Master of Science
Biological Science (International Program)
(2018)

1. **Degree Program** : Master of Science Program in Biological Science (International Program)
ชื่อหลักสูตร : หลักสูตรวิทยาศาสตรมหาบัณฑิต สาขาวิชาวิทยาศาสตร์ชีวภาพ (หลักสูตรนานาชาติ)

2. **Degree Offered** : Master of Science (Biological Science)
: M.Sc. (Biological Science)
ชื่อปริญญา : วิทยาศาสตรมหาบัณฑิต (วิทยาศาสตร์ชีวภาพ)
: วท.ม. (วิทยาศาสตร์ชีวภาพ)

3. **Objectives**

To produce M.Sc. graduates with the following characteristics:

1. Having knowledge and understanding of important principles and theories in the areas of biological science and capable to efficiently apply the knowledge for performing research and work

2. Having initiative, and capable of doing research or academic projects to discover new knowledge or working procedures in biological science

3. Capable of systematic analysis and synthesis, solving problems by using scientific process, and having independent opinion and decision

4. Having leadership and doing highly efficient collaborative work

5. Capable of using computers and modern information technology to gain knowledge and for communications

6. Having ethics, morality and good conscience to use scientific knowledge for development of society within the country, AEC and the World, with awareness on conservation of environment and biological resources

4. **Duration of the Program**

2 academic years

5. **Program of study**

Type A1		
Required courses :	SC 028 891, SC 028 892	2 (non-credit)
Thesis :	SC 028 898	36
	Total	**36**
Type A2		
Required courses :	SC 027 701, SC 028 891, SC 028 892, SC 028 893	7
Elective courses:	SC 117 001, SC 117 002, SC 117 006, SC 117 101, SC 117 120, SC 117 128, SC 117 308, SC 117 309, SC 117 311, SC 117 314, SC 717 106, SC 717 202, SC 717 306, SC 717 502, SC 817 701, SC 817 702, SC 817 713, SC 817 715, SC 817 722, SC 817 724, SC 817 731, SC 817 735, SC 817 737, SC 917 702, SC 917 703, SC 917 704, SC 917 710, SC 917 711, SC 917 740, SC 917 742, SC 917 812, SC917 840, SC 917 842	9
Thesis :	SC 028 899	20
	Total	**36**

6. **List of courses**

Code	Name of course	Credit
SC 027 701	Integrated Biological Science	3(3-0-6)
SC 028 891	Seminar in Biological Science I	1(1-0-2)
SC 028 892	Seminar in Biological Science II	1(1-0-2)
SC 028 893	Research Methodology in Biological Science	2(0-6-4)
SC 028 898	Thesis	36
SC 028 899	Thesis	20
SC 117 001	Advanced Cell Biology	3(3-0-6)
SC 117 002	Bioinformatics and Information Technology	3(2-3-6)
SC 117 006	Systematic Classification of Organisms	3(3-0-6)
SC 117 101	Plant Metabolism	3(3-0-6)
SC 117 120	Modern Methods in Plant Taxonomy	3(2-3-6)
SC 117 128	Plant Molecular Biology	3(3-0-6)
SC 117 308	Histochemistry	3(1-6-4)
SC 117 309	Freshwater Biology	3(2-3-6)
SC 117 311	Freshwater Zooplankton	3(2-3-6)
SC 117 314	Biology of Amphibians	3(2-3-6)
SC 717 106	Advanced Microbial Physiology	2(2-0-4)
SC 717 202	Prokaryotic Molecular Genetics	2(2-0-4)
SC 717 306	Applied Microbiology and Biotechnology	2(2-0-4)
SC 717 502	Biodiversity of Microbial Ecosystems	3(3-0-6)
SC 817 701	Biochemistry for Graduate Study I	3(3-0-6)
SC 817 702	Biochemistry for Graduate Study II	3(3-0-6)
SC 817 713	Biochemical Techniques for Graduate Study	1(1-0-2)
SC 817 715	Advanced Biochemistry Techniques	1(1-0-2)
SC 817 722	Integrated Biochemistry	3(3-0-6)
SC 817 724	Advanced Genetic Engineering in Prokaryotic Cells	2(2-0-4)
SC 817 731	PCR Technology	2(2-0-4)
SC 817 735	Biochemistry and Biology of Cancer	3(3-0-6)
SC 817 737	Analysis and Presentation of Biological Science Articles	2(2-0-4)
SC 917 702	Ecological Principles and Natural Resource Conservation	3(3-0-6)
SC 917 703	Integrated Environmental Management	3(3-0-6)
SC 917 704	Integrated Environmental ManagementLaboratory	1(0-3-2)
SC 917 710	Forest Ecology	3(2-3-6)
SC 917 711	Community Ecology	3(3-0-6)
SC 917 740	Environmental Appraisal	3(2-3-6)
SC 917 742	Wastewater Biology	3(2-3-6)
SC 917 812	Ecological Economics and Sustainable Development	3(3-0-6)
SC 917 840	Hazardous Waste and Management	3(2-3-6)
SC 917 842	Environmental Nanotechnology	3(3-0-6)

7. Study Plan

Year 1	Semester 1	Type A1	Type A2
SC 027 701	Integrated Biological Science	-	3 (3-0-6)
SC 028 891	Seminar in Biological Science I	1(1-0-2) (non-credit)	1(1-0-2)
SC 028 894	Research Methodology in Biological Science	-	2(0-6-4))
SC 028 898	Thesis	9	-
XX xxx xxx	Elective courses	-	3
	Total credits	**9**	**9**
	Cumulative credits	**9**	**9**
Year 1	**Semester 2**	**Type A1**	**Type A2**
SC 028 898	Thesis	10	-
SC 028 899	Thesis	-	4
XX xxx xxx	Elective courses	-	6
	Total credits	**10**	**10**
	Cumulative credits	**19**	**19**
Year 2	**Semester 1**	**Type A1**	**Type A2**
SC 028 892	Seminar in Biological Science II	1(1-0-2) (non-credit)	1(1-0-2)
SC 028 898	Thesis	10	-
SC 028 899	Thesis	-	9
	Total credits	**10**	**10**
	Cumulative credits	**29**	**29**
Year 2	**Semester 2**	**Type A1**	**Type A2**
SC 028 898	Thesis	7	-
SC 028 899	Thesis	-	7
	Total credits	**7**	**7**
	Cumulative credits	**36**	**36**

8. Admission Requirements

8.1 Applicants must meet the qualifications as specified in each program as follows:

Type A1: Holding a Bachelor Degree in Biology, Biochemistry, Microbiology, Environmental Science, Agricultural Sciences, Biological Sciences, Biotechnology or equivalent in related programs such as Bachelor of Education with satisfied knowledge in biological sciences, and having GPA of at least 3.0 out of the maximum of 4.0, or have published scientific papers in national journals, or having at least two years work experience in research, or approval depending upon the consent of the curriculum administrative committee.

Type A2: Holding a Bachelor Degree in Biology, Biochemistry, Microbiology, Environmental Science, Agricultural Sciences, Biological Sciences, Biotechnology or equivalent in related programs such as Bachelor of Education with satisfied knowledge in biological sciences, and having GPA of at least 2.5 out of the maximum of 4.0

8.2 Applicants from a country where English is not the first language must enclose English Proficiency Test Result. The result must not be more than two years. The following English Proficiency tests are accepted, and a minimum score should be as follows:

TOEFL (Paper Based)	475	or
TOEFL (Computer Based)	152	or
TOEFL (Internet Based)	53	or
IELTS (Academic Module)	5.0	or
TU-GET (1000)	500	or
CU-TEP (120)	60	or

Other English language test institutes with equivalent standards depending upon the consent of the curriculum administrative committee.