

Bachelor of Science Program in Biology
Revised Curriculum 2004
(Distinction Program)

1. General Education Courses		32	credits
		Credit (Lecture-Lab)	
Social Science and Humanities (6 credits)			
SHHU 123	Integrated Humanities I	3	(3-0)
SHSS 145	Integrated Social Science	3	(3-0)
Management Courses (3 credits)			
MGID 101	Administration and General Management	3	(3-0)
Language Courses (12 credits)			
SCLG 131	Introductory University English I	3	(2-2)
SCLG 132	Introductory University English II	3	(2-2)
SCLG 231	Intermediate University English I	3	(2-2)
SCLG 232	Intermediate University English II	3	(2-2)
Science and Mathematics Courses (11 credits)			
SCCH 155	Microcomputer Applications	3	(3-0)
SCMA 113	Calculus	3	(3-0)
SCMA 114	Ordinary Differential Equations	3	(3-0)
SCMA 150	Introduction to Statistics	2	(2-0)
2. Specialized Courses		95	credits
Required Courses (71 credits)			
SCBI 106	General Biology I	3	(3-0)
SCBI 102	Biology Laboratory I	1	(0-3)
SCBI 108	General Biology II	3	(3-0)
SCBI 104	Biology Laboratory II	1	(0-3)
SCBI 270	Basic Cell and Molecular Biology	4	(4-0)
SCBI 302	Invertebrate Zoology	4	(3-3)
SCBI 305	Vertebrate Zoology	4	(3-3)
SCBI 314	Biostatistics	3	(3-0)
SCBI 340	General Genetics	3	(3-0)
SCBI 399	General Ecology	3	(2-3)
SCBI 411	Evolution	3	(3-0)
SCBI 499	Undergraduate Thesis	6	(0-18)
SCBI 601	Seminar I	1	(1-0)
SCBI 602	Seminar I	1	(1-0)I
SCBC 203	Basic Biochemistry	3	(3-0)
SCBC 204	Basic Biochemistry Laboratory	1	(0-3)
SCMA 150	Introduction to Statistics	2	(2-0)
SCCH 103	General Chemistry I	3	(3-0)
SCCH 104	General Chemistry II	3	(3-0)
SCCH 108	Chemistry Laboratory I	1	(0-3)
SCCH 109	Chemistry Laboratory II	1	(0-3)
SCCH 121	Basic Organic Chemistry	3	(3-0)
SCCH 128	Organic Chemistry Laboratory	1	(0-3)
SCMI 203	Basic Microbiology	3	(2-3)
SCPL 286	General Botany	3	(3-0)
SCPL 287	General Botany Laboratory	1	(0-3)

		Credit (Lecture-Lab)	
SCPY 110	Physics Laboratory I	1	(0-3)
SCPY 120	Physics Laboratory II	1	(0-3)
SCPY 151	General Physics I	3	(3-0)
SCPY 152	General Physics II	3	(3-0)
<u>Elective Courses in Biology (24 credits)</u>			
SCBI 317	Developmental Biology	3	(3-0)
SCBI 327	Principles of Animal Physiology	4	(3-3)
SCBI 355	Parasitology	4	(3-3)
SCBI 356	Basic Entomology	4	(3-3)
SCBI 360	Basic Environmental Science	2	(2-0)
SCBI 371	Basic Techniques in Molecular Biology	1	(0-3)
SCBI 372	Molecular Biology Applications	3	(3-0)
SCBI 414	Principles of Plant 'Tissue Culture	4	(2-6)
SCBI 454	Vector Biology	4	(3-3)
SCBI 470	Basic Immunology	3	(2-3)
SCID 504	Evolutionary and Environmental Biology	3	(3-0)
SCID 515	Generic Skills in Biological Science Research	1	(1-0)
SCBI 501	Molecular Entomology	3	(2-3)
SCBI 505	Population and Community Ecology	3	(2-3)
SCBI 508	Cell and Developmental Biology	3	(2-3)
SCBI 524	Environmental Biology and Management	3	(2-3)
SCBI 550	Biology of Crustaceans	3	(2-3)
SCBI 572	Molecular Parasitology	3	(2-3)
SCBI 609	Molecular Genetics	3	(2-3)

3. Free Elective Courses

From the following courses, 6-12 credits may be selected according to the student's interest.

		Credit (Lecture-Lab)	
SHED 125	Physical Education Activity-Volleyball	1	(0-2)
SHED 126	Physical Education Activity-Pataunque	1	(0-2)
MSID 102	Chorus	1	(0-2)
MSID 103	Fundamental of Western Music Performance	1	(0-2)
MSID 104	Fundamental of Thai Music Performance	1	(0-2)
SCCS 101	Computer Programming	3	(3-0)
SCLG 402	Business English	2	(2-0)
SCLG 403	Social English	2	(2-0)
SCLG 404	Public Speaking and Oral Communication	2	(2-0)

And other courses offered in the University, with the approval of the Department.

Distinction Program

Students who are interested in the Distinction Program may get involved in extra academic activities such as literature search for special problems and investigating small projects during the first few years, and start research project at the end of third year. It is possible that this project will be continued in the fourth year. In addition, some elective courses should be taken under supervision in order to be a benefit for the research project.

The Department has set study plan for courses in different modules according to students' interests and these courses will be very good basis for senior research project.

A. Molecular, Cell, and Developmental Biology

		Credit (Lecture-Lab)	
SCBI 30	Experimental Embryology	4	(3-3)
SCBI 317	Developmental Biology	3	(3-0)
SCBI 371	Basic Techniques in Molecular Biology	1	(0-3)
SCBI 372	Molecular Biology Applications	3	(3-0)
SCBI 470	Basic Immunology	3	(2-3)
SCBT 401	Bioinformatics	3	(2-3)

B. Organismal Biology

SCBI 304	Marine Science	4	(3-3)
SCBI 310	Principles of Plant Physiology	4	(3-3)
SCBI 327	Principles of Animal Physiology	4	(3-3)
SCBI 352	Microtechnique in Biology	3	(2-3)
SCBI 414	Principles of Plant Tissue Culture	4	(2-6)
SCBI 440	Industrial Microbiology	3	(2-3)

C. Ecology, Evolution and Environmental Biology

SCBI 343	Natural Resource and Environmental Management	3	(3-0)
SCBI 360	Basic Environmental Science	2	(2-0)
SCBI 361	Water Quality Management	3	(2-3)
SCBI 363	Environmental Microbiology	3	(2-3)
SCBI 364	Environmental Education : Theory and Practice	3	(2-3)
SCBI 453	Coevolution	2	(2-0)
SCBI 463	Basic Conservation Biology	3	(3-0)
SCBI 464	Ecology of Tropical Forests	3	(2-3)
SCBI 465	Tropical Wildlife Management	3	(2-3)
SCBI 466	Interdisciplinary Approaches to Biodiversity	3	(3-0)

D. Vector Biology and Parasites

SCBI 350	Host-Microbe Interactions	3	(2-3)
SCBI 355	Parasitology	4	(3-3)
SCBI 356	Basic Entomology	4	(3-3)
SCBI 454	Vector Biology	4	(3-3)
SCBI 455	Biological Control	3	(3-0)
SCBI 456	Integrated Pest Management	3	(3-0)

**Study Plan
First Year
First Semester**

			Credit (Lecture-Lab)
SCBI 106	General Biology I	3	(3-0)
SCBI 102	Biology Laboratory I	1	(0-3)
SCCH103	General Chemistry I	3	(3-0)
SCCH 108	General Chemistry Laboratory I	1	(0-3)
SCLG 131	Introductory University English I	3	(2-2)
SCMA 113	Calculus	3	(3-0)
SCPY 151	General Physics I	3	(3-0)
SCPY 110	Physics Laboratory I	1	(0-3)
MSID 102	Chorus or	1	(0-2)
MSID 103	Fundamental of Western Music Ensemble or	1	(0-2)
MSID 104	Fundamental of Thai Music Performance	1	(0-2)
Total		<u>18(14-11) - 19(14-13)</u>	

Second Semester

SCBI 108	General Biology II	3	(3-0)
SCBI 104	Biology Laboratory II	1	(0-3)
SCCH 104	General Chemistry II	3	(3-0)
SCCH 109	Chemistry Laboratory II	1	(0-3)
SCLG 132	Introductory University English II	3	(2-2)
SCMA 114	Ordinary Differential Equations	2	(2-0)
SCPY 152	General Physics II	3	(3-0)
SCPY 120	Physics Laboratory II	1	(0-3)
SHHU 123	Integrated Humanities I	3	(3-0)
Total		<u>21(17-11)</u>	

**Second Year
First Semester**

			Credit (Lecture-Lab)
SCCH 121	Basic Organic Chemistry	3	(3-0)
SCCH 128	Organic Chemistry Laboratory	1	(0-3)
SCLG 231	Intermediate University English I	3	(2-2)
SCMA 150	Introduction to Statistics	2	(2-0)
SCMI 203	Basic Microbiology	3	(2-3)
SCPL 286	General Botany	3	(3-0)
SCPL 287	General Botany Laboratory	1	(0-3)
SHSS 145	Integrated Social Science	3	(3-0)
Total		<u>19(15-11)</u>	

Second Semester

SCBC 203	Basic Biochemistry	3	(3-0)
SCBC 204	Basic Biochemistry Laboratory	1	(0-3)
SCBI 270	Basic Cell and Molecular Biology	4	(4-0)
SCCS 155	Microcomputer Applications	3	(3-0)
SCLG 232	Intermediate University English II	3	(2-2)
MGID 101	Administration and General Management	3	(3-0)
Total		<u>17(15-5)</u>	

**Third Year
First Semester**

			Credit (Lecture-Lab)
SCBI 302	Invertebrate Zoology	4	(3-3)
SCBI 340	General Genetics	3	(3-0)
	Electives	10	
	Total	<u>17</u>	

Module A

SCBI 371	Basic Techniques in Molecular Biology	1	(0-3)
SCBI 372	Molecular Biology Application	3	(3-0)

Module B

SCBI 304	Marine Science	4	(3-3)
SCBI 327	Principles of Animal Physiology	4	(3-3)
SCBI 352	Microtechnique in Biology	3	(2-3)

Module C

SCBI 360	Basic Environmental Science	3	(2-3)
SCBI 363	Environmental Microbiology	3	(3-0)
SCBI 364	Environmental Education : Theory and Practice	3	(2-3)

Module D

SCBI 350	Host-Microbe Interactions	3	(2-3)
SCBI 355	Parasitology	4	(3-3)

Second Semester

			Credit (Lecture-Lab)
SCBI 305	Vertebrate Zoology	4	(3-3)
SCBI 314	Biostatistics	3	(3-0)
SCBI 399	General Ecology	3	(2-3)
	Electives	8	
	Total	<u>18</u>	

Module A

SCBI 306	Experimental Embryology	4	(3-3)
SCBI 317	Developmental Biology	3	(3-0)
SCBT 309	Animal Cell Technology	3	(3-0)

Module B

SCBI 310	Principles of Plant Physiology	4	(3-3)
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Module C

SCBI 343	Natural Resource and Environmental Management	3	(3-0)
SCBI 361	Water Quality Management	3	(2-3)

Module D

SCBI 356	Basic Entomology	4	(3-3)
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Fourth Year (Distinction Program)

First Semester

			Credit (Lecture-Lab)
SCBI 499	Undergraduate Thesis	6	(0-18)
SCBI 601	Seminar I	1	(1-0)
	Electives	4	
	Total	<u>11</u>	

Second Semester

SCBI 411	Evolution	3	(3-0)
SCBI 602	Seminar II	1	(1-0)
	Electives	8	
	Total	<u>12</u>	