

cations can be submitted through the TIGP web site (<http://tigp.sinica.edu.tw>). The application deadline is March 31. It is to the advantage of the students to apply as early as possible. There is no charge for the application for admissions.

Students with a B.S. or M.S. degree from an accredited institution will be considered for admission. The following criteria/material will be used to evaluate the applicant's qualifications for admission:

1. Undergraduate and graduate academic records or transcripts.
2. The General Test of the Graduate Record Examination (GRE) General and Subject scores are optional but applicants are strongly encouraged to provide it. Applicants who fail to submit GRE scores for evaluation, should provide supplementary information (e.g. M.S. thesis, research publication, description of research experiences, etc) that can demonstrate potential in research.
3. English proficiency: All applicants whose first language is not English must submit the English test score, except those applicants who have recently completed two or more years of study in an English-speaking country.
 - i. TOEFL: scores of 550 on the paper based (or 213 on the computer based or 79 on the New Internet-based TOEFL (TOEFL-iBT)) or higher; (Our institution CODE & NAME are: 7142 Academia Sinica) Only ETS International TOEFL will be accepted. Institutional TOEFL will not be accepted.
 - ii. GEPT: Instead of TOEFL, applicants in Taiwan may take the General English Proficiency Test (GEPT) administered by the Language Training and Testing Center. Applicants are required to submit their high-intermediate level certificate when applying for admissions.
 - iii. IELTS (International English Language Test System): Scores of 5.5 or higher on the Academic Test is required.
4. Three letters of recommendation commenting on the applicant's personal character, and qualifications for independent study, including intellectual ability, research potential, and scientific motivation.
5. Statement of purpose (Plan, including research interests, and reason for graduate study).

The submitted application materials for evaluation will not be returned to the applicants.

Fellowship Support and Stipends

The TIGP will provide full fellowship for all incoming graduate students during the first year of their enrollment at NT\$32,000 (approximately US\$1050) per month. The support will be extended for another two years upon evidence of satisfactory progress towards the degree. In subsequent years, the financial support will be provided by the student's thesis advisor(s). The amount of the support will be at the discretion of the advisor.

Housing and Living Costs

Options include on-campus housing and off-campus housing. On-campus self-catering student dormitory providing single study bedrooms is available to TIGP students at reasonable costs (for details please visit our website at <http://tigp.sinica.edu.tw/housing.html>). Off-campus private housing is generally more expensive. Rents for off-campus apartments range from NT\$5,000-15,000 per month.

Meals are available at modest costs at various eateries within the campus of the Academia Sinica.

The Sport Center on campus, which is equipped with indoor jogging track, gym, swimming pool, aerobic court, and so on, is also available to students at modest costs.

Medical Insurance

As soon as the students receive their student I.D., they are qualified to join the "Taiwan National Health Insurance Program". The students are expected to pay the same premium (about US\$200 per year) as all the Taiwan citizens and will be entitled to the same medical coverage.



Contact Information

For information concerning the Biodiversity Program, please contact:

Program Coordinator
Dr. Wen-Hsiung Li
Biodiversity Research Center
Program Assistant
Ms. Miao-Suey Lin/ Ms. I-Ning Wu
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For information concerning TIGP, please contact:

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Taiwan International Graduate Program
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Taiwan International Graduate Program (TIGP) Homepage:
<http://tigp.sinica.edu.tw>



ACADEMIA SINICA
Taiwan International Graduate Program

TIGP

<http://tigp.sinica.edu.tw>



Taiwan International Graduate Program
Ph.D. Program on Biodiversity

Introduction to the TIGP

Academia Sinica has established the Taiwan International Graduate Program (TIGP) in collaboration with a consortium of the key national research universities in Taiwan. The purpose of the program is to develop the talent pool in those modern multidisciplinary fields that are important in the future economical and social development of Taiwan and to enhance the innovative potential and academic standards of research in these and related fields.

TIGP will offer Ph.D. programs only in selected disciplines agreed upon between Academia Sinica and the national research universities. It is the intent of the Program to offer Ph.D. degree programs only in inter-disciplinary areas in physical sciences, applied sciences, engineering, biological and agricultural sciences, health and medical sciences, and humanities and social sciences.

Academia Sinica will assume principal oversight of the academic options of the Program. It will provide the intellectual leadership, the physical facilities, and the research resources. Qualified and interested faculty members of the participating national research universities are invited to join the Program as affiliated faculty, and participate in teaching, supervision of research, and mentoring of the international graduate students.

TIGP on Biodiversity

The global industrialization and the explosive growth of human population over the past two centuries have greatly accelerated the species extinction rate on Earth. This rapid decline of biological diversity is a great threat to the continuing survival of extant species, including humans, due to the disturbance to the balance of ecosystems. Furthermore, because of the reliance on natural products in biomedical and agricultural science, successful exploration and management of biodiversity is directly linked to human welfare. For these reasons, a great number of government agencies and non-governmental organizations are devoted to raise public awareness and to improve policy making regarding biodiversity-related issues. As a result, increasing the supply of well-trained scientists in relevant fields is a pressing need of the society.

The TIGP Biodiversity Program offers a unique opportunity for aspiring young scientists to receive multidisciplinary training. The diverse ecosystems and the large number of endemic species in Taiwan are invaluable resources for the study of biodiversity. In addition, the strong research teams in Academia Sinica and National Taiwan Normal University provide students with a broad range of expertise such as ecology, evolution, genetics, statistics, and socio-economics. We expect our graduates to contribute to basic research that improves our understanding of biological diversity in Taiwan and the surrounding areas, and ultimately, to influence public policies for the conservation and sustainable use of biological resources.

Faculty

Academia Sinica

Biodiversity Research Center

Dr. Wen-Hsiung Li, Distinguished Research Fellow and Director

Ph.D., Brown University, Providence, RI, USA

Evolutionary genomics, molecular evolution, bioinformatics and computational biology, population genetics, human genetics

Dr. Shu-Miaw Chaw, Distinguished Research Fellow

Ph.D., Tulane University, USA

Evolution, phylogenetics, and functional genomics of seed plants

Dr. Allen Chen, Research Fellow
Ph.D., James Cook University, Australia
Evolutionary ecology and genetics of coral reefs, symbiosis and bleaching biodiversity

Dr. Hwey-Lian Hsieh, Research Fellow
Ph.D., University of South Florida, USA
Wetland ecology, habitat restoration, conservation, marine benthic ecology, ecosystem services, polychaetology

Dr. Wen-Lung Wu, Research Fellow
Ph.D., University of Manchester, UK
Systematics, phylogenetics and databasing on malacology, ecology, invende and conservation on malacology

Dr. Daryi Wang, Assistant Research Fellow
Ph.D., National Taiwan Ocean University, Taiwan
Molecular evolution, functional genomics

Dr. Sen-Lin Tang, Assistant Research Fellow
Ph.D., University of Melbourne, Australia
Microbial biodiversity, genomics, metagenomics

Dr. Benny K.K. Chan, Assistant Research Fellow
Ph.D., The University of Hong Kong
Intertidal and supply-side ecology, barnacle ecology, larval ecology

Dr. Sheng-Feng Shen, Assistant Research Fellow
Ph.D., Cornell University, USA
Behavioral ecology, sociobiology, evolutionary game theory, climate change ecology

Dr. Yoko Nozawa, Assistant Research Fellow
Ph.D., Kyushu University, Japan
Coral reef ecology, marine biology/ecology

Dr. John Wang, Assistant Research Fellow
Ph.D., Stanford University, USA
Genetics, genomics, behavior, and evolution of social insects, genome evolution in nematodes

Dr. Ryuji Machida, Assistant Research Fellow
Ph.D., University of Tokyo, Japan
Phylogeny and population genetic analyses of marine zooplankton, metagenomic analyses of marine metazoan communities

Agricultural Biotechnology Research Center
Dr. Lie-Fen Shyur, Research Fellow and Vice Director
Ph.D., National Taiwan University, Taiwan
Cancer chemoprevention, metabolomics, medicinal plant research, protein engineering

Dr. Wen-Chin Yang, Associate Research Fellow
Ph.D., Université de la Méditerranée, France
Natural products research, T cell biology, immunology, cancer biology and diabetes

Dr. Yet-Ran Chen, Assistant Research Fellow
Ph.D., National Taiwan University, Taiwan
Study of peptide hormones signaling involved in the plant development, development of high-throughput proteomics and metabolomics

Genomics Research Center
Dr. Trees-Juen Chuang, Associate Research Fellow
Ph.D., National Chiao Tung University, Taiwan
Bioinformatics, comparative & evolutionary genomics/transcriptomics, primate evolution

Dr. Tsung-Lin Li, Associate Research Fellow
Ph.D., University of Cambridge, UK
Natural product chemistry, microbial pathogenicity

Institute of Cellular and Organismic Biology
Dr. Jr-Kai Yu, Assistant Research Fellow
Ph.D., University of California, San Diego, USA
Developmental biology, evolution of development

Dr. Yi-Hsien Su, Assistant Research Fellow
Ph.D., University of California, San Diego, USA
Developmental biology, gene regulatory networks, systems biology

Institute of Chemistry
Dr. Steve S.-F. Yu, Associate Research Fellow
Ph.D., National Tsing Hua University, Taiwan
Isolation and characterization of the alkane-degradation enzymes from alkane utilizing bacteria, the biochemical and biophysical characterization of the corresponding proteins

Dr. Ming-Hsi Chiang, Assistant Research Fellow
Ph.D., Indiana University at Bloomington, USA
Study of the biomimetic transition-metal model compounds to facilitate understandings of the catalytic processes at the enzymatic sites and development of efficient biomimetic catalysts for economical production of renewable energy sources

Institute of Information Science
Dr. Wen-Liang Hwang, Research Fellow
Ph.D., New York University, USA
Wavelet analysis, signal, image and video processing

Dr. Arthur Chun-Chieh Shih, Associate Research Fellow
Ph.D., National Central University, Taiwan
Influenza virus evolution, functional genomics, comparative genomics, multimedia signal processing, pattern recognition

Institute of Plant & Microbial Biology
Dr. Chih-Horng Kuo, Assistant Research Fellow
Ph.D., University of Georgia, USA
Microbial diversity and genome evolution

Institute of Statistical Science
Dr. I-Ping Tu, Associate Research Fellow
Ph.D., Stanford University, USA
Statistics in genetics, high dimensional data analysis, scan statistics, sequential analysis

Dr. Wei-Chung Liu, Assistant Research Fellow
Ph.D., Imperial College London, UK
Mathematical biology, theoretical ecology, quantitative epidemiology, network biology, sociology, systems biology

Institute of Earth Sciences
Dr. Der-Chuen Lee, Associate Research Fellow
Ph.D., University of Michigan, USA
Isotope geochemistry, marine geochemistry, cosmochemistry, environmental geochemistry

Institute of Modern History
Dr. Hong-Yan Chu, Research Fellow
Ph.D., National Taiwan University, Taiwan
History of Chinese political thought and institution, history of overseas Chinese, modern history of Taiwan

Institute of Molecular Biology
Dr. Jun-Yi Leu, Associate Research Fellow
Ph.D., Yale University, USA
Molecular mechanisms of speciation and genetic buffering

Research Center for Environmental Changes
Dr. Tung-Yuan Ho, Assistant Research Fellow
Ph.D., State University of New York at Stony Brook, USA
Marine biogeochemistry, marine phytoplankton ecology, environmental biogeochemistry

National Taiwan Normal University
College of Science
Dr. Jenn-Che Wang, Professor and Dean
Ph.D., National Taiwan University, Taiwan
Plant systematics and evolution, vegetation ecology

Department of Life Science
Dr. Chung-Chi Chen, Professor
Ph.D., University of Maryland, USA
Ecological modelling, system ecology, planktonic ecology, estuarine ecology, nutrient dynamics, experimental ecosystems

Dr. Ying Wang, Professor
Ph.D., Ohio State University, USA
Animal behaviour, ornithology

Dr. Ming-Chung Tu, Professor
Ph.D., University of Oklahoma, USA
Herpetology, physiological ecology

Dr. Yu-Feng Hsu, Professor
Ph.D., University of California, Berkeley, USA
Entomology, phylogenetic systematics

Dr. Shih-Ying Hwang, Professor
Ph.D., Ohio State University, USA
Genetics, phylogenetics

Dr. Teng-Chiu Lin, Professor
Ph.D., The University of Kansas, USA
Forest ecology, landscape ecology

Dr. Shou-Hsien Li, Professor
Ph.D., State University New York, Albany, USA
Population genetics and evolution, topics in animal behavior

Dr. Yuying Hsu, Professor
Ph.D., Syracuse University, USA
Animal contest, dog behavior, fish behavior

Dr. Shyh-Hwang Chen, Associate Professor
Ph.D., University of Miami, USA
Phylogenetics

Dr. Si-Min Lin, Assistant Professor
Ph.D., National Taiwan Normal University, Taiwan
Herpetology, phylogenetics and systematics, conservation genetics, phylogeography, population dynamics of amphibians and reptiles

Dr. Pei-Jen Lee Shaner, Assistant Professor
Ph.D., University of Virginia, USA
Small mammal population biology, foraging behavior, stable isotope ecology, ecological niche modeling



Dr. Tsu-Wei Wang, Assistant Professor
Ph.D., University of Michigan, USA
Neuroscience, developmental neurobiology, neural stem cell

Dr. Guan-Chiun Lee, Assistant Professor
Ph.D., National Yang-Ming University, Taiwan
Biochemistry, protein and enzyme chemistry, microbiology, biotechnology

Focal Areas

- Evolution and Genetic Diversity
- Species Diversity
- Ecosystem Diversity
- Environmental Change and Biodiversity

Highlights of Curriculum Philosophy

- The program offers students with the flexibility of designing a tailored training experience; elective courses are offered in a modular design and the number of required courses is minimized.
- All courses will be offered in English.

Course Offerings

A. Required courses

1. Population Genetics and Evolution (3 credit units)
2. Ecology and Conservation (3 credit units)
3. Seminar (4 credit units)
4. Lab Rotations (2 credit units, first year, 2 laboratories)
5. Independent Studies (6 credit units)
6. Thesis

B. Core courses (select at least two)

1. Molecular Evolution (3 credit units)
2. Evolutionary Biology (3 credit units)
3. Systematics (3 credit units)
4. Ecological and Evolutionary Genomics (3 credit units)
5. Biodiversity (3 credit units)
6. Biostatistics (3 credit units)
7. Behavioural Ecology (3 credit units)
8. Conservation Biology (3 credit units)
9. Population Ecology (3 credit units)

C. Elective courses

1. Special Topics on Bioinformatics (3 credit units)
2. Biomathematics (3 credit units)
3. Writing and Presentation of Biological Research (2 credit units)
4. The Regulation and Evolution of Gene Expression (2 credit units)
5. Molecular and Cell Biology (3 credit units)
6. Adaptation and Natural Selection (2 credit units)

7. Marine Ecosystems (3 credit units)
8. Environmental Change and Biodiversity (3 credit units)

Degree Requirements

1. Course Work
Students are required to complete 30 credit units of course work; for students with a Master's degree, the requirement is reduced to 24 credit units.

2. Selection of Thesis Advisor
Students are required to identify a thesis advisor by the end of the first year. The selection of a thesis advisor must be approved by the Student Affairs Committee.

3. Qualification Examination
Students are required to pass the qualification examination by the end of the second year. The format and the rules of the qualification examination will be determined by the Academic Affairs Committee.

4. Advancement to Candidacy
Students are required to provide a thesis proposal for oral defense by the end of the third year.

5. Thesis Defense
Before applying for thesis defense, a student needs to be the first author or the corresponding author of one paper with Impact Factor higher than 5 or in a journal ranked at the top 10% in field, or more than one paper with the sum of Impact Factor greater than 5. The thesis examination committee should include at least five experts in the fields relevant to the thesis research, and at least one committee member not affiliated with Academia Sinica or National Taiwan Normal University.

Student Status and Degree Conferral Policy

Degree candidates in the Biodiversity program must be officially registered students of the TIGP Biodiversity Program of the National Taiwan Normal University. Students who enter the Biodiversity program with a B.S. degree will enroll first as a pre-Ph.D. student till they are approved to enroll in the Ph.D. program. Upon graduation, a student will be conferred a Ph.D. degree and will receive a diploma from the National Taiwan Normal University as well as a certificate from the Academia Sinica.

Admission

The Program admits students to the fall semester only. Application materials are available at and appli-