ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes
Biology
Marine Science
Veterinary Science Leading to Professional Veterinary Medicine

Master's Degree Programmes
Animal Science and Technology
Fishery Science

Provided by
Universitas Hasanuddin

Version: 27 June 2025

Table of Content

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
Sarjana Biologi	Ba Biology	ASIIN		10
Sarjana Ilmu Kelautan	Ba Marine Science	ASIIN	AUN-QA	08
Kedokteran Hewan menuju Program Pendidikan Profesi Dokter Hewan	Ba Veterinary Science leading to Professional Veterinary Medicine	ASIIN		08, 14
Magister Ilmu dan Teknologi Peternakan	Ma Animal Science and Technology	ASIIN		08
Magister Ilmu Perikanan	Ma Fishery Science	ASIIN		08
Date of the contract: 30.05.2023 **Submission of the final version of the self-assessment report:** 14.11.2023 **Date of the onsite visit:** 04.03.2024-05.03.2024 **at: UNHAS Campus**				
Expert panel: Prof. Dr. Harry Palm, University of Rostock PD Dr. Alois Palmetshofer, University Wuerzburg PD Dr. Angela Schwarzer, Ludwig-Maximilians-University of Munich				

[2] TC: Technical Committee for the following subject areas: TC 08 - Agriculture, Forestry and Food Sciences, TC 10 – Life Sciences, TC 14 - Medicine.

Dr. Mochammad Riyanto, IPB Bogor Dr. habil. Sonja Kleinertz, Conservation Dive Center Retno Yulifenia, student at Gadjah Mada University	
Representative of the ASIIN headquarter: Daniel Seegers	
Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines as of May 15, 2015 ASIIN General Criteria, as of March 28, 2023 Subject-Specific Criteria of Technical Committee 08 – Agriculture, Forestry, Food Sciences, and Landscape Architecture as of March 27, 2015 Subject-Specific Criteria of Technical Committee 10 – Life Sciences as of June 28, 2019 Subject-Specific Criteria of Technical Committee 14 – Medicine - WFME Global Standards 2015	

B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF[3]	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Bachelor Programme in Biology	S.Si/ B.Sc		6	Full time	No	8 Semesters	144 CP / 244,8 ECTS	September/ July 11, 1966
Bachelor Programme in Marine Science	S.Kel/B.Sc		6	Full time	No	8 Semesters	144 CP / 244,8 ECTS	September/ December 4, 1996
Bachelor Programme in Veterinary Science leadting to Professional Veterinary Medicine	DVM		7	Full time	No	11 Semesters	190 CP / 311,36 ECTS	September/ 4th October 2020
Master Programme in Animal Science and Technology	M.Si		7	Full time	No	4 Semesters	41 CP / 69,7 ECTS	March & September/ 22 August 2010
Master Programme in Fishery Science	M.Si		7	Full time	No	4 Semesters	38 CP / 64,6 ECTS	March & September/ 6 July 2010

For the Bachelor's degree in Biology, the institution has presented the following profile on the programme's website:

„ **VISION**

To become a center of excellence in the development of basic and applied science based on the Indonesian Maritime Continent (BMI) at the national level and recognized at the international level by 2030

MISSION

[3] EQF = The European Qualifications Framework for lifelong learning

- Carrying out professional academic activities to produce graduates who are moral, have a global perspective and care about people's lives and have superior academic abilities and are competitive in the national and international scope;
- Contribute to the development of scientific, technological, social and cultural (IPTEKSBUD) science by supporting specific BMI-based research;
- Disseminate science and technology and new discoveries that are useful for the benefit of BMI through partnerships with other institutions."

For the Bachelor's degree in Marine Science, the institution has presented the following objectives on the programme's website:

"Produce intellectuals who are adaptive to the development of science in conserving coastal and marine resources.

To produce superior research in the field of Marine Science for the benefit of the Indonesian Maritime Continent (BMI).

Applying science and technology in the efficient conservation of coastal and marine resources for the benefit of the Indonesian Maritime Continent."

For the Bachelor's degree in Veterinary Science Leading to Professional Veterinary Medicine, the institution has presented the following objectives on the programme's website:

"**Vision**

To become a reputable Veterinary Medicine Study Program that produces humanist veterinarians based on the Indonesian maritime continent and local potential.

Mission

The mission of the Veterinary Medicine Study Program is in line with the vision of the study program, the mission of the Faculty of Medicine, and the mission of Hasanuddin University which will be achieved in 2025, namely:

1. organize academic and professional levels in the field of veterinary medicine that have competencies in accordance with OIE Day 1 Graduate Competencies;
2. carrying out research in the field of veterinary medicine that is innovative, competitive, implementable and collaborative;

3. carrying out community service in the field of veterinary medicine based on community empowerment; and
4. implementing the tridharma of higher education (education, research and community service) based on a one health approach."

For the Master's degree programme Animal Science and Technology, the institution has presented the following profile on the programme's website:

„**Vision**

Become a leading study program that is able to collaborate on an international level and developing Animal Science and Technology with an industrial spirit on people's farms.

Mission

1. Organizing education Research-based Master of Science and Technology in Animal Science with a curriculum that is adaptive to the competency needs of users and the development of Animal Science and Technology at the global level.
2. Organizing studies through quality research by lecturers and students to support the advancement of livestock science and technology.
3. Become a facilitator driving the development of industrial-cultured people's livestock to manage and utilize natural resources in a sustainable manner."

For the Master's degree programme Fishery Science, the institution has presented the following objectives on the programme's website:

"The objectives of the Fisheries Science Study Program are:

1. Producing Master's graduates with an integrated and sustainable outlook on Fisheries Science
2. Produce and develop Fisheries Science studies to support integrated and sustainable fisheries development and management
3. Conduct an integrated and sustainable review of the results of fisheries science studies for the benefit of the fishing community."

C Expert Report for the ASIIN Seal

1. The Degree Programme: Concept, Content & Implementation

Criterion 1.1 Objectives and Learning Outcomes of a Degree Programme (Intended Qualifications Profile)

Evidence:

- Self-Assessment Report
- Study plan of the degree programmes
- Module descriptions
- Objective-Module Matrices
- Webpage of the study programmes
- Curriculum Handbooks
- Discussions during the audit

Preliminary assessment and analysis of the experts:
The auditors refer to the respective ASIIN Subject-Specific Criteria (SSC) of the Technical Committees Agriculture, Forestry and Food Sciences (TC 08), Life Sciences (TC 10) and Medicine (TC 14) as a basis for judging whether the intended learning outcomes of the degree programmes as defined by Hasanuddin University (UNHAS) correspond with the competencies outlined in the SSC. For this, UNHAS has provided detailed descriptions of all Programme Learning Outcomes (PLO) and Intended Learning Outcomes (ILO) as well as matrices that show the relations between PLO and ILO and how the PLO and ILO are substantiated in the courses of the study programmes. The following paragraphs will summarise the Objectives and Learning Outcomes of all programmes under review, as defined by UNHAS.

For the Bachelor of Biology (BPB) programme at UNHAS, the mission focuses on producing competitive graduates in marine biology, conducting marine continent-based biological research for resource management and conservation, and providing community services that sustainably utilise biological resources.

The programme aims to produce graduates who excel in the application of biology and engineering for the sustainable management of biological/environmental resources in the maritime context, generate supporting research and provide relevant community services.

Graduate profiles such as Academician, Young Researcher, Practitioner and Quality Supervisor have been identified based on alumni and stakeholder input. For each profile, specific competencies and knowledge areas in plant sciences, microbiology, research methods, analysis and quality control are defined.

In addition, the BPB has outlined Intended Learning Outcomes (ILOs) covering knowledge of biological concepts, skills in analysing biological applications in industry/environment, skills in data analysis, research, communication and quality standards, and social attributes such as ethics and responsibility

The Bachelor of Marine Science (BPMS) programme at UNHAS is in line with the university's vision of excellence in developing the concept of the Indonesian Maritime Continent. The establishment of the programme implements the marine and maritime orientation and scientific principles of UNHAS.

BPMS aims to become a regional centre for education and development in coastal/marine resource exploration and conservation by 2030. Its mission focuses on quality education that produces innovative learners, advances marine science and technology, and conducts community outreach partnerships.

The objectives of the programme are to produce intellectuals who are adaptable to coastal/marine resource conservation science, conduct superior marine focused research, and efficiently apply science/technology for resource conservation for the benefit of the maritime continent.

Graduate profiles such as marine researcher, educator, conservationist, manager and surveyor were formulated based on stakeholder input and aligned with the national mastery definition for marine science graduates. Specific competencies in knowledge and skills were mapped for each profile, in line with qualification frameworks and the UNHAS vision.

In addition, BPMS outlined intended learning outcomes covering attitudes such as human values and entrepreneurship, basic marine knowledge, reasoning skills, performance assessment, scientific writing, and specific competencies in marine surveying, resource assessment and conservation. These outcomes were developed through a workshop guided by aspirations, standards and benchmarking.

The vision and mission of the Bachelor of Veterinary Science (BVSc-DVM) programme are aligned with the objectives of the university/faculty, while incorporating stakeholder input to meet public demands, collegial needs and to drive scientific/technological advances.

Its vision is "To become a reputable programme that produces humanistic veterinarians based on the maritime continent and local potential".

Key missions include establishing veterinary strata according to World Organisation for Animal Health competencies, conducting innovative and implementable veterinary research, organising community empowerment services related to veterinary medicine, and basing education/research/services on the One Health principles.

The programme has defined intended learning outcomes (ILOs) for attitudes, knowledge, skills and competencies, which are reflected in the curriculum and presented publicly. The ILOs cover responsible attitudes, legal categorisation of animal health across species, disease prevention/control planning, application of animal structure/health concepts, management of animal health resources, logical/innovative thinking, decision making, work accountability, leadership, entrepreneurship, health information exchange and evidence-based veterinary services through collaboration.

The Master of Animal Science and Technology (MPAST) is in line with the guiding vision and mission of UNHAS and the Faculty of Animal Science. It aims to produce independent graduates who are able to sustainably plan and develop animal science/technology competencies, generate breakthrough business-oriented research that bypasses bureaucratic studies, and disseminate creative ideas to motivate industrialised sustainable livestock development.

Based on three core foundations - animal production, nutrition/feed and socio-economics - the programme's graduate profiles meet the needs of the community and stakeholders. These include academics who continuously update livestock skills, researchers who identify problems and develop solutions through research and application, experts with sharp problem analysis and professional performance, entrepreneurs in livestock business planning/operation, and managers who are skilled in livestock business management.

The Intended Learning Outcomes (ILOs) translate these profiles through input from internal stakeholders such as faculty and students, as well as external academics, alumni, industry representatives and professional bodies. The ILOs encompass attitudes, knowledge, generic and specialised skills and cover professional responsibility, theories of livestock systems, scientific problem solving, research design, critical thinking, scientific communication, innovative knowledge/technology development, multidisciplinary problem solving, effective R&D management and professional expertise.

The Master of Fisheries Science Study Programme (MPFS) aims to become a leading integrated and sustainable postgraduate fisheries science programme in Indonesia by 2030, in line with UNHAS's Maritime Continent vision and the Faculty's coastal/marine resource management objectives.

Its mission focuses on providing integrated and sustainable fisheries education, research and community service. Key objectives include imparting integrated sustainable fisheries knowledge, creating supportive studies for sustainable fisheries development/management, and reviewing research for the sustainable benefit of fishing communities.

Graduate profiles include academics, researchers/engineers, practitioners/consultants, managers and fisheries supervisors - formulated based on employment needs, advancing science/technology needs and benchmarking using tracer study data.

The intended learning outcomes include attitudes of ethical scientific thinking, knowledge of integrated/sustainable fisheries approaches, skills in scientific communication/decision making and specific competencies in the development of management-oriented science/technology in the areas of aquatic resources, aquaculture, utilisation, socio-economics and product technology.

The five programmes under review ensure the currency of their curricula and respond to stakeholder needs through comprehensive evaluation mechanisms. Regular self-evaluation sessions assess the academic community's understanding of the programmes' vision, mission and objectives, facilitating improvements in communication and teaching materials. In addition, evaluations of learning outcomes by graduates and their experts, as well as assessments of graduates' performance in the labour market, provide invaluable insights into the effectiveness and relevance of the curriculum. These evaluations inform ongoing curriculum updates that incorporate international standards, outcomes-based education principles and innovative teaching methods to enhance graduate competencies. Stakeholder feedback, gathered through surveys and tracer studies, guides targeted interventions to address any competency gaps, ensuring that graduates are well prepared to meet industry demands and excel in their professions. Through continuous improvement initiatives and stakeholder engagement, the reviewed programmes maintain their commitment to providing high quality education and producing graduates who are equipped to succeed in their respective fields.

While the experts are largely satisfied with the objectives and learning outcomes of the programmes reviewed at UNHAS, they believe that UNHAS could better position and market the BPB and make its unique profile more visible to prospective students from across Indonesia.

Given UNHAS's strategic location next east to the biodiverse Wallace Line, in contrast to all other leading universities that are located west to the Wallace line, the experts believe that the university should highlight how the BPB provides students with specific knowledge about this biodiversity hotspot, marine and also terrestrial. This could be an important USP to attract students.

To capitalise on this opportunity, the experts recommend that UNHAS firstly reflect this biodiversity focus more prominently in the programme's overarching vision and mission statements, which are used for promotion and marketing. This distinct positioning then needs to be consistently carried through to the course level, where relevant biodiversity and Wallace Line content should be prominently featured.

By openly branding the BPB around its locational advantage as a gateway to study the species-rich ecosystems east of the Wallace Line, UNHAS can better differentiate the attractiveness and value proposition of the programme. This strategic positioning, emphasising biodiversity and location-specific scientific expertise, could give the programme a competitive edge in recruiting top students from across the Indonesian archipelago.

Following the review, a notable critique emerges regarding the absence of basic molecular biology training in the BPB curriculum. This gap hampers students' preparation for the modern scientific landscape, necessitating urgent inclusion of this training in both the program's overarching learning outcomes and at course level.

Basic molecular biology is foundational to numerous life sciences disciplines, essential for comprehending genetic mechanisms, cellular processes, and more in biological research and industry. Neglecting this training could leave graduates ill-equipped for future careers, limiting their prospects and hindering their contributions.

Integrating basic molecular biology into the curriculum equips students with vital knowledge and skills for career success. Adequate access to equipment ensures practical application. The University must proactively address this gap to enhance education quality and prepare students effectively for future challenges.

The collaboration between UNHAS and its industrial partners presents encouraging prospects for graduates in the national job market, as well as avenues for advanced academic pursuits, such as Master's or even PhD programmes. Nevertheless, employers emphasize the need for candidates with strengthened soft skills. Likewise, students are eager to enhance their competency in this domain. Consequently, the experts advocate for the integration of more content facilitating the development of these skills throughout the programmes. This holistic approach should be reflected in the programme planning to ensure comprehensive skill development.

In conclusion, the auditors base their assessment on the Subject-Specific Criteria (SSC) outlined by the Technical Committees Agriculture and Food Sciences (TC 08), Life Sciences (TC 10), and Medicine (TC 14). After careful consideration, they determine that the intended learning outcomes defined by UNHAS for the five study programmes align adequately with the competencies delineated in the SSC. However, they note two exceptions, particularly in the BPB, where they see some room for improvement. Overall, the auditors find the objectives and intended learning outcomes of the reviewed programmes to be rational and well-established.

Criterion 1.2 Name of the Degree Programme

Evidence:

- Self-Assessment Report
- Webpages of the study programmes
- Curriculum Handbooks
- Discussions during the audit

Preliminary assessment and analysis of the experts:
The auditors confirm that the English translations and the original Indonesian names of the degree programmes correspond with the intended aims and learning outcomes as well as the main course language.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report
- Study plan of the degree programmes
- Module descriptions
- Objective-Module Matrices
- Webpage of the study programmes
- Curriculum Handbooks
- Discussions during the audit

Preliminary assessment and analysis of the experts:
The curricula of the degree programmes are designed to comply with the programme objectives and learning outcomes and they are subject to constant revision processes. As such, the curricula are reviewed regularly and commented on by students and teachers as well as by external stakeholders such as alumni or partners from schools and the private

sector. Regular changes are made to ensure that the curricula are up to modern standards. Besides the objectives and learning outcomes defined by UNHAS itself, the curricula also take into account the Indonesian standards of higher education and the Indonesian national qualifications framework as well as the recommendations from industry.

The regular bachelor degree programmes encompass a minimum of 144 Indonesian credits (equivalent to 245 ECTS) and are typically completed within eight semesters, spanning four years. The BVSc-DVM programme follows a structured format, comprising a Bachelor and Professional phase. The Bachelor Phase, completed over eight semesters, comprises 228 ECTS, while the Professional Phase includes 13 additional modules, amounting to 83 ECTS. Additionally, the MPAST and MPFS programmes, designed for four semesters each, consist of 70 ECTS and 65 ECTS, respectively. High-performing students have the option to accelerate their studies by taking up to 24 SKS per semester, thereby shortening the regular study duration. Each semester encompasses 16 weeks, with 14 weeks dedicated to learning activities and 2 weeks allocated for midterm and final exams. The academic year follows a structured calendar, with the odd semester commencing in August and concluding in January, and the even semester spanning from February to June.

Practical application is integrated into the majority of courses, emphasising hands-on experience, which is essential for students' holistic development and preparation for their future careers.

The bachelor programmes are designed to offer a thorough education spanning eight semesters. In Semester 1, students concentrate on general courses aimed at improving their learning skills, attitudes, and personal development. Semester 2 introduces core courses in Marine Science, Biology and Veterinary Science, laying the groundwork for subsequent study. From Semesters 3 to 6, students delve deeper into their subject-specific studies, which will be further detailed in the subsequent paragraphs for each programme.

The BPB offers a comprehensive and progressive curriculum over semesters 3-6. Students begin by building a strong foundation in core biological sciences such as biochemistry, anatomy and physiology of plants and animals. They then progress to more specialised subdisciplines such as microbiology, evolutionary biology, marine biology, biotechnology and reproductive biology. Throughout this process, students systematically gain in-depth knowledge - starting with the fundamental chemical, cellular and anatomical basis of life, and progressively expanding into the diverse biological processes, applications and complex ecosystems of the plant and animal kingdoms. Interdisciplinary skills such as biostatistics, research methods and entrepreneurship are integrated, enabling students to develop a well-rounded, hierarchical expertise spanning the micro to macro levels of biological study.

In the BPMS, from semester 3 onwards, students delve deeper into core marine science disciplines such as statistics, ichthyology, ecology, botany, planktonology, acoustics, meteorology and sedimentology. In semesters 4 and 5, students explore more specialised areas such as marine physiology, microbiology, remote sensing, oceanography, population ecology, pollution, ecosystem restoration and geographic information systems. Elective courses offer the opportunity to focus on specific topics such as genetics, environmental assessment, diving and mariculture management. The final semester 6 includes applied community service projects and advanced electives in areas such as modelling, spatial planning, conservation management, parasites/diseases and hydrographic surveying. This comprehensive and progressive programme equips students with a thorough understanding of fundamental and multidisciplinary marine science.

The Bachelor Phase of the BVSc-DVM programme provides students with a comprehensive understanding of veterinary science in semesters 3-6, establishing a strong foundation in core veterinary subjects such as animal physiology, anatomy, pharmacology and immunology. Students gain practical skills in diagnosing disease, performing surgery, managing animal reproduction and ensuring food hygiene. Building on this foundation, semesters 5 and 6 delve deeper into the diagnosis and treatment of animals. Students develop expertise in advanced pathology, internal medicine, specialised surgery and various diseases affecting animals, including poultry. They also learn about veterinary law and ethics, disease patterns and economics, and veterinary practice management. This sequential approach ensures that graduates are industry ready, with the expertise to diagnose and treat animals, manage public health issues and run successful veterinary practices.

Semester 7 and 8 are dedicated to Community Service and a final thesis in which students demonstrate their mastery and understanding of the principles learned throughout the programmes. This comprehensive structure ensures that graduates are well equipped with a diverse range of skills to succeed in various aspects of agriculture and related industries.

The BVSc-DVM programme then continues with a Professional programme where students gain intensive hands-on training through internships in areas like Surgery and Radiology, Reproduction, Veterinary Public Health, Epidemiology, Animal Health Laws/Services, Large Animal Diseases, Poultry, Veterinary Hospitals, Selected Specialties, Quarantine, and Aquatic Animals, culminating in a Final Project to demonstrate their vocational competencies.

The MPAST begins by establishing a core foundation through compulsory courses in animal science/technology and the dynamics of smallholder livestock production in the first semester. The second semester builds on this by covering the philosophical foundations of animal science and rigorous research methods/statistical analysis.

In the third semester, students can tailor their expertise by choosing from a wide range of elective modules organised around larger themes. These include advanced animal breeding, reproduction and biotechnology; specialised production technologies for poultry, dairy and beef cattle; disease prevention, genetic engineering and environmental management; advanced nutrition, forage science and grassland ecology; processing and food safety of livestock products; economic analysis, marketing and community empowerment of livestock systems; and conservation of genetic resources. The final fourth semester is dedicated to practical scientific research and scholarly output. Students develop proposals, publish a scientific article in their chosen area of specialisation, present research seminars and finally defend their work in a comprehensive examination.

Through this structure of core concepts, specialisation through electives and a strong emphasis on original research and publication in the final stage, the programme produces graduates with both theoretical mastery and applied scientific expertise in the multidisciplinary areas of animal science and technology.

The MPFS follows a similar structure to the MPAST. It begins with a strong foundation in core subjects in the first semester, focusing on fisheries research methodology, legislation and philosophy. Students then broaden their knowledge through a wide range of electives in the second and third semesters. These electives cover specialist areas such as aquaculture, fish health, resource management and the bio-ecology of specific marine organisms. The programme culminates in a research dissertation in which students independently investigate a chosen area of fisheries science, culminating in a scientific publication, research seminars and a final defence. This comprehensive approach equips graduates with the expertise to pursue careers in fisheries research, management, aquaculture and related fields.

In summary, the auditors gain the impression that the graduates of all five programmes under review are well prepared for entering the labour market and can find adequate jobs in Indonesia. During the discussion with the auditors, UNHAS's partner from the industry/public sector confirm that the graduates have a broad scientific education, are very adaptable, and have manifold competences, which allows them to find adequate jobs. The structure of the programmes under review is clearly outlined on the subject specific website for each study programme. The programmes consists of modules, which comprise a sum of teaching and learning. The module descriptions are also published on the subject specific website. Based on the analysis of the sequence of modules and the respective module descriptions the experts concluded that the structure of all programmes ensures that the learning outcomes can be reached. The programmes also offer several elective courses, which allows students to define an individual focus. Based on the analysis of the curriculum and the module descriptions the experts confirmed that the objectives of the modules and

their respective content help to reach both the qualification level and the overall intended learning outcomes.

However, there are also some areas that can be improved concerning the curricula. Following up on chapter 1.1 the experts highlight that the adjustments of the learning outcomes and goals of the Biology programme of course needs to be followed up by altering both the content and the names of the modules.

One observation highlighted the potential for UNHAS to strengthen its focus on environmental considerations and sustainability principles in coastal regions, particularly within the BPMS and MPFS. This recommendation arises from the growing recognition of the critical role that coastal ecosystems play in global biodiversity, the livelihoods of coastal communities and the wider sustainability agenda. By integrating these issues more prominently into the curriculum, UNHAS can better prepare its graduates to address the complex environmental challenges facing coastal areas and contribute meaningfully to their conservation and sustainable management. This is of importance because UNHAS is the only major Indonesian University east to the Wallace line with its characteristic faunistical elements and also limited migration of marine species outside this region. Some commercially important fish species have characteristic stocks and populations that maintain only around Sulawesi and require specific management measures in comparison to other Indonesian regions.

Mobility

In order to support the international mobility of students the faculty has established several student exchange programmes with international universities and offers organizational and financial support for students studying abroad.

UNHAS has also implemented the Independent Learning Campus (MBKM), an initiative started by the Ministry of Education and Culture of the Republic of Indonesia aimed at student exchange. The Independent Student Exchange is an inter-island student exchange for one semester that provides an experience of the archipelago's diversity and a credit transfer system between universities equivalent to 20 credits.

While the auditors indubitably see that UNHAS is working hard to support the international mobility of their students they believe that there is still a lot more that could be done. From the discussion with the students, the auditors learn for example that they wish for more international collaborations and opportunities for student exchanges, also outside the Asian world. In addition, it would be beneficial for UNHAS to invite international guest lecturers (such as DAAD / German Academic Exchange Service long term guest lecturers), to seek collaboration with international research institutes, to offer international webinars

for both students and lecturers, and to offer more courses taught in English to better prepare students for international mobility. Finally, they stress the importance of better communication about funding opportunities for these activities.

Criterion 1.4 Admission Requirements

Evidence:

- Self-Assessment Report
- Academic Guidelines
- Discussions during the audit

Preliminary assessment and analysis of the experts:
According to the self-assessment report, admission of new students to UNHAS is possible via different modes of entry (national and local modes). The different modes of entry are designed not only to select the top-quality students from high schools, but also to provide opportunities for high school students from all over Indonesia, especially those from rural areas.

The admission criteria for Bachelor Programmes at UNHAS encompass three primary selection pathways: National University Entrance Selection (SNBP), Joint Entrance Test for State Universities (SNBT), and Independent selection pathways. These pathways are designed to ensure transparency and fairness in the selection process, providing equal opportunities for students from diverse educational backgrounds.

The National University Entrance Selection (SNBP) and Joint Entrance Test for State Universities (SNBT) are national-level examinations conducted through the relevant government agencies. These exams evaluate students' academic abilities and are open to all senior high school students in the country.

The Independent selection pathway offers additional avenues for admission, including:

1. Independent Pathway: This pathway involves assessment based on SBMPTN test results and interviews conducted by UNHAS' assessment team. It allows the university to select candidates based on their academic performance and personal qualities.

2. Achievement Path: This pathway considers candidates' achievements in extracurricular activities such as leadership roles in school organisations (OSIS) and Quran memorisation (Hafidz). Alongside these achievements, candidates are evaluated based on SBMPTN test scores, psychological assessments, English proficiency tests,

and interviews.

Moreover, UNHAS offers a distinct admission pathway for its professional veterinary medicine programme, which is uniquely integrated with the Bachelor of Veterinary Science (BVSc) programme. This programme, which is an advanced stream integrated with the bachelor of veterinary science programme, has its unique admission requirements and regulations.

Specifically, the university stipulates that students cannot delay entry into the professional veterinary medicine programme for more than six months after graduating from the undergraduate programme. Any requests for postponement must be submitted to the university chancellor through the dean before the re-registration deadline.

For Master Programmes, admission occurs each semester and follows the policies outlined by the university chancellor as per Regulations Rector Number: 36621/UN4.1/PP.37/2017 (Article 8) and Regulation Chancellor 2784/UN4.1/KEP/2018 (Article 9). The admission mechanism requires candidates to meet certain academic criteria, including holding a bachelor's degree or equivalent from an accredited study programme, achieving a minimum cumulative Grade Point Average (GPA) of 2.75, and completing the necessary administrative requirements.

Once candidates have passed the administrative stage, they undergo a selection process that may involve written and oral exams or evaluation and assessment of a portfolio by the respective Faculty/School and intended study programme. Candidates who pass this stage proceed to register through the university's new student acceptance portal.

The capacity for admitting candidate master's programme students is determined based on the proposed study programme's capacity, considering the ratio of lecturers to students and available facilities within the faculty. The submission of power is granted to the faculty to organise the admission process for new master's students at UNHAS, ensuring efficient management and oversight of the admissions process.

The tuition fees for the programmes are determined by the Ministry of Finance based on a proposal from UNHAS. There are different levels for these fees, depending on the parents' income. For students from underprivileged families, there is no tuition fee. Furthermore, there are various options for scholarships that cover the tuition fees.

The admission website informs potential students in great detail about the requirements and the necessary steps to apply for admission into the programmes. Since the rules are based on decrees by the ministry of education and on the university's written regulations, the auditors deem them binding and transparent. They confirm that the admission requirements support the students in achieving the intended learning outcomes.

Criterion 1.5 Workload and Credits

Evidence:

- Self-Assessment Report
- Study plan of the degree programmes
- Module descriptions
- Curriculum Handbooks
- Statistical data on study progress and failure rate
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Based on the National Standard of Higher Education of Indonesia, all programmes use a credit point system called SKS, which is regulated as follows:

- 1 CP of teaching covers 50 minutes contact hours + 60 minutes assignment/tutorial + 60 minute of self-studies
- 1 CP of practical work covers 170 minutes
- 1 CP of seminar covers 170 minutes

In comparison to the ECTS credit system, wherein 1 ECTS equals 25-30 hours of students' workload, it is determined that 1 CP is awarded for different amounts of workload, depending on the kind of studies. As such, for lecture sessions, one credit point equals 50 minutes, while one credit point for practical session is awarded for 3 hours of work. The students' workload (contact hours and self studies) is measured in Indonesian credit points (CP), and converted to the European Credit Transfer System (ECTS). According to the legal requirements, an undergraduate programme in Indonesia can have between 144 and 160 SKS, while the actual number is 144 SKS (244.8 ECTS) for the BPB and the BPMS and 153 (228.16 ECTS) for the BVSc. The Veterinary Professional Phase requires students to complete 37 SKS (83.2 ECTS).

The Master's programmes have a similar workload. The MPAST requires students to complete 41 credits (69.7 ECTS) and the MPFS requires students to complete a minimum of 38 credits (64.6 ECTS).

The workload is relatively evenly distributed, with each semester containing between 19 and 23 SKS according to the regular study plan. The number of regular modules is significantly reduced during the thesis work phase for all programmes, as well as during the job search phase. The effective number of credit points that students can take depends on their average grade point average (GPA), but the maximum number of credit points is 24. This

mechanism is designed to ensure that students can actually cope with the workload. It also means that students can theoretically complete their studies in less than 8, 11 or 4 semesters, but due to the generally high workload this is a rather rare phenomenon. The experts believe that the Indonesian system, in which students' workload per semester depends on their average grades in the previous semester, is a sound concept. Students' individual study plans are different, but have to be approved by their academic advisors.

The experts also noted positively that the module handbook consistently describes credit points and workload across all modules, effectively distinguishing between contact time and self-study time. However, they find it unfortunate that this information is absent in the MPAST module handbook.

UNHAS provides statistical insights into the average duration of student studies, revealing a trend where most of the programmes under review, align reasonably well with their designated study durations. However, all programmes exhibit a slight extension beyond the desired study period. Notably, the study duration of the BPMS programme appears to deviate significantly from expectations. UNHAS attributes this anomaly to the disruptive effects of the COVID-19 crisis, which has evidently impacted study timelines.

The experts acknowledge that the current statistics are inevitably influenced by the pandemic and, thus, view a one-year extension as somewhat understandable under the circumstances. Nevertheless, they advocate for UNHAS to delve deeper into the underlying reasons behind the prolonged study durations. This investigation should encompass potential factors such as overly demanding modules or the overall structure of semesters, which could contribute to the extended study periods. Consequently, they recommend conducting a comprehensive workload analysis to monitor and evaluate the actual workload experienced by students.

Interestingly, despite the statistical discrepancies, student feedback indicates a generally positive perception of the workload across all programmes. However, the experts maintain that it would be beneficial for UNHAS to gain a precise understanding of why students, particularly those in the BPMS programme, require more time than initially estimated. This insight could inform targeted interventions to streamline study processes and enhance overall academic efficiency.

Criterion 1.6 Didactic and Teaching Methodology

Evidence:

- Self-Assessment Report
- Information on procedures of seminars, field practices and theses writing

- Discussions during the audit

Preliminary assessment and analysis of the experts:
The staff members of UNHAS apply various teaching and learning methods like interactive lecture, small group discussion, demonstration, collaborative learning, discussion, case study, project based learning, laboratory practice, presentation and software simulation.

The experts appreciate the small projects implemented in different modules in all programmes in order to establish project based learning. In general, the experts see a wide variety of teaching methods and didactic means used to promote achieving the learning outcomes and support student-centered learning and teaching. UNHAS introduced an online Learning Management System (SIKOLA) in order to monitor the teaching methodology that is applied and make accessible the various course materials. Therefore, each teacher or professor must upload his or her teaching materials and working procedures on SIKOLA.

In summary, the expert group judges the teaching methods and instruments to be suitable to support the students in achieving the intended learning outcomes. In addition, they confirm that the study concept of all programmes comprises a variety of teaching and learning forms as well as practical parts that are adapted to the respective subject culture and study format. It actively involves students in the design of teaching and learning processes (student-centred teaching and learning).

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 1:

Criterion 1.1 & 1.3

BPB:

UNHAS states that it has already started to shape the curriculum in a way that it reflects the regional focus. Part of these changes are included in the 2023 curriculum which has not been presented in the documents to be reviewed. Therefore the experts ask UNHAS to provide mentioned curriculum and keep up their request for UNHAS to showcase that the regional focus is not only reflected on the content side but also in the presentation for the study programme as a whole which includes the name of the courses. In addition, UNHAS states that it has already taken action concerning the introduction of a molecular biology course that will be offered as a practical course. The experts welcome this change and are looking forward to its implementation. The necessary equipment is already in the procurement process. Overall, the experts are satisfied with the way UNHAS faced their criticism and are looking forward to see the implementation of the mentioned actions.

BPMS:

UNHAS has reported the creation of a new curriculum, the K-23, for the BPMS programme. However, the documentation previously provided, including the Self-Assessment Report and appendices, referenced the older K-19 curriculum. The experts acknowledge these developments and are eager to review the updated K-23 curriculum to fully assess the changes implemented.

In 2024, UNHAS launched the 'flow speak' program to enhance students' English proficiency, essential for academic success. Additionally, the university subscribed to the Science Direct Journal database to provide valuable resources to both students and lecturers. It also facilitates TOEFL testing to customize English support programs based on the test results.

The experts commend these initiatives and are optimistic that they will not only boost students' confidence in studying abroad but also enhance UNHAS's ability to offer courses fully taught in English, aligning well with the experts' recommendations.

Criterion 1.5

To address the issue of prolonged average study durations in the BPMS program, UNHAS has implemented several targeted measures. These include encouraging students to identify their research topics by the fifth semester, enhancing student participation in research and lecturer projects for both financial and experiential benefits, and streamlining the thesis process. Changes to the thesis process include eliminating formal proposal seminars, reducing the number of supervisors to one, and simplifying the thesis format. Additionally, the university promotes the use of meta-analysis methods to utilize secondary data, which helps overcome the limitations of field research. The experts are impressed by these focused measures and are confident that they will positively impact study durations in the future.

The experts consider criterion 1 to be **fulfilled** for all programmes except BPB.

2. Exams: System, Concept and Organisation

Criterion 2 Exams: System, Concept and Organisation

Evidence:

- Self-Assessment Report
- Module descriptions

- Academic Guidelines
- Academic Calendar
- Sample exams and theses
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Each course has to determine objectives, which support the achievement of the Programme Learning Outcomes of the respective programme. Accordingly, each course must assess whether all defined learning outcomes stated in the module description have been achieved.

According to the self-assessment Report, quizzes, tests, practical performances, assignments, small projects, reports and presentations are employed to assess the students' achievement of the learning outcomes. At the first meeting of a course, the students are informed about what exactly is required to pass the module. The form and length of each exam is mentioned in the course descriptions that are available to the students via UNHAS' homepage and the Learning Management System (SIKOLA). It is common to hold small quizzes every two or three weeks, but there are generally no unscheduled tests. The students are informed about mid-term and final exams via the academic calendar. The final grade of each module is calculated based on the score of these individual kinds of assessment. The exact formula is given in the module handbook. UNHAS uses a grading system with the grades A, A-, B+, B, B-, C+, C, D and E, where a D (equivalent to a Grade Point of 1) is necessary to pass a module.

Based on the academic regulation to be eligible to take final exam, students must attend at least 80% of the total course sessions. On the other hand, students must attend all lab work activities in order to get a practice examination permit. Students who have not yet reached the minimum achievement criteria have to join the remedial programme which is an additional programme that should help them improve their unsatisfactory results. The lecturers will provide several alternatives such as a second trial of exams or additional assignments. The remedial program allows students to fix their shortcomings and finish the course on time with satisfactory results and is meant to shorten the study period.

The experts also inquire about the possibilities for students to retake exams they have failed. They learn that while students can retake the exam in the following year, they are also required to retake the entire course, which means they have to wait for one semester. Recognising the potential challenges and delays this requirement may pose for students, the experts recommend offering a make-up exam in the following semester instead of de-

manding students to retake the entire course. This approach would allow students to address their areas of weakness more promptly, minimising unnecessary delays in their academic progression and promoting a more efficient learning process.

The experts discuss with the students how many and what kind of exams they have to take each semester. They learn that for most courses there is one mid-term exam and one final exam in every semester. For other courses, there is only one final exam in every semester. Usually, there are additional practical assignments or quizzes. The final grade is the sum of the sub exams. The students appreciate that there are several short exams instead of one big exam as this requires them to continuously study during the entire semester and not having to solely work for one final exam at the end of the semester. The students also confirm that they are well informed about the examination schedule, the examination form and the rules for grading.

Every student is required to complete a final thesis in the fourth year for Bachelor programmes or the second year for Master programmes. In the case of BVSc-DVM, the final thesis is undertaken in the fourth year, and a final project concludes the programme in the sixth year. Prior to the actual research work, the students are required to write a research proposal and present it in a seminar attended by lecturers and other students who form a research group. The research proposal has to be accepted by the Dean and the supervisor committee who will then appoint the research supervisors. Usually, there are 2 research supervisors for each student. One will act as the principal supervisor and the other act as co-supervisor. In case the student writes her or his thesis in collaboration with the industry, she or he is also assigned a supervisor from the industry. After completing the work on the thesis, the student has to present and defend the results in front of teachers and fellow students.

In the Master's programme, UNHAS students are required to publish their articles in different types of journals according to the accreditation criteria. These include Scopus-indexed international journals in the Q1, Q2, Q3 and Q4 categories. In addition, students can submit their work to Scopus-indexed proceedings and international journals that are either under review or accepted.

However, despite the publication opportunities available, a recent student survey conducted by UNHAS revealed that students still need significant support to effectively publish their articles. Recognising this need, UNHAS has undertaken initiatives to address this challenge and improve support mechanisms for students.

The experts welcomed the idea of students publishing articles as part of their academic journey. They expressed satisfaction with UNHAS's proactive approach in exploring how to

better enable students to publish their work. This demonstrates a commitment to fostering a culture of research and scholarly dissemination among students, ultimately enriching their academic experience and contributing to the academic reputation of the university.

The experts discuss with the programme coordinators, the members of the teaching staff, and the students about the process of finding suitable topic of the thesis. Basically, there are two possibilities. Either students can propose their own ideas or they can ask their academic advisor or other teachers for suggestions. The experts also inspect a sample of examination papers and final theses and are overall satisfied with the general quality of the samples.

One point of criticism, however, relates to the presentation of figures and illustrations in the theses submitted to the experts. It was noted that students often omitted original drawings and illustrations, instead using copied materials from older literature that were sometimes of poor quality. Additionally, the illustrations and figure legends frequently lacked scale bars or other indicators necessary for measuring object size. Although the skills required to create these elements are taught in undergraduate courses within the BPB, BPMS and MPFS, it appears they are not being effectively applied by students in their final projects.

The experts acknowledge that the criteria for the examination system, design and organisation are met and confirm that the examinations are adequate to assess whether the intended learning outcomes are achieved. However, they express concerns about the quality and presentation of figures and illustrations in the dissertations submitted for the BPB, BPMS and MPFS.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 2:

UNHAS has announced plans to incorporate remedial exams within the same semester for the BPMS programme, enabling students to retake exams without having to wait until the next semester or year. The experts commend this initiative and encourage its adoption across other programmes, highlighting the importance of formalising this new regulation. Additionally, they suggest that UNHAS could further enhance this approach by offering a remedial exam in the following semester without requiring students to attend the course again. This modification would provide students with additional preparation time, which is crucial considering their initial unsuccessful attempt.

The experts consider criterion 2 to be **not fulfilled** for BPB, BPMS and MPFS.

3. Resources

Criterion 3.1 Staff and Development

Evidence:

- Self-Assessment Report
- Staff Handbook
- Study Plans
- Module descriptions
- Sample of lecturer workload report
- Rector regulation on selection and dismissal of lecturers and administrative staff
- Discussions during the audit

Preliminary assessment and analysis of the experts:
At UNHAS, the staff members have different academic positions. There are professors, associate professors, assistant professors and lecturers. The academic position of each staff member is based on research activities, publications, academic education, supervision of students, and other supporting activities. For example, a full professor needs to hold a PhD degree. In addition, the responsibilities and tasks of a staff member with respect to teaching, research, and supervision depend on the academic position.

The faculty staff across the various study programs at the university exhibit strong qualifications and a healthy student-faculty ratio, which are important factors for delivering quality education.

The BPP programme has 29 academic staff, the majority of whom (72%) hold doctoral degrees from various national and international universities. This exceeds the national standard of 50% of the faculty holding doctoral degrees. The student/faculty ratio of 1:11 is considered adequate.

The BPMS programme is supported by 35 lecturers, the majority of whom (33 out of 35) hold doctoral degrees from prestigious universities around the world, including Australia, New Zealand, Japan, Korea, England, France and Germany. The student-faculty ratio of 1:16 is described as ideal, allowing for sufficient interaction between students and faculty.

The BVSc-DVM programme currently has 35 lecturers, 4 of whom have PhDs from international universities such as Japan and Thailand. While the remaining 31 lecturers hold Master's degrees, efforts are being made to increase the percentage with PhD qualifications,

as 5 lecturers are currently PhD candidates. The student/faculty ratio of 1:12 meets accreditation standards for veterinary professional education.

The MPAST programme has a sizeable faculty of 51 members, 29% of whom hold degrees from overseas universities in countries such as Japan, France, Australia, USA and UK. The student-faculty ratio of 1:3 exceeds the national standard of 1:30. Faculty are actively involved in research (76 projects per year on average) and service activities (39 per year).

For the MPFS programme, all 44 lecturers hold doctoral degrees from national universities such as IPB, UB, UNHAS, as well as international universities such as the University of Tokyo and the University of Perpignan. In addition to teaching, the faculty is involved in research, publishing books/chapters, participating in pedagogical training and obtaining professional certifications.

All members of the teaching staff are obliged to be involved in teaching/advising, research and community service. As the experts learn during the audit, all teachers have a workload between 12 to 16 credits per semester. However, the workload can be distributed differently between the three areas from teacher to teacher. In all labs a special lab staff for supporting the student practice is involved.

The university supports research activities of the teaching staff by giving incentives for publishing scientific articles in reputable international journals, financing participations on national and international scientific conferences and giving grants for research projects. However, is was commented that the H index of the majority of the teaching personel was between 2-3, showing that there is still room of improvement in the abilities to dis-seminate their research results within the wider research community.

Over all the experts see an appropriate network of the university and the department with national and international research institutions.

Development:

UNHAS encourages the training of its academic and technical staff, so it has developed a programme for improving the didactic abilities and teaching methods. One part of the capacity-building programme focuses on subject-specific skills, whereas other training courses are intended to further improve the teachers' didactic skills and to introduce new teaching methods. There are financial resources available for staff members to go abroad for a limited time and to take part at conferences or other events in order to stay up to date with the scientific development in their area of expertise.

The experts discuss with the members of the teaching staff the opportunities to develop their personal skills and learn that the teachers are satisfied with the internal qualification

programme, their opportunities to further improve their didactic abilities and to spend some time abroad to attend conferences, workshops or seminars; even a sabbatical leave is possible.

In summary, the auditors confirm that the university offers sufficient support mechanisms and opportunities for members of the teaching staff who wish to further develop their professional and teaching skills. Further effort should be placed onto scientific writing skills of the teaching staff in order to increase the visibility of UNHAS within and outside Indonesia.

Criterion 3.2 Student Support and Student Services

Evidence:

- Self-Assessment Report
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Support and assistance for the five programmes under review is provided at both programme and university level.

During the course of their studies, each student is assigned at least three, and usually four, advisors. The first is an academic supervisor, who guides the student throughout their studies and provides support in both academic and non-academic matters. The second is the designated thesis supervisor, whose primary role is to assist and support the student in planning, conducting research and writing the dissertation. The third supervisor oversees field placements and compulsory internships.

At the university level, a student development body has been established to provide assistance and support, empowering students and alumni through job application training. The University also provides counselling services for students facing personal problems or other challenges.

In addition, UNHAS hosts various student organisations, including activity clubs focused on the arts, sports, religion and other extracurricular pursuits. The experts observed a strong and trusting relationship between students and staff. A wealth of resources are available to provide individual help, guidance and support to all students. This robust support system facilitates the achievement of intended learning outcomes and enables students to successfully complete their studies without unnecessary delay. Students are well informed about the range of services available to them.

Criterion 3.3 Funds and equipment

Evidence:

- Self-Assessment Report
- On-Site Visit
- Discussions during the audit

Preliminary assessment and analysis of the experts:
The auditors learn that financial sources for UNHAS originate from government research funding, societal funds and tuition fees. The operational funds are distributed to the faculties bases on a specific formula that is, among other things, dependent upon the number of students. From the documents provided and especially UNHAS' strategy for the next years, the auditors are convinced that the financial means are sufficient and secure for the timeframe of accreditation.

During the on-site visit, the auditors evaluated the infrastructure and equipment of the various faculties, including classrooms, laboratories, preparation rooms, administrative spaces, seminar rooms, and examination halls. In the Marine Science and Fisheries Faculty, among others the fishing gear, water chemistry, fish parasitology and aquaculture laboratories were visited. During the visit, staff and also students were actively using the equipment in the laboratories. To support practical work and research, the programmes are equipped with tools for both laboratory and field activities. A visit to the Marine Science Field Station on Pulau Barrang Lompo revealed well suited dormitories and laboratory spaces for field trainings in Spermonde archipelago.

The auditors had the opportunity to inspect the animal husbandry facilities utilized for practical training and research within the MPAST and BVSc-DVM study programmes. These facilities house dairy cows, goats, and poultry. The poultry house meets international husbandry standards and offers exceptional teaching opportunities through live video observation. However, the husbandry facilities for goats and dairy cows require an evaluation based on the 5-Freedom principles to enhance student understanding of animal-friendly housing and management techniques.

The visit also included a tour of the slaughter facility and its associated meatball manufacturing unit, providing MPAST students with valuable hands-on experience in food production processes, including essential aspects of food hygiene.

Additionally, the auditors visited the fisheries laboratories and breeding lab, which include species such as Clownfish (Amphiprion), Seahorses (Hippocampus), and Giant clams (Tridacna). The tour also covered various co-working spaces and specialized areas for microscopic and microbiological work. In reviewing the facilities available, the experts identify

areas for improvement to enhance the depth and experience of teaching and learning. They summarise their findings as follows:

While the existing facilities are considered mostly adequate for teaching, the reviewers note a lack of some advanced equipment. The experts recognize that the current quality and quantity of teaching equipment might pose a challenge to effective teaching and research. In light of this, the experts recommend that UNHAS prioritize upgrading existing teaching equipment.

For the BPB programme, acquiring a high-quality research microscope equipped with a screen and fluorescence capabilities is strongly recommended. This enhancement will significantly boost the programme's capacity for detailed research and analysis. Additionally, the current lack of training and equipment in Molecular Biology, a critical field across most biological disciplines, needs to be addressed. Implementing training in basic Molecular Biology techniques, such as recombinant DNA methods, is essential. Protocols should extend beyond merely amplifying 16S-RNA markers to include the amplification, cloning, and overexpression of specific gene segments. Furthermore, training in CRISPR/Cas editing should be introduced at the undergraduate level to keep pace with advancing genetic manipulation techniques.

For research, particularly in fields like Biodiversity research, more sophisticated molecular tools are necessary for species specification and genetic characterization. These include Metacode typing and full-genome sequencing. Additionally, real-time PCR methods are vital for the functional analysis of gene expression, serving as a foundation for more advanced studies. The ability to identify and characterize new species, genes, and non-coding elements, as well as comprehensive genomic techniques to catalogue organisms in specific samples, such as microorganisms in unique environments, requires high-throughput sequencing and robust bioinformatics tools to pinpoint relevant elements for further characterization.

While not all advanced tools are suitable for undergraduate students, introducing the basics early on is crucial for their future application in more complex research. A high-powered sequencing facility, ideally coupled with other comprehensive tools (such as RNomics, proteomics, epigenomics), could not only enhance the academic offerings but also serve as a regional resource for Eastern Indonesia.

In addition, the BPMS programme is recommended to acquire further water quality analysis systems, that can be also used for research in environmental research and monitor-ing of e.g. exploited coastal regions. Such systems would not only enhance the practical training capabilities of the programme, but would also ensure that students gain crucial hands-on experience in environmental analysis in line with current industry requirements.

While the Marine Science Field Station on Pulau Barrang Lompo provides an excellent opportunity for student to gain first hand experiences on coral reefs and see grass ecosystems, the aquaculture station was in a very poor condition. This was astonishing because the staff on UNHAS Campus as well as on the station in Pulau Barrang Lompo demonstrated their sea horses and Tridacna breeding programs for stock enhancement of al-ready damaged coral regions and demonstrated a high level of motivation and expertise, where students could highly benefit. It is recommended to upgrade this facility to a more adequate condition.

In addition, the BPMS programme is recommended to acquire water quality analysis systems. Such systems would not only enhance the practical training capabilities of the programme, but would also ensure that students gain crucial hands-on experience in environmental analysis in line with current industry requirements.

Furthermore, for the BVSc-DVM, the experts urge UNHAS to provide more anatomical dummies or models. These visual aids would greatly enhance the teaching of anatomy and physiology courses, allowing students to better grasp complex concepts through hands-on exploration. Adequate anatomical models are essential for effective practical training in animal science and veterinary programmes, as they facilitate a deeper understanding of animal structures and functions. Furthermore, by increasing the availability of anatomical dummies and models, students can engage in more realistic and detailed simulations, leading to a decrease in the need for the use of live animals for the training of practical skills such as taking blood samples or perform rectal examinations. This not only aligns with ethical considerations but also promotes a more sustainable approach to animal science education.

It is also recommended that learning applications specifically designed for veterinary anatomy for different relevant species (such as Poultry, pigs and companion animals) be made available to enrich the learning experience in this area.

Ultimately, after observing the conditions of animal care during the audit, doubts arose among the experts regarding whether the animals are being held in accordance with international standards such as the five freedoms of animal welfare. Consequently, the experts request UNHAS to develop a five-year strategy outlining steps to improve this situation. The strategy should initially focus on aligning practices with international standards.

It is essential for UNHAS to establish an Animal Ethics Committee at the university level as a mandatory measure. This committee will be charged with the review and approval of all research experiments involving animals, ensuring that ethical considerations and animal welfare are prioritized in both housing and management. This requirement will affirm UN-

HAS's dedication to upholding high animal welfare standards and fostering a culture of ethical research practices. Additionally, securing animal ethics approval from this committee is a prerequisite for publishing research involving live animals in internationally recognized journals.

In summary, the experts confirm that current funding at UNHAS adequately supports the maintenance of standards and the acquisition of additional necessary equipment. UNHAS has sufficient workspace and laboratories, most of which are equipped with modern instrumentation. The experts also appreciate the efforts made by UNHAS to provide better facilities to the students, such as having installed an new fisheries research vessel for teaching and re-search. However, there is still room for improvement in the quality and quantity of teaching equipment, as well as the potential to enhance teaching and research facilities, possibly through collaborations. It is essential for the BPB programme to ensure that students have access to training in basic molecular biology and it is recommended that a high quality research microscope with screen and fluorescence capabilities be acquired. This addition would significantly enhance the programme's capacity for detailed research and analysis.

Moreover, the auditors have highlighted concerns regarding animal welfare standards, urging UNHAS to develop a comprehensive five-year strategy aligning practices with international standards. This strategy should encompass establishing a University-level Animal Ethics Committee to ensure ethical considerations are paramount in all research activities involving animals. Additionally, the provision of more anatomical dummies and models is essential to enrich anatomy and physiology teaching, foster deeper understanding, and reduce reliance on live animal testing. These improvements will contribute to elevating the overall quality of teaching and research at UNHAS.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 3:

Criterion 3.3

The experts commend UNHAS for its detailed explanation of the annual infrastructure procurement process and the clear plans that incorporate their recommendations. They also value the thorough description of the procedures for seawater sampling and quality analysis provided by the university.

BVSc-DVM:

Further details were provided about the progress in the BVSc-DVM programme. UNHAS has acknowledged the concerns previously raised and is actively addressing these issues

from multiple perspectives. The programme leader has proactively visited Kasetsart University and Chulalongkorn University to explore advancements in veterinary teaching and the use of dummies. Additionally, a workshop on creating anatomical dummies and models for veterinary education is planned for August 2024. The programme is also set to enhance its offerings by incorporating more specialised software for various species. These initiatives are supported by the formation of a Research Ethics Committee, which will oversee the soon-to-be-established Animal Ethics Committee. The experts commend the proactive steps already taken and those planned, and they look forward to seeing these developments unfold soon to consider their requirements fulfilled.

MPAST:

The study programme has expressed its commitment to implementing the 5 freedoms of animal welfare to the best of its ability. It is currently making adjustments to its facilities to align them with international standards. In conjunction with establishing the Animal Ethics Committee, the experts believe that the programme is on the right track to enhance facility conditions and adhere to international norms. They are keen to observe how these improvements will progress in the future.

The experts consider criterion 3 to be **not fulfilled.**

4. Transparency and Documentation

Criterion 4.1 Module Descriptions

Evidence:

- Module Handbooks

Preliminary assessment and analysis of the experts:
Students, as well as all other stakeholders, have access to the module descriptions via the UNHAS homepage. The more detailed syllabus (RPKPS) is handed out to the students by the lecturers at the beginning of the semester. The RPKPS includes a practical guideline and detailed description of the practical parts of each course.

Having examined the module descriptions, the experts confirm that they contain all the necessary information about the persons responsible for each module, the teaching methods and workload, the credit points awarded, the intended learning outcomes, the content, the applicability, the admission and examination requirements and the forms of assessment, as well as details explaining how the final grade is calculated. This is with the exception of the MPAST module handbook, which does not currently include ECTS credits.

However, on closer analysis, the experts find some aspects that are not currently acceptable. For example, in the case of the BVSc-DVM programme, the descriptions of certain modules appear to consist of copied and pasted text, making it difficult to determine the actual content of the courses and to distinguish them on the basis of their specific learning outcomes. In addition, all programmes use rather outdated references. The experts urge UNHAS to provide module handbooks that address these shortcomings.

A specific case is the BPB programme, which should submit updated module descriptions based on the criticisms raised in sections 1.1 and 1.3. The course content needs to be adapted to reflect the regional focus and specific content of individual courses, in line with the recommended adaptation of the overall programme. Also in the marine science and fisheries programs, if UNHAS intends to follow the recommendations concerning a better visibility of the unique location east of the Wallace line including its importance for maintaining a unique biodiversity and environment of the region inside the study programs, new module titles and improved module descriptions would be needed.

On the basis of these shortcomings, the experts request that UNHAS submit updated versions of the module handbooks that address the issues identified. The handbooks should provide clear and unambiguous module descriptions, with updated and relevant literature references, to ensure transparency and accurate presentation of course content and learning outcomes.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Exemplary diploma per programme
- Exemplary diploma supplement per programme
- Exemplary transcript of records per programme

Preliminary assessment and analysis of the experts:
The experts confirm that the students of all programmes are awarded a Diploma and a Diploma Supplement after graduation. The Diploma consists of a Diploma Certificate and a Transcript of Records. The Diploma Supplement provides most of the necessary information about the degree programme, including acquired soft skills and awards (extracurricular and co-curricular activities). The Transcript of Records lists all the courses that the graduate has completed, the achieved credits, grades, cumulative GPA, and mentions the seminar and thesis title.

However, it is noteworthy that the Diploma Supplement currently does not include information on the relative grade of the student in comparison to their cohort. This addition is

essential as it provides valuable context for employers and institutions to assess the academic performance of graduates in relation to their peers, ensuring transparency and facilitating informed decision-making in recruitment and further education.

Criterion 4.3 Relevant Rules

Evidence:

- Self-Assessment Report
- All relevant regulations as published on the university's webpage

Preliminary assessment and analysis of the experts:

The auditors confirm that the rights and duties of both UNHAS and the students are clearly defined and binding. All rules and regulations are published on the university's website and hence available to all relevant stakeholders. In addition, the students receive all relevant course material in the language of the degree programme at the beginning of each semester.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 4:

UNHAS has updated the module descriptions for the MPAST, BPB, BPMS, and BVSC-DVM programmes. However, no new Module Handbook has been submitted for the MPFS. Although the issue with the ECTS credits appears resolved for the MPAST programme, inconsistencies remain in the BPMS and BVSC-DVM descriptions regarding the inclusion of ECTS Credits for courses.

The experts appreciate the updates, which have removed outdated literature references and addressed previous concerns about copied content. Despite these improvements, the experts find the module handbooks across all programmes still lacking. For the BPB programme, the module handbook needs to be reviewed in conjunction with the new curriculum. The MPFS has yet to submit an updated version, and the remaining programmes have not yet consistently implemented ECTS credits to indicate course workloads.

The experts consider criterion 4 to be **not fulfilled.**

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report
- Academic Guidelines
- Quality standards of the university
- Results of the Tracer Studies
- Samples of teaching evaluations and surveys
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Based on the Self-Assessment Report, the Quality Management System at UNHAS is a comprehensive and multi-layered system that operates at various levels within the university structure. It is structured in the following way:

At the University Level:

- The University has an Internal Quality Assurance System Policy and follows national regulations regarding quality assurance in higher education.
- The Institute for Quality Assurance and Educational Development (IQAED) is responsible for planning, implementing, controlling, and developing the academic quality assurance system across the university.
- IQAED coordinates with national and international accreditation institutions for external evaluation.

At the Faculty Level:

- Each faculty has a Quality Assurance and Reputation Improvement Unit (QARIU) that coordinates with IQAED for internal evaluation and quality assurance processes.
- The faculty-level QARIU assists the study programs in implementing the quality assurance system.

At the Study Programme Level:

- Study programmes have Quality Assurance Units that work with the faculty-level QARIU to implement quality assurance processes.
- Regular internal quality audits are conducted annually by IQAED, involving representatives from students, alumni, and lecturers as respondents.
- Study programmes conduct self-evaluations, including performance analysis, problem identification, corrective action plans, and performance targets.
- The results of internal audits are discussed in management review meetings to plan follow-ups and improvements.

Key Quality Assurance Processes:

- Curriculum reviews and revisions are conducted regularly, typically every 4-5 years, to align with industry trends and stakeholder needs.
- Assessment of Programme Learning Outcomes (PLOs), Intended Learning Outcomes (ILOs), and Course Learning Outcomes (CLOs) is carried out through various methods, including surveys, focus groups, and student performance data analysis.
- Stakeholder feedback is obtained through surveys involving students, alumni, employers, and industry partners.
- External quality assessments are conducted through national accreditation processes (e.g., BAN-PT) and, in some cases, international accreditations (e.g., AUN-QA).

The auditors discuss the quality management system at UNHAS with the programme coordinators and the students and how it works in practice. They learn that there is a well-structured continuous process in order to improve the quality of the degree programmes and it is carried out through internal and external evaluation.

The results of internal quality assessments are evaluated on faculty level attended by the dean, vice deans, heads of departments, heads of laboratories, degree programme managements and the Quality Assurance Unit.

Since UNHAS is striving to become an internationally acknowledged university, the reliance on students' feedback and the necessity to ensure and improve the employability of the graduates are of major importance to the coordinators. Internal evaluation of the quality of the degree programmes is mainly provided through student, alumni and employer surveys. The students give their feedback on the courses by filling out the questionnaire online. The course evaluations are conducted at the end of each semester; the questionnaire was developed by the course survey committee and includes questions with respect

to the course in general and about the teachers' performance. Further surveys are carried out by gathering statistics about graduates and alumni. The discussion with the students revealed that those in charge are always eager and open for feedback aside from the official evaluations and that students have the impression that their comments are taken into consideration with regard to the further improvement of the programmes. This becomes apparent in the constant curricular revision process that is performed under participation of students and industry partners. The industry representatives confirm in the discussion that the university is eager to receive feedback about new developments and trends and the employability of their graduates.

Concerning the internal feedback loops the results of the course evaluations are centrally assessed and analysed before they are communicated to the Head of Department. He would then be responsible to initiate any measures if problems or needs for improvement have been detected. A summary of the results is made accessible to the students. In case the satisfaction of the students with staff members is deficient, the Heads of Department will contact the respective teacher, discuss the issue and propose solutions. If no improvement can be achieved over a longer period, the staff member will be dismissed. Thus, the experts agree that the quality management circles at UNHAS are well established and work under participation of all stakeholders.

During the audit, discussions centred on the critical issue of animal welfare. The experts observed practices that raised concerns about animal care and indicated a lack of compliance with established international standards, such as the five animal welfare freedoms. It was also noted that UNHAS currently lacks an animal ethics committee responsible for approving research proposals involving animals.

To address these concerns and ensure compliance with ethical standards, it is imperative that all research involving live animals be approved by an animal ethics committee at university level. This committee will play a key role in evaluating research proposals and ensuring that animal welfare considerations are prioritised.

In addition, there is an urgent need to improve animal husbandry practices in line with the concept of the five freedoms of animal welfare. A comprehensive five-year strategy should be developed to outline steps to improve animal welfare and husbandry practices. This strategy will demonstrate the University's commitment to upholding ethical standards and ensuring the welfare of animals involved in research activities.

In summary, the expert group confirms that the quality management system is effective in identifying weaknesses and improving programmes. All stakeholders are involved in the process. However, UNHAS needs to improve the situation regarding animal husbandry and research involving animals in order to comply with international standards.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 5:

The plans for establishing an Animal Ethics Committee at the university level have been previously discussed in Chapter 3, alongside the advancement towards international standards in implementing the 5 Freedoms. The experts recognize that such transformations require time and are looking forward to seeing UNHAS develop a five-year strategy that demonstrates how animal husbandry practices will be enhanced to fully conform to the concept of the five freedoms.

The experts consider criterion 5 to be **not fulfilled.**

D Additional Documents

No additional documents needed.

E Comment of the Higher Education Institution (20.05.2024)

The institution provided a detailed statement as well as the following additional documents:

- Action Plan from BVSC-DVM
- Appendix BPB-Response
- BVSc-DVM Handbook Course Module VET
- MPAST 5 Freedom Principles
- MPAST Module Handbook
- Updated BPMS Module Descriptions

F Summary: Expert recommendations (27.05.2024)

Taking into account the additional information and the comments given by UNHAS the experts summarize their analysis and **final assessment** for the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Biology	With requirements for one year	30.09.2029		
Ba Marine Science	With requirements for one year	30.09.2029		
Ba Veterinary Science Leading to Professional Veterinary Medicine	With requirements for one year	30.09.2029		
Ma Animal Science and Technology	With requirements for one year	30.09.2029		
Ma Fishery Science	With requirements for one year	30.09.2029		

Requirements

For all programmes

A 1. (ASIIN 4.1) The module handbooks require revision in accordance with the indications outlined in the evaluation report.

A 2. (ASIIN 4.2) Include in the Diploma Supplement a relative grade or statistical information on the distribution of the final grade in the cohort of students.

A 3. (ASIIN 3.3, 5) An Animal Ethics committee on university level must approve all research that involves life animals.

For Ba Biology

A 4. (ASIIN 1.1, 1.3) The name and content of biology courses should reflect the regional focus.

A 5. (ASIIN 1.1, 1.3, 3.3) Training in basic molecular biology needs to be included and supported by appropriate equipment.

For Ma Animal Science and Technology

A 6. (ASIIN 3.3, ASIIN 5) It is has to be ensured that animals are kept in accordance with the five freedoms of welfare. A five-year strategy shall be presented to demonstrate how animal husbandry practices will be improved to be fully in line with the concept of the five freedoms.

For Ba Veterinary Science Leading to Professional Veterinary Medicine

A 7. (ASIIN 3.3) More dummies have to be provided.

For Ba Biology, Ba Marine Science and Ma Fishery Science

A 8. (ASIIN 2) It is has to be ensured that basic and applied microscopic methodologies, including the correct preparation of illustrations and figures (e.g. scale bars), are applied in a standardized form by the students in their reports and thesis.

Recommendations

For all programmes

E 1. (ASIIN 1.1, 1.3) It is recommended to offer more opportunities for students to improve their soft skills.

E 2. (ASIIN 1.3) It is recommended to offer more courses in English.

E 3. (ASIIN 1.3) It is recommended to enable and motivate students more to go abroad (e.g. by offering more scholarships, providing information about scholarships, etc.).

E 4. (ASIIN 2) It is recommended to allow students the opportunity to retake their exams in the following semester.

E 5. (ASIIN 3.3) It is recommended to provide more sophisticated equipment.

E 6. (ASIIN 3.1) It is recommended to improve the international publication capabilities of the teaching staff.

For Ba Veterinary Science Leading to Professional Veterinary Medicine

E 7. (ASIIN 3.3) It is recommended to provide more learning applications specifically for veterinary anatomy.

For Ba Biology

E 8. (ASIIN 1.1, 1.3) It is recommended to clearly define the distinctive profile of the programme and ensure its visibility in both the presentation of the programme and the names of the courses.

E 9. (ASIIN 3.3) It is recommended to provide a good research microscope (with screen and fluorescence).

For Ba Marine Science

E 10. (ASIIN 3.3) It is recommended to provide water quality analysis systems.

For Ba Marine Science and Ma Fishery Science

E 11. (ASIIN 1.3) It is recommended to place greater emphasis on environmental aspects and sustainability of natural resources in coastal areas east of the Wallace line.

E 12. (ASIIN 3.3) It is recommended to renovate and upgrade the Science Field Station on Pulau Barrang Lompo to enhance student field practica in the Spermonde Archipelago.

G Comment of the Technical Committees (10.06.2024)

Technical Committee 08 – Agriculture, Forestry and Food Sciences (04.06.2024)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the procedure and largely follows the experts. However, the committee considered the report to be rather overcritical compared to the overall good impression of the experts. When reviewing two requirements, they found those to be overly critical and imprecise at the same time, which is why they voted to transfer them into recommendations.

Firstly, requirement A.4. was considered rather unspecific regarding how the university could remedy the requirement. Secondly, the committee agreed that a general Biology programme can certainly cover regional specifications, but they did not consider this a necessity. They were certain that UNHAS would consider the flora and fauna surrounding the area in the courses. However, they agreed with the experts that such a focus could be helpful in attracting students and advertising the indeed special aspects east of the Wallace line. From their perspective, this is already considered in recommendation E.8, which they deemed a far more reliable recommendation. As Technical Committee 08 is not responsible for the Biology programmes, Mr Seegers will forward this review to the responsible person for consideration.

The next change the Technical Committee proposed was to transfer requirement A.7 into recommendation E.7 and to recommend rather than require UNHAS to add more dummies. Considering the already proactive approach UNHAS is pursuing regarding the addition of new dummies and the rather imprecise wording of the requirement, the Technical Committee would be more content with this procedure. Given the current formulation, the Technical Committee noted that it was uncertain when the requirement would be considered fulfilled. Would one or two dummies be enough? Other than that, the Technical Committee agreed with the assessment of the experts.

The Technical Committee 08 – Agriculture, Forestry and Food Sciences recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Marine Science	With requirements for one year	30.09.2029		
Ba Veterinary Science Leading to Professional Veterinary Medicine	With requirements for one year	30.09.2029		
Ma Animal Science and Technology	With requirements for one year	30.09.2029		
Ma Fishery Science	With requirements for one year	30.09.2029		

Requirements

For all programmes

A 1. (ASIIN 4.1) The module handbooks require revision in accordance with the indications outlined in the evaluation report.

A 2. (ASIIN 4.2) Include in the Diploma Supplement a relative grade or statistical information on the distribution of the final grade in the cohort of students.

A 3. (ASIIN 3.3, 5) An Animal Ethics committee on university level must approve all research that involves life animals.

For Ba Biology

A 4. (ASIIN 1.1, 1.3, 3.3) Training in basic molecular biology needs to be included and supported by appropriate equipment.

For Ma Animal Science and Technology

A 5. (ASIIN 3.3, ASIIN 5) It is has to be ensured that animals are kept in accordance with the five freedoms of welfare. A five-year strategy shall be presented to demonstrate

how animal husbandry practices will be improved to be fully in line with the concept of the five freedoms.

For Ba Biology, Ba Marine Science and Ma Fishery Science

A 6. (ASIIN 2) It is has to be ensured that basic and applied microscopic methodologies, including the correct preparation of illustrations and figures (e.g. scale bars), are applied in a standardized form by the students in their reports and thesis.

Recommendations

For all programmes

E 1. (ASIIN 1.1, 1.3) It is recommended to offer more opportunities for students to improve their soft skills.

E 2. (ASIIN 1.3) It is recommended to offer more courses in English.

E 3. (ASIIN 1.3) It is recommended to enable and motivate students more to go abroad (e.g. by offering more scholarships, providing information about scholarships, etc.).

E 4. (ASIIN 2) It is recommended to allow students the opportunity to retake their exams in the following semester.

E 5. (ASIIN 3.3) It is recommended to provide more sophisticated equipment.

E 6. (ASIIN 3.1) It is recommended to improve the international publication capabilities of the teaching staff.

For Ba Veterinary Science Leading to Professional Veterinary Medicine

E 7. (ASIIN 3.3) It is recommended to provide more learning applications and more dummies specifically for veterinary anatomy.

For Ba Biology

E 8. (ASIIN 1.1, 1.3) It is recommended to clearly define the distinctive profile of the programme and ensure its visibility in both the presentation of the programme and the names of the courses.

E 9. (ASIIN 3.3) It is recommended to provide a good research microscope (with screen and fluorescence).

For Ba Marine Science

E 10. (ASIIN 3.3) It is recommended to provide water quality analysis systems.

For Ba Marine Science and Ma Fishery Science

E 11. (ASIIN 1.3) It is recommended to place greater emphasis on environmental aspects and sustainability of natural resources in coastal areas east of the Wallace line.

E 12. (ASIIN 3.3) It is recommended to renovate and upgrade the Science Field Station on Pulau Barrang Lompo to enhance student field practica in the Spermonde Archipelago.

Technical Committee 10 – Life Sciences (10.06.2024)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the requirements and recommendations proposed by the expert group, which are accepted by the expert committee without making any changes.

The Technical Committee 10 – Life Sciences recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Marine Science	With requirements for one year	30.09.2029		
Ba Veterinary Science Leading to Professional Veterinary Medicine	With requirements for one year	30.09.2029		
Ma Animal Science and Technology	With requirements for one year	30.09.2029		
Ma Fishery Science	With requirements for one year	30.09.2029		

Requirements

For all programmes

A 1. (ASIIN 4.1) The module handbooks require revision in accordance with the indications outlined in the evaluation report.

A 2. (ASIIN 4.2) Include in the Diploma Supplement a relative grade or statistical information on the distribution of the final grade in the cohort of students.

A 3. (ASIIN 3.3, 5) An Animal Ethics committee on university level must approve all research that involves life animals.

For Ba Biology

A 4. (ASIIN 1.1, 1.3) The name and content of biology courses should reflect the regional focus.

A 5. (ASIIN 1.1, 1.3, 3.3) Training in basic molecular biology needs to be included and supported by appropriate equipment.

For Ma Animal Science and Technology

A 6. (ASIIN 3.3, ASIIN 5) It is has to be ensured that animals are kept in accordance with the five freedoms of welfare. A five-year strategy shall be presented to demonstrate how animal husbandry practices will be improved to be fully in line with the concept of the five freedoms.

For Ba Veterinary Science Leading to Professional Veterinary Medicine

A 7. (ASIIN 3.3) More dummies have to be provided.

For Ba Biology, Ba Marine Science and Ma Fishery Science

A 8. (ASIIN 2) It is has to be ensured that basic and applied microscopic methodologies, including the correct preparation of illustrations and figures (e.g. scale bars), are applied in a standardized form by the students in their reports and thesis.

Recommendations

For all programmes

E 1. (ASIIN 1.1, 1.3) It is recommended to offer more opportunities for students to improve their soft skills.

E 2. (ASIIN 1.3) It is recommended to offer more courses in English.

E 3. (ASIIN 1.3) It is recommended to enable and motivate students more to go abroad (e.g. by offering more scholarships, providing information about scholarships, etc.).

E 4. (ASIIN 2) It is recommended to allow students the opportunity to retake their exams in the following semester.

E 5. (ASIIN 3.3) It is recommended to provide more sophisticated equipment.

E 6. (ASIIN 3.1) It is recommended to improve the international publication capabilities of the teaching staff.

For Ba Veterinary Science Leading to Professional Veterinary Medicine

E 7. (ASIIN 3.3) It is recommended to provide more learning applications specifically for veterinary anatomy.

For Ba Biology

E 8. (ASIIN 1.1, 1.3) It is recommended to clearly define the distinctive profile of the programme and ensure its visibility in both the presentation of the programme and the names of the courses.

E 9. (ASIIN 3.3) It is recommended to provide a good research microscope (with screen and fluorescence).

For Ba Marine Science

E 10. (ASIIN 3.3) It is recommended to provide water quality analysis systems.

For Ba Marine Science and Ma Fishery Science

E 11. (ASIIN 1.3) It is recommended to place greater emphasis on environmental aspects and sustainability of natural resources in coastal areas east of the Wallace line.

E 12. (ASIIN 3.3) It is recommended to renovate and upgrade the Science Field Station on Pulau Barrang Lompo to enhance student field practica in the Spermonde Archipelago.

Technical Committee 14 – Medicine (04.06.2024)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the requirements and recommendations proposed by the expert group, which are accepted by the expert committee without making any changes.

The Technical Committee 14 – Medicine recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Marine Science	With requirements for one year	30.09.2029		
Ba Veterinary Science Leading to Professional Veterinary Medicine	With requirements for one year	30.09.2029		
Ma Animal Science and Technology	With requirements for one year	30.09.2029		
Ma Fishery Science	With requirements for one year	30.09.2029		

Requirements

For all programmes

A 1. (ASIIN 4.1) The module handbooks require revision in accordance with the indications outlined in the evaluation report.

A 2. (ASIIN 4.2) Include in the Diploma Supplement a relative grade or statistical information on the distribution of the final grade in the cohort of students.

A 3. (ASIIN 3.3, 5) An Animal Ethics committee on university level must approve all research that involves life animals.

For Ba Biology

A 4. (ASIIN 1.1, 1.3) The name and content of biology courses should reflect the regional focus.

A 5. (ASIIN 1.1, 1.3, 3.3) Training in basic molecular biology needs to be included and supported by appropriate equipment.

For Ma Animal Science and Technology

A 6. (ASIIN 3.3, ASIIN 5) It is has to be ensured that animals are kept in accordance with the five freedoms of welfare. A five-year strategy shall be presented to demonstrate

how animal husbandry practices will be improved to be fully in line with the concept of the five freedoms.

For Ba Veterinary Science Leading to Professional Veterinary Medicine

A 7. (ASIIN 3.3) More dummies have to be provided.

For Ba Biology, Ba Marine Science and Ma Fishery Science

A 8. (ASIIN 2) It is has to be ensured that basic and applied microscopic methodologies, including the correct preparation of illustrations and figures (e.g. scale bars), are applied in a standardized form by the students in their reports and thesis.

Recommendations

For all programmes

E 1. (ASIIN 1.1, 1.3) It is recommended to offer more opportunities for students to improve their soft skills.

E 2. (ASIIN 1.3) It is recommended to offer more courses in English.

E 3. (ASIIN 1.3) It is recommended to enable and motivate students more to go abroad (e.g. by offering more scholarships, providing information about scholarships, etc.).

E 4. (ASIIN 2) It is recommended to allow students the opportunity to retake their exams in the following semester.

E 5. (ASIIN 3.3) It is recommended to provide more sophisticated equipment.

E 6. (ASIIN 3.1) It is recommended to improve the international publication capabilities of the teaching staff.

For Ba Veterinary Science Leading to Professional Veterinary Medicine

E 7. (ASIIN 3.3) It is recommended to provide more learning applications specifically for veterinary anatomy.

For Ba Biology

E 8. (ASIIN 1.1, 1.3) It is recommended to clearly define the distinctive profile of the programme and ensure its visibility in both the presentation of the programme and the names of the courses.

E 9. (ASIIN 3.3) It is recommended to provide a good research microscope (with screen and fluorescence).

For Ba Marine Science

E 10. (ASIIN 3.3) It is recommended to provide water quality analysis systems.

For Ba Marine Science and Ma Fishery Science

E 11. (ASIIN 1.3) It is recommended to place greater emphasis on environmental aspects and sustainability of natural resources in coastal areas east of the Wallace line.

E 12. (ASIIN 3.3) It is recommended to renovate and upgrade the Science Field Station on Pulau Barrang Lompo to enhance student field practica in the Spermonde Archipelago.

H Decision of the Accreditation Commission (28.06.2024)

Assessment and analysis for the award of the subject-specific ASIIN seal:

The Accreditation Commission discusses the procedure and follows the suggestions made by the Technical Committee 08. Firstly, A4 is annulled and is rephrased in E8 since the necessity to reflect regional focus, as is argued correctly by the Technical Committee 08, is not given. A7, which asks for more the procurement of more dummies for the Ba Veterinary Medicine, is annulled as well. For one, the requirement would be too vague to gauge its fulfilment. Furthermore, E7 also features the provision of further learning applications. This is why said requirement is merged with the recommendation.

The Accreditation Commission decides to award the following seals:

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**	**Subject-specific label**	**Maximum duration of accreditation**
Ba Biology	With requirements for one year	30.09.2029		
Ba Marine Science	With requirements for one year	30.09.2029		
Ba Veterinary Science Leading to Professional Veterinary Medicine	With requirements for one year	30.09.2029		
Ma Animal Science and Technology	With requirements for one year	30.09.2029		
Ma Fishery Science	With requirements for one year	30.09.2029		

Requirements

For all programmes

A 1. (ASIIN 4.1) The module handbooks require revision in accordance with the indications outlined in the evaluation report.

A 2. (ASIIN 4.2) Include in the Diploma Supplement a relative grade or statistical information on the distribution of the final grade in the cohort of students.

A 3. (ASIIN 3.3, 5) An Animal Ethics committee on university level must approve all research that involves live animals.

For Ba Biology

A 4. (ASIIN 1.1, 1.3, 3.3) Training in basic molecular biology needs to be included and supported by appropriate equipment.

For Ma Animal Science and Technology

A 5. (ASIIN 3.3, ASIIN 5) It is has to be ensured that animals are kept in accordance with the five freedoms of welfare. A five-year strategy shall be presented to demonstrate how animal husbandry practices will be improved to be fully in line with the concept of the five freedoms.

For Ba Veterinary Science Leading to Professional Veterinary Medicine

For Ba Biology, Ba Marine Science and Ma Fishery Science

A 6. (ASIIN 2) It is has to be ensured that basic and applied microscopic methodologies, including the correct preparation of illustrations and figures (e.g. scale bars), are applied in a standardized form by the students in their reports and thesis.

Recommendations

For all programmes

E 1. (ASIIN 1.1, 1.3) It is recommended to offer more opportunities for students to improve their soft skills.

E 2. (ASIIN 1.3) It is recommended to offer more courses in English.

E 3. (ASIIN 1.3) It is recommended to enable and motivate students more to go abroad (e.g. by offering more scholarships, providing information about scholarships, etc.).

E 4. (ASIIN 2) It is recommended to allow students the opportunity to retake their exams in the following semester.

E 5. (ASIIN 3.3) It is recommended to provide more sophisticated equipment.

E 6. (ASIIN 3.1) It is recommended to improve the international publication capabilities of the teaching staff.

For Ba Veterinary Science Leading to Professional Veterinary Medicine

E 7. (ASIIN 3.3) It is recommended to provide more learning applications and more dummies specifically for veterinary anatomy.

For Ba Biology

E 8. (ASIIN 1.1, 1.3) It is recommended to clearly define the distinctive profile of the programme with respect to biodiversity, ecology and bio-conservation, and to ensure its visibility in both the presentation of the programme and the names of the courses.

E 9. (ASIIN 3.3) It is recommended to provide a good research microscope (with screen and fluorescence).

For Ba Marine Science

E 10. (ASIIN 3.3) It is recommended to provide water quality analysis systems.

For Ba Marine Science and Ma Fishery Science

E 11. (ASIIN 1.3) It is recommended to place greater emphasis on environmental aspects and sustainability of natural resources in coastal areas east of the Wallace line.

E 12. (ASIIN 3.3) It is recommended to renovate and upgrade the Science Field Station on Pulau Barrang Lompo to enhance student field practica in the Spermonde Archipelago.

I Fulfilment of Requirements (27.06.2025)

Analysis of the Experts and the Technical Committees (18.06.2025)

Requirements

For all programmes

A 1. (ASIIN 4.1) The module handbooks require revision in accordance with the indications outlined in the evaluation report.

Initial Treatment	
experts	fulfilled Vote: per majority Justification: The experts accept the reading lists as the mix of older and younger textbooks is deemed adequate. However, especially for the veterinary programme, it is recommended to focus more on modern literature.
TC 08	Fulfilled Vote: unanimous (Sonja Kleinertz abstains from the vote) Justification: The TC follows the recommendation of the experts.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.

A 2. (ASIIN 4.2) Include in the Diploma Supplement a relative grade or statistical information on the distribution of the final grade in the cohort of students.

Initial Treatment	
experts	Fulfilled Vote: per majority Justification: The university has updated the Diploma Supplement with a relative grade or statistical information on the distribution of the final grade in the cohort of student for the programmes.
TC 08	Fulfilled Vote: unanimous (Sonja Kleinertz abstains from the vote) Justification: The TC follows the recommendation of the experts.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.

A 3. (ASIIN 3.3, 5) An Animal Ethics committee on university level must approve all research that involves live animals.

Initial Treatment	
experts	Fulfilled Vote: per majority Justification: From the documentation of the university, the experts understand that an ethics committee at the university level under the direct supervision of the Hasanuddin University Veterinary Hospital. However, it does not fully become clear how this comes to effect for all the programmes and how research projects involving living animals are submitted for approval prior to their start. Nevertheless, the majority of experts deems this requirement to be sufficiently addressed and consider it fulfilled.
TC 08	Fulfilled Vote: unanimous (Sonja Kleinertz abstains from the vote) Justification: The TC follows the recommendation of the experts.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.

For Ba Biology

A 4. (ASIIN 1.1, 1.3, 3.3) Training in basic molecular biology needs to be included and supported by appropriate equipment.

Initial Treatment	
experts	Fulfilled Vote: unanimous Justification: The experts acknowledge the improvements made regarding the equipment for basic molecular biology training, although they deem the equipment to be only limited and very basic nevertheless. Still, they consider the requirement to be fulfilled.
TC 08	Fulfilled Vote: unanimous (Sonja Kleinertz abstains from the vote) Justification: The TC follows the recommendation of the experts.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.

For Ma Animal Science and Technology

A 5. (ASIIN 3.3, ASIIN 5) It is has to be ensured that animals are kept in accordance with the five freedoms of welfare. A five-year strategy shall be presented to demonstrate

how animal husbandry practices will be improved to be fully in line with the concept of the five freedoms.

Initial Treatment	
experts	Fulfilled Vote: unanimous Justification: The proposed strategy addresses the key issues in animal welfare and can lead to substantial improvements. Students can benefit from learning animal husbandry under the 5-freedoms-principles.
TC 08	Fulfilled Vote: unanimous (Sonja Kleinertz abstains from the vote) Justification: The TC follows the recommendation of the experts.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.

For Ba Biology, Ba Marine Science and Ma Fishery Science

A 6. (ASIIN 2) It is has to be ensured that basic and applied microscopic methodologies, including the correct preparation of illustrations and figures (e.g. scale bars), are applied in a standardized form by the students in their reports and thesis.

Initial Treatment	
experts	Fulfilled Vote: unanimous Justification: The SOPs show that the requested methodologies are applied in the programmes, among others for preparing images and illustrations. Several examples of theses showing identified and measured macrozoobenthos along with their scales.
TC 08	Fulfilled Vote: unanimous (Sonja Kleinertz abstains from the vote) Justification: The TC follows the recommendation of the experts.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.

Decision of the Accreditation Commission (27.06.2025)

Degree Programme	ASIIN Seal	Maximum duration of accreditation
Ba Biology	All requirements fulfilled	30.09.2029
Ba Marine Science	All requirements fulfilled	30.09.2029
Ba Veterinary Science Leading to Professional Veterinary Medicine	All requirements fulfilled	30.09.2029
Ma Animal Science and Technology	All requirements fulfilled	30.09.2029
Ma Fishery Science	All requirements fulfilled	30.09.2029

Appendix: Programme Learning Outcomes and Curricula

According to the Self-Assessment Report the following **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree programme Biology:

Learning achievement		
Domain	**Code**	**Formulation of Learning Outcome**
Knowledge (K)	K1 (ILO 1)	Able to understand the concepts and principles of cellular and molecular biology; organism biology; ecology and evolution.
Competence (C)	C1 (ILO 2)	Able to analyse and test the concepts, principles and application of biology in the fields of industry, environment (biological), and biological resources in their management and utilisation.
	C2 (ILO 3)	Able to analyse and test the concepts, principles and application of marine biology and its bio-ecosystems and their management and utilisation.
	C3 (ILO 4)	Able to apply the basic principles of software applications and data banks for analysis of biological data and other downstream analyses.
Skill (S)	S1 (ILO 5)	Able to develop, use and communicate logical, critical, systematic, and innovative thinking in the context of concept development in biology and other basic sciences needed in lifelong learning
	S2 (ILO 6)	le to design and use as well as communicate research methodology and instrumentation and their management to further compile scientific work related to the field of biology, namely industry, environment (biological), and biological resources.
	S3 (ILO 7)	Able to compile and use and communicate quality standards in the assessment and application of biology and other basic sciences through bioprocess.
Social (So)	So 1 (ILO 8)	Have strong nationalism and highly appreciate and respect the diversity of religions and cultures, as well as show a good affinity with communities and social responsibility.
	So 2 (ILO 9)	Internalise values, norms and academic ethics as well as the spirit of entrepreneurship, and be disciplined and have strong work ethics.

The following **curriculum** is presented:

NO	COURSE CODE	COURSE NAME
		ENGLISH
SEMESTER I		
1		RELIGIOUS EDUCATION
2		PANCASILA
3		CIVIC EDUCATION
4		INDONESIAN
5	23H02110703	BASIC PHYSICS
6		BASIC MATHEMATIC
7	23H03112703	BASIC CHEMISTRY
8	23H04110103	BASIC BIOLOGY
Sub Total Credits		
SEMESTER II		
1		INSIGHTS IN MARITIME CULTURE AND SCIENCE AND TEXT
2		ENGLISH
3	23H04110103	INTRODUCTORY OCEANOLOGY
4	23H04110203	BASIC ECOLOGY
5	23H04110302	BASIC GENETICS
6	23H04110404	PLANT DEVELOPMENT
7	23H04110502	CELL BIOLOGY
8		Elective Course
Sub Total Credits		

NO	COURSE CODE	COURSE NAME
		ENGLISH
3	23H04130303	BACTERIOLOGY
4	23H04130402	EVOLUTION
6		Elective Course
Sub Total Credits		
SEMESTER VI		
1	23H04132301	RESEARCH METHODOLOGY
2	23H04132401	PROPOSAL SEMINAR
3		MKPK
Sub Total Credits		
SEMESTER VII/VIII		
1	23H04140101	RESULTS SEMINAR
2		COMMUNITY SERVICE PROGRAM
3	23H04140204	FINAL PROJECT (Thesis)
Sub Total Credits		

NO	COURSE CODE	COURSE NAME
		ENGLISH
SEMESTER III		
1	23H04120102	MOLECULAR BIOLOGY
2	23H04120203	PLANT ANATOMY AND HISTOLOGY
3	23H04120304	PLANT PHYSIOLOGY
4	23H04120403	ANIMAL ANATOMY AND HISTOLOGY
5	23H04120503	ADVANCED GENETICS
6		BIOCHEMISTRY
7	23H04120603	MARINE BIOLOGY
8	23H04120703	ANIMAL DEVELOPMENT
Sub Total Credits		
SEMESTER IV		
1	23H04120804	ANIMAL PHYSIOLOGY
2	23H04120903	GENERAL MICROBIOLOGY
3	23H04121004	PLANT BIOSYSTEMATICS
4	23H04121104	ANIMAL BIOSYSTEMATICS
5	23H04121202	ENDOCRINOLOGY
6		Elective course
Sub Total Credits		
SEMESTER V		
1	23H04130103	BIOTECHNOLOGY
2	23H04130203	MARINE MICROBIOLOGY

According to the Self-Assessment Report the following **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree programme Marine Science:

Learning achievement		
Domain	Code	Formulation of Learning outcomes
Attitude	ILO 1	Uphold human values in carrying out tasks based on religion, morals, and ethics and being responsible for work in their field of expertise independently
	ILO 2	Internalising the spirit of independence, effort, and entrepreneurship
Knowledge	ILO 3	Capable of explaining the fundamental concepts of marine bio- ecology and hydro-oceanographic phenomena
	ILO 4	Capable of explaining the fundamental concepts of exploration and conservation of marine resources
	ILO 5	Capable of explaining the concept of ecosystem degradation, marine pollution, and the efforts to control it
Generic Skill	ILO 6	Capable of utilising logical, critical, systematic, and creative thinking in developing and implementing science and technology while prioritising and incorporating humane values relevant to their area of expertise
	ILO 7	Capable of independently demonstrating quality, and measurable performance in conducting self-evaluation process for workgroups under their responsibility, while still have the ability to manage and learn independently
	ILO 8	Capable of compiling a scientific description in the form of a thesis or final project report in the context of solving problems in their area of expertise, based on the results of information and data analysis, and then uploading it on the predetermined website
Competence (Specific Skill)	ILO 9	Capable of conducting marine survey and mapping, data processing, and analysis
	ILO 10	Capable of applying the correct method in assessing the condition of marine resources
	ILO 11	Capable of applying various techniques in conserving and rehabilitating marine resources

The following **curriculum** is presented:

SEMESTER 1			
1	23U01110902	Bahasa Indonesia	Indonesian Language
2	23U01111002	Wawasan Budaya Maritim Dan Ipteks BMI	Maritime Cultural and Science Technology Insight
3	23U01111102	Bahasa Inggris	English Language
4	23H01110803	Matematika Dasar	Basic Mathematic
5	23H04110102	Biologi Dasar	Basic Biology
6	23L01110103	Dasar Dasar Fisika Laut	Basic Physic
7	23L01110202	Pengantar Ilmu Kelautan dan Perikanan	Introduction to Marine Sciences and Fisheries
8	23L01110302	Pengantar Oseanografi	Introduction to Oceanography
9	23L01110402	Dasar-Dasar Biokimia	Basic Biochemistry
		SEMESTER 2	
10	23U01110102	Pendidikan Agama Islam	Islamic Religious Education
11	23U01110202	Pendidikan Agama Katholik	Catholic Religious Education
12	23U01110302	Pendidikan Agama Protestan	Protestant Religious Education
13	23U01110402	Pendidikan Agama Hindu	Hindu Religious Education
14	23U01110502	Pendidikan Agama Budha	Buddhist Religious Education
15	23U01110602	Pendidikan Agama Khonghucu	Confucian Religious Education
16	23U01110702	Pancasila	Pancasila
17	23U01110802	Pendidikan Kewarganegaraan	Civic education
18	23L02110503	Ekologi Perairan	Aquatic Ecology
19	23L01110502	Komputasi Kelautan	Marine Computation
20	23L01110603	Renang dan Dasar-Dasar Selam	Basic Diving
21	23L01110703	Zoologi Laut	Marine Zoology
22	23L01110803	Pemetaan Pesisir dan Laut	Marine and Coastal Mapping
		SEMESTER 3	
23	23L01120103	Statistika	Statistic
24	23L02110103	Iktiologi	Ichtyology
25	23L01120203	Ekologi Laut	Marine Ecology
26	23L01120303	Botani Laut	Marine Botany
27	23L01120403	Planktonologi Laut	Marine Planktonology
28	23L01120503	Akustik Kelautan	Marine Acoustic
29	23L01120603	Meteorologi Laut	Marine Meteorology
30	23L01120703	Sedimentologi	Sedimentology
		SEMESTER 4	
31	23L04121002	Kewirausahaan Perikanan dan Kelautan	Marine and Fishery Entrepreneurship
32	23L01120803	Fisiologi Biota Laut	Physiology of Marine Biota
33	23L01120903	Mikrobiologi Laut	Marine Microbiology
34	23L01121003	Penginderaan Jauh Kelautan	Marine Remote Sensing
35	23L01121103	Biologi Laut	Marine Biology
36	23L01121203	Oseanografi Fisika	Physical Oceanography
37	23L01121303	Oseanografi Kimia	Chemical Oceanography

38	23L01121402	Analisis Data Bioekologi Laut	Analysis of Marine Bioecological Data
39	23L01121502	Metode Penelitian Kelautan	Methods of Marine Research
		SEMESTER 5	
40	23L01130103	Pencemaran Laut	Marine Pollution
41	23L01130203	Teknik Rehabilitasi Ekosistem Pesisir dan Laut	Marine and Coastal Ecosystem Rehabilitation Technique
42	23L01130303	Sistem Informasi Geografis untuk Kelautan	Marine Geographic Information System
4	23L01130403	Ekologi Populasi	Ecology of Population
44	23L01130503	Perbenihan dan Penangkaran Biota Laut	Breeding and Culture of Marine Biota
45	23L01130603	Koralogi	Coralogy
		MKK-P	Elective Course
		MKK-P	
46	23L01130703	Genetika Konservasi (P)	Conservation Genetics (E)
47	23L02120103	Dasar-Dasar AMDAL (P)	Basics of Analysis of Environmental Impacts (E)
48	23L01130803	Selam Ilmiah (P)	Scientific Diving (E)
49	23L01130903	Bahan Alam Laut (P)	Marine Natural Products (E)
50	23L01131003	Ekowisata Laut (P)	Marine Ecotourism (E)
51	23L01131103	Manajemen Marikultur (P)	Marineculture Management (E)
52	23L01131203	Geomorfologi Pesisir (P)	Coastal Geomorphology (E)
53	23L01131303	Pemodelan Laut (P)	Marine Modelling (E)
54	23L01131402	Tata Kelola Proyek Kelautan (P)	Marine Project Management (E)
55	23L01131502	Penataan Ruang Pesisir dan Laut (P)	Coastal and Marine Spatial Planning (E)
56	23L01131603	Pengelolaan Kawasan Konservasi Perairan Laut (P)	Management of Marine Conservation Areas (E)
57	23L01131703	Pengelolaan Wilayah Pesisir dan Laut (P)	Management of Coastal and Marine Areas (E)
58	23L01131803	Parasit dan Penyakit Biota Laut (P)	Parasites and Disease of Marine Biota (E)
59	23L01131903	Bioremediasi (P)	Bioremediation (E)
60	23L01132003	Survei Hidrografi (P)	Hydrographic Survey (E)
61	23L01132103	Ekotoksikologi Akuatik (P)	Marine Ecotoxicology €
		SEMESTER 6	
62		MKPK	
63	23U02132904	Kuliah Kerja Nyata (KKN)	Community Service Program
		SEMESTER 7	
64	23L01140102	Seminar Akhir	Seminar
65	23L01140206	Tugas Akhir (Skripsi)	undergraduate thesis
66	23U02132904	Kuliah Kerja Nyata (KKN)	Community Service Program
		SEMESTER 8 (opsional)	
67	23L01140102	Seminar Akhir	Seminar
68	23L01140206	Tugas Akhir (Skripsi)	Undergraduate thesis

According to the Self-Assessment Report the following **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree programme Veterinary Science leading to Professional Veterinary Medicine:

AREA	CODE	LEARNING OUTCOMES
		Upon graduation, students will:
ATTITUDE (A)	A1	Demonstrate a responsible, independent, disciplined, creative and professional attitude, based on divine and human values who have a collaborative and entrepreneurial spirit in their field of expertise
KNOWLEDGE (K)	K1	Able to categorize healthy and sick animals, based on anatomical-physiological description, clinical symptoms, pathological changes, and laboratory diagnostic techniques appropriately and legally on various animal species, especially aquatic animals and local endemic animals
	K2	Able to plan the right rejection, prevention, control, eradication and treatment of animal diseases and zoonoses in various animal species, especially aquatic animals and local endemic animals based on veterinary laws and regulations
	K3	Able to apply concepts about animal structure, animal health, laboratory diagnostics, zoonotic diseases, especially aquatic animals and local endemic animals
	K2	Able to manage, control, and develop resources related to animal health
SKILLS (S)	S1	Able to apply logical, critical, systematic, and innovative thinking in the context of developing or implementing science and technology that pays attention to and applies humanities values according to their field of expertise
	S2	Able to make the right decisions, develop work networks, be responsible for the achievement of work results, carry out a self- evaluation process, in the context of solving problems in their area of expertise, based on the results of information and data analysis

COMPETENCES (C)	C1	Have a leadership and entrepreneurial spirit, be persistent, tough and responsible for work independently or in groups, respect clients and work teams, and have high spirituality and commitment
	C2	Able to explore and exchange information verbally and non-verbally regarding animal health with clients and patients, the community, colleagues, and other professions as well as being able to develop research in the field of veterinary medicine and evidence-based services through collaboration
	C3	Able to make decisions regarding animal health based on the results of regulatory studies on the socio-cultural conditions of the community according to the principle of collaboration

The following **curriculum** is presented:

No	Code	Courses	Credit			
			Theory	Practicum	Internship	Total
SEMESTER I						
1.	18F03110612	Religious education	2	0		2
2.	18E05110782	Civic education	2	0		2
3.	18E05110792	Pancasila	2	0		2
4.	23C03110102	Introduction and Appreciation of the Veterinary Profession	1	1		2
5.	23C03110202	Animal Observation Science	2	0		2
6.	23C03110302	Veterinary Biochemistry	2	1		3
7.	23C03110403	Basic Veterinary Anatomy	2	1		3
8.	23C03110502	Basic Veterinary Histology	1	1		2
9.	23C03110602	Veterinary Nutrition	2	0		2
Total study load for semester I			**16**	**4**		**20**
SEMESTER II						
1.	18F01110752	Bahasa	2	0		2

2.	18E07110732	Maritime Cultural and Social Concept	2	0		2
3.	18F04110762	English	2	0		2
4.	23C03110703	Advanced Veterinary Anatomy	2	1		3
5.	23C03110803	Advanced Veterinary Histology	1	1		2
6.	23C03110903	Embryology and Genetics	2	1		3
7.	23C03111003	Veterinary Bacteriology and Mycology	2	1		3
8.	23C03111103	Basic Veterinary Physiology	2	1		3
Total study load for semester II			**15**	**5**		**20**
SEMESTER III						
No	**Code**	**Courses**	**Credit**			
			Theory	**Practicum**	**Internship**	**Total**
1.	23C03111202	Basic Veterinary Pharmacology	2	0		2
2.	23C03111303	Advanced Veterinary Physiology	2	1		3
3.	23C03111403	Topographic Anatomy	2	1		3
4.	23C03111502	Veterinary Virology	1	1		2
5.	23C03111602	Veterinary Public Health and Animal Welfare	2	0		2
6.	23C03111703	Biostatistics	3	0		3
7.	23C03111802	Immunology	1	1		2
8.	23C03111902	Veterinary Endoparasitology	1	1		2
9.	23C03112002	Elective courses	2	0		2
		Competency Strengthening	0	0	2	2
Total study load for semester III			**16**	**5**	**2**	**23**
SEMESTER IV						
No	**Code**	**Courses**	**Credit**			

			Theory	Practicum	Internship	Total
1.	23C03112103	General Veterinary Pathology	3	0		3
2.	23C03112203	Basic Veterinary Surgery	2	1		3
3.	23C03112303	Veterinary Reproductive Science and Technology	2	1		3
4.	23C03112403	Advanced Veterinary Pharmacology	2	1		3
5.	23C03112502	Bacterial and Fungal Diseases	2	1		3
6.	23C03112602	Veterinary Radiology	2	0		2
7.	23C03112703	Veterinary Ectoparasitology	2	1		3
8.	23C03112802	Scientific Methodology	1	1		2
9.		Competency Strengthening	0	0	2	2
Total Study Load for Semester IV			**16**	**6**	**2**	**24**
SEMESTER V						
No	**Code**	**Courses**	**Credit**			
			Theory	**Practicum**	**Internship**	**Total**
1.	23C03112903	Basic Systemic Pathology	2	1		3
2.	23C03113003	Specialized Veterinary Surgery	2	1		3
3.	23C03113103	Internal MedicineAdvanced	3	0		3
4.	23C03113202	Viral Diseases	2	0		2
5.	23C03113303	Veterinary Obstetrics and Gynecology	2	1		3
6.	23C03113402	Food Hygiene of Animal Origin	2	1		3
7.	23C03113502	Veterinary Toxicology	1	1		2
8.	23C03113603	Veterinary Clinic Diagnostics	2	1		3
9.		Competency Strengthening	0		2	2
Total Study Load for Semester V			**16**	**6**	**2**	**24**
SEMESTER VI						

No	Code	Courses	Credit			
			Theory	Practicum	Internship	Total
1.	23C03113703	Advanced Systemic Pathology	2	1		3
2.	23C03113803	Advanced Veterinary Surgery	2	1		3
3.	23C03113903	Advanced Internal Medicine	3	0		3
4.	23C03114002	Poultry Pathology	2	0		2
5.	23C03114103	Veterinary Clinical Pathology	2	1		3
6.	23C03114202	Zoonoses	1	1		2
7.	23C03114302	Veterinary Regulation and Ethics	2	0		2
8.	23C03114402	Veterinary Epidemiology and Economics	2	0		2
9.	23C03114502	Veterinary Entrepreneurship	1	1		2
		Competency Strengthening	0		2	2
Total Study Load for Semester VI			**17**	**5**	**2**	**24**
SEMESTER VII						
No	**Code**	**Courses**	**Credit**			
			Theory	**Practicum**	**Internship**	**Total**
1.	23C03114602	Clinical Demonstration	1	1		2
2.	23C03114702	Pharmacy	1	1		2
3.	23C03114802	Clinical Dietetics	2	0		2
4.	23C03114902	Medical Communications	2	0		2
5.	23C03115001	Seminar	0	1		1
6.	23C03115103	Final Project (Thesis)	0	3		3
7.		Community Service Program	0	4		4
8.		Competency Strengthening	0		2	2
Total Study Load for Semester VII			**6**	**10**	**2**	**18**

SEMESTER VIII						
No	**Code**	**Courses**	**Credit**			
			Theory	**Practicum**	**Internship**	**Total**
1.	23C02410102	Prescription	0	2		2
2.	23C02410204	Internal Medicine and Small Animal Clinical Pathology	0	4		4
3.	23C02410304	Laboratory Diagnostics	0	4		4
4.	23C02410404	Pathology	0	4		4
Total Study Load for Semester VIII						
				14		**14**
SEMESTER IX						
No	**Code**	**Courses**	**Credit**			
			Theory	**Practicum**	**Internship**	**Total**
1.	23C02410504	Surgery and Radiology	0	4		4
2.	23C02410604	Reproduction	0	4		4
3.	23C02410704	Veterinary Public Health, Epidemiology, RPH/RPU, Public Service	0	4		4
4.	23C02410804	Large Animal Diseases	0	4		4
Total Study Load for Semester VIII				**16**		**16**
SEMESTER X						
No	**Code**	**Courses**	**Credit**			
			Theory	**Practicum**	**Internship**	**Total**
1.	23C02410902	Poultry Internship	0		2	2
2.	23C02411002	Veterinary Hospital Internship	0		2	2
3.	23C02411101	Internship of Selected Profession	0		1	1

4.	23C02411201	Quarantine Internship	0		1	1
5.	23C02411302	Aquatic Animal Internship	0		2	2
6.	23C02411401	Final Project	0	1		1

According to the Self-Assessment Report the following **learning outcomes (intended qualifications profile)** shall be achieved by the Master degree programme Animal Science and Technology:

	ILO	**ATTITUDE**
ILO1	A1	Demonstrate an attitude of responsibility for work in their field of expertise independently
		KNOWLEDGE
ILO 2	K1	Mastering the theory of animal science and technology that supports the ability to organise livestock breeding businesses, livestock production businesses, feed processing industries and livestock product processing industries, in a sustainable livestock production system;
ILO 3	K2	Mastering the knowledge of identification, analysis and resolution of science and technology-based livestock development problems using scientific methods;
ILO 4	K3	Mastering the skills and abilities to design and conduct research based on scientific principles.
		GENERAL SKILL
ILO 5	GS1	Able to develop logical, critical, systematic, and creative thinking through scientific research, creation of designs or works of art in the field of science and technology that pay attention to and apply humanities values in accordance with their field of expertise, compile scientific conceptions and study results based on scientific rules, procedures, and ethics in the form of a thesis or other equivalent form, and uploaded on the college website,

		as well as papers that have been published in accredited scientific journals or accepted in international journals.
ILO 6	GS2	Able to compile ideas, results of thoughts, and scientific arguments responsibly and based on academic ethics, and communicate them through the media to the academic community and the wider community.
		SPECIALISED SKILL
ILO 7	SS1	Able to develop knowledge, technology, and or art in the field of animal science and technology through research, to produce innovative and tested works;
ILO 8	SS2	Able to determine alternative solutions to livestock development problems through research activities, develop the application of the results with an inter or multidisciplinary approach;
ILO 9	SS3	Able to manage research and development that is beneficial to society and science, and is able to gain national and international recognition;
ILO 10	SS4	Able to develop professional performance in accordance with the competencies possessed, which is demonstrated by the sharpness of problem analysis and holistic thinking.

The following **curriculum** is presented:

No.	MK code	Course Name(1)	Status	SKS weight
(1)	(2)	(3)	(4)	(5)
COMPULSORY COURSES: 9 SKS				
1	22I02210102	Philosophy of Animal Science	Must	2
2	22I02210202	Research Methods and Statistical Analysis	Must	2
3	22I02210303	Livestock Cultivation Science and Technology	Must	3
4	22I02210402	Dynamics of People's Livestock	Must	2
		Amount		**9**
Elective COURSES: 12 credits				
1	22I02210603	Science and Technology of Animal Breeding and Reproduction	Choice	3
2	22I02210703	Biotechnology and Reproductive Management	Choice	3
3	22I02210803	Poultry Production Technology	Choice	3
4	22I02210903	Dairy Cattle Production Technology	Choice	3
5	22I02211003	Beef Cattle Production Technology	Choice	3
6	22I02211103	Disease Prevention and Control Technology and Management	Choice	3
7	22I02211203	Genetic Engineering Technology	Choice	3
8	22I02211303	Livestock Environmental Management	Choice	3
9	22I02211403	Science and Technology of Animal Feed and Nutrition	Choice	3
10	22I02211503	Ecology and Management of Tropical Grasslands	Choice	3
11	22I02211603	Nutrition and Feed Research Techniques	Choice	3
12	22I02211703	Ruminant Animal Nutrition Science and Technology	Choice	3
13	22I02211803	Forage Resources and Territory Analysis	Choice	3
14	22I02211903	Poultry Feed Nutrition Science and Technology	Choice	3
15	22I02212003	Feed Industry Technology	Choice	3
16	22I02212103	Critical Land Management Technology	Choice	3
17	22I02212203	Science and Technology of Livestock Product Processing	Choice	3
18	22I02212303	Meat Science and Technology	Choice	3
19	22I02212403	Milk and Dairy Products Processing Biotechnology	Choice	3
20	22I02212503	Waste Treatment Technology and Animal By-products	Choice	3

21	22I02212603	Livestock Product Food Safety (HCCP)	Choice	3
22	22I02212703	Food Microbiology	Choice	3
23	22I02212803	Integrated Livestock Development Modeling	Choice	3
24	22I02212903	Institutional Economics and Marketing of Livestock Products	Choice	3
25	22I02213003	Resource and Environmental Economic Analysis	Choice	3
26	22I02213103	Participatory Extension Methods	Choice	3
27	22I02213203	Livestock Community Empowerment	Choice	3
28	22I02213303	People's Livestock-Based Beef Cattle Breeding	Choice	3
29	22I02213403	Halal Assurance System for Animal Food Products	Choice	3
30	22I02213503	Local Livestock Genetic Resources and Livestock Germplasm Conservation	Choice	3
31	22I02213603	Livestock Industry Product Design	Choice	3
32	22I02213703	Functional Food Technology of Animal Products	Choice	3
33	22I02213803	Production and Inventory Planning in Agribusiness	Choice	3
34	22I02213903	Integrated Livestock System	Choice	3
35	22I02214003	Feed Product Innovation	Choice	3
36	22I02214103	Forage Engineering and Its Applications	Choice	3
37	22I02214203	Science and Technology of Preservation of Livestock Products	Choice	3
38	22I02214303	Livestock Product Marketing Research	Choice	3
39	22I02214403	Biochemistry of Livestock Products Food	Choice	3
40	22I02214503	Oocyte and Embryo Cryopreservation	Choice	3
NON-COLLEGE: 20 credits				
1	22I02210502	Thesis Research Proposal Seminar	Must	2
2	22I02220105	Scientific Article Publication	Must	5
3	22I02220204	Thesis Research Results Seminar	Must	4
4	22I02220309	Thesis and Thesis Examination	Must	9
TOTAL SKS				**41**

According to the Self-Assessment Report the following **learning outcomes (intended qualifications profile)** shall be achieved by the Master degree programme Fishery Science:

Domain	Code	Formulation of Learning Outcomes
Attitude	ILO1	able to develop logical and creative thinking through scientific research in integrated and sustainable fisheries science concerning scientific ethics.
Knowledge	ILO2	Mastering the theory and application of integrated and sustainable fisheries science
	ILO3	able to develop integrated and sustainable fisheries science and technology through a multi-disciplinary approach
General Skill	ILO4	able to compile ideas, thoughts and scientific arguments responsibly based on academic ethics
	ILO5	able to make decisions based on integrated and sustainable fisheries science
Specific skill	ILO6	able to produce and develop the science and technology of aquatic resources management (MSP) to support the development and management of integrated and sustainable fisheries
	ILO7	able to produce and develop aquaculture science and technology (BDP) to support the development and management of integrated and sustainable fisheries.
	ILO8	able to produce and develop science and technology on the utilisation of fishery resources (PSP) to support the development and management of integrated and sustainable fisheries.
	ILO9	able to produce and develop fisheries socio-economic science and technology (SEP) to support the development and management of integrated and sustainable fisheries.
	ILO10	able to produce and develop fishery product technology science and technology (THP) to support the development and management of integrated and sustainable fisheries.

The following **curriculum** is presented:

SEM	Code	Modules	SKS (Credits)		ECTS	
		Title	Compulsory	Elective	Compulsory	Elective
I	19L06210102	Philosophy of Fisheries Science	2		3,4	
	19L06210202	Fisheries Research Methodology	2		3,4	
	19L06210302	Integrated and Sustainable Fisheries Science	2		3,4	
	19L06210402	Development Policy and Fisheries Legislation	2		3,4	
	19L06210503	Aquatic Ecology		3		5,1
	19L06210603	Fisheries Resources Management		3		5,1
	19L06210703	Population Dynamics Model & Stock Evaluation		3		5,1
	19L06210803	Bioecology of Crustacea and Mollusks		3		5,1
	19L06210903	Fisheries EIA		3		5,1
	19L06211003	Biophysics of Pollution		3		5,1
	19L06211103	Reproductive Biology of Aquatic Biota		3		5,1
	19L06211203	Ichthyology		3		5,1
	19L06211303	Fisheries Resources Conservation Area Management		3		5,1
	19L06211403	Rehabilitation and Development of Fisheries Resources		3		5,1
	19L06211503	Applied of Aquatic animal physiology		3		5,1
	19L06211603	Aquaculture Management and Technology		3		5,1
	19L06211703	Advanced Feed Technology and Management		3		5,1
	19L06211803	Fish Disease and Health Management		3		5,1
	19L06212003	Aquaculture Environmental Monitoring and Evaluation		3		5,1
	19L06212003	Hatchery Technology and Management		3		5,1
	19L06212103	Aquaculture Biotechnology		3		5,1

SEM	Code	Modules	SKS (Credits)		ECTS	
		Title	Compulsory	Elective	Compulsory	Elective
	19L06212203	Biochemical Physiology of Nutrition		3		5,1
	19L06212303	Aquaculture Geospatial Information and Analysis System		3		5,1
	19L06212403	Penginderaan Remote Fisheries		3		5,1
	19L06212503	Applied Oceanography		3		5,1
	19L06212603	Design and Constitution of Fishery Fishing Equipment Ruksi		3		5,1
	19L06212703	Fishing Technology and Instruments		3		5,1
	19L06212803	Simulated Fishing Operations		3		5,1
	19L06212903	Port Management and Fisheries Prosperity		3		5,1
	19L06213003	Responsible Fishing Technology		3		5,1
	19L06213103	Fishing Area Analysis		3		5,1
	19L06213203	Optimization of Fisheries Resources Utilization		3		5,1
	19L06213303	Fisheries Management Information System		3		5,1
	19L06213403	Supervision and Quality Control of Fishery Products		3		5,1
	19L06213503	Biotechnology of Aquatic Products		3		5,1
	19L06213603	Control and Quality Inspection of Fishery Products		3		5,1
	19L06213703	Safety of Fishery Products		3		5,1
	19L06213803	Fishery Product Technology		3		5,1
	19L06213903	Fisheries Development Economics		3		5,1
	19L06214003	Advanced Fisheries Bioeconomics		3		5,1
	19L06214103	Economic Valuation of Fisheries Resources		3		5,1
	19L06214203	Fisheries Innovation and Entrepreneurship		3		5,1
	19L06214303	Fisheries Extension Program Planning		3		5,1
	19L06214403	Fisheries Resource Economics		3		5,1

SEM	Code	Modules	SKS (Credits)		ECTS	
		Title	Compulsory	Elective	Compulsory	Elective
	19L06214503	Fisheries Industry Management		3		5,1
II	19L06214901	Colloquium	1		1,7	
	19L06214602	Research Proposal Seminar	2		3,4	
III-IV	19L06214704	Research Results Seminar	4		6,8	
	19L06214805	Journal Publishing	5		8,5	
	19L06220109	Thesis and Thesis Exam	9		15,3	
	Total		29	123	49,3	209,1