomics and Breeding Institute
- Center for Fungal Pathogenesis
- Center for Food Safety and Toxicology
- Vegetable Breeding Research Center
- National Center for AgroMeteorology

Academic Facilities

- University Farm
- Experimental Animal Farm
- University Forests
- Arboretum
- National Instrumentation Center for Environmental Management
- Center for Vocational Education and Workforce Development
- Agricultural Business Incubator
- Agriculture and Life Sciences Library
- Information Center for Agriculture and Life Sciences
- Insect Museum
- Farm Workshop
- University Plant Clinic

Research Group (Team)

- BK21+ Consortium in Agricultural Biotechnology
- BK21+ Research Team for Crop Genomics and Breeding
- BK21+ Global Leadership Program towards Green Infrastructure Innovation
- BK21+ Regional Quantitative Analysis Research Group
- BK21+ Lignocellulosic Biomass-Based Advanced Eco-Materials Technology Team
- Reinforcing Innovation Capabilities for Agriculture and Life Sciences (RICA)

Continuing Education

- Advanced Agricultural Policy Program
- Advanced Agri-food Management Program
Department of Plant Science

Department of Plant Science strives to broaden the scientific knowledge and educate not only agronomic and horticultural crops but also human resources. Program in Crop Science and Biotechnology, Program in Horticultural Science and Biotechnology, and Program in Agricultural and Vocational Education were fully integrated into one academic organization in 2005 to provide students with a new and improved curriculum. This includes higher education in the natural sciences to enhance students’ fundamental understanding of plants and practical applications within the field of agriculture as well as humanities and social sciences for their knowledge or human resource development.

The crop science and biotechnology program and the horticultural science and biotechnology program provide students with research opportunities and education on agricultural and horticultural crop production, genetic improvements, and theoretical and applied approaches for plant–environment interactions. Both programs adopt multidisciplinary approaches via cultivation and biotechnology for plant improvement and production. The vocational education and workforce development program is a practical study that develops, manages, and effectively utilizes the unique potential of human beings. The program provides research and education regarding the development of vocational and industrial human resource professionals who are essential in the 21st century.

The Plant Science Department will provide a set of tools to recognize the interconnectedness of plants, environment, and human resources. The faculty members will contribute to the improvement of advanced agriculture and life sciences and vocational human resource management.

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Department of Plant Science

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- **Associate Professor Choi, Su Jung** Global Workforce Development & Vocational Competency Development 4776 sbad@snu.ac.kr
Program in Crop Science and Biotechnology

The world population is rapidly approaching 8 billion, and increasing by 75 million each year. Feeding the world has always been a major challenge to human ingenuity. Therefore, the application of science to food production has been one of mankind’s most important issues. The Crop Science and Biotechnology program fosters the study of crops and environmental sciences in order to balance the interests of food production, fiber production, and the protection of the environment.

For undergraduate students, the Program in Crop Science and Biotechnology provides courses in crop breeding and genomics, crop molecular genetics and biotechnology, advanced technologies of crop production, agroecology, agrometeorology, environmentally friendly conservation of natural resources, crop physiology and weed science, crop ecology, forage crops, statistics, crop bioinformatics, and many other relevant fields. After the graduation, students will have diverse job opportunities related to agribusiness, banking, education, consulting, or the public sectors such as the Ministry of Agriculture, Food and Rural Affairs (MAFRA) and the Rural Development Administration (RDA). Graduate students can study the specific academic areas in eight laboratories equipped with state-of-the-art experimental facilities and experimental farms. The MS and PhD students can specialize in rice breeding and genomics, crop molecular genetics and biotechnology, soybean molecular breeding, crop molecular physiology and weed science, crop ecology and precision farming, rice crop science and agrometeorology as well as medicinal and industrial crop science. Former MS and PhD graduates are currently working in universities, MAFRA, RDA, research centers, and banks, as well as in international seed, agrochemical, and biotechnology companies.

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Horticultural crops are important sources of food, environmental enhancement, and personal enjoyment. The Horticultural Science and Biotechnology program provides students with higher education and research opportunities in biotechnology, production, management, utilization, and postharvest handling of horticultural crops. The program focuses on plant breeding, genetics, basic and applied plant production technologies, environmental conservation, and postharvest technology. Program research fields include: physiology, ecology, and genetics of horticultural crops and native plants. Research also covers the development of high quality, energy-saving, and environmentally friendly production systems, environmental and chemical control of plant growth and development, construction of genetic maps and the development of molecular markers, breeding of disease-resistant and functional cultivars using conventional methods and biotechnology, rapid mass production of virus-free plants and secondary metabolites, postharvest management and processing for product quality maintenance, advanced and protected horticulture and soilless culture, and the improvement of living environments using ornamental and landscape plants. Students in their second academic year can begin to specialize in horticultural science and biotechnology. Students in graduate school can study in the following areas: vegetable science, pomology, floriculture and landscape plants, plant breeding, horticultural crop biotechnology and genomics, postharvest physiology and technology, and plant environment control. Career opportunities in horticultural science and biotechnology are numerous in all aspects of plant production and the related agribusiness fields both in the government and the private sector. Horticultural science and biotechnology students also have the opportunity to prepare for graduate school in preparation for teaching, research, or extension work.

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The discipline of vocational education and workforce development involves a study of theories, methods, and systems developing students who are willing to involve or are already involved in related fields. It is a practical study that effectively develops, manages, and utilizes the potential capability of humans. The major courses are the following: Introduction to Vocational Education and Workforce Development (WFD), Program Development in Vocational Education and WFD, E-learning in Vocational Education and WFD, Materials in Vocational Subject Education, Teaching and Learning Methods in Vocational Education and WFD, Administration and Policy for Vocational Education and Human Resource Development (HRD), Evaluation of Vocational Education and HRD, Vocational and Career Guidance, Introduction to Adolescent Education, Instructional Media Development, and many others. After completion of the undergraduate program in Vocational Education and WFD, there are various career opportunities such as educational administration, human resource management, trainers, teachers, professors, researchers, and agents in areas such as the government, corporations, secondary schools, colleges, universities, communities, research institutes, and NGOs.

The graduate program in vocational education and workforce development will train students to meet the socio-economical demands of vocational education and workforce development, a rapidly growing field, and to cultivate the next generation of knowledge. The graduate program offers master’s and doctoral degrees and this is operated as individual department in the name of the Department of Agricultural and Vocational Education which is separate from the undergraduate program, the Department of Plant Science.

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- Career Guidance and Career Development in VEWD
- Vocational Psychology and Cooperative Education in VEWD
- Learning, Teaching and Training Methods in VEWD
- Administration and System in VEWD
- Curriculum and Program Development in VEWD
- Strategic Planning and Process Facilitation in VEWD
- eHRD System in VEWD
- Performance Management and Job Analysis in VEWD
- Evaluation and Material Development in VEWD
- Organizational Development in VEWD

* VEWD: Vocational Education and Workforce Development
The Department of Forest Sciences specializes in nurturing forests and the sustainable use of forest resources which includes the direct and indirect use of forest products. Recognizing that forests are environmental resources, the Department of Forest Resources and the Department of Forest Products have been reorganized into the Department of Forest Sciences, offering two programs: forest environmental science and environmental materials science. With the expansion of global desertification, the destruction of tropical rain forests, and the increase in greenhouse gases the need for forest resource conservation has become a very important issue from an environmental perspective.

The major in forest environmental science major covers important issues and emphasizes the various virtues and functions of forests and environmental resources. The students in this major focus on how to maintain and enhance the functions of forest ecosystems, how to efficiently manage and use forest resources, and how to restore the destroyed environments or disturbed ecosystems. This course of study aims to produce well-trained people who are capable of keeping our forest resources (wildlife, forest materials, water, and recreation resources) sustainable, as well as researching methods for efficient conservation, use, and management of forest resources.

The environmental materials science program offers diverse basic and applied courses as well as laboratory and field practices in physics and chemistry to teach students how to utilize wood more effectively and efficiently both in industry and daily life. The major’s study and research material is wood, which is a natural, high molecular, environmentally friendly, and permanently recyclable material; the environmental materials science program deals with the development of a new environmentally friendly bio-material composite, a new technology for producing pulp and paper, a new wood structure, a new chemical utilization of wood components, and a new technology for cleaning pollutants by using forest microorganisms. The major is designed to create and disseminate knowledge about wood, paper science and engineering, and forest products and their utilization, through lectures, labs, and practices.

The goal of the department is to identify and resolve important problems in biology, conservation, management, and utilization of forest resources and to disseminate research results to the scientific community, resource user-groups, and the general public.

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### Faculty

**Forest Environmental Science**

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<tr>
<th>Professor/Title</th>
<th>Field/Research Area</th>
<th>Extension</th>
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<tbody>
<tr>
<td>Professor Chang, Chin-Sung</td>
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**Environmental Materials Science**

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<tbody>
<tr>
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</tr>
</tbody>
</table>
Forest environmental science deals with forest-related environments which support the world’s most important resources. Forests clean the air, prevent erosion, moderate the availability and quality of water, and provide renewable raw materials for energy, shelter, and paper products.

Forests are habitats for endangered plant species and wildlife. They are important for recreation activities, such as hiking, hunting, and bird and wildlife viewing. At regional and global levels, forests may be significant factors in the climate. Forest environmental science involves managing forest ecosystems within increasingly complex social environments. A challenging and demanding profession, forestry applies forest ecosystem sciences, management sciences, and communication skills to the conservation and management of forest resources to meet society’s ever increasing need for commodities, services, and a healthy environment.

**International Exchange:**
Our international short exchange programs collaborate with Hokkaido University in Japan and Bogor Agriculture University in Indonesia in order to improve students’ understanding of the northern hardwood forest and tropical rain forest. During our summer field practice in the University Forest at Mt. Jirisan and Mt. Baegunsan in Jeollanam-do, some of the Japanese students participate in our program and have chance to learn about our forest ecosystem. Since 1999, students who have participated in this exchange program can study at Hokkaido University or Obihiro University of Japan for two semesters. In addition, students can travel with professors to China, Japan, the Philippines, Nepal, Mongolia, Finland, and Russia as researchers or assistants, to experience the ecosystem ranging from tropical to temperate to boreal.

**Career Opportunities:**
Career opportunities in research, management, teaching, or consulting are available with private corporations, environmental organizations, universities, environmental consultants, and governmental agencies. Our students may also find employment with public land management agencies, private organizations, the forest products industry, consulting firms, and trade associations.

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E-mail: forens@snu.ac.kr  http://forest.snu.ac.kr
Established in 1970, the Department of Forest Products merged with the Department of Forest Resources into the Department of Forest Sciences in 2004, and was renamed as the Program in Environmental Materials Science. Our program was established by social demand to utilize environmentally friendly bio–materials and was cemented by strong interest in recycling. Recently, environmental materials such as wood, wood–based composites, forest byproducts, pulp and paper have been recognized as increasingly significant subjects within environmental materials science. The mission of our program is to create and disseminate knowledge regarding wood, paper science and engineering, and forest products and their utilization, through programs of instruction, lab, and practice. The forward–looking research agenda emphasizes an active outreach program to provide continuing education opportunities to industries and individuals. The mission of program is made up of brilliant professors and sophisticated modern facilities.

We are especially interested in talking with you if you are:

- A prospective college student searching for an exciting and rewarding career
- A prospective graduate student looking for a great graduate education program
- An industry practitioner with diverse research interest

Our well–trained graduates are working for industries, universities, and research institutes related to wood and paper. Research funding comes from the government and the private sector. Our major has been selected as the Forest Product Division of Brain Korea 21 from the Ministry of Education and Human Resource Development since 2003. This field will certainly be one of the most promising engineering areas in the 21st century.

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The mission of the Department of Food and Animal Biotechnology involves the research and education of biotechnologies regarding food and animal resources. The major emphasis of food biotechnology is to study advanced technology related to human health and the food industry. Thus, the mission of the food biotechnology program is to educate students to serve in the field throughout the world. The primary objective of the animal biotechnology program is to educate students to reach leadership positions for the 21st century in the field of animal biotechnology. Our research is focused on the development of bio-resources and bio-reactors as well as technology to uncover complicated diseases in animals and humans. This program trains the students to be food technologists and engineers equipped with chemical and biological fundamentals and engineering methodology for a comprehensive understanding of the physicochemical properties of foods, processing and preservation of food materials, and biotechnological applications.

The animal biotechnology major integrates the newest technologies into traditional animal science. The principal educational objective of the department is to mold successful leaders in the future industries and academics related to food and animal biotechnology.

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### Faculty

#### Food Science and Biotechnology

<table>
<thead>
<tr>
<th>Professor Name</th>
<th>Position</th>
<th>Research Area</th>
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<tbody>
<tr>
<td>Choi, Sang Ho</td>
<td>Professor</td>
<td>Food Safety and Toxicology</td>
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<tr>
<td>Ryu, Sung Ryeol</td>
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<tr>
<td>Kang, Dong Hyun</td>
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<tr>
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<tr>
<td>Moon, Tae Wha</td>
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<tr>
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#### Animal Science and Biotechnology

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<th>Professor Name</th>
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<tr>
<td>Choi, Hong Lim</td>
<td>Professor</td>
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<tr>
<td>Han, Jae Yong</td>
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<tr>
<td>Baik, Myung Geol</td>
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<tr>
<td>Kim, Yoo Yong</td>
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<td><a href="mailto:yyoowil@snu.ac.kr">yyoowil@snu.ac.kr</a></td>
</tr>
<tr>
<td>Kim, Hee Bal</td>
<td>Associate Professor</td>
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<td>4803</td>
<td><a href="mailto:heebal@snu.ac.kr">heebal@snu.ac.kr</a></td>
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<tr>
<td>Choi, Yoon Jae</td>
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<td><a href="mailto:cyoonj@snu.ac.kr">cyoonj@snu.ac.kr</a></td>
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<tr>
<td>Lim, Jeong Mook</td>
<td>Professor</td>
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<tr>
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<td>Professor</td>
<td>Immunology and Vaccine Development</td>
<td>4802</td>
<td><a href="mailto:cyoon@snu.ac.kr">cyoon@snu.ac.kr</a></td>
</tr>
<tr>
<td>Lee, Chang Kyu</td>
<td>Professor</td>
<td>Animal Reproduction &amp; Transgenesis</td>
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<td><a href="mailto:leek@lab.snu.ac.kr">leek@lab.snu.ac.kr</a></td>
</tr>
<tr>
<td>Jo, Cheonlyn</td>
<td>Associate Professor</td>
<td>Animal Origin Food Science</td>
<td>4804</td>
<td><a href="mailto:cheonlyn@snu.ac.kr">cheonlyn@snu.ac.kr</a></td>
</tr>
</tbody>
</table>
The principal objective of the Program in Food Science and Biotechnology is to train students and make them as food technologists and engineers equipped with chemical and biological skills and engineering methodology for a comprehensive understanding of physicochemical properties of foods, processing and preservation of food materials, and biotechnological applications. The undergraduate program emphasizes both basic principles and key technologies necessary for food and bio-industry. The curriculum is, therefore, designed to provide core courses such as food chemistry, food microbiology, food engineering, food processing, food preservation, food analysis, food biotechnology, and biochemical engineering. Organic chemistry, analytical chemistry, physical chemistry, applied mathematics, biochemistry, and molecular biology are also required to pursue major courses.

The program offers graduate studies leading to the M.S. and Ph.D. degrees. The graduate program is designed to provide students with opportunities for creative endeavors in academic coursework and in fundamental and applied research in the field of food science and technology. This will keep students at the forefront in their professional careers. Graduates have a wide variety of employment opportunities in research and educational institutions, government agencies, and private enterprises.

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E-mail: foodbio@snu.ac.kr http://food.snu.ac.kr
The animal biotechnology program integrates advanced biotechnology with traditional animal sciences. The goal of the animal biotechnology program is to educate, train, and prepare students to become successful leaders in the future of industrial and academic areas of animal science. In order to achieve this goal, teaching and research areas of focus include physiology, genetics, bioinformatics, reproduction, embryology, nutrition, microbiology, comparative immunology and environmental engineering. The laboratories, grouped into three areas representing animal genetic engineering, animal bio-resource engineering, and nutritional and environmental engineering, are conducting high quality researches through active interaction and collaboration among different laboratories.

The programs diversify and expand from the basic knowledge to several core areas of applied science as follows:

1) Animal genetics, reproduction and breeding, to improve animals’ genetic potential
2) Feeds and nutrition to improve animal productivity
3) Animal origin food production, including milk and meat science as well as functional food production
4) Environmental animal science to process animal waste efficiently.

In addition, using the newest biotechnology, researchers are actively researching solutions to complex diseases and seeking to improve the quality of life through active collaboration with the medical, engineering, and biological sciences. Our researches are getting strong support from a broad range of industries, and our alumni are actively working in a wide range of private companies and research institutes.

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The Department of Applied Biology and Chemistry was established to become the cornerstone of education, research, and outreach programs for the field of basic and applied sciences in the disciplines of agriculture and bioproduction. These areas are essential for shaping Korea's future in the 21st century. Focused programs in biochemistry, microbiology, biotechnology, pesticides, and soil science are offered to address the scientific needs in the fields of bio-processing, plant protection, microbial production, pesticides, and improvement of environmental quality.

Further opportunities exist in graduate school in the fields of agricultural biotechnology and bioenvironmental chemistry, plant microbiology, entomology, environmental biology, and plant pathology. Students who successfully complete their studies will find excellent opportunities in their careers to lead in numerous areas including agricultural, environmental, biotechnological, pharmaceutical, and food-related fields.

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Department of Applied Biology and Chemistry

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Tel: +82-2-880-4640    Fax: +82-2-873-3112    http://abc.snu.ac.kr
The applied life chemistry program (previously known as the agricultural chemistry program) covers both biotechnology and environmental sciences, which exist on the forefront of scientific research in the 21st century. Life chemistry is an applied science, emphasizing the fundamental scientific principles and theories for the regulation of growth, development, and biochemical processes of living organisms.

The applied life chemistry program can be divided into two disciplines: applied biochemistry and environmental biochemistry. Applied biochemistry focuses on biochemistry, molecular biology, physical biochemistry, structural biology, plant genomics and nutrition, natural product chemistry, microbial biotechnology. On the other hand, environmental biochemistry comprises soil chemistry and physics, ecological chemistry, pesticide chemistry and toxicology, and fertilizer science.

The applied life chemistry program thus provides a broad spectrum of education at undergraduate and graduate levels to better understand biological and environmental phenomena and processes. The education and research in the program has been successfully applied to enhance biological production in bio-industry and preserve environment of living organisms. The education provided by this program has been a key for the graduates to succeed in agro-industries and other closely related areas.

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The Applied Biology Program of CALS provides students with high quality education and research opportunities in both applied and basic areas, primarily related to agriculturally-important organisms and their management in order to promote the stability of agricultural production.

The undergraduate programs, including entomology and plant microbiology, have recently put more emphasis on the application of cutting-edge sciences and technologies, such as molecular biology, genetics, and biotechnology, in order to establish a new paradigm of sustainable agriculture and environment as well as to address practical aspects of plant disease and pest management.

The program in plant microbiology offers courses on the basic and applied aspects of fungi, bacteria, viruses, and nematodes as plant pathogens, the development mechanisms of plant disease, disease epidemiology, mycotoxicology, and environmentally important soil microorganisms. In the entomology program, education and research are offered in the areas of insect systematics, ecology and population dynamics, insect physiology, insect molecular biology and biotechnology, and bioactive natural products.

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E-mail: plantmicrobiology@snu.ac.kr / entomology@snu.ac.kr
http://appbiol.snu.ac.kr
The Department of Landscape Architecture and Rural Systems Engineering focuses on the exterior environments of urban and rural areas. Based on ecology, engineering, and a broad understanding of culture, the department suggests new ideas for rural areas and provides the basic knowledge required for effective planning, design, construction, and management of exterior environments. The department consists of two programs of study: landscape architecture and rural systems engineering.

Korea has limited natural resources. Consequently, most land is used by the service industry or as production sites for the infrastructure necessary for economic growth. The postindustrial society, which gives more emphasis on humanities and individual values, often changes the use and value of land from production to more creative and multipurpose space. In order to prepare for these changes, we must map out a plan to make creative use of space, and implement it practically.

The department has various practical training programs and utilizes new theories from numerous fields to promote a competitive research-oriented university. The department educates students and makes an effort to effectively use land through ecologically sound and sustainable programs, recognizing that Korea is an essential part of the larger world.

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Department of Landscape Architecture and Rural Systems Engineering

The Department of Landscape Architecture and Rural Systems Engineering focuses on the exterior environments of urban and rural areas. Based on ecology, engineering, and a broad understanding of culture, the department suggests new ideas for rural areas and provides the basic knowledge required for effective planning, design, construction, and management of exterior environments. The department consists of two programs of study: landscape architecture and rural systems engineering.

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Tel: +82-2-880-4670   Fax: +82-2-873-2087   http://larse.snu.ac.kr

Faculty

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<tr>
<td>Professor Ahn, Tong-Mahn</td>
<td>Urban &amp; Regional Planning</td>
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<tr>
<td>Professor Kim, Sung-Kyun</td>
<td>Landscape Design &amp; Theory, Cultural Landscape</td>
<td>4872</td>
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<td>Professor Pae, Jeong-Hann</td>
<td>Integrated Design &amp; Landscape Aesthetics</td>
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<td>Professor Yoon Heeyeun</td>
<td>Landscape Planning</td>
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<tr>
<td>Rural Systems Engineering</td>
<td>Rural Water &amp; Information Engineering</td>
<td>4583</td>
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<tr>
<td>Professor Choi, Jin-Yong</td>
<td>Rural Water &amp; Information Engineering</td>
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<tr>
<td>Professor Kim, Song-Bae</td>
<td>Water Environmental Remediation Engineering</td>
<td>4587</td>
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<td>Professor Lee, In-Bok</td>
<td>Environmental &amp; Energy Engineering</td>
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<td>Professor Lee, Jeong-Jae</td>
<td>Agricultural Structures &amp; Systems Engineering</td>
<td>4581</td>
</tr>
<tr>
<td>Professor Son, Young-Hwan</td>
<td>Rural Geo-Environmental Engineering</td>
<td>4585</td>
</tr>
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</table>

※ Tel : +82-2-880-extension
Landscape architecture is the art and science of making our environment more beautiful, useful, and healthy. The landscape architecture program takes aim at creating functional, human, and artistic environments by harmonizing the values of humans and nature. Therefore, the program in landscape architecture has an educational objective to teach the abilities needed in planning, design, construction, and management for various projects ranging from residential gardens to urban plazas to large-scale land development. Students participate in various activities and lectures to develop design skills and to learn the basics of natural science, social science, engineering, and aesthetics. Students study dendrology and plant ecology in spacious arboreta, and learn computer application skills with CAD, GIS programs, and new high-tech devices. In the undergraduate courses, students learn about basic theories and techniques required in landscape architecture. In the graduate courses, in-depth studies regarding landscape architecture are carried out by studying various landscape architectural theories and participating in practical projects.

After graduation, students can work as landscape architects designing parks, residential complexes, and resorts. Or as planners carrying out regional or land use planning. Graduates can also work as public officials dealing with administration works related to parks and landscape, and many of them become researchers or professors in various schools and research institutes.

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Program in Rural Systems Engineering

Rural systems engineering is the technical field responsible for the construction and maintenance of pastoral areas for prospective welfare. Various studies are integrated with information and modern transportation technology. The resource division deals with problems of preservation and application as urban areas use resources originating from rural areas. Accordingly, rural areas should be properly controlled and organically connected with urban areas. Rural systems engineering aims to provide theoretical and practical methods to promote sustainable development and to protect the integrity of pastoral spaces such as rural and forestry areas, which together encompass most of the national territories. Rural systems engineering integrates and redevelops technologies from various engineering and scientific fields such as architecture, environmental engineering, computer sciences, and civil engineering.

In rural systems engineering, students can study the fundamentals of various engineering fields, especially information, biological, cultural, and environmental technologies. Based on the knowledge of these four major fields, technical problems are solved through ingenuity and creativity.

Rural systems engineering is considered as the essential area fulfilling the nation’s goal of becoming a welfare country. The program looks to answer the demands for well-developed rural areas with better accessibility to the countryside through the development of communication and transportation. Furthermore, studies of rural infrastructure and its sustainable development are now flourishing, and rural systems engineering is necessary in order to integrate the knowledge of various fields in a useful manner.

Major research areas include Natural Resource Management for the effective management of natural resources such as water and land, Rural Environmental Engineering to construct a pleasant rural environment, Rural Information and Systems Engineering to improve the quality of rural life, and Planning and Design for reconstruction of rural areas and sustainable development. The curriculum of rural systems engineering covers vast engineering fundamentals, foundational scientific areas, and cultural subjects.

The cohesive attitude of the program is increasingly necessary since the rate of entry of our graduates into jobs in closely related fields is reaching over 90%. Recently, increased numbers of our graduates are getting more job opportunities in research institutes, public corporations and the government, companies to private sectors. Employment in information and biological engineering fields is also increasing compared to employment in environmental engineering fields. Most of the rural systems engineering students receive a degree engineering license in civil engineering or information engineering before they graduate. The percentage of employment and the prospect of promotion is very high because the ability of graduates to attain a master license of engineering after a few years of practical occupation.

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The Department of Biosystems and Biomaterials Science & Engineering is an exciting field that fuses engineering, biology, and biotechnology into two cutting-edge programs: biosystem engineering and biomaterials engineering. In the 21st century, bio-related technologies are predicted to lead science and technology research. Accordingly, qualified people equipped with knowledge in both engineering and biotechnology are in high demand. The Department of Biosystems and Biomaterials Science and Engineering applies electric and electronic engineering, nanotechnologies, materials engineering, mechanical engineering and bioinformatics technology to biological products and materials.

The biosystems engineering program has branches in biomechanics, bio-processing, bio-production engineering, bio-environmental engineering, biosensors, bio-resources processing engineering, biosystems control, and precision agriculture. The program’s research and education goals emphasize the development and optimization of biosystems. The extensive interdisciplinary research and excellent education programs will give much-needed vision to future leaders in bio-related technology, as well as unlimited prospects for scientists and engineers in both education and industry.

The biomaterials engineering program, based on biotechnology and materials engineering, focuses its research and education on the development of novel biomaterials and new processes for and many other unique applications.

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Biosystems engineering is a unique engineering field that deals with food, living organisms, and the environments. Biosystems engineers incorporate innovative technology (computer vision, remote sensing, GPS, GIS, robotics, and control engineering) into the production and utilization of biological resources such as plants and livestock, the development of biosensors, and biomedical engineering applications. Biosystems engineers are well aware of the necessities of life: a source of safe food, pure water to drink, clean fuel and energy resources, and a safe and healthy environment in which to live. In order to supply these necessities, biosystems engineers apply engineering principles to many processes associated with the production of agricultural products and the management of natural resources.

The biosystems engineering major deals with engineering-based technologies required for the development of equipment and systems used for the production, processing, storage, transportation, management and utilization of agricultural products by applying modern engineering technologies such as machinery, electrical and electronic engineering, and computer technology. This program will contribute tremendously to the future agricultural, livestock, and food industries by training highly qualified engineers well-equipped with knowledge of both biosystems and engineering.

Biosystems engineers has increased the competitiveness of our farms through the mechanization of agriculture during the industrialization period. This field has been evolving into a unique academic arena in which engineering skills are applied not only to agriculture, but also to general biological systems, in accordance with the recent development of bio-engineering. Teaching and research topics covered in the biosystems engineering major are farm power and automation, off-road equipment design, plant production machinery, agricultural processing systems, engineering properties of biomaterials, electronics and sensors, bioprocessing systems, and biomechanics & tissue engineering.

Current high valued research is being conducted on cereal and fruit processing systems, agricultural robotics, biosensors, image processing applications, artificial intelligence applications, environmental friendly precision farming, bioprocessing system development, farm machinery design via computer technology, and biological engineering. Collaborations are conducted with various related areas such as horticulture, animal science, food science, and forest products.

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Program in Biomaterials Engineering

Biomaterials engineering provides an interdisciplinary program in education and research of environmentally and eco-friendly biomaterials based on biological resources. Currently, eco-friendly and renewable technologies are highlighted for safety and sustainable development in industry and academia while effectiveness and productivity have been mainly pursued in the post industrial era. In this aspect, biomaterials have a great potential in the near future since they are not only more compatible with both human being and environment but also sustainable compared with classical synthetic materials. Therefore, we need to focus on the development and application of such biomaterials.

An enormous number of biomaterials have been already utilized and their demands gradually increased in industrial fields such as architecture, automobile, cosmetics, biomedicine personal care, textile, and homewares. Besides, those materials are being applied to functional biomaterials in biomedical and pharmaceutical fields for diagnosis and personalized treatment.

In biomaterials engineering, undergraduates will take a core curriculum of biomaterial science based on principle courses, such as chemistry, physics, bioengineering, and material engineering. Also, graduate students shall have a great opportunity to participate in an interdisciplinary research projects. The graduates are actively working in related industries (e.g., chemical engineering, automobile, cosmetics, electronics bioengineering), universities, and national research institutes.

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Research Areas

- Protein and Polysaccharide Polymers for Biomaterials and Biotechnology
- New Applications and Chemical Modification of Natural Polymers
- Fabrication and Application of Electrospun Nanofibers
- Development of Biomedical Polymers for Tissue Engineering
- Regenerated and Fabrication of Natural Polymers
- Synthesis and Bioactive Materials
- Biodegradable Plastics
- High-Performance Biocomposite Materials
- Environment-friendly Water-absorbents and Oil-absorbents
- Wound Dressings Using Drug Delivery Systems (DDS)
- Functional Smart Materials
- Organic Inorganic Nanobiocomposites
- Novel Applications of Carbohydrate Polymers
- Colloids and Surface Chemistry: Nanoscale Analysis of Biomolecules
- Gene and Drug Delivery Systems Based on Smart Polymers
- Polymeric Imaging Agents and Nano-probes for Diagnostics
- Biocompatible Scaffolds for Tissue Engineering and Regenerative Medicine
The Department of Agricultural Economics and Rural Development focuses on research and teaching in the areas of agriculture, rural communities, natural resources, environment, and regional development. The Department of Agricultural Economics and Rural Development was established in 1997 through the consolidation of the Department of Agricultural Economics and the Department of Rural Adult Education and Extension. Due to the liberalization of international agricultural trade and the outset of local self-governing, a new approach has become necessary with regard to the study of Agricultural Economics and Rural Development in Korea. This integration has opened a new horizon and added new variety in interdisciplinary research and teaching, which are both necessary for the investigation of modern socioeconomic problems dealing with areas such as food, natural resources, environment, and balanced regional development.

This department serves as two major fields of study for both undergraduate and graduate students: agricultural & resource economics and regional information. Undergraduate students are required to take Principles of Economics, Introduction to Agricultural & resource Economics and Regional Development, and Economical Mathematics as prerequisites. After their freshman year, depending on their major, students can take courses either in agricultural & resource economics or regional information. Before taking core courses in agricultural & resource economics, undergraduate students in this major are required to take Microeconomics, Macroeconomics, Agricultural Economics, and Quantitative Analysis in Agricultural & resource Economics. Students majoring in regional information are required to take Microeconomics, Macroeconomics, Agriculture and Food Information Systems, Regional Development, and Fundamentals of Spatial Economics. Undergraduate students in either of these fields will receive a bachelor’s degree in Economics (majoring in agricultural & resource economics or in regional information). The department offers programs in agricultural & resource economics and regional information for graduate students.

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Faculty

<table>
<thead>
<tr>
<th>Professor Name</th>
<th>Position</th>
<th>Field</th>
<th>Phone</th>
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<tr>
<td>Kim, Jeong-Bin</td>
<td>Scholar</td>
<td>Agricultural Policy and Trade</td>
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<tr>
<td>Kim, Kwansoo</td>
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<tr>
<td>Kim, Hanho</td>
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<tr>
<td>Lee, Taeho</td>
<td>Scholar</td>
<td>Quantitative Analysis of Agricultural Policy</td>
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<tr>
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<tr>
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<tr>
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<tr>
<td>Hong Soo(Brian) Kim</td>
<td>Associate Professor</td>
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</tr>
</tbody>
</table>
The agricultural & Resource economics program is nationally recognized for its tradition of excellence. Our program has produced generations of distinguished scholars and a long list of influential alumni, including several Ministers of the Korean Ministry for Food, Agriculture, Forestry and Fisheries.

This program delivers one of the most efficient undergraduate and graduate programs by providing its graduates with the best opportunities in related fields. In addition, it is flexibly designed to adjust to changing agricultural environments and societal needs.

Programs focus on applied problems such as the efficiency of firms in the agriculture-based sector, including agribusiness, as well as the sustainability of agricultural production, environmental resources, and rural development.

The program has nine faculty members and more than 40 graduate students dedicated to improving society through the study of agricultural & Resource economics. It provides students with ethical and professional expertise. Graduates of the program are well prepared to be leaders responsible not only for academic society but also to their communities.

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Program in Regional Information

The regional information program specializes in spatial development, economics, land and housing economics, sustainable planning, information management and marketing in the agriculture/food business, research and education in spatial economics, regional and development finance, spatial development and planning, urban and rural information, spatial analysis, Management Information Systems (MIS) of agricultural and food industries, e-Business, Information management and marketing in the food business. Students in the regional information program can study understand, analyze, and propose theories for urban and regional structures in terms of the regional and spatial economy and information systems. Students also learn to use diverse statistical and econometric tools such as Geographic Information Systems (GIS) and Management Information Systems (MIS) for analyzing regional/agricultural information and food business.

The regional information program is an integrated academic area in relation to geography, business administration, sociology, urban engineering, and others on the basis of economics. Undergraduate students have opportunities to receive financial support and to pursue research internship programs according to their academic interests. Graduate students are able to work in a government agency, in public institute of central government and local autonomous entities, or in public enterprise, in relation to housing, land, and agriculture. They can also work as researchers at national or local governmental research institutes, for example, the Korea Research Institute for Human Settlements (KRIHS), Seoul Development Institute (SDI), R&D institutes of food companies, and so on. Recently, there has been an increase in the number of students to study abroad for regional planning, spatial economics, policy science, business management, etc. Moreover, the regional information program aims to develop spatial economic analysts for international organizations through dominant academic and research courses in the regional information program and in the Brain Korea 21 Plus (BK21 Plus) project.

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College of Agriculture and Life Sciences established 7 departments and 2 interdisciplinary programs in Graduate School: Department of Plant Science (Program in Crop Science and Biotechnology, Program in Horticultural Science and Biotechnology), Department of Forest Sciences (Program in Forest Environmental Science, Program in Environmental Materials Science), Department of Agricultural Biotechnology (Program in Food Science and Biotechnology, Program in Animal Science and Biotechnology, Program in Applied Life Chemistry, Program in Plant Microbiology, Program in Entomology, and Program in Biomodulation), Department of Landscape Architecture and Rural Systems Engineering (Program in Landscape Architecture, Program in Rural Systems Engineering), Department of Biosystems and Biomaterials Sciences and Engineering (Program in Biosystems Engineering, Program in Biomaterials Engineering), Department of Agricultural Economics and Rural Development (Program in Agricultural and Resource Economics, Program in Regional Information), Department of Agricultural and Vocational Education, Interdisciplinary Program in Agricultural Genomics, and Interdisciplinary Program in Agricultural and Forest Meteorology. Three of these - Program in Biomodulation (Department of Agricultural Biotechnology), Interdisciplinary Program in Agricultural Genomics, and Interdisciplinary Program in Agricultural and Forest Meteorology - have run only graduate courses not undergraduate courses.

**Program in Biomodulation**

Biomodulation major has been established with the purpose of improving the welfare of humanity through the development of biologically active materials and cutting edge medical technology. Emphasis of the major is on multidisciplinary research to create and apply new knowledge and technology of molecular and cell biology, biochemical engineering, biophysics, and agriculture, as well as veterinary and human medicine and pharmacology. International and domestic scholars joined Biomodulation major as faculty members to advance their research and foster students, with an aim to be the world leading university.

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**Interdisciplinary Program in Agricultural Genomics**

Interdisciplinary Program in Agricultural Genomics was established to provide the platform for systemic analysis and application of genomes from diverse agricultural animals, microorganisms, and plants. Primary goal of Agricultural Genomics Program is a training of multidisciplinary professionals on genomics, bioinformatics, and systems biology. Agricultural Genomics Program offers several specialized courses on functional genomics, bioinformatics, and plant systems biology, in addition to genetics, biochemistry, cell biology, and other general biotechnology courses.

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**Interdisciplinary Program in Agricultural and Forest Meteorology**

Agricultural & Forest Meteorology (AgFM) deals with most important issues facing society today and in the future, i.e., water and food security, ecosystem sustainability, and concerns in global change and environmental quality. The AgFM program focuses on nurturing and linking basic (interpersonal) competence and key (systems thinking, normative, anticipatory, and strategic) competencies in sustainability. Our conceptual framework is based on complex systems theory and visioneering. Students are prepared to engage in global sustainability challenge as leaders and stewards by envisioning and implementing sustainable solutions to the current and future agricultural and environmental problems in complex ecological–societal systems. Students are challenged to learn how to design and operate an adaptive program for the realization of the vision through the triad of adaptive governance, management, and monitoring.

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**Faculty**

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<th>Gynecologic Oncology</th>
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<tr>
<td>Associate Professor Suh, Jeong-Yong</td>
<td>Biophysics and Nanobiology</td>
<td>4879</td>
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The Research Institute of Agriculture and Life Sciences of Seoul National University was established on September 9, 2001, as an institute stemming from the Institute of Agricultural Science and Development (established in 1967) to integrate several institutes within the College of Agriculture and Life Sciences and to support research projects and to manage and organize institutes and centers. Recently, the research institute developed eight affiliated research institutes and two management organizations – the Research Center for Career & Vocational Education and the Administration Office – to concentrate on studies of agriculture and life sciences and to promote international joint researches with industrial–educational–institutional cooperation. In particular, the aim of establishing the research institute is to lead the development of agriculture and life sciences in the 21st century by settling the supply of agricultural biological resources, promoting rural communities, and researching environment-friendly agriculture and life sciences.

The research institute performs the following functions to support and maximize research activities and capabilities in the field of agriculture and life sciences:

- Research support in the fields of agriculture and life sciences for securing supplies and various applications of biological resources, environment-friendly agricultural production, rural development, and conservation of the environment
- Attraction and efficient management of research funds
- Planning and supporting collaborative and interdisciplinary research
- Academic information service in agriculture and life sciences and technology
- Planning and supporting research activities through seminars, symposia, conferences, etc.
- Providing public information and education on agriculture, life science, and technology
- Publication of academic and general series, academic journals (Research in Agriculture and Life Sciences), and annual reports

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The Center for Plant Science and Biotechnology consists of divisions of Plant Genetic Material, Plant Biotechnology, Environment–Friendly Production Technology, Facility Production, and Post–harvest Management Technology. It performs researches in the following areas:

- Collection of genetic resources and identification of useful genetic resources
- Physiology of crop plants and sustainable environment–friendly production technologies
- Production technologies of crop plants based on plant physiology and environmental control
- Storage, processing, value-added technologies post harvest crops
Center for Bio-resources and Food

The Center for Bio-resources and Food consists of divisions of Biological Systems Engineering, Biological Resources Engineering, System Engineering for Bio-resource Production, and Food Engineering. It performs researches in the following areas:

- Development and analysis of crop and livestock production systems, machinery systems for the production and process, and production information systems
- Development, analysis, process, production and application of bioresources
- Development and conservation of water resources, construction and management of rural infra-structures, environmental conservation and improvement of natural resources, and development of resource information systems
- Food-biotechnology including production, process, preservation, safety and transportation of food

Center for Plant Environment Science

The Center for Plant Environment Science consists of divisions of Natural Ecosystem, Environmental Stress Biology, Environmental Management and Contamination, and Animal and Plant Protection. It performs researches in the following areas:

- Dynamics and statics of ecosystem
- Biological and chemical responses of plants against environmental stress
- Relevant management of soil, water and atmosphere, development and application of pesticides and fertilizers, and assessment and remediation of environmental pollution
- Plant protection and biological control

Center for Future Environmental and Forest Resources

The Center for Forestry and Forest Products consists of divisions of Forest Resources, Conservation of Forest Environment, Wood Engineering, and Forest Products Chemistry and Paper Science. It performs researches in the following areas:

- Establishment and management of forest resources and production of forest goods
- Conservation and use of forest environment such as forest land and soil, watersheds and biodiversity
- Quality improvement and functional development of wood and biocomposite products, and design of engineered wood and timber construction
- Paper and lignocellulosic bio-energy making process and chemical properties of environmental and forest resources

Center for Animal Science and Technology

The Center for Animal Science and Technology consists of divisions of Breeding and Reproduction, Nutrition and Feed, and Food Resources of Animal Origin. It performs researches in the following areas:

- Improvement of economic animal productivity and genetic resources, and its industrial applications in the establishment of novel animal biotechnology
- Efficient utilization of nutrients, production of feed and sedge, lactation, physiology, livestock environment, and development of new materials based on animals
- Quality improvement and functional processing of dairy, meat, and other stock products

Center for North Korean and Foreign Agriculture

The Center for North Korean and Foreign Agriculture consists of divisions of Agricultural Production, Marketing and Processing, Rural Development, and International Cooperation. It performs researches in the following areas:

- Production, application, and technological development of North Korean and foreign agricultural, forest, and animal products
- Marketing and processing of agricultural, forest, and animal products
- Educational, social, systemic, circumstantial, and resourceful policies for agricultural and rural development

Center for Regional Planning and Landscape Architecture

The Center for Regional Planning and Landscape Architecture consists of divisions of Landscape Architecture Planning and Design, Environmental Assessment, Tourism and Recreation Research, Rural Development, Agricultural Extension and Development, and Agricultural Economy. It performs researches in the following areas:

- Plan and design parks and open spaces, residential and industrial sites of urban and rural areas, street facilities, and computer-aided design
- Environmental aesthetics, environmental assessment, design and management by landscape value assessment
- Developmental planning, design, and property analysis of tourist destination and recreation areas
- Rural residential sites, ecological sites, analysis and planning of regional environment and GIS

Urban Greening Institute

The Urban Greening Institute consists of divisions of Urban Afforestation Material, Urban Afforestation Technology, Urban Afforestation Planning, Landscape Plant Exhibition Gallery & Urban Afforestation Information, and Administrational Educational Support. It performs researches in the following areas:

- Cultivation and production technology of landscape plants
- Standardization technology of landscape plants
- Special areas’ afforestation technology and creating urban forest
- Urban afforestation planning and design
- Relevant systems
- Formation and management of landscape plants’ exhibition gallery and information provision on urban afforestation
- Education for hands-on workers (government employees) on profitable businesses and urban afforestation

Research Center for Career & Vocational Education

The Research Center for Career & Vocational Education consists of the Research Division of Career Education, the Research Division of Vocational Education, and the Steering Committee. It conducts continuous studies regarding career and vocational education, and also provides policy response and solutions in the field of career and vocational education.

The objectives of the Research Center for Career & Vocational Education are as follows:

- Establishing initiative research foundations for enhancing career and vocational education
- Analyzing the actual status and trends of career and vocational education
- Preparing the master plan of career and vocational education
- Embodying consilience through interdisciplinary collaborative researches to career and vocational education
- Cultivating leading educators and future researchers in the field of career and vocational education
Center for Food and Bioconvergence (CFB)

The Center for Food and Bioconvergence, formerly the Center for Agricultural Biomaterials, has been recognized as a leading research center in agro–bio science fields as it was selected to be an Outstanding Science Research Center supported by Korea Science and Engineering Foundation in 1991 and a Priority Research Center supported by Korea Research Foundation in 2004. On the basis of accumulated research achievements and knowledge, the Center expanded and restructured its scope to be born as the Center for Food and Bioconvergence (CFB) in September 17, 2012. Reorganization of the Center aims for the advancement of domestic food industry, which is one of the 17 future growth engines that National Science and Technology Council has selected. Also, it is to properly respond to the new paradigm of future society that is often characterized as “LOHAS-based and aging society.”

Through IT, BT, NT convergence based on various disciplines such as agriculture, chemistry, biology, engineering, medicine, pharmacy, business, CFB pursues the stable production of highly safe, value-added, multifunctional food and bio-products ranging from agriculture biological materials to processed foods. CFB’s research interest also includes the development of personalized diet that can be used in disease prevention and treatment. The specific objectives of the Center are as follows:

- **Research**
  - Development of value-added food and bio-materials
  - Development of personalized functional food and bio-materials
  - Development of convergence technologies for improving food safety
  - Development of future-oriented industrial technology for food and bio-processing
  - Advancement of management technology for agri-food and bio-industry

- **Education**
  - Developing and supporting food and bio-related interdisciplinary curriculum
  - Training high-quality workforce for agri-food and bio industry

Also, CFB hosts annual international symposium and workshop that provides a wide range of academic network and in-depth knowledge.

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Plant Genomics and Breeding Institute

The Plant Genomics and Breeding Institute (PGBI) was established in 2008 as the official successor of the Center for Plant Molecular Genetics and Breeding Research (CPMGBR) which had been designated as one of the excellent science research centers (SRC) by the Korea Science and Engineering Foundation and the Ministry of Science and Technology from 1999–2007. The goal of the institute is to advance science and technology in plant genomics and breeding research, ultimately aiming to develop advanced molecular breeding technology in order to apply these technologies for the development of new varieties of field crops and horticultural crops with high yield, good food quality, and strong resistance to plant pathogens. This institute pursues an active multidisciplinary approach among research fields from fundamental plant genomics and breeding sciences to novel biotechnology.

Technical aims for pursuing these goals are physical mapping, genome sequencing, and development of genomics-based molecular breeding techniques for various important crops such as rice, pepper, soybean, and ginseng. The identification of useful genes and the utilization of these genes for crop breeding will be achieved. Superior commercial varieties will also be developed using genomics information and molecular markers. New theories and applications for plant biotechnology and breeding will continuously be developed.

The institute will be open to other domestic and international research groups for close collaboration and communication.

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Center for Fungal Pathogenesis

The Center for Fungal Pathogenesis (CeFP) was established in 2008 as one of the premier science research centers (SRC) funded by the Korea Science and Engineering Foundation and the Ministry of Education, Science, and Technology.

Fungi are one of major eukaryotic kingdoms along with animals and plants. Fungi not only play an important role as key degraders in completing foodchain in the biological ecosystem, but also have a close relationship with human life in many aspects. Fungi are considered as important microorganisms for industrial purposes by producing a plethora of metabolites that can be used as drugs like antibiotics penicillin and biological materials of high economic values, such as various enzymes. In contrast to the beneficial roles, a number of fungi are pathogens that often cause lethal diseases in plants, animals, and humans. Damages caused by various fungal pathogens impose huge impacts on human life in social and cultural aspects as well as economical and industrial aspects. Therefore, demand for development of antifungal therapeutic methods of novel paradigm has been increasing due to the emergence of antifungal drug resistant strains and diverse pathogenic variants.

The major research goal of CeFP is to establish the novel paradigm for controlling fungal diseases by investigating the pathogenesis and virulence mechanism of plant and animal fungal pathogens. The main goal will be achieved by interdisciplinary and collaborative researches in systems levels of efforts between the following three main projects. The first project will tackle identification and characterization of fungal pathogenicity determinants. The second project will characterize signaling and regulation mechanisms of fungal pathogenicity. Finally, the third project aims to construct predictive and integrative in silico models for system-level approaches to study fungal pathogenicity. Our study of fungal pathogens with wide range of life-cycle and host specificity through multi-disciplines, biochemistry, cellular and molecular biology, genetics, structural biology, phylogenetics, genomics, proteomics, bioinformatics and systems biology, will not only provide novel paradigm for fungal pathogenesis research, but also lead development of eukaryotic systems biology that is emerging as a new interdisciplinary science field.

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The Center for Food Safety and Toxicology (CFST) was established in September 2010 as an Agriculture Research Center (ARC) supported by the Ministry for Food, Agriculture, Forestry and Fisheries, Korea. The ultimate goal of the center is to characterize microbiological and chemical risk factors for food and agro-fishery products at molecular level, and to develop novel and fundamental methods to control the risk factors.

To be competitive in this era of globalization, it is required that we should provide safe foods with high quality through ‘Large-scale Agricultural Enterprises’, ‘Systematization of Agro-processing’, and ‘Differentiation of Korean Foods from Others’ as suggested by the Ministry for Food, Agriculture, Forestry and Fisheries. Due to the differences on food types and culture, it would not fit very well if we adopt advanced food safety technologies from the developed countries. Therefore, it is necessary to develop and improve technologies based on the unique characteristics of Korean food culture.

Conclusively, we aim to identify, characterize, and control food-borne risks and toxic substances through the development of reliable and unique technologies for food safety and to be recognized nationally and internationally.

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Vegetable Breeding Research Center

Vegetable Breeding Research Center (VBRC) has been designated as one of the Agriculture Research Centers (ARC) of the Ministry of Agriculture, Food and Rural Affairs in 2010, with the purpose to educate future vegetable breeding experts, to develop high quality vegetable cultivars, and to develop cutting-edge breeding technologies to support the conventional breeding. VBRC will pursue two core programs: the first program for supporting education for graduates and basic research for breeding, and the second one for developing cultivars. In the first program, tools to increase the efficiency of breeding process will be generated through researches on genomic analysis of major vegetable crops and on development of efficient disease screening methods. In addition, graduates will be trained under new curriculum and through domestic and international internship programs. Future current breeders will be also trained in various workshops. In the second core program, experienced cultivars of pepper, watermelon, onion, and chinese cabbage will be developed by the cooperative researches between university and seed company or individual breeders. Our primary characteristics is disease resistance, functionality, high-quality and male sterility. The breeding process includes collection of germplasm, genetic analysis, and male sterility. The breeding process includes collection of germplasm, genetic analysis, development of efficient breeding methods and introduction of characteristics by crossing.

The participating universities can have an education and training system for future breeders. The students will be provided with high-quality education in plant. Then breeding: as a result, they will be at advantageous position to get a job and the seed companies can hire qualified graduates. Finally, Korea will secure national competitiveness for vegetable seed industry. Eventually, this center will be developed into a Vegetable Breeding Academy to assure that highly qualified and dedicated professionals replace the current breeders nearing retirement.

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National Center for AgroMeteorology (NCAM)

The National Center for AgroMeteorology (http://www.ncam.kr/) is an incorporated organization, established in November 2009 at Seoul National University, through the partnership with Korea Meteorological Administration, Rural Development Administration, and Korea Forest Service. NCAM supports individuals and organizations to be prepared to engage wisely in sustainability challenges from local to global scales by envisioning and implementing sustainable solutions to the current and future problems in agricultural, forest and societal systems. NCAM provides weather and climate information, synthesized understanding, options & trade-offs, and education & workshops on sustainability of agricultural and forest ecosystems in the context of climate change. The current core services and R&D are:

1. Satellite- and model-based high-resolution, digital climatology mapping of structure and function of agricultural and forest ecosystems,
2. Synthesized analysis of measurement and modeling of plant and animal production, outbreak and risk of diseases and insect pests,
3. Monitoring of energy, matters (e.g., carbon, water) and information exchanges through multi-purpose tower-based networks,
4. Transdisciplinary education in ‘Agricultural & Forest Meteorology’ in collaboration with Seoul National University (http://agfm.snu.ac.kr), and
5. Workshops, training courses, and internships.

Through the synergy of adaptive monitoring, adaptive management, and adaptive governance, NCAM plays a critical role in enhancing ecosystem services, mitigating disasters, and adapting to climate and environmental changes to ensure sustainable water and food security in Asia.

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http://www.ncam.kr
University Farm

The University Farm was founded in 1906 as an integral part of University facilities for education, research, and social services in the field of agricultural sciences. It is located roughly 40 kilometers south of the University’s Main Campus in Seoul. The goal of the University Farm is to produce well educated professionals who will work in agricultural and related fields and contribute to the development of agriculture and life sciences both at the national and global levels. In order to train researchers, technicians, educators, and managers who have the creativity and ingenuity necessary for the agricultural field, the University Farm focuses on supporting undergraduate and graduate programs, experiments, and research, as well as aiming to support outreach education, research, collection, and conservation of plant genetic resources.

The University Farm consists of the divisions of crop research, horticultural research and basic research. University Farm includes 12 hectares of farmland and 0.6 hectares of greenhouses.

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Experimental Animal Farm

The Experimental Animal Farm was established to mainly support teaching and studies in the field of animal biotechnology, promoting experimental practice and research using animal in Seoul National University.

A farm area is approximately 115 hectares which includes classroom building, forage crop field and animal barns. The Experimental Farm is also equipped with various facilities of animals such as separated house for Hanwoo (Korean native cattle), dairy cow, hygienic poultry cage supplies as well as a dairy and meat processing plant, and an animal excreta treatment unit. Currently, many of animals raised on the Experimental Farm include Hanwoo, dairy cow, and poultry etc. Forage crop and meadow production studies are also conducted in the Experimental Farm. In addition, studies of animal excreta treatment to resolve environmental problem are being progressed. Consequently, Experimental Farm of Seoul National University is prepared for researches and education for next generation in the field of animal science and biotechnology.

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University Forests

The University Forests, established in 1913, manages about 17,000 hectares of forests located in three local experimental forests: Southern[16,214ha], Taehwasan[795ha], Chilbosan[118ha]. The University Forests have programs to support field practices of undergraduate and graduate students and forests-related research for forest management, forests hydrology, wildlife, recreation and forest ecology. All the research and management policies are driven to develop advanced forest management techniques and field operation skills to realize a new global paradigm of sustainable forest management.

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http://uf.snu.ac.kr

Arboretum

Seoul National University Arboretum founded in 1967 by Professor Tchang-bok Lee at College of Agriculture and Life Sciences, Seoul National University is the first officially approved arboretum and one of the leading centers for studies on vascular plants in Korea. Our mission is to collect and study native plants in Korea and the Northern Hemisphere, to support research and education on plants, to accumulate the knowledge on native plants and to provide relative information for scientific researches and public education. We especially focus on the propagation, conservation, and presentation of the living collections.

Facilities: Seoul National University Arboretum consists of Gwanak Arboretum, Suwon Arboretum and T.B.Lee Herbarium. Gwanak Arboretum (1,501ha) is located at southern
National Instrumentation Center for Environmental Management

On November 25, 1992, the National Instrumentation Center for Environmental Management (NICEM) was established at the College of Agriculture and Life Sciences (CALS) in Seoul National University. With its mission to promote and centralize research facilities for agricultural and environmental sciences and biotechnologies, NICEM was granted by 10th and 11th International Bank for Reconstruction and Development (IBRD) education loan projects. NICEM received grants with an amount of approximately 14 million dollars for 6 years (1994 to 1999) and has been able to procure state-of-the-art research equipment and reinforce its facilities. Each year about 40,000 people use NICEM’s equipment. The most encouraging fact is that more than 60% of its users are from over 350 organizations outside of the SNU, which indicates successful accomplishment of NICEM and its role as a nationwide research and education supporting institute.

NICEM is committed to provide most reliable and timely services on various analytical measurement data and listen to the comments of the equipment users so as to increase the utilization of our equipments and services.

NICEM is participating in developing international standards of soil analysis and investigation as a secretary institute of ISO/TC190 “Soil quality” and has achieved a certification of verified international laboratory from KOLAS (Korea Laboratory Accreditation Scheme, KT-375) in 2008.

NICEM endeavors to contribute in the agricultural and environmental sciences and biotechnologies in Korea continuously. This venture can be established by upgrading research capacity with the latest equipment and services to all universities in Korea, as well as educating most talented human resource. NICEM is open to all who wish to take the opportunities and its potential for their scientific endeavor.

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http://nicem.snu.ac.kr

The Center for Vocational Education and Workforce Development, attached to the College of Agriculture and Life Sciences in the Seoul National University, was established in 1963. The institute provides various in-service programs for secondary vocational teachers to increase and update their professional knowledges and skills necessary for teaching in vocational high schools. The institute is a unique official institute delivering teacher licensing programs for agricultural high school teachers to improve their theoretical and practical knowledges and skills.

The major courses delivered by the institute are licensing course, in-service training course and special development course. The institute has administered a leadership program for vocational education supervisors and administrators from the local offices of education in Korea since 2004.

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http://cvewd.snu.ac.kr

Suburbs of Seoul city extending from the border of the university’s main campus to the Anyang valley of Mt. Gwanak. It is surrounded by oak-maple natural forest at 37°25’ N latitude, 126°59’ E longitude (alt. 90-200m). It has collection of more than 1,100 species. Suwon Arboretum (22.1ha) is located in Suwon city at 37°15’N latitude, 128°59’ E longitude (alt. 44m) and has collection of 500 species of trees, shrubs and other plants from around the northern temperate hemisphere. T.B. Lee Herbarium at Gwanak campus has about 100,000 specimens collected from China, Japan and Nepal as well as south Korea.

Research: The Arboretum promotes research by our faculty members and students to increase our knowledge of the botany and evolutionary history of plants in eastern Asia. General interest is in taxonomy and nomenclature of plants in Korea: at the same time, we are collecting plant germplasm of rare and endangered plants.

Education: The Arboretum offers basic educational materials for students and conducts leading research on taxonomy and identification of trees and shrubs throughout eastern Asia.

Tel: +82-31-473-0071 Fax: +82-31-473-0072

Suwon
Tel: +82-31-293-0319 Fax: +82-31-295-6660

T.B. Lee Herbarium
Tel: +82-2-880-4770
E-mail: arbor@snu.ac.kr
http://arbor.snu.ac.kr

Tel: +82-31-473-0071 Fax: +82-31-473-0072

Tel: +82-2-880-4844 Fax: +82-2-872-8995
E-mail: donlee1@snu.ac.kr
http://cvewd.snu.ac.kr
Agricultural Business Incubator

The Agricultural Business Incubator was established in September 2001 to support new venture creation in the area of agriculture and life sciences. It provides various resources to help venture industries to develop their own business. Along with research and office space, laboratory equipment and experimental facilities are provided. The Agricultural Business Incubator offers an education in general management, beginning of business, finance, investment, intellectual property, marketing, technology licensing among others. Many industrial partnerships and outreach programs also support and develop venture industries at the early stage of development. The business incubator acts as a hub for venture industries, investors, related entrepreneurs, and university faculties.

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Information Center for Agriculture and Life Sciences

The Information Center for Agriculture and Life Sciences (iCALS) provides services for the College of Agricultural and Life Science (CALS) in two ways. One is to support education and research activities in the CALS through the computerization services and the other is to promote communication and cooperation among the researchers by serving as knowledge infrastructure in the areas of Agriculture and Life Sciences. The iCALS is composed of three operational units: the Education and Research Support Team (ERST) for the administrative support, the Information Development Team (IDT) for the planning and development of information database related to education and research, and the Information Management Team (IMT) for the information system management. The primary task of the ERST is to serve the CALS faculties and students administratively as well as computationally in association with education, research, and training. The ERST cooperates with the University Computer Center (UCC) to facilitate campus networking, runs a computer laboratory for lectures and information navigation, and manages the home pages of the CALS and its associated institutes. The services of the Wibro portable wireless internet and Uspace internet cafe are also part of the ERST work. The IDT focused on the design and development of information infrastructure in order not only to promote education and research in the fields of agriculture and life sciences but also to improve the efficiency of information exchange and communication among the researchers. In Feb. 2009, the IDT launched a new project analyzing R&D and technology trends in the areas of agriculture, fishery, and food, with the support of the Ministry for Food, Agriculture, Fishery, and Forestry. Through this project, the IDT aims to establish a specialized and systematic framework for the analyses of R&D policy and technology trends. The IMT tasks is to collect information relevant to education and research in agriculture and life sciences. The collected information will be processed systematically, incorporated into a database, and serviced online. Continuous update and expansion of the database is also the task of the IMT. Online services at the URL of http://www.alric.org offered by the iCALS include the R&D trends, audio-visual information (VOD), generic database, news and announcements, and so forth. The iCALS contracted mutual understandings on information exchange with prestigious domestic and international universities, science societies, and research institutes and actively utilizes information providers (IPs) from a broad range of expertises for the construction of a reliable and specialized information infrastructure. It also intend to promote vigorous communication among the iCALS members by offering emailing services of monthly webzine and twice-a-week newsletter, which include special article, focus issue, introduction to a research laboratory, other many update information.

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Agriculture and Life Sciences Library

The Agriculture and Life Sciences Library, established in August 1946 at the College of Agriculture and Life Sciences, was renamed as one of the branch libraries of the Central Library of Seoul National University in 1992. The Agriculture and Life Sciences Library currently holds approximately 160,000 volumes of books for agricultural sciences and offers 43,000 electronic journals which are easily accessed through the library homepage. FAO publications, DVDs related to agricultural sciences, and the Digital Insect Museum data services are also available at the library.

Tel: +82-2-880-4774 Fax: +82-2-884-0182
E-mail: aglib@snu.ac.kr http://aglib.snu.ac.kr
Insect Museum

The Insect Museum of the College of Agriculture and Life Sciences (CALS) in Seoul National University was founded in 1930’s by Suwon Agriculture and Forest College, the predecessor of CALS.

From 1930’s through today, number of specimens in the museum amounts to 330,000 including major insect pests and many other arthropods in Korea. Much faunistic research on scarabaeid beetles in 1960’s, the major pest group of Lepidopterans, Hemipterans, Coleopterans and thrips in 1970’s, and pollinating bees in 1990’s are available for examination in the museum’s large archives.

The Insect museum also has various data and literature regarding the insect faunistic and geological research of Korean peninsula. The specimens are used for identification services and many research activities related to the prediction of pest outbreak, the investigation of beneficial insect species like endogenous natural enemies, and pollinating bees. We are able to evaluate the destroyed ecosystem or the restored ecosystem and measure the contamination level of environment by using collection data and specimens. They are also used for the plant quarantine service to protect the biodiversity of Korean peninsula.

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http://plaza.snu.ac.kr/~taxon

Digital Insect Museum
http://insect.snu.ac.kr

Farm Workshop

The Farm Workshop was established to provide practical agricultural machinery maintenance and manufacturing technologies for farm instruction.

The Workshop has an independent building in the University Farm and one large room at the central hall of the CALS building. It consists of metalwork lab, woodwork lab, and machinery shed. The Farm Workshop at central hall provides its facilities for lecture and practice on farm workshops as well as for the development of various experimental apparatus for research. The Farm Workshop at University Farm displays various agricultural machines for education, and provide its machinery to the University Farm and the University Animal Farm. Main facilities for metalworking include: arc welding, lathe, milling machine, universal cutter, and CNC.

Facilities for woodworking include: band saw, circular saw, wood lathe, and wood plane. Additional facilities and tools include: various agricultural machineries such as tractors, combines, rice transplanters, and many others. Farm Workshop is open to all users for education, research, and social service.

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http://fshop.snu.ac.kr

University Plant Clinic

The University Plant Clinic (UPC) of the College of Agriculture and Life Sciences in Seoul National University was established as ‘Tree Hospital’ in 1999, which was aimed at education and researches on conservation/management of plants and for technical consultation. In 2005, the ‘Tree Hospital’ was expanded and reorganized as ‘University Plant Clinic’ which consists of Fundamental Diagnosis Section, Clinical Pathology Section, Plant Pests Section, Tree Management Section, Environmental Physiology Section, and Administration Section.

The main tasks are as following:
1) diagnosis of damages on landscape trees caused by diseases, insect pests and physiological stresses,
2) field visits and consultation through written requests and internet homepage,
3) services of recent practices on management of ornamental trees,
4) management of ‘Training Course of Landscape Tree Maintenance’ program which is held twice a year,
5) R&D on managements of plant health and publication of technical books. The UPC contributes to the public relation of Seoul National University by providing various services on the consultation and diagnosis of the management of plant health to local communities.

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http://snupc.snu.ac.kr
**Research Group (Team)**

### BK21⁺ Consortium in Agricultural Biotechnology

As 30 faculty members of the Department of Agricultural Biotechnology devoted their endless effort to develop the consortium, six-year annual grant amounting 2.2 million USD is supported by the Ministry of Education, Science and Technology since 2006.

The realization of research areas and goals, described in the section pertaining to the Department of Agricultural Biotechnology, is supplemented by research grants from industries totaling roughly 0.7 million USD per year. The consortium supports graduate students enrolled in the Department of Agricultural Biotechnology with research assistantships, overseas travel grants to participate in international meetings, and long term study fellowships in internationally renowned universities. Providing post doctoral training and employment opportunities as research professors is an additional goal of the consortium. A number of research professors and postdoctoral fellows are currently affiliated with the consortium.

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http://bk.snu.ac.kr

### BK21⁺ Global Leadership Program towards Green Infrastructure Innovation

This research team consists of two professors from the College of Agriculture and Sciences, one professor from the Graduate School of Environmental Studies, and 16 doctoral students from the Interdisciplinary Program in Landscape Architecture. It provides a strong interdisciplinary education and research environment for landscape architecture, environmental studies, ecology, and urban design.

Green infrastructure study requires an interdisciplinary approach to its analysis, monitoring, assessment and planning, because research issues often face complex relationships among social, ecological and environmental aspects. The objective of this research team lies in the training of highly capable researchers who will be able to contribute towards the betterment of overall human welfare and the global environment. Therefore, this program not only focuses on providing a sound foundation for interdisciplinary education and research in landscape architecture, ecology and urban design, it also provides students with opportunities for industry-university collaboration and international programs engagement.

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http://bk21plusigi.snu.ac.kr

### BK21⁺ Regional Quantitative Analysis Research Group

The "Regional Quantitative Analysis Research Group" is in the Program of Regional Information at the Department of Agricultural Economics and Rural Development. The research group composed of five professors including BK research professor and 20 Master and Ph.D. graduate students in the field of Regional and Spatial Economics, Regional Development and Planning, Sustainable Development, Regional Information System, and Regional Industry and Business. This group strongly emphasizes on education and research in the development of quantitative tools for regional economic analysis and application in spatial and industrial policies. The educational and training program involves in spatial general equilibrium and econometric models, regional economic valuation, and data–mining methods. The graduate students are financially supported for their education and research, as well as participation in the international conferences and training and internship at the domestic and foreign universities and institutions. The graduate students in this group are expected to contribute in solving regional development issues with quantitative tools and micro and macro economic background of spatial theory.

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http://region.snu.ac.kr/bk/
Reinforcing Innovation Capabilities for Agriculture and Life Sciences (RICA)

Department of Agricultural Economics and Rural Development and Major of Vocational Education & Workforce jointly launched the RICA program on July 2014. The RICA program will be financially sponsored by Ministry of Education during the years of 2014~2018. The aim of RICA program is to nurture talented workforces of Agriculture and Life Sciences industry and thus reinforce innovation capabilities in the relevant fields. The program takes 3 core strategies to precede the program for the next 5 years: establishing educational foundation, creating “on-site-oriented” environment and activating international training and internship program. 19 faculties of aforementioned departments participate in the program and it encompasses 291 undergraduate students of the departments. This year, a number of seminars and special lectures have taken place and will soon initiate internship program and international study tour. On November 5th 2014, the program held an information session in which about 100 students participated. The program is expected to develop with much of students’ interests and attention.

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Continuing Education

Advanced Agricultural Policy Program

The Advanced Agricultural Policy Program is an educational program for agricultural policy makers, agribusiness executives, and leaders of rural communities. Providing educational courses including various issues on agricultural policy, our program is to contribute to communication among the participants as well.

Tel: +82-2-880-4735  Fax: +82-2-873-3565  E-mail: mjk@lone@snu.ac.kr  http://aapp.snu.ac.kr

Advanced Agri-food Management Program

‘Advanced Agri-food Management Program’ that, Agri-food Trade Institute and Seoul National University are cooperatively progressing, is for CEOs and executives of production associations, agricultural corporate bodies, food companies, agri-food exporting companies, and agricultural public enterprises. The program is composed to train those into the professional experts in agricultural and food industries to develope and maintain the related businesses in effective way. The program is aiming to have those professional experts to be ready to enter the global agricultural market as well as domestic agricultural industry being equipped with professional business attitude attained from the course.

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Advanced Eco-Materials Technology Team

Lignocellulosic Biomass-Based Advanced Eco-Materials Technology Team is composed of 6 faculties and 27 involved graduate students in Program in Environmental Materials Science. The team focuses on training excellent researchers in the field of utilizing the Lignocellulosic Biomass. The project team is divided into 3 categorized team which are: the Bio-composites and Bio-refinery team, the Performance of Lignocellulosic Biomass Materials team, and the Meralization based on cellulose team. And, the team is constructing a close cooperative system by configuring with dozens of industry and research institutions, and seven of the foreign Universities network. The project team is researching not only the traditional forest product but also on the high-value-added substances and material that can be obtained from lignocellulosic biomass. These researches are aim for having excellent research achievements in high-tech industries of energy, cosmetics, electronics, automotive, etc. Especially, the team is trying to establish a global mindset and to improve the quality of research by building up excellent researchers from providing opportunities for participating and presenting in the internationally renowned conference. In addition, the provisions are established to provide the holistic education to the participating graduate students to take/complete variety of training programs in and outside of school.

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Introduction

Seoul National University has been making grand scale green bio high-tech research complex with site scale of 2,780,539㎡, with building scale 86,372㎡, to contribute to national research capacity expansion and the activation of local economy with Pyeongchang–gun, Gangwon-do since 2009.
Institutes of Green Bio Science and Technology will be the base suggesting the direction of green bio integrated research by various academic communications through education and study close to site, and will be the hub of Northeast Asia in green bio field and eager to make creative value supporting for national development.
Also, it is expected to be the base which contributes for local development by maximizing growth potential among universities, research institutes, related to businesses as a academy research industry cluster harmonious with research, education, industry cooperation in clear zone.

Research Fields

Establishing 5 local institutes close to field to increase potential of green bio field etc. and to plan commercialization
- Participating members: 25 full-time professors, 49 concurrent professors from 8 colleges

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<table>
<thead>
<tr>
<th>Names of institutes</th>
<th>Research contents</th>
<th>Participating colleges</th>
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<tbody>
<tr>
<td>Ecofriendly Animal Sciences</td>
<td>Putting new technology of high-tech environmentally friendly livestock industry to practical use based on natural cycle and animal welfare</td>
<td>College of Agriculture and Life Sciences, College of Veterinary Medicine</td>
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<tr>
<td>Bio Food Industry</td>
<td>Developing new technology related to bio food industry and application research for industrialization</td>
<td>College of Agriculture and Life Sciences, College of Veterinary Medicine</td>
</tr>
<tr>
<td>Seed Biotechnology</td>
<td>Support for seed industry and industrialization research through analysis of dielectric substance from plant resources and transformants development</td>
<td>College of Agriculture and Life Sciences, College of Pharmacy</td>
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<tr>
<td>Green–Eco Village Engineering</td>
<td>Building of village based on residential space itself - water, energy, carbon virtuous circle system and sustainable development of ecosystem engineering, future technology and research for practicability</td>
<td>College of Agriculture and Life Sciences, College of Natural Sciences</td>
</tr>
<tr>
<td>Designed Animal and Biotransplant</td>
<td>Study of xenotransplantation, regenerative medicine, stem cell biology and therapy to solve obstinate and incurable disease by using the designed animal resource</td>
<td>College of Agriculture and Life Sciences, College of Veterinary Medicine, School of Dentistry</td>
</tr>
</tbody>
</table>

Purpose of Education

Fostering professional manpower of international agriculture who have multi disciplinary and integrated expertise of international agriculture technology required for international organization, multinational company, KOTRA, KOICA and ODA business.

Direction of management
- Building up industrial–academic and public cooperation system available for field–contact education of international agriculture and technology study
- Promoting amicable relations through the development of underdeveloped countries' agriculture and promoting the status of the country, fostering global man power for international agriculture to contribute to the development of the country as an advance guard for securing overseas resources

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<td>Master degree</td>
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<td>MS in Agriculture</td>
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5 Tracks
- Livestock Industry and Biotechnology
- Agri–Food R&D and Processing
- Seed Biotechnology
- International Agricultural Engineering
- International Agricultural Development and Cooperation

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Foreign Students & International Exchange Students (into CALS)

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International Exchange Students (from CALS)

<table>
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<th>Asia</th>
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China
- Qingdao Agricultural University 2010.06.29
- Nanjing Agricultural University 2014.05.13
- Institute of Applied Ecology, Chinese Academy of Sciences 2002.10.28
- Zhejiang Academy of Agricultural Sciences 2012.10.18
- Beijing Forestry University(北京林業大學) 1998.08.05
- Agricultural College of Yenbian University(延邊農學院) 1991.06.10
- College of Chemistry & Life Science, Huanggang Normal University 2013.08.20
- Huazhong Agricultural University 2012.02.16
- Yangtze University 2014.09.15

Japan
- Faculty of Textile Science and Technology, Shinshu University 2012.07.17
- Faculty of Agriculture, Shinshu University 2014.03.04
- Faculty of Agriculture, Kyushu University 1987.07.15
- Graduate School of Agricultural and Life Sciences, University of Tokyo 2011.10.04
- Faculty of Horticulture and Graduate School of Science and Technology, Chiba University 2009.06.30
- Obihiro University(帯廣畜産大学) 1991.10.21

North America
- Canada
  - University of Alberta 2012.01.27
- America
  - College of Agriculture and Life Sciences, Cornell University 2000.01.27
  - College of Science, George Mason University 2010.09.09
  - University of Florida 2013.03.07
  - College of Agriculture, Food and Natural Resources, University of Missouri-Columbia 2000.10.27
  - College of Forest Resources, University of Washington 2006.09.08
  - North Carolina State University 2007.10.29
  - College of Agriculture and Natural Resources, Michigan State University 2014.11.19
College Map

Public Welfare Hall
75-1
- Cafeteria / Restaurant
- Agriculture and Life Sciences Library
- Alumni Association

Environmental Hall
201
- National Instrumentation Center for Environmental Management (NICEM)
- Auditorium

Green Hall
200
- Department of Landscape Architecture and Rural Systems Engineering
- Department of Agricultural Economics and Rural Development
- Department of Forest Sciences
- Department of Biosystems and Biomaterials Science & Engineering
- Department of Food and Animal Biotechnology
- BK21 Consortium in Agricultural Biotechnology