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ACADEMIC PROGRAM BOOK

Undergraduate
Programme of Biology

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Universitas Negeri Surabaya



LEARNING OUTCOME

Here are some expected learning outcomes that students are anticipated to achieve upon completing the learning process in the International Undergraduate Program (IUP) Department of Biology at Universitas Negeri Surabaya.

CODE	PLO
CHARACTER AND SOCIAL	
PLO-1	Demonstrate religious, national, and cultural values and academic ethics while performing their duties.
PLO-2	Exhibit a strong, collaborative, adaptive, innovative, and inclusive character, fostering lifelong learning and an entrepreneurial spirit.
GENERAL COMPETENCE	
PLO-3	Develop logical, critical, systematic, and creative thinking skills essential for executing tasks in their field of expertise, aligned with the relevant professional competency standards.
PLO-4	Engage in sustainable and collaborative self-development.
PLO-5	Work independently in a laboratory setting, developing relevant skills while applying bioethics and ensuring occupational safety.
SPECIFIC COMPETENCE	
PLO-6	Design and conduct experiments in biology and effectively manage, analyze, interpret, document, and store research data to manage natural biological resources.
PLO-7	Display fundamental knowledge of biology pertinent to science and mathematics to understand current scientific phenomena and issues, applying this knowledge to problem-solving.
KNOWLEDGE	
PLO-8	Show a foundational understanding of cell and molecular biology, organismal biology, ecology, and evolution to analyze contemporary biological issues responsibly.
PLO-9	Utilize biological knowledge and technology to address natural resources and environmental challenges, supporting the fields of professional practice and Bioecopreneurship (including eco-innovation, eco-opportunity, and eco-commitment).

PLO-10	Demonstrate proficiency in software applications and instruments, standard analysis methods, and synthesis in biology, enhancing digital literacy and technology that supports biological science and its applications.
PLO-11	Effectively communicate scientific ideas verbally and in writing using suitable communication media tailored to the audience.

LECTURER'S PROFILE

- **Infographics (The Quantity of Lecturers with Doctoral, Master Degree, and Professor Title)**

The International Undergraduate Program (IUP) of the Department of Biology at Universitas Negeri Surabaya is supported by a team of 19 qualified faculty members, comprising one professor (5%), nine Ph.D. holders (47%), and nine master's degree (48%) holders. Each faculty member specializes in key areas of biological sciences, including microbiology, genetics, ecology, plant structure and physiology, as well as animal structure and physiology, ensuring a comprehensive and high-quality learning experience for students. Below is the graphical representation of the IUP, Department of Biology faculty profile.

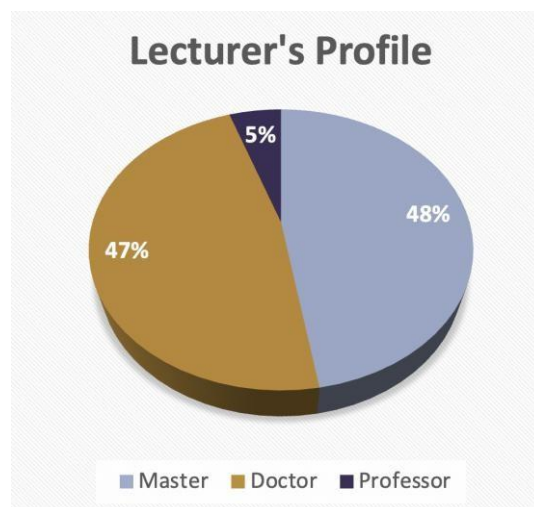


Figure 1. Graphical representation of the Department of Biology faculty profile.

- **Accreditation (National and International Accreditation)**

The Undergraduate Program in Biology was accredited by the National Accreditation Board for Higher Education (BAN-PT) with an "A" rating from 2020 to 2025 (BAN-PT Decision No. 3424/SK/BAN-PT/Ak-PPJ/S/VII/20). Additionally, this program has received international accreditation from the Accreditation Agency for Study Programmes in Engineering, Informatics, Natural Sciences, and Mathematics (ASIIN e.V.), which is recognized as equivalent to level 6 of the European Qualifications Framework for Lifelong Learning (EQF LLL). This international accreditation is valid from June 24, 2022, to limited until September 30, 2027.

PROGRAM'S PROFILE

- **A Brief History**

The Department of Biology at Universitas Negeri Surabaya (UNESA) has a long-standing tradition of excellence in biological education and research. Initially established as part of the Faculty of Education under the Surabaya Institute of Teaching and Education Sciences (IKIP Surabaya), the department was founded to fulfill the increasing demand for competent biology educators in Indonesia. With the transformation of IKIP Surabaya into Universitas Negeri Surabaya on June 10, 1998, the department expanded its academic scope beyond teacher training to encompass broader biological sciences and research.

Over the years, the Department of Biology has continuously evolved to meet national and global academic standards. It has developed a strong theoretical foundation and practical skills in biology. Since its inception, the department has been committed to advancing biological sciences, focusing on tropical biology and edu-ecopreneurship. The department's vision is to develop a resilient, adaptive, innovative, and collaborative Biology Study Program grounded in edu-ecopreneurship and tropical biology to support sustainable optimization of natural resources. Integrating **edu-ecopreneurship** and **tropical biology** are the key elements of the academic approach in the Department of Biology. Edu-ecopreneurship aims to reduce environmental burdens, while tropical biology involves the study of biodiversity and ecosystems in tropical regions. By integrating these concepts, the department strives to produce graduates proficient in biological sciences with entrepreneurial skills and a strong environmental ethos. Moreover, the Department of Biology has also actively engaged in research initiatives, contributing to advancements in biodiversity conservation, biotechnology, and environmental sciences.

Recognizing the importance of international collaboration, the Department of Biology has established partnerships with universities and research institutions worldwide. These collaborations have facilitated academic exchanges, joint research projects, and professional development opportunities for students and faculty members. The Department of Biology at UNESA has launched the International Undergraduate Program (IUP) in response to the growing need for globally competent graduates. This program will provide students with the information, skills, and global exposure required to thrive in a progressively interconnected society.

To achieve this vision, the department has outlined a series of milestones. From **2021 to 2025**, the department aims to attain **ASEAN-level recognition in innovations** based on edu-ecopreneurship and tropical biology. Between **2026 and 2030**, the focus will shift towards achieving **ASEAN-level recognition** in research, thereby increasing the regional significance of academic contributions in these areas. Finally, from **2031 to 2035**, the department aspires to secure **international recognition in research** centered on edu-ecopreneurship and tropical biology. These progressive milestones reflect the department's commitment to advancing academic excellence, fostering sustainable research, and establishing itself as a leader in biological sciences on a global scale.

COURSE MAPPING

Below is the course mapping for the International Undergraduate Program (IUP) of the Department of Biology at Universitas Negeri Surabaya. Students are required to complete a total of 144 credit hours, which is equivalent to 192.96 ECTS, following the conversion rate of 1 credit = 1.34 ECTS.

1ST SEMESTER

COURSES	CREDITS	ECTS
Pancasila	2	3.18
Physical Education	2	3.18
Digital Literacy	2	3.18
General Biology	3	4.77
General Chemistry	3	4.77
General Physics	3	4.77
Mathematics	2	3.18
Laboratory Techniques	2	3.18
Total	19	30.21

2ND SEMESTER

COURSES	CREDITS	ECTS
Religion Education	2	3.18
Civics	2	3.18
Conservation of Natural Resources and Environment	2	3.18
Biochemistry	3	4.77
Plant Structure and Development	4	6.36
Animal Structure and Development	4	6.36
Biostatistics and Biocomputer	3	4.77
Total	20	31.8

3RD SEMESTER

COURSES	CREDITS	ECTS
Bahasa Indonesia	2	3.18
Entrepreneurship	2	3.18
Molecular Biology	3	4.77
Ecology	4	6.36
Genetics	4	6.36
Plant Systematics	4	6.36
Animal Systematics	4	6.36
Total	23	36.57

4TH SEMESTER

COURSES	CREDITS	ECTS
Analysis Technique of Molecular Biology	2	3.18
Biotechnology	2	3.18

Animal Physiology	4	6.36
Plant Physiology	4	6.36
Microbiology	3	4.77
Tropical Biodiversity	2	3.18
Biology Research Methodology	3	4.77
Microtechnique	2	3.18
Total	22	34.98

5TH SEMESTER

COURSES	CREDITS	ECTS
English	2	3.18
Course on Community Life (Independent study/entrepreneurship/national defense/humanitarian project/independent student exchange/village project) & Exchange Program in Partner University based on the student topics of interest for their thesis		
Elective courses: 16 credits (6-8 courses)		
Programme Planning	2	3.18
Evaluation programme	2	3.18
Limnology	2	3.18
Waste managment	2	3.18
Ecophysiology	2	3.18
Histology	2	3.18
Animal Reproduction	2	3.18
Human Genetics	2	3.18
Pharmacogenomics	2	3.18
Cytogenetic	2	3.18
Intertidal zone biodiversity	2	3.18
Biogeography	2	3.18
Tropical Plants	2	3.18
Immunology	2	3.18
Ecotoxicology	2	3.18
Marine Ecology	2	3.18
Biological Control	2	3.18
Applied microbiology	2	3.18
Total	22	34.98

6TH SEMESTER

COURSES	CREDITS	ECTS
Internship	20	31.8
Programme Planning	2	3.18
Evaluation programme	2	3.18
Elective courses: 16 credits (6-8 courses)	16	25.44
Total	20	31.8

7TH SEMESTER

COURSES	CREDITS	ECTS
Evolution	2	3.18
Bioinformatics	2	3.18
Quality Control Management	2	3.18
Seminar	2	3.18
Thesis	4	6.36
Elective Course	6	9.54
Total	18	28.62

8TH SEMESTER

COURSES	CREDITS	ECTS
Thesis	4	6.36
Total		

Credits Total= 144 credits, which is equivalent to 228.96 ECTS (1 credits = 1.34 ECTS)

ACADEMIC FACILITIES

1. Classroom and Auditorium

This program provides five classrooms for teaching and learning activities and an Auditorium with all the latest equipment that helps give workshops and guest lectures for effective learning.



Classroom



Auditorium

2. Laboratories

The Undergraduate International Program of Biology has several laboratories that support teaching, learning, and research activities for students and lecturers, including Basic Biology, Structure and Development, Microbiology, Tissue Culture, Ecology, Taxonomy, Physiology, Mycology, Biotechnology, Molecular Biology, Greenhouse, Experimental Animal, and Microtechnique.



Structure and Development Laboratory



Molecular Biology Laboratory

3. Library

This library has a comprehensive collection of books supporting students' academic needs. Library services include book borrowing and on-site visits, which adhere to the official working hours of the Faculty of Mathematics and Natural Sciences, UNESA. Students and visitors may also utilize the library's reading room facilities. The reading room offers a quiet and comfortable environment, equipped with air conditioning and several tables and chairs, accommodating approximately 20 students.



INTERNATIONAL COLLABORATION

To facilitate the establishment of the International Undergraduate Program, Universitas Negeri Surabaya has forged strategic partnerships with various esteemed international universities. These collaborations aim to enhance research initiatives and academic engagements, thereby fostering a dynamic and globally competitive learning environment for students. The following is a list of international partnerships currently being developed by Universitas Negeri Surabaya and the Department of Biology.

No.	Affiliated Partner	Country	Year of Agreement	Documents
1	The Halal Science Center, Chulalongkorn University	Thailand	2025	Agreement under review
2	Department of Biochemistry and Molecular Biology, University of Maryland Baltimore	USA	2025	MoA IA
3	Faculty of Science, University of Malaya	Malaysia	2025	IA
4	School of Science, Walailak University	Thailand	2025	Agreement under review
5	College of Science and Engineering, National Dong Hwa University	Taiwan	2024	MoA
6	School of Education, Deakin University	Australia	2024	IA
7	Graduate Institute of Applied Science & Technology, National Taiwan University Of Science & Technology	Taiwan	2024	MoA
8	Graduate School of Interdisciplinary Science and Engineering in Health Systems, Okayama University	Japan	2023	MoA
9	University Sains Malaysia	Malaysia	2021	MoU

Universitas Negeri Surabaya has devised a strategic plan to enhance student international exposure, which is set to be implemented in the fifth and sixth semesters. This international exposure encompasses a range of academic and professional experiences, including research collaborations, student exchange programs, internships, and community service initiatives. Thus far, the Department of Biology at Universitas Negeri Surabaya has established various international exposure opportunities for its students, which include: [list of programs or collaborations are followed].

No.	International Activities	Country	Number of Students
1	International Credit Transfer di FSG UiTM Odd Semester 2021/2022	Malaysia	4
2	International Summer Program Osaka University 2021	Japan	23
3	UGM Summer Course 2021 Batch I	Indonesia	1
4	International Credit Transfer Program at Tarlac Agricultural University Even Semester 2020/2021	Philippines	2

CONTACT

- The Faculty Campus: PIC (Adhoc International Class) contact number, e-mail, website, social media