Graduate School of East-West Medical Science

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The Graduate school of East-West Medical Science(GEWMS) was established in 1999 as an educational system to produce creative researchers in the field of 'East-West Medical Science' which combines knowledge of Eastern and Western medicine.
Its establishment was a part of the University's long-term strategic program, 'Kyung Hee University's(KHU) Future in the New Millennium : Vision 2000' which designated "Korean medicine" as a specialized future research area of KHU. The process of establishing GEWMS was accelerated by its participation in the first stage of Brain Korea 21 Project(BK21) supported by the Korea Ministry of Education and Human Resources Development for 6 years from 1999 to 2005.
In 2015, GEWMS has been selected as 'Graduate school of Healthy Aging' supported by the Korea Ministry of Health and Welfare for 5 years from 2015 to 2019. GEWMS opened department of Gerontology to train professional personnel needed for various kinds of researches and industries for healthy aging.

| Degree Requirements |

The degrees offered by GEWMS are M.S./M.A. and Ph.D. in the fields of Medicine, Korean Medicine, Medicine, Alternative Medicine, Comprehensive Health Science, Medical Nutrition, Clinical Nutrition, Biogerontology and Gerontology.

Departments	Major		Degrees(M.S. /Ph.D)
East-West Medicine	Medicine, Korean medicine.		M.S./Ph.D. in Medicine, Korean Medicine
	Alternative & Complementary Medicine		M.S./Ph.D. in Alternative Medicine
Comprehensive Health Science	Comprehensive Health Science		M.S./Ph.D.
Medical Nutrition	Medical Nutrition		M.S./Ph.D. in Medical Nutrition
	Clinical Nutrition		M.S./Ph.D. in Medical Nutrition
	Health Care Nutrition		M.S. in Medical Nutrition
	AgeTech-Service Convergence		M.S./Ph.D. in Medical Nutrition
Gerontology	Biogerontology		M.S./Ph.D. in Biomedical Science
	Gerontology		M.A./Ph.D. in Gerontology
	AgeTech-Service Convergence	Biogerontology	M.S./Ph.D. in Biomedical Science
		Gerontology	M.A./Ph.D. in Gerontology
Department of Innovative Food science and Health	-		Master of Science(MS)

The completion of the followings is required to earn a degree :

- The minimum credits required for graduation in each department are 24 and 36 units for the M.S. and Ph.D. degree, respectively.
- Qualifying examinations are held in 3 and 4 common courses for the M.S. and Ph.D. degree, respectively.
- The dissertation or thesis should be approved by 3 or 5 committee members for the M.S./M.A. and Ph.D. degree, respectively.
- At least one submission and publication in National(KCI) and SCIE Journals for the M.S./M.A. and Ph.D. degree, respectively.

| Courses |

Common Courses

Analytical Biochemistry, Biochemistry, Cell Biology, Current Theory of Acupuncture & Meridian, Immunohistochemistry, Medical Statistics, Molecular Biology, Natural Products Chemistry, Neuroscience, Oriental Medical Theory, Research Methods for New Medicine, East-West Integrated Medical Science Research, BioGerontology and Gerontology

Department of East-West Medicine

- Major of Medicine and Major of Korean Medicine : Traditional-west Medical Research Methodology, The Newest Western Medicine, Practice of Integrated Medicine, Comparison of Traditional and Western Medicine, General Theory of Oriental Medicine, Psychosomatic Medicine, Statistics in Health Science, Clinical Nutrition, Common Statistical Methods for Clinical Research, Integrated Research of Traditional and Western Medical Science, Analytical Biochemistry, Biochemistry, Cell Biology, Current Theory of Acupuncture & Meridian, Immunohistochemistry, Medical Statistics, Molecular Biology, Natural Products Chemistry, Neuroscience, Oriental Medical Theory, Research Methods for New Medicine, General Herbal Pharmacology, Medical Entomology, Chinese Herbal Pharmacology, Evaluation of Herbal Medicine, Lecture on Drugs for Relieving Exterior and Excreting Dampness, Herbal Toxicology, Immuno-pharmacology, Meridian Theory, Mechanism of Acupuncture Therapy, Herbal Acupuncture Therapy, Theory of Electroacupuncture, Methodology of the Study of Meridian, Neuromagnetics, Meridian System, Neurobiology, Neurophysiology, Neuropharmacology, Neuro-Biochemistry, Bio-chemistry in Neuropharmacology, Brain Disease Research, Neuro-anatomy, Neurophysiology of CNS, Cognitive & Behavioral Neuroscience, Current Topic in Life Science, General Concept of Cancer Biology, Cancer Metastasis, Angiogenesis of Tumor, Anticancer Herbalogy, Oriental Etiology and Pathology, Anticancer Chemotherapy, Methodological Study of Cancer
- Major of Alternative & Complementary Medicine : Advanced Muscle and Joint Anatomy, Advanced Neuroanatomy, Advanced Molecular Cell Biology, Oriental Medical Theory, Alternative & Complementary Medical Nutrition, Advanced Alternative & Complementary Medicine, Advanced Alternative & Complementary Biochemistry, Advanced Alternative & Complementary Neurophysiology, Alternative & Complementary Muscularskeletal Rehabilitation, Alternative & Complementary Acupuncture & Meridian, Alternative & Complementary Oriental Pharmacology, Alternative & Complementary Health Supplements, Alternative & Complementary Dermato-Nutrition, Alternative & Complementary Diet Therapy, Alternative & Complementary Geriatric Nutrition, Alternative & Complementary Bariatirc Nutrition, Alternative & Complementary Anticancer Medicine, Mind-Body Medicine, Chiropratics, Probiotics and Health, Alternative & Complementary Brain Research, Nutrition for Health Aging, Structure and function of Human Body, Special Topics of Oriental Biomedical Science

Department of Comprehensive Health Science

- Department of Comprehensive Health Science has established educational research system for exercise, nutrition, and medical science based on a multidisciplinary approach. Courses of the department provides combined information of physical, mental, functional, and social aspects of health throughout the entire life cycle : Functional Anatomy, Health Sports Physiology, Health and Nutrition, Health Promotion throughout the Life Cycle, Psychology of Health, Aging Prevention and Enhancement of Physiological Activity, Clinical Exercise Prescription, Toxicology, Environmental

Disease, Immunotoxicology, Basics of Movement Therapy, Statistics in Health Science. The graduates will be able to participate in various fields such as hospitals, health centers, industry, schools, large sports centers, welfare facilities, various rehabilitation and treatment institutions, and will provide opportunities for re-education to health professionals and industry workers who are already active.

Department of Medical Nutrition

Department of Medical Nutrition offers 4 majors : Major of Medical Nutrition, Major of Clinical Nutrition, Major of AgeTech-Service Convergence, Major of Health Care Nutrition.

- Major of Medical Nutrition : Nutrient Function and Metabolism, Nutrition Physiology, Nutrition Biochemistry, Functional Foods and Nutrition, Introduction to Oriental Medicine and Bioactive Materials, Nutrition Information Programming, Instrumental Analysis, Scientific Writing, Current Topics in Nutrition, Molecular Nutrition, Skin Diseases and Nutrition, Nutrition and Immunology etc.
- Major of Clinical Nutrition : Nutrient Function and Metabolism, Medical Nutrition Therapy I,II, Current Topics in Medical Nutrition, Nutrition Education and Counselling, Nutritional Assessment, Nutrition Physiology, Nutrition Biochemistry, East-West Medical Nutrition, Supervised Practice I,II,Ⅲ & Ⅳ, Nutritional Support and Practice, etc.
- Major of AgeTech-Service Convergence : Introduction to AgeTech-Service, AgeTech-Service Capstone, Research Method to AgeTech-Service, Nutrition Physiology, Nutrition Biochemistry, Functional Foods and Nutrition, Introduction to Oriental Medicine and Bioactive Materials, Nutrition Information Programming, Instrumental Analysis, etc.
- Major of Health Care Nutrition : Nutrient Function and Metabolism, Nutrition Physiology, Nutrition Biochemistry, Functional Foods and Nutrition, Nutrition Information Programming, Current Topics in Nutrition, Skin Diseases and Nutrition, Nutrition and Immunology, Special Topics in Geriatric Nutrition, Renal Nutrition, Cancer and Nutrition, Skin Diseases and Nutrition, etc.

Department of Gerontology

Department of Gerontology is the multidisciplinary study of biomedical science and social science. It includes 2 majors : Major of Biogerontology and Major of Gerontology.

- Major of Biogerontology is based on biomedical science : Introduction to healthy aging nutrition, Biology of aging, Commercialization of healthy aging biomaterials, Anatomy & physiology of aging, Internship of academic partnership program for healthy aging, Understanding of aging mechanisms, Introduction to medical science of aging, Genomics of aging, Molecular biology of aging, Advanced chemistry, Current protocols in medical science research, Biomaterial analysis, Age0related diseases research, Biochemistry of aging, Cell biology of aging, Researches in medical science of aging, Principles of healthy aging biomaterials, physiology of aging, Seminars in medical science of aging, Research and development of healthy aging biomaterials, Practice in healthy aging progression, Practice in healthy aging biomaterials, Practice in healthy aging nutrition
- Major of Gerontology is based on social sciences : social work, long-term care, administration and management of service quality, law and legislation, aging policy, aging services industries, current issues of aging population. We have students-oriented and integrated curriculum for healthy aging. Students experience field practicum, internship of aging institutes, aging-services and aging-friendly industries. As a result of the multidisciplinary focus on gerontology have professional careers as skilled researchers, administrators, planners, practitioners and aging services leaders in the emerging fields.
- Major of AgeTech-Service Convergence within Biogerontology : Introduction to AgeTech-Service, AgeTech-Service Capstone, Research Methods for AgeTech-Service, AgeTech Natural Product Research, Health Promotion Using AgeTech-Service, Current Biotechnology Trends in AgeTech-Service, AgeTech-Service Digital Health, AgeTech Intellectual Property, etc.
- Major of AgeTech-Service Convergence within Gerontology : Introduction to AgeTech-Service, AgeTech-Service Capstone, Research Methods for AgeTech-Service, AgeTech-Service and Care Services for Older Adults, AgeTech-Service Adoption, AgeTech-Service Nutrition Service, AgeTech-Service and the Silver Economy, Global Trends in AgeTech and Industrial Society, AgeTech-Service Data Analysis with STATA, AgeTech-Service Programming with Python, AgeTech Standardization, etc.

Department of Innovative Food Science and Health

This department is a specialized master program opened in 2020 supported by the Ministry of Agriculture, Food and Rural Affairs for re-education of food industry workers in the food industry. The Department of Innovative Food Science and Health provides educational programs for scientific understanding and broad knowledge of nutrition, food, and functional materials during the master's course with the aim of producing food industry experts.
Nutrition for Future Foods, Functional food and nutrition, Food hygiene and regulations, Personalized food-related materials, Food and Immunology, Alternative Medical Nutrition, Medical Food etc.

| Faculty |

___ Cho, Yunhi, Ph.D. (U.C. Davis, 1994), Professor, Nutritional Biochemistry, choyunhi@khu.ac.kr
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___ Kim, Tae Woo, Ph.D. (Seoul National University, 2001), Professor, Bioorganic Chemistry, tw1275@khu.ac.kr
___ Kim, Young-Sun, Ph.D. (Yon Sei University, 2013), Professor, Social Welfare(Gerontology), ysunkim@khu.ac.kr
___ Lee, Jeong-Min, Ph.D. (University of Arizona at Tucson, 1999), Professor, Nutrition and Immunology, jlee2007@khu.ac.kr
___ Lim, Hyun-Jung, Ph.D. (Kyung Hee University, 2009), Associate Professor, Clinical Nutrition, hjlim@khu.ac.kr
___ Maeng, SungHo, M.D., Ph.D. (Seoul National University, 2001), Associate Professor, Pharmacology, jethrot@khu.ac.kr
___ Park, Ji-Ho, Ph.D. (Leeds University, 1994), Professor, Neurophysiology, jihopark@khu.ac.kr
___ Park, Yu-Kyung, Ph.D. (University of Illinois at Urbana Champaign, 1999), Professor, Human Nutrition, ypark@khu.ac.kr
___ Lim, Hee-Sook, Ph.D. (Soon Chun Hyang University, 2017), Associate Professor, Medical Science, limhsgeron@khu.ac.kr
___ Shin, Hyeri, Ph.D. (Yonsei University, 2017), Associate Professor, Social Welfare(Gerontology), zisoa@khu.ac.kr
___ Jung, Duk-Young, Ph.D. (Kyoto University, 2005), Associate Professor for University-Industry Cooperation, dyjung@khu.ac.kr

| Laboratories |

Natural Science

▪ Laboratory of Live Cell Imaging

URL : http://web.kyunghee.ac.kr/~neuron/faculty/kch.html
PI : Chulhun Kang(kangch@khu.ac.kr)

Research Overview

The main research goal in the lab is to visualize the biologically important reactions or metabolites in the live cells, which provide information for their exact locations as well as the quantity in the live cells. Since the intracellular distribution of the chemical events highly depends on the integrity of the bio-processes, it is closely related with the cells' states(health or ill). Likely, the knowledge for what happens inside the live cells will play roles in understanding the human diseases and the development of the treatments.

Current research topics in the lab include

1) Development of human diseases-related metabolite sensing technique based on fluorescent chemosensors
2) Characterization of endoplasmic reticulum stress

3) Redox balancing mechanism of the biological membranes

▪ Laboratory of Biofunctional Molecule & Material

PI : Tae Woo Kim(tw1275@khu.ac.kr)

Research Overview

Based on the understanding of the intermolecular physical and chemical, the BioFM^2 laboratory aims at the design and synthesis of biofunctional molecules and materials being suitable for bio-applications. We are developing biofunctional molecules and materials for practical applications like, biosensor, glycoside-mimetics, and well-defined nanocomposite development.

Current research topics include

1) ER-targeting biosensor & PIP_3 enrichment for MS
2) Natural product-fluorophore conjugate for ADME tracking in zebrafish
3) Surface modification chemistry for SERS

▪ Laboratory of Molecular Biology

PI : Joung-Woo Hong(jwhong46@khu.ac.kr)

Research Overview

The Molecular Biology laboratory studies transcription regulation mediated by cis-acting elements in the early embryo of Drosophila melanogaster. Particular efforts focus on the organization of cis-regulatory elements to respond to morphogen gradient, the enhancer-promoter communication, and the transcriptional control of metastasis of malignant tumor.

▪ Laboratory of Cell Biology

PI : Eun-Joo Hwang(ehwang@khu.ac.kr)

Research Overview

Glial cells, astroglia, and microglia, play crucial roles in the development, differentiation and survival of neurons in the brain. Glial cells become activated in response to brain injury, a process termed “reactive gliosis.” Microglia play an important role in immune surveillance in the brain. During reactive gliosis, microglia secrete neurotoxic substances, which kill neurons and have been proposed to be the major causes of diverse neuropathologies. Major areas of research include molecular mechanisms of glial activation, glia-mediated neurotoxicity, and exploration of novel anti-inflammatory compounds for neuroprotection.

▪ Laboratory of Physiology

URL : http://web.kyunghee.ac.kr/~neuron/faculty/pjh.html
PI : Ji-Ho Park(jihopark@khu.ac.kr)

Research Overview

With an integrative view on animal function and mechanism, physiology has a unique approaching philosophy to understand a phenomenon. In our lab, we are interested in the fundamental functional study of neural interaction of brain using an organotypic slice culture and multielectrode array system. Moreover, a practical approach to screen bioactive materials is also a main research aim.

Specific research topics include

1) Neuronal modulation study during learning and memory
2) Functional analysis of herbal drugs and the development of alternative drugs using electrophysiological techniques
3) Neural interaction study using organotypic culture and multielectrode array(MEA) system

Medicinal Science & Nutrition

▪ Laboratory of Neuropharmacology

PI : Sungho Maeng(jethrot@khu.ac.kr)

Research Overview

The laboratory of pharmacology is interested in molecular pathway analysis and disease model development using pharmacologocial and biobehavioral methods in the neuroscience field.

Current ongoing projects include

1) Depression models and the molecular pathway of rapid-onset antidepressants
2) Genetic regulation of stress resilience
3) Biomarkers and drug development for post-traumatic stress disorder
4) Molecular targets and animal models of sarcopenia
5) Clinical intervention using exercise and nutrition on aged

▪ Laboratory of Medical Nutrition

Research Overview

The Department of Medical Nutrition is dedicated to professional education, research and training in medical nutrition, and combining nutritional science with Western and Oriental medicines. Research specialization by faculty members includes application of the management process to nutritional care of patients in Western and Oriental clinical settings, metabolism of nutrients and dietary assessment in disease status, mechanism of antioxidant nutrients in vitro and in vivo, dietary efficacy in human and animal models, nutritional mechanism of skin disease, development of functional foods for enhancing immune status, and nutritional epidemiology. The department offers four majors for graduate education : Major of Medical Nutrition, Major of Clinical Nutrition, Major of AgeTech-Service Convergence, Major of Health Care Nutrition.

The department of medical nutrition has been carrying out the International Coordinated Program(ICP) in Dietetics since March of 2004. In November of 2008, the ICP program was granted substantial equivalency from the Academy of Nutrition and Dietetics(AND). Later in 2022, the program was reaccredited as Foreign Dietitian Education(FDE). (https://www.eatrightpro.org/acend/accredited-programs/program-directory)

Social Science

▪ Laboratory of Gerontology and AgeTech

PI : Young-Sun Kim(ysunkim@khu.ac.kr)

Research Overview

The laboratory of gerontology studies the fusion of social science-medical science for
healthy aging and gerontology. Our research group is interested in aging in place service, aging policy, and Agetech development and the life-cycle management of service planning – development –operation – performance evaluation. Our researches also focus on the study of healthy aging and the linkage between age-friendly industry and career.

Current research topics in the lab include

1) Study on AgeTech and Service for older adults
2) Study on silver economy and senior business
3) Study on evaluation of service quality for aging services
4) Study on aging policy for older adults
5) Study on digital literacy for older adults

▪ Laboratory of Social Welfare

PI : Hyeri Shin(zisoa@khu.ac.kr)

Research Overview

The laboratory of social welfare studies the social policy for older adults and the implementation of products and services for older adults. Our research group is interested in aging policy, international comparative analysis, and evaluation of products and services for older adults.

Current research topics in the lab include

1) Study on elderly welfare and social policy
2) Study on AgeTech and Service particularly on care tech
3) Study on long-term care insurance and services
4) Study on international comparative analysis
5) Study on demonstration and implementation of products and services for older adults

▪ Laboratory of AgeTech Nutrition & Health

PI : Hee-Sook Lim(limhsgeron@khu.ac.kr)

Research Overview

The AgeTech Nutrition & Health Center conducts research on sustainable health services for older adults, precision medicine and technologies, as well as tailored public health nutrition services for elderly care.

Current research areas include

1) Study on AgeTech-based customized health services and public health models
2) Study on artificial intelligence(AI) technology and AgeTech clinical trials
3) Study on research utilizing healthcare big data
4) Study on precision nutrition services and care food development