MU Degree Profile

Bachelor's degree Program	
1. Program Title (In Thai) หลักสูตรวิทยาศาสตรบัณฑิต สาขาวิชาทรัพยากรชีวภาพและชีววิทยาสภาวะแวดล้อม (หลักสูตรนานาชาติ) (In English) Bachelor of Science Program in Bioresources and Environmental Biology (International Program) 2. Degree Offered (In Thai) วิทยาศาสตรบัณฑิต (ทรัพยากรชีวภาพและชีววิทยาสภาวะแวดล้อม) (In English) Bachelor of Science (Bioresources and Environmental Biology)	
General Information of the Program	
Type of program	Bachelor's Degree (International Program), Academic Program
Number of Credits	Plan A - no less than 120 credits of courses offered by Mahidol University Plan B – no less than 120 credits of courses that comprise: 1) no less than 75 credits of courses taken while studying at Faculty of Science, Mahidol University and 2) no less than 45 transferable credits of program committee-approved courses that include no less than 32 credits of courses taken while studying at the State University of New York, College of Environmental Science and Forestry (SUNY-ESF) If a student cannot continue or complete his/her study at SUNY-ESF, credits and courses can be transferred in accordance with Mahidol University and MUSC regulations.
Study Duration / Program Cycle	4-Year Program

Program Status and Program Schedule	1. Revised Program 2024 2. Program start: Semester 1 Academic Year 2024
Degree Granting	Plan A – one degree (B.Sc. in Bioresources and Environmental Biology offered by Mahidol University) Plan B – dual degree (B.Sc. in Bioresources and Environmental Biology offered by Mahidol University and B.Sc. in Environmental Science, Environmental Biology, Environmental Health, Biotechnology, or Aquatic and Fisheries Science offered by the State University of New York, College of Environmental Science and Forestry
Degree-granting Institutions (MOU with other institutions)	Plan A - Mahidol University, Thailand Plan B – Mahidol University, Thailand and State University of New York, USA
Accreditation Institution	-
Specific information of the program	
Goals & Objectives	Goals The goal of this program is to produce bachelor degree graduates, who meet the requirements and specifications of national and international standards and expectation, with knowledge and skills in bioresources, environmental biology, and related sciences to address environmental and biological-related needs and to be a part of achieving the Sustainable Development Goals (SDGs). Moreover, the graduates will be able to possess MU graduate attributes (T-Shaped, Globally Talented, Socially Contributing, Entrepreneurially Minded) and 21st century skills to meet future employment opportunities, graduate study requirements, and social needs. Objectives

	To produce graduates who have the characteristics, knowledge and skills as described follows: 1. Integrate and apply knowledge in bioresources and environmental biology and related sciences to address environmental and biological-related needs 2. Demonstrate laboratory and technical skills appropriate for the planning and execution of science-related projects in bioresources and environmental biology or related fields 3. Demonstrate skills in problem solving, creative thinking and an ethical mindset geared toward social responsibility 4. Exhibit skills in management and entrepreneurship 5. Work with others appropriately and accept the difference between people 6. Communicate ideas and findings in bioresources and environmental biology and related fields to the scientific community and the general public through clear and concise written and verbal communication in a manner
Distinctive Features	1. Students have the opportunity to learn about business practices and are allowed to pursue a Master's degree in Management offered by the College of Management, Mahidol University (CMMU). They can earn bachelor's and master's degree in 5 years. 2. Students have the opportunity to choose 1 of 5 study plans abroard through our dual degree program with SUNY-ESF. These include Environmental Health, Environmental Biology, Environmental Science, Biotechnology, and Aquatic and Fisheries Science. 3. Bioresources and Environmental Biology Program provides academic knowledge from diverse biological disciplines, including ecology and conservation, environmental sciences,

	environmental health, biotechnology, plant and animal diversity and other related areas. 4. Students have options to do internships in companies or institutes related to the program according to their interests, their choices, and their passions or to do senior projects that fit their needs in any specialty within the bioresources and environmental biology context, according to their interests, their choices, and their passions. 5. As global citizens, students have direct opportunities to learn from and interact with foreign students and foreign lecturers.
Educational System	Semester System
Graduates' advancement	
Career opportunities	1. Researcher assistant positions in any government research unit, academic institutes or universities related to bioresources and environmental biology. 2. Personnel performing quality control/assurance and conducting experiments and reports for biological and environmental-related issues in any companies or for any manufacturers 3. Sales or marketing personnel for companies involved in the distribution and/or maintenance of scientific instruments, products, chemicals and related services. 4. Customer relation positions for biology or environment-related companies that require personnel with good command of English. 5. Start-ups or other entrepreneurial opportunities related to products or services in the field of bioresources and environmental biology.

Further fields of study	Graduates can continue their studies for higher degree in any fields of biotechnology, environmental sciences, environmental health, environmental resources engineering, ecology and conservation, plant science, zoology and other programs in the field of life sciences.
Philosophy in program administration	
Educational Philosophy	Our primary focus is to educate students to help them attain academic achievement through learning-centered education, outcome-based education and constructivism. Our program administer education that focuses on learners' achievements by means of a learning-centered approach for self-development of knowledge, abilities, and new skills. To become a knowledgeable graduate, students combine what they have previously learned with new knowledge, and with experiential learning activities. Thus, the role of the lecturer during the learning process is to shift from an information provider to a mentor or facilitator that provides a wide range of learning activities.
Strategy/teaching guidelines	The program is aware of differences in students' backgrounds, strengths and weaknesses, interests, and learning styles. Therefore, a range of teaching styles are promoted through diverse learning activities according to the learning outcomes, including ● active learning strategies by putting students at the center of the classroom and requiring students to become active participants in their learning process ● encourage initiative strategies by allowing students to participate in the class discussions and exercises that support the initiative

	● classroom technology strategies by using a virtual field trip, VDO on demand, or podcasts to improve student engagement ● problem-based/project-based learning strategies in order to allow students engaged in individual or group work to investigate and find the proper solution by themselves as well as to improve students' creativity, critical thinking and analysis The teaching and learning management is consistent with constructivism by teaching from basic to advanced, supporting student self-reflection and self-development by linking new knowledge with old knowledge and creating an environment that promotes a lifelong learning.
Strategy/student's evaluation guidelines	The assessments and evaluations align with the teaching strategies and the desired learning outcomes. ● Assessment tools must be valid, reliable, and fair. ● Authentic assessment evaluates the student through contexts, scenarios, and situations beyond the classroom. ● Formative assessment is ungraded and used to monitor the student progress in order to help students recognize their weakness and improve their performance. Formative assessments include quizzes, strategic questions, and assessment reflection. ● Summative assessments include multiple-choice questions, written and oral examinations, individual or group activities, oral and poster presentations, practical tests, and laboratory reports. ● Self-assessment is used to reflect each student performance.

	● The rubrics based on the learning outcomes of each subject are utilized to assess learning outcomes. ● Criterion-referenced assessments are utilized to assess the accomplishments of students.
Competences provided to the students	
Generic Competences.	1. Ethics: demonstrate moral and ethical behavior and be responsible in their own action including awareness of plagiarism 2. Critical thinking and analysis: be capable of analytical and critical thinking and be able to evaluate both general and scientific information with logical and systematic thinking 3. Creativity: be able to bridge research gaps to develop innovation which further enhances basic knowledge 4. Communication: be able to choose appropriate forms of English communication (for both academic and non-academic purposes), such as listening, speaking, reading and writing skills, depending on the target audience 5. Collaboration: be able to work with others appropriately and professionally, irrespective of personal differences 6. ICT: be able to choose the appropriate information technology when searching for information and data and be able to analyze the reliability of data from various sources.
Subject-specific Competences	1. The use of tools and processes in biological and environmental sciences, to study at the molecular, cellular and organismic, community, and ecosystem levels of life, both in the laboratory and in the field, with a code of ethics and professional conduct. (SDG 3, 4, 9, 11, 12, 13, 14, 15) 2. Basic knowledge and skills in zoology, plant science, industrial and environmental microbiology, environmental biotechnology for waste treatment, food crop planting and

	harvesting technology, and plant and animal cell technology. (SDG 3, 4, 9, 11, 12, 13, 14, 15) 3. Integration of scientific and environmental knowledge for industrial use and environmental protection. (SDG 3, 4, 9, 11, 12, 13, 14, 15)
Graduates' learning outcomes	
At the end of the program, successful students will be able to:	
PLO1 Solve biology- and environment-related problems logically and systematically at local, regional and global levels by applying interdisciplinary approaches.	
PLO2 Carry out laboratory-based and field-based experiments to address biological and environmental impacts on sustainability according to international laboratory standards and field safety.	
PLO3 Create an independent project in bioresources and environmental biology, analyzed from scientific journals and laboratory reports along with ethics and professional code of conduct.	
PLO4 Communicate concepts in the field of bioresources and environmental biology clearly and purposefully with respect to the target audiences, in English, in both written and oral formats, using appropriate technology in an organized manner.	
PLO5 Work with others in bioresources and environmental biology role to achieve goals of science team, both as a leader or as a team member.	
PLO6 Develop their academic potential in Bioresources and Environmental Biology to make themselves competent (a combination of knowledge, skills, and attitudes) and responsible global citizens capable of adapting to changing situations.	