

Master of Science Programme in Environmental Biology
(International Programme)
Adjusted in 2002



Programme Curriculum

1.1 The number of credits required for the programme

no less than 36 credits

1.2 Curriculum Structure

The programme is set according to the Ministry of University Affairs Announcement titled "Standard Criteria for Graduate Studies 1999", which specified Plan A(2) curriculum.

20.2.1 Required Courses	11	credits
20.2.2 Elective Courses	13	credits
20.2.3 Thesis	12	credits

1.3 Course Requirements

1.3.1 Required Courses

Credits (lecture-lab)

SCID	504	Evolutionary and Environmental Biology	3 (3 - 0)
SCID	506	Biostatistics and Research Methodology	3 (2 - 2)
# SCBI	601	Seminar	1 (1 - 0)
GRID	612	Cell and Molecular Biology	3 (3 - 0)

Register for 2 semesters

1.3.2 Elective Courses

1.3.2.1 Genetics and Evolutionary Biology

SCBI	541	Concepts of Genetics	3 (3 - 0)
SCBI	542	Principles of Evolution	3 (3 - 0)
SCBI	543	Population Genetics	3 (3 - 0)
SCBI	544	Ecological Genetics	3 (3 - 0)
SCBI	545	Cytogenetics	3 (2 - 3)
SCBI	606	Species and Speciation	2 (2 - 0)
SCBI	607	Evolutionary Genetics	3 (3 - 0)
SCBI	609	Molecular Genetics	3 (2 - 3)

1.3.2.2 Ecology and Conservation Biology

SCBI	505	Population and Community Ecology	3 (2 - 3)
SCBI	530	Conservation Biology	3 (3 - 0)

Credits (lecture-lab)

SCBI	531	Biology of Primates	3 (3 - 0)
SCBI	532	Basic Principles of Sociobiology	3 (3 - 0)
SCBI	535	Field Techniques in Animal Behavior	2 (1 - 3)
SCBI	536	Basic Principles of Animal Behavior	3 (2 - 3)
SCBI	540	Behavioral Ecology	3 (2 - 3)

1.3.2.3 Molecular Biology and Developmental Biology

SCID	501	Molecular Bioscience	3 (3 - 0)
SCID	502	Cell Science	3 (3 - 0)
SCID	503	Systemic Bioscience	3 (3 - 0)
SCBI	508	Cell and Developmental Biology	3 (2 - 3)
SCBI	602	Cell and Developmental Genetics	3 (3 - 0)

1.3.2.4 Aquatic Science and Malacology

SCBI	504	Introduction to Malacology	3 (2 - 3)
SCBI	514	Field Methods in Malacology	2 (0 - 6)
SCBI	516	Comparative Anatomy of Mollusks	3 (2 - 3)
SCBI	550	Biology of Crustaceans	3 (2 - 3)

1.3.2.5 Entomology

SCBI	501	Molecular Entomology	3 (3 - 0)
SCBI	502	Medical Entomology	3 (2 - 3)
SCBI	506	Insect Taxonomy	3 (2 - 3)
SCBI	509	Biology of Insects	3 (3 - 0)
SCBI	528	Principles of Plant Resistance to Insects	2 (2 - 0)
SCBI	560	Economic Entomology	3 (3 - 0)
SCBI	562	Insect Ecology	3 (2 - 3)

1.3.2.6 Parasitology

SCBI	503	Medical Parasitology	3 (2 - 3)
SCBI	572	Molecular Parasitology	3 (2 - 3)
SCBI	573	Immunobiology	3 (2 - 3)
SCBI	578	Techniques in Cell and Tissue Culture	3 (1 - 6)

1.3.2.7 Environmental Science and Toxicology

SCBI	518	Environmental Aquatic Toxicology	3 (2 - 3)
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Credits (lecture-lab)

SCBI	521	Biology of Polluted Waters	3 (2 - 3)
SCBI	522	Air Pollution	3 (2 - 3)
SCBI	524	Environmental Biology and Management	3 (2 - 3)
SCBI	619	Environmental Science	3 (2 - 3)

1.3.2.8 Plant Science and Biological Products

SCBI	569	Plant Growth and Development	3 (2 - 3)
SCBI	571	Plant Response to Physical Environment	3 (2 - 3)
SCBI	575	Biology of Fungi	3 (2 - 3)
SCBI	583	Methodology in Plant Tissue Culture	3 (1 - 6)

1.3.2.9 Common Elective Courses

SCBI	579	Research Techniques in Biological Sciences	2 (1 - 3)
SCBI	581	Special Problems in Biology	2 (0 - 6)
SCBI	582	Current Topics in Biology	2 (2 - 0)
GRID	603	Biostatistics	3 (3 - 0)
SCID	507	Microscopic Technique	1 (0 - 2)
SCID	508	Biomolecular and Spectroscopic Techniques	1 (0 - 2)
SCID	509	Separation Techniques	1 (0 - 2)
SCID	510	Immunological Methods	1 (0 - 2)
SCID	511	Gene Technology	1 (0 - 2)
SCID	512	Receptor Binding and Enzyme Kinetic Assays	1 (0 - 2)
SCID	513	Animal Cell Culture Techniques	1 (0 - 2)
SCID	514	Animal Experimentation in Biomedical Research	1 (0 - 2)

1.3.3 Thesis

SCBI	698	Research M.Sc. Thesis	12 (0 - 48)
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1.3.4 Research projects emphasize on the following areas**Genetics and Evolution**

- Population Genetics of Economically Important Insects
- Population Genetics of Black Flies in Thailand.
- Cytogenetics and Population Biology Study on Fruit Fly's Parasitoids

Ecology and Conservation Biology

- Plant-Animal Interaction : Roles of Birds in Seed Dispersal
- Conservation Biology of Some Endangered Species e.g. Wild Cattles and Elephants
- Biology and Ecology of Birds

Molecular and Developmental Biology

- Molecular Cloning of Antigen Encoding Genes from *Opisthorchis viverrini* (Liver Fluke) and Primary Analysis Encoded Proteins
- Molecular Detection and Biological Control of Denguevirus and Wolbachia
- Molecular Study of Crustacean Germ Cell

Aquatic Science and Malacology

- Reproduction of the Freshwater Prawns
- Reproduction of Seahorses
- Culture of Abalone, *Haliotis asinina*
- Morphology and Histology of Gastropods and Bivalves

Entomology

- Diversity of Meso-and Micro Artropods in Various Agricultural Areas.
- Ecological and Behavioral Ineractions among Insects, Microorganisms and Plants

Parasitology

- Characterization *Fasciola gigantica* for Development of Vaccine and Improved Immunodiagnosis

Environmental Science and Toxiology

- Bioremediation of Arsenic Polluted Environment
- Crude Oil Degradation by Microorganism
- Biosorption of Heavy Metals by Bacterial Biomass
- Phytoaccumulation and Phytotoxicity of Heavy Metals in Aquatic Plants

Plant Science and Biological Products

- Biodiversity of Fungi
- Tissue Culture for Pine Reforestration Areas

1.4 Course Code Explanation

Two first letters represent the abbreviated name of Faculty

GR = Faculty of Graduate Studies

SC = Faculty of Science

The third and fourth letters represent the abbreviated name of responsible units.

ID = Multidisciplinary

BI = Department of Biology

The first number (5XX and 6XX) represents postgraduate programme level.

1.5 Study Plan

Year	Semester 1	Semester 2
Summer		
	GRID 612 Cell and Molecular Biology	3(3-0)
	Total 3 Credits	
1	SCID 504 Evolutionary and Environmental Biology 3(3-0) SCBI 601 Seminar 1(1-0) Elective courses 5 Credits Total 9 Credits	SCID 506 Biostatistics and Research Methodology 3(2-2) SCBI 601 Seminar 1(1-0) Elective courses 5 Credits Total 9 Credits
2	Elective courses 3 Credits SCBI 699 Thesis 6(0-24) Total 9 Credits	SCBI 699 Thesis 6(0-24) Total 6 Credits