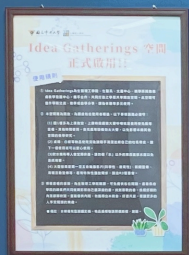




National Central University

idea GATHERINGS

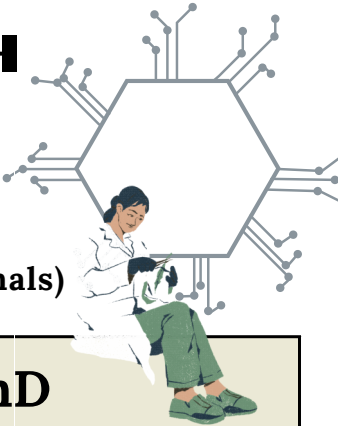


DEPARTMENT OF **Biomedical Sciences and Engineering**

Special Features

Established in 2015, our goal is to nurture interdisciplinary talents in biomedicine, aligning with societal needs and industry trends. Embracing disruptive innovation, we create a dynamic teaching and research environment, promoting collaboration between basic research, technology development, and industry. We seek students with diverse backgrounds, a passion for basic science, technology, life, and humanitarian concerns.

Institutes

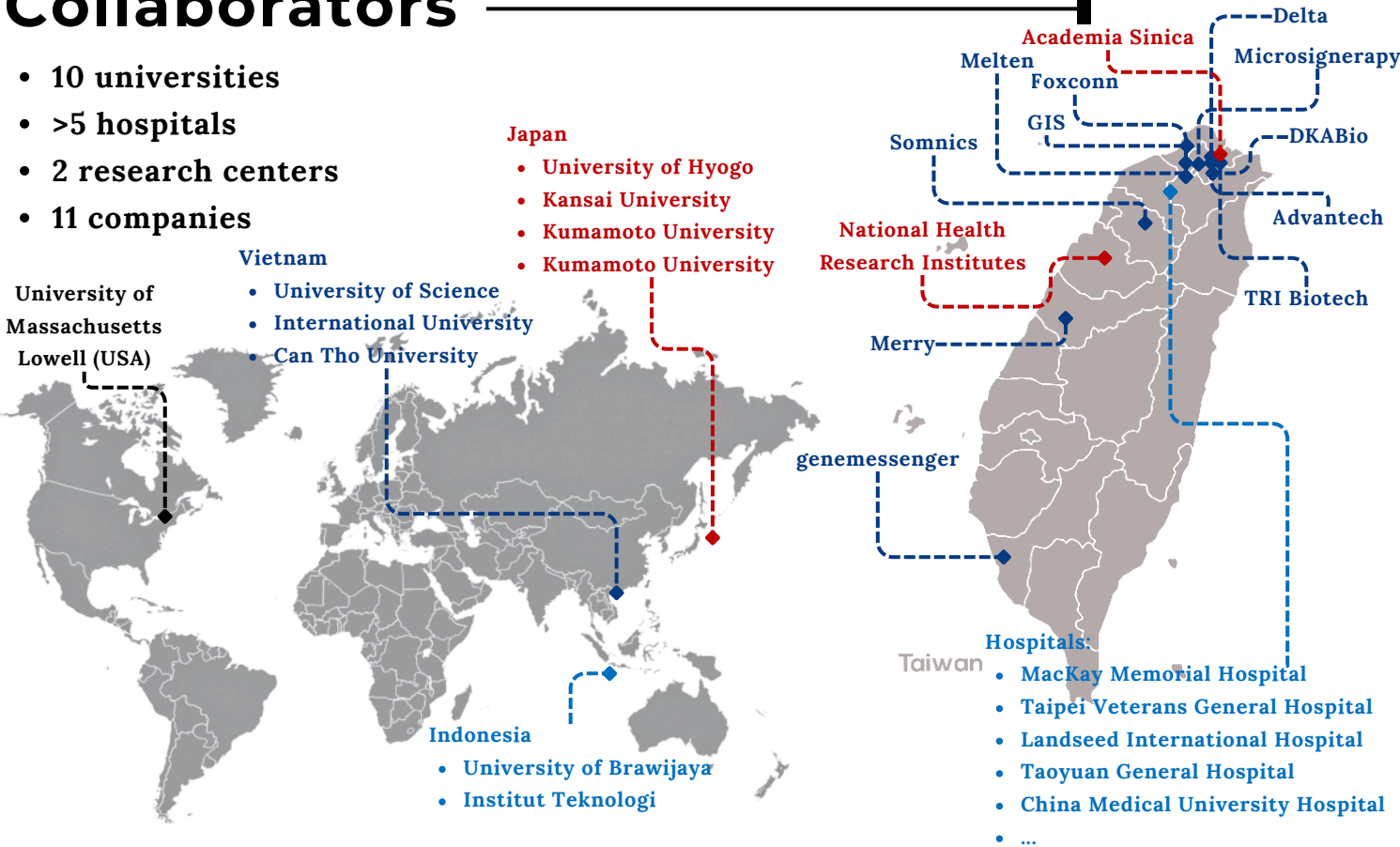


- System Biology and Bioinformatics (MS/Ph. D.)
- Biomedical Engineering (MS/Ph. D.)
- Interdisciplinary Medicine (Ph. D. for medical doctors)
- Artificial Intelligence Precision Medicine (MS for working professionals)

2024	BS	MS			PhD		
		System Biology and Bioinformatics	Biomedical Engineering	Artificial Intelligence Precision Medicine	System Biology and Bioinformatics	Biomedical Engineering	Interdisciplinary Medicine
Taiwan Students	108	23	35	35	16	7	26
International Students	0	4	-	-	3	3	-
Asia Students	5	-	-	-	-	-	-

Collaborators

- 10 universities
- >5 hospitals
- 2 research centers
- 11 companies



FACULTIES IN SYSTEMS BIOLOGY AND BIOINFORMATICS

Prof. Sun-Chong, Wang
AI Biomedicine Laboratory
 E-mail: scwang@ncu.edu.tw



- High-throughput biomedical data analysis
- Biomedical document modeling
- Electronic medical record analysis (reinforcement Learning)

Prof. Nian-Han, Ma
Systems Molecular Medicine Laboratory
 E-mail: nianhan.ma@g.ncu.edu.tw



- MicroRNAs (miRNAs)
- Melanoma
- Radiation therapy
- Chronic Disease Biomarker
- Drug Discovery

A.P. Yi-Chiung, Hsu
Cancer Genomics Research Laboratory
 E-mail: syic@ncu.edu.tw



- Cancer genomics
- Space biology
- Medical AI
- Biostatistics

A.P. Li-Jen, Su
Holistic health medicine Laboratory
 E-mail: sulijen@gmail.com



- Infertility
- Genetic Testing
- Precision Medicine

A.P. Shu-Chen, Liu
Tumor Microenvironment Laboratory
 E-mail: jennyliu66@gmail.com



- HNSCC Tumor microenvironment
- Tumor single-cell Omics
- Immuno-Oncology
- Radiotherapy basic research
- EBV & NPC

A.P. Li-Ching, Wu
 E-mail: nculewu@gmail.com
Biological and Biomedical Informatic Laboratory

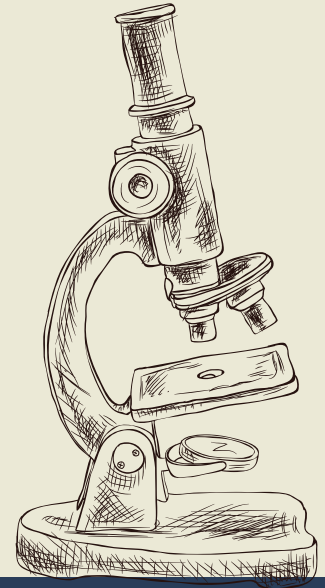


- Bioinformatics
- Biological Databases
- Medical Informatics
- Deep learning

A.P. Hui-Yin, Chang
 E-mail: dr.chuiyin@gmail.com
Intelligent and computational multiomics laboratory



- Proteomics
- Metabolomics
- Bioinformatics
- Machine Learning



FACULTIES IN BIOMEDICAL ENGINEERING

Prof. Men-Tzung, Lo
 E-mail: mzlo@ncu.edu.tw
Integrated Biomedical Signal



- Applications Laboratory
- Medical Electronics
 - Biomedical Signal Analysis and Image Processing
 - Smart/Intelligent Medicine

Prof. Yu-Hsiang, Lee
 E-mail: yuhsianl@ncu.edu.tw
Nanobiotechnology Laboratory



- Nanomedicine
- Drug Delivery
- Biomaterials

Prof. Chen, Lin
 E-mail: dreamtheater.lin@gmail.com
Integrated Biomedical Signal



- Applications Laboratory
- Sleep Medicine
 - Cardiovascular Physiology
 - Portable Medical Devices Development and Applications

Prof. Chun-Chuan, Chen
 E-mail: cchen@cc.ncu.edu.tw
Computational Neuroscience Laboratory



- Neural Engineering
- Virtual Reality Applications
- Digital precision therapy
- Computational Neuroscience

A.P. Chen-Han, Huang
 E-mail: chhaung@ncu.edu.tw
Biomedical Systems Engineering Laboratory



- Nano sensors
- Functional Biochemical Materials
- Biophotonics Imaging Systems

A.P. Hui-Yang, Huang
 E-mail: adamhuan@gmail.com
Computer-Aided Diagnosis Laboratory



- Computer-Aided Diagnosis
- Natural Language Processing
- Machine Learning

A.P. Chien-Chang, Chen
 E-mail: gettgod@ncu.edu.tw
Geometric Data Vision Laboratory



- Geometric Deep Learning
- Image Adversary and Concealment
- Artificial General Intelligence

Asst. Prof. Ching-Yun, Chen
 E-mail: chingyun523@gmail.com
Biomimetic Materials and Tissue Engineering Laboratory



- Tissue engineering
- Regenerative medicine
- Bioreactor system
- Non-animal alternative model
- Drug screening assay

A.P. Prof. Po-Kang, Yang
 E-mail: pkyang@g.ncu.edu.tw
Nanoscience and Bioelectronics Laboratory



- Naonmaterials
- Smart Sensing
- Energy Technology
- Soft electronics

Graduation Prospects & Further Studies

Overseas Short-term Internships and Postgraduate Pathways:

- **Educational goal:** cultivating correct research thinking, essential for a harmonious integration of learning and application.
- **International research projects with short-term studies:** experiencing the foreign university life, and preparing for future academic or professional development in University of California, San Diego, the School of Medicine at Boston University, and Harvard Medical School.

Graduation Prospects:

- Over 80% of students continue their education and pursue advanced studies.
- Opportunities in prestigious domestic universities: National Taiwan University, Tsing Hua University, Chiao Tung University, and Yang Ming University; study in various fields such as biomedical, electrical engineering, information systems, and other interdisciplinary areas.
- Renowned overseas institutions: University of California, UMass, and Imperial College London international's recognition and success of our department's alumni.

PROGRAMME REGULATIONS

	Master		PhD	
Program	Biomedical Engineering	System Biology and Bioinformatic	Biomedical Engineering	System Biology and Bioinformatic
Study period	2 – 4 years	2 – 4 years	2 – 7 years	2 – 7 years
Credits for graduation	24		18	
Required and Elective courses	<ul style="list-style-type: none">• Required course: 12 credits• Elective courses: 12 credits• Seminar (0 credit): Require 3 semester	<ul style="list-style-type: none">• Required courses: 11-14 credits• Elective courses: 10-13 credits	<ul style="list-style-type: none">• Seminar (0 credit): Require 4 semester	<ul style="list-style-type: none">• Compulsory courses: 8 credits• Selective courses: 10 credits
Qualifying Examination	Not required		Passing in the first 3 years	Passing 1 year prior thesis defense
Oral defense	<ul style="list-style-type: none">• Require Pre-oral examination - need to pass in the third semester before the thesis examination.• Oral defense is mandatory.	Oral defense is mandatory.	<ul style="list-style-type: none">• Require Pre-oral examination• Oral defense is mandatory.	
Publish paper	Not required		Publish at least two scientific full articles in SCI-ranked journals before apply for oral defense	