ASIIN Seal
Accreditation Report

Bachelor's Degree Programmes
Mathematics
Physics
Biology
Geography

Provided by
University of Indonesia

Version: 24.06.2022

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]
Matematika	Mathematics	ASIIN	-	12
Fisika	Physics	ASIIN	-	13
Biologi	Biology	ASIIN	-	10
Geografi	Geography	ASIIN	-	11
Date of the contract: 10.05.2021 **Submission of the final version of the self-assessment report:** 26.10.2021 **Date of the onsite visit:** 21.-23.02.2022 **at:** online				
Peer panel: Prof. Dr. Péter Bagoly-Simó, Humboldt-University Berlin Prof. Dr. Robert Hänsch, Technical University Braunschweig Prof. Dr. Stefan Roth, RWTH Aachen University Prof. Dr. Frank Loose, University of Tübingen Dr. Silke Bargstädt-Franke, Federal Office for Information Security Luthfia Hastifa Sam, Hasanuddin University				
Representative of the ASIIN headquarter: Daniel Seegers				
Responsible decision-making committee: Accreditation Commission				
Criteria used:				

[1] ASIIN Seal for degree programmes

[2] TC: Technical Committee for the following subject areas: TC 08 – Agriculture, Nutritional Sciences and Landscape Architecture; HIER DIE KORREKTEN FAS AUFFÜHREN

European Standards and Guidelines as of May 15, 2015 ASIIN General Criteria, as of December 10, 2015 Subject-Specific Criteria of Technical Committee 12 – Mathematics as of December 9, 2016 Subject-Specific Criteria of Technical Committee 13 – Physics as of March 20, 2020 Subject-Specific Criteria of Technical Committee 10 – Life Sciences as of June 28, 2019 Subject-Specific Criteria of Technical Committee 11 – Geosciences as of December 9, 2011	

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
Mathematics	Sarjana Sains/ B.Sc.	-	6	Full time	/	8 semesters	144 Indonesian credits (228,5 ECTS)	Annually / 1961
Physics	Sarjana Sains/ B.Sc.	-	6	Full time	/	8 semesters	144 Indonesian credits (228,5 ECTS)	Annually / 1961
Biology	Sarjana Sains/ B.Sc.	-	6	Full time	/	8 semesters	144 Indonesian credits (228,5 ECTS)	Annually/ 1961
Geography	Sarjana Sains/ B.Sc.	-	6	Full time	/	8 semesters	144 Indonesian credits (228,5 ECTS)	Annually/ 1967

For the Bachelor's degree programme Mathematics, the institution has presented the following objectives on its website:"

1. To produce mathematics graduates who are able to adapt to changes and the development of mathematics, science, and technology.
2. To support and develop Mathematical and multidisciplinary research activities.
3. To develop the center of information in the field of Mathematics which can contribute to solve mathematics, science, and technology problems."

For the Bachelor's degree programme Physics, the institution has presented the following profile on her website:"

1. To keep and strengthen the excellence in education and research in the field Physics and Applied Physics

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

2. To fix up and update internal management that supports staffs and students to increase their national and international scientific activities and productivities in the field of Physics and Applied Physics,
3. To actively take part as an embodiment of Physics and Applied Physics contributions to serving the community,
4. To set up graduates being able to compete in global market."

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

1. Organizing education (teaching) with international standards that meet the University quality standards
2. Conducting excellent research in the field of conservation and biodiversity
3. Establishing partnerships with various parties to support qualified and high competitiveness education and research.
4. To create graduates that:
    1. have professional ethics and has comprehensive knowledge in conservation and biodiversity and able to apply it effectively
    2. have the resilience to compete in the job market bot at national and international levels
    3. have the independence in developing and creating new jobs for himself and others based on biological science. "

For the Bachelor's degree programme Geography, the institution has presented the following profile in the self-assessment report. They want to produce:"

1. Graduates who have personalities with high integrity, broad-minded, and self-confident in conveying and defending ideas.
2. Graduates who are able to think logically, systematically and consistently as the main characteristics of scientist.
3. Graduates who are reliable in applying the spatial-ecological approach for understanding the dynamics of nature and society and their interactions as the main feature of the geographic approach.
4. Graduates who are able to expand the benefits of concepts, analytical methods and technical skills in geography, both for science and society development."

C Peer 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:

- Objective-module-matrices
- Self-Assessment Report
- Study plans of the degree programmes
- Curriculum handbooks of the degree programmes
- Module descriptions
- Website
- Discussions during the audit

Preliminary assessment and analysis of the peers:
The peers refer to the respective ASIIN Subject-Specific Criteria (SSC) of the Technical Committees 10 (Life Sciences), 11 (Geosciences), 12 (Mathematics) and 13 (Physics) respectively, the objective-module-matrices for each degree programme, and the modules as a basis for judging whether the Intended Learning Outcomes (ILO) of the Bachelor's degree programmes correspond with the competences as outlined by the SSC. They come to the following conclusion:

The descriptions of the qualification objectives are comprehensive and include the achieved competencies and possible career opportunities of the graduates. Furthermore, students, lecturers and industry representatives confirm that they are involved in the ongoing development and updating process of the ILO. Any adjustments to the Programme Educational Objectives (PEO) and ILO have to be in line with the decrees of the Government and the Ministry of Education. They also have to adhere to the guidelines of the Indonesian Qualification Framework (IQF) and reflect the input of subject specific scientific associations.

The Programme Learning Outcomes (PLO) are divided into Knowledge, Skills and Competency and reflect interdisciplinary skills, which are the same for all programmes at Universitas Indonesia (UI).

Judging from the tables that link graduate profiles of the four Bachelor's degree programmes with the intended learning outcomes and the four objective-module-matrices that delineate in which modules students learn the skills purposed in the PLO, the peers see that the objectives and intended learning outcomes of the four Bachelor's degree programmes are suitable to produce qualified graduates and fulfil the IQF.

In summary, the peers are convinced that the intended qualification profiles of the four undergraduate programmes under review allow students to take up an occupation which corresponds to their qualification. The peers agree that the qualification objectives of all programmes adhere to level 6 of the European Qualification Framework, which relates to Bachelor's programmes and to the respective ASIIN Subject-Specific Criteria of the Technical Committees 10, 11, 12 and 13. They aim at the acquisition of subject-specific competences and are generally formulated clearly and precisely. The objectives and learning outcomes of the study programmes can be assessed on the university's website

The peers appreciate that a regular revision process for the objectives, learning outcomes and curricula of the programmes is in place. Every four years, a larger revision takes place that includes internal as well as external stakeholders, while minor changes are made regularly. The students, alumni and representatives of schools and the private sector confirm that they are actively involved in these processes.

Criterion 1.2 Name of the degree programmes

Evidence:

- Self-Assessment Report
- Diploma Supplements
- Discussions during the audit
- List of laboratory equipment

Preliminary assessment and analysis of the peers:
The titles of the degree programmes follow the rules for naming study programmes set by the Indonesian Ministry of Education. The peers hold the opinion that the English translation and the original Indonesian name of the Bachelor's degree programmes Mathematics, Physics, Biology and Geography correspond with the intended aims and learning outcomes as well as the main course language.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Curriculum handbooks of the degree programmes
- Academic guidelines
- Module descriptions
- Objective-module-matrices
- Discussions during the audit

Preliminary assessment and analysis of the peers:
The curricula of the four 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 government 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 UI itself, the curricula also take into account the Indonesian standards of higher education and the IQF as well as the recommendations from industry.

All four Bachelor's degree programmes under review are designed for four years and at least 144 credit semester units (SKS) need to be achieved by the students (this is equivalent to 228,5 ECTS).

All undergraduate programmes at UI are designed to be completed in eight semesters or four academic years with a maximum of 12 semesters or six academic years. Each semester is equivalent to 16 weeks of learning activities, including one week for midterm exams and one week for final exams. The odd semester starts in August and ends in January of the following year, while the even semester lasts from February to July.

Regular students take 18 credits every semester, while outstanding students may take up to 24 credits. Therefore, outstanding students are enabled to complete the Bachelor's degree in less than 4 years. However, this case is rare since the workload of the undergraduate programmes is rather high anyway and designed for a four-year study programme.

The first year of studies comprises the faculty's compulsory courses such as Basic Mathematics, Introduction to Data Science, and General Chemistry complemented with courses that are compulsory for the specific study programmes and those courses compulsory for all students on the university level namely Religion, English and Integrated Character Education. The semesters three to five mostly consist of courses that are compulsory and specific for each of the study programmes.

During the sixth and seventh semester, students get to choose between a variety of different activities and courses to work on their personal profile. Due to the Regulation No. 3/2020 initiated by the Minister of Education and Culture students have the chance to choose elective activities across study programmes but also across faculties and even across universities. This programme is called Merdeka Belajar Kampus Merdeka (MBKM) and is translated as "Freedom to Learn, Independent Campus". Activities such as internships and community service shall serve as a means to involve students in active research to apply their knowledge in the field and to help the communities to solve current problems. The results of such research activities shall then be published in national journals. The peers discuss with the programme coordinators about the content and the goal of the community service course. The programme coordinators explain that community service is compulsory for all Indonesian students. It has a minimum length of four weeks and often takes place in villages or rural areas where students stay and live together with the local people. The course is designed to allow students to apply their knowledge based on their field in order to empower society. Since the community service usually takes place in remote areas, the students cannot attend any classes during this time. The students work in interdisciplinary teams during the community service in order to advance the society and bring further development about. This course was introduced at all Indonesian Universities in 1971. The assessment of the community service consists of a work plan, programme implementation, and activity report. The peers understand that students should work for the benefit of the community and the Indonesian society during the community service and support this concept.

After the students have completed a minimum of 114 Credits, they are admitted to prepare a research proposal, which serves as an application to start with their thesis work. The thesis is awarded with six credits and is scheduled for the eighth semester. Students are accompanied by at least one supervisor and are demanded to carry out their own research project.

Since UI has the goal to become internationally more visible and wants to further internationalise its degree programmes, the peers discuss with the programme coordinators and students if any classes in the four degree programmes are taught in English. The programme coordinators explain that the majority of courses is delivered in Bahasa Indonesia

(Indonesian language), but most of the teaching materials (literature and references) are provided in English. The university has identified the amount of English lectures as one of their weaknesses and is using incentives to motivate lecturers to present more classes in English. The lecturers are also compelled to adjust their teaching language if international students join their classes. The students confirm that some presentations are done in English, and English textbooks are used. The peers are very happy with the English language proficiency of the attending students and support the University's plan to further promote the use of English language.

Information about the curricula is available for students in the E-learning Management System (EMAS) and on the programme's homepage. The online management system also helps with the composition of study plans since it alerts students if their courses overlap and helps them to solve such issues. The students, however, mention that the servers could be more stable since they are not always accessible.

Overall, the peers are satisfied with the curricula of all programmes. They see that the programmes are well-structured and that the modules build on each other in a reasonable way, enabling the students to effectively reach the learning outcomes defined by the study programmes.

Criterion 1.4 Admission requirements

Evidence:

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

Preliminary assessment and analysis of the peers:
According to the Self-Assessment Report, admission procedures and policies for new students follow the Regulation No.6, 2020 by the Minister of Education and Culture. The requirements, schedule, registration venue, and selection test are announced on UB's webpage and thus accessible for all stakeholders.

There are three different paths of admission into the Bachelor's degree programmes:

1. National Entrance Selection of State Universities (Seleksi Nasional Masuk Perguruan Tinggi Negeri, SNMPTN), a national admission system, which is based on the academic performance during high school.

2. Joint Entrance Selection of State Universities (Seleksi Bersama Masuk Perguruan Tinggi Negeri, SBMPTN). This national selection test is held every year for university candidates. It is a nationwide computer based written test. This test is offered for high school graduates who graduated within the last three years and are 25 years old at maximum. All study programmes are distributed into two groups: science-technology and social-humanities. Depending on the chosen study programme applicants have to take the corresponding test. Mathematics, Physics and Biology are in the science-technology group and Geography is assigned as a social-humanity subject.
3. Independent written test by Universitas Indonesia (Seleksi Masuk UI, SIMAK UI). This test is independently organised by UI and addresses applicants who are older than 25 years and did not pass the SBMPTN.

The tuition fees for the programmes are determined by the Rector's Decree every year. During the registration process students can apply for the reduction of their tuition fees.

Furthermore, students have the opportunity to apply for a variety of scholarships that cover the tuition fees. However, the students mention that they would welcome more flexibility regarding the scholarships. Since they are awarded on a university level, the competition between all students is high. They also note that the bureaucratic effort to apply for the scholarship is a possible obstacle. The peers recommend supporting the students in the application process and that the university should consider awarding scholarships on a faculty or study programme level.

During the discussion the peers learn that the SBMPTN considers geography a social science and that most of the applicants do not have strong background in geography. It appears that students might start their studies without any relation to geography at all. Since the peers deem a subject specific background beneficial for the overall success of the students and the study programmes themselves, they recommend identifying ways to attract students with a stronger geographical background.

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

UI presents a variety of measures that are already in place to ensure that students of the Geography programme come with a stronger background in geography. The main tool to promote geography to high school students that major in both natural and social science are the so called Geography Days (G-Days). It is a promotional event held regularly every November to introduce prospective students to the Geography study programme. Another aspect that will help to find suitable students is the renewal of the high school curriculum that now allows combining natural and social science subjects.

The peers appreciate these efforts and are pleased to hear about the changes at Indonesian high schools. They are convinced that they will help to find suitable applicants.

UI explains how its scholarship system works and which options students have to apply for on the different levels. The quote of Scholarships awarded is on a high level and complemented by additional scholarships from Alumni and the private sector. In 2020, 26%, 24%, 20%, and 18% of the respective study programmes Geography, Physics, Mathematics and Biology received a scholarship. Most of the scholarships are awarded to economically disadvantaged students. The highest share of scholarship comes from the Central Government (67%) and is managed by the government alone. UI is not able to choose the recipients. For criteria to apply for every scholarship are communicated by UI and are therefore transparent for all students.

The peers appreciate the variety of scholarships awarded by different stakeholders and approve that all relevant criteria are communicated by UI. Since the majority of scholarships is not directly managed by UI the peers understand that the ways to adapt the scholarships are limited.

In summary, the peers regard this criterion to be fulfilled.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Module descriptions
- Objective-Module-Matrices
- Curriculum handbooks of the degree programmes
- Discussions during the audit
- Overview of student mobility

Preliminary assessment and analysis of the peers:
The Bachelor's degree programmes under review are designed for 4 years and the students need to achieve 144 SKS in the Bachelor's degree programmes Mathematics, Physics, Biology and Geography (which is equivalent to 228.5 ECTS).

After analysing the module descriptions and the study plans, the peers confirm that all degree programmes under review are divided into courses, and that each course is a sum of coherent teaching and learning units. All programmes contain adequate practical elements and allow the students to define individual focuses through broad ranges of electives and specialization areas.

In summary, the peers gain the impression that the choice of courses and the structure of the curriculum ensures that the intended learning outcomes of the respective degree programme can be achieved.

One aspect mentioned by the industry representatives regarding the implementation of the degree programmes is the integration of relevant technological trends into the curriculum. As the peers could learn during the discussion, UI students are motivated and capable of adapting to new technologies in the working environment. Still, the industry representatives would appreciate it if the students could get in contact with new technological tools during practical teaching sessions or other applied courses. The peers support this wish and recommend enabling students to get in contact with current technological developments in a practical way to prepare them for their working life.

International Mobility

The Self-Assessment Report as well as the discussions make it clear that that becoming an international acknowledged university is one of UI's primary goals. The peers point out that international mobility, with regard to the lecturers as well as to the students, is a key factor in these efforts.

The peers learn that UI provides opportunities for students to conduct internships and study semesters abroad. The international office helps to recognize courses for both Indonesian and foreign students. There are cooperation agreements with organisations worldwide (for instance, in Sweden, Scotland, Korea, Australia, China and Malaysia) partly regarding student exchange, partly regarding research collaboration. Due to funds from the Ministry of Education, UI is able to support students and lecturers with scholarships to take part in international exchange programmes. During the Covid-19 pandemic these exchanges have partly taken place as online courses. This way, UI maintained the exchange of ideas and experiences without endangering students and lecturers.

The students can best realise such a stay in semesters six or seven when they are able to choose elective activities. As part of the MBKM programme, they have the chance to go abroad for internships and exchanges. Students can discuss the selection of courses with their supervisor and are able to transfer their credits if the chosen courses or activities remain in the scope of their subject.

The peers appreciate the efforts undertaken by the university to foster student mobility as it is very useful for students to spend some time abroad to improve their English proficiency, to get to know other educational systems, and to enhance their job opportunities.

Criterion 2.2 Work load and credits

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Curriculum handbooks of the degree programmes
- Survey of student satisfaction related to the workload
- Module descriptions
- Discussions during the audit
- Students handbook

Preliminary assessment and analysis of the peers:

- Based on the National Standard of Higher Education of Indonesia, the four programmes use a credit point system called SKS, which is regulated as follows:
- • 1 CP covers 50 minutes contact hours + 60 minutes assignment/tutorial + 60 minute of self-studies per semester week

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 170 minutes of work per semester week. One semester usually consists of 14 lecture meetings and two weeks of exams. The students' workload (contact hours and self-studies) is measured in Indonesian credit points (SKS), and converted to the European Credit Transfer System (ECTS). According to the legal requirements, the actual number is 144 SKS (228,5 ECTS) for the Bachelor's degree programmes.

The workload is spread relatively evenly in the four programmes according to the regular study plan. The workload of the last semester is markedly reduced to give the students enough time for their theses as well as to already start looking for a job. However, the effective number of credit points that the students may take depends on their average Grade Point Average (GPA), yet the maximum amount of credit points is 24 and the minimum amount of credits is 12. This mechanism is supposed to ensure that the students can really handle the workload. It also means that, theoretically, students can finish their studies in less than 8 semesters. The peers confirm that the distinction between classroom work and self-studies is made transparent and is in line with the credits awarded.

During the audit, the peers were confronted with different perceptions of the student's workload. While the students still deemed their workload manageable, they presented a high number of weekly hours they spent for their studies. The peers assume that most of the hours are result of out of class preparation and learning. Additionally, these numbers do not comply with the workload derived from the formula presented above. The peers ask the university to implement a system that measures the actual workload of the students and to take actions if the workload does not comply with the presented guideline.

While this is applicable for all courses, the peers want to highlight the discrepancy between the actual workload and the awarded credits for the undergraduate thesis especially. As the peers could learn from the session with the students and alumni, the number of hours spend for the thesis exceeds the expected workload for six credits by far. The university has also identified the work on the thesis to be a major factor which affects the study duration. Thus, the peers admonish to either reduce the workload and expectations regarding the effort, which has to be invested into the thesis, or to raise the amount of credits awarded.

However, the peers see that the average study duration is only exceeded by one semester and many of the students graduate in time. Additionally, the dropout rates of the four programmes are very low compared to European standards. This verifies that all four degree programmes under review can be completed in the expected period. It has to be mentioned though that UI has a high number of applicants due to its reputation. Therefore, the admitted students already reflect a small group that was able to fulfil the admission requirements. It has to be assumed that these students possess a high level of education, and the persistency to cope with the demanded workload.

Criterion 2.3 Teaching methodology

Evidence:

- Photos and videos of laboratories
- Self-Assessment Report
- Module descriptions
- Samples of lecturer evaluation by students
- Websites
- Discussions during the audit

Preliminary assessment and analysis of the peers:
The four programmes under review make use of several different educational methods for each course such as interactive lectures, small group discussions, problem-based learning, project-based learning, collaborative learning, laboratory practical work, computer-based assignments, excursions and final tasks consisting of internship, student community service, seminars, final project and case-study.

UI has the goal to support the transition from a teacher-centred to a student-oriented and Outcome-Based Education (OBE) approach in order to involve all students in the learning process and develop their thinking and analytical skills. They introduced the idea of OBE and have, therefore, revised all of their curricula and trained their staff to implement the new approach appropriately. The new approach is supposed to prepare students for their future employment and strengthen soft skills as well as subject specific competences. The continuous education on teaching methods and higher education is well received and appreciated by the faculties.

The most common method of teaching is class session, with several courses having integrated laboratory practices. Lecturers generally prepare presentations to aid the teaching process. With individual or group assignments, such as discussions, presentations, or written tasks, students are expected to improve their academic as well as their soft skills. In addition, practical activities are implemented to familiarize students with the use of academic research methods.

UI uses EMAS as their main tool to organise their teaching. Lecturers can use the tool to upload their teaching materials, hold small quizzes, assign coursework and monitor the participant activity. Students have the possibility to interact with the lecturers and with other students through different channels. The tool is highly valued by the students, but they would welcome a more reliable and stable server performance.

During the classes, active and interactive teaching methods (e.g., lectures, discussions, reports, presentations, and group work) are applied. UI wants to encourage students to gain knowledge from different scientific areas and wants to introduce them to research activities. This should ultimately contribute to the transition from a teacher centred learning approach to a student-centred learning approach. The teaching and learning are supported by a broad range of media, both traditional (books, papers) and online (videos, presentations etc.). During the Covid-19 pandemic, UI has swiftly switched to online and hybrid learning with videoconferences, recorded videos and other media.

Another tool UI uses to improve the diversity of teaching and learning is the invitation of guest lecturers from the industry or alumni who are able to convey practical experiences and present examples of how the contents of the four undergraduate programmes are applied in practice. The peers welcome this approach and recommend deepening the efforts since they could learn during the discussion with the industry representatives that this exchange is highly valued by them and that all parties benefit from the opportunity to cooperate.

During the discussions with the programme coordinators and the teaching staff, the peers learn that the teaching staff tries to implement English assignments such as presentations and written homework to support the English language proficiency of the students. Some of the face-to-face teaching is also held in English depending on the lecturer.

Criterion 2.4 Support and assistance

Evidence:

- Self-Assessment Report
- Curriculum handbooks for all degree programmes
- Students handbook
- Discussions during the audit

Preliminary assessment and analysis of the peers:

In order to support students in completing their studies on time with good achievements, the university and the faculty provide a variety of different staff members such as academic advisors, thesis advisors, counsellors, laboratory assistants, and student assistants, academic and personal support and assistance through various means. The main contact person for every student is their academic advisor, which is assigned to them in their first semester. An academic advisor shall help them develop an adequate schedule for their stud-

ies, choose electives according to their skills and interests and support them in case of academic and non-academic problems. Each student has the opportunity to meet with their academic advisor, who is also responsible for monitoring their study progress, in accordance with their needs. Furthermore, there are supervisors for the thesis, the fieldwork practice and the community service, who give advice on specific issues related to these aspects. At the beginning of each semester, the GPA provides direction for the students regarding their study plans, targets to be achieved and strategies for selecting courses. During the semester, the academic advisor monitors the progress of the students. At the end of the semester, the academic supervisor evaluates the student's achievement under their supervision by checking the GPA that the students achieve. In UI, this mentoring process is supported by the presence of the academic information system (SIAK-NG) that facilitates the GPA to monitor the academic progress and approval for semester plans as well as the final undergraduate thesis.

UI also provides counselling regarding non-academic problems. The psychological counselling helps and guides students who have individual problems, such as anxiety, depression or other personal or psychological issues.

There are many scholarships offered to students (e.g., from private companies, the government or other foundations). This includes scholarship for students from low-income families and for those with high academic achievements. New students can attend classes to develop their effective learning and soft skills. As discussed in 1.4, the scholarship system could be revised to facilitate the students even better.

Every student who enrols for the thesis or final project course will be assigned one or two thesis supervisors. The role of the thesis supervisors is to help students to complete their thesis research. They also monitor the progress of the thesis in order to ensure the completion of the thesis in the intended amount of time.

The peers notice the good and trustful relationship between the students and the teaching staff. The support system helps the students to achieve the intended learning outcomes and to complete their studies successfully and without delay. The students are well-informed about the services available to them.

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

Criterion 2.1

UI explains that students are exposed to the latest technological trends through their MBKM off-campus activities. Since the programme was introduced in 2020, they expect to

see the results to be recognized in the industry within the next years. The university provides a list of off-campus activities that are suitable to introduce students to new technological developments:

1. Internship
2. Projects in the Village
3. Teaching Assistant at School
4. Student Exchange
5. Research
6. Entrepreneurship
7. Independent Project
8. Humanitarian Projects

The peers appreciate the university's explanation and are convinced that the overall introduction of MBKM can be beneficial not only for students' knowledge of new technological trends but also for their practical knowledge and their soft skills.

Criterion 2.2

UI explains that they are currently working with an estimated duration of activity completion and that the total time required for students to complete all activities per week must be equal to the credit load of the module. For the next year, UI agrees to evaluate the actual workload for all of the faculty's programmes within the next academic year.

The peers appreciate this plan and recommend carrying out the workload evaluation on a regular basis.

UI agrees that the workload for the thesis is putting stress on the students. The university provides an explanation on how it is trying to relieve students from the overall high workload connected to their bachelor thesis. Part of the work for the undergraduate thesis can be done in supporting modules that come with an additional 2 SKS to account for the high amount of workload connected to the overall process of preparing and writing their bachelor thesis. These courses are namely Research Method (Mathematics), Seminar (Physics), Field Work (Biology) and Research Seminar in Geography (Geography).

While the peers are convinced that this is already a good approach to support the students, they would recommend using the results of the workload evaluation to identify a possible overload. Since the evaluation has not yet been introduced, the peers regard this criterion as partly fulfilled.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation

Evidence:

- Self-Assessment Report
- Module descriptions
- Examination regulations
- Curriculum handbooks for all degree programmes
- Samples of student's work (projects, exams and thesis)
- Statistical data
- Websites
- Academic Calendar

Preliminary assessment and analysis of the peers:
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, written exams and presentations are implemented 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 module descriptions for Mathematics, Physics, Biology and Geography that are available to the students via UI's homepage and the EMAS. 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. UI uses a grading system with the grades A, B, C, D and E, where a C (equivalent to a Grade Point of 2) is necessary to pass a module and a B (equivalent to a Grade Point 3) is necessary to pass the final project. Students who get an E are obliged to retake the course and the exam in the

regular semester or in short/intermediate semester. Students who get B, C, and D can improve in the regular semester or in the short/intermediate semester, where the grade listed on the transcript is the highest.

Based on the academic regulation, to be eligible to take the final exam, students must attend at least 75 % of the total course sessions. Students who are not able to attend the final exam due to illness or other reasons can provide proof and take the follow-up exam scheduled by the study programme. Students can also take a semester break if they are missing for a longer period due to illness or other severe cases. The university accommodates students with disabilities with special measures to enable them to take the exams in an appropriate way.

Due to the freedom of learning approach (MBKM), students have the opportunity to take courses at other universities or to engage in field work practice or internships. As stated in 1.3 and 2.1, students then have the chance to transfer their credits and to get these courses listed in their final transcript. The peers appreciate this flexible approach as it encourages students to engage in national and international exchanges and to experience the scope of their study programmes at other university and in practice.

The peers 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. For other courses, there is only one final exam. Usually, there are additional practical assignments or quizzes. The final grade is the sum of the sub exams. The students confirm that they are well-informed about the examination schedule, the examination form and the rules for grading.

Students are required to write a bachelor's thesis in the last year of their studies. They are admitted to write their thesis if they have achieved 114 SKS. Additionally, they have to write a research proposal and hand in their latest academic history, which is accessible in the SIAK-NG, both will then be evaluated by their thesis supervisor. The thesis is designed for one semester and awarded with 6 credits. During their writing and research process, up to two supervisors support the students. After completing the work on the thesis, the student has to present and defend the results in front of an examination committee consisting of the supervisors and at least three examiners. The supervisors' feedback accounts for 60% of the grade and the examiners' feedback accounts for 40% of the grade. The peers inspect a sample of examination papers and final theses and are very satisfied with the general quality of the samples. Nevertheless, the peers point out that the actual workload for the thesis does not comply with the awarded credits. As discussed in 2.2, the peers request the university to review the concept of the final thesis and solve this problem to ensure fair distribution of credit points and workload. The peers, therefore, conclude that the criteria

regarding the examination system, concept, and organisation are partly fulfilled and that the examinations are overall suitable to verify whether the intended learning outcomes have been achieved.

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

UI does not comment on this criterion in its statement. The peers consider criterion 3 to be fulfilled.

4. Resources

Criterion 4.1 Staff

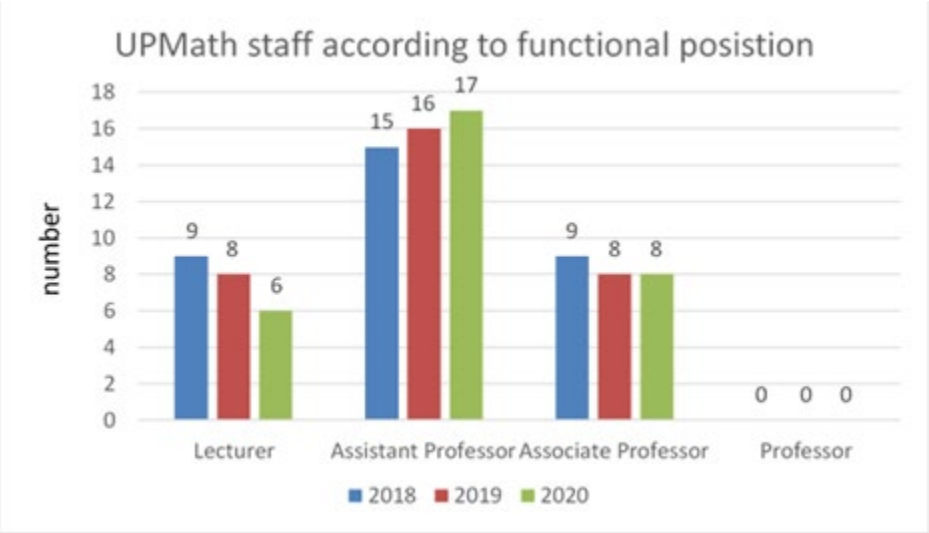
Evidence:

- Self-Assessment Report
- Staff Handbook
- Samples of lecturer evaluation by students
- Study plans of the degree programmes
- Module descriptions
- Websites
- Discussions during the audit

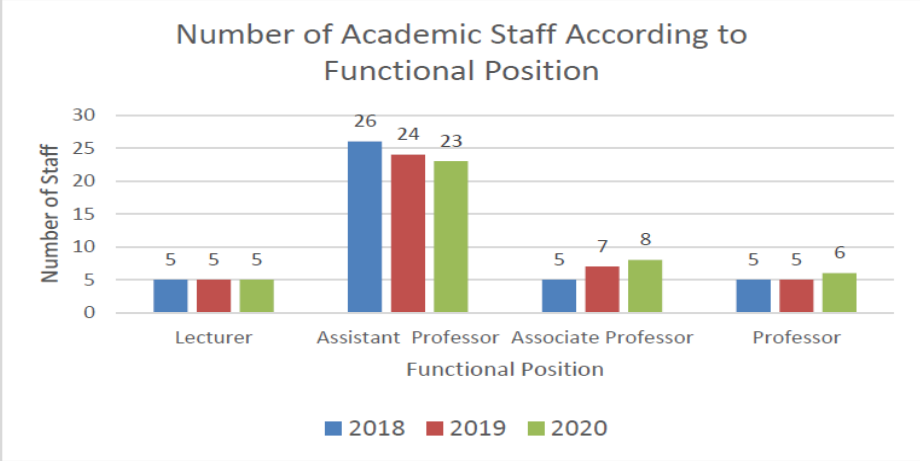
Preliminary assessment and analysis of the peers:
At UI, the staff members have different academic positions. There are professors, associate professors, assistant professors and lecturers. The academic position of each staff member is based on research activities, publications, academic education, supervision 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 main difference of tasks and responsibilities based on academic staff position lies in the proportion of teaching and research activities. The higher the academic staff position is, the greater the proportion of research activities, but the lower is the proportion of teaching activities.

The university provides the following graphs, displaying the number of lecturers for each study programme:

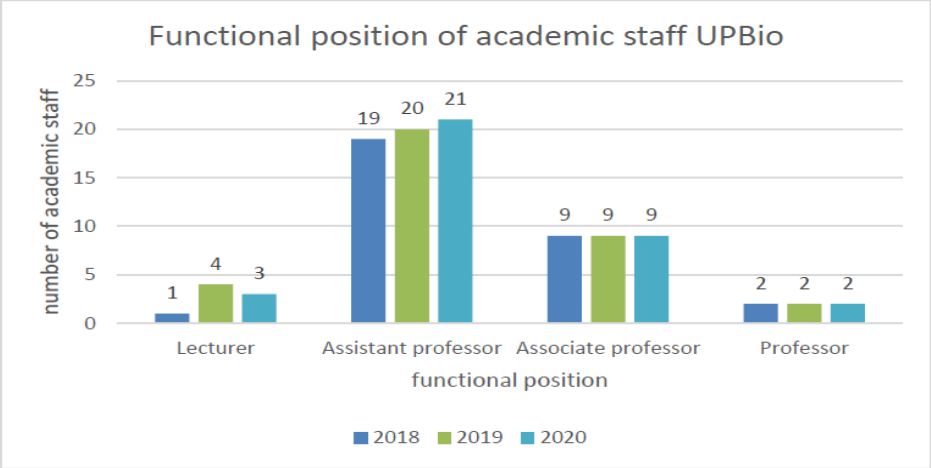
Mathematics:



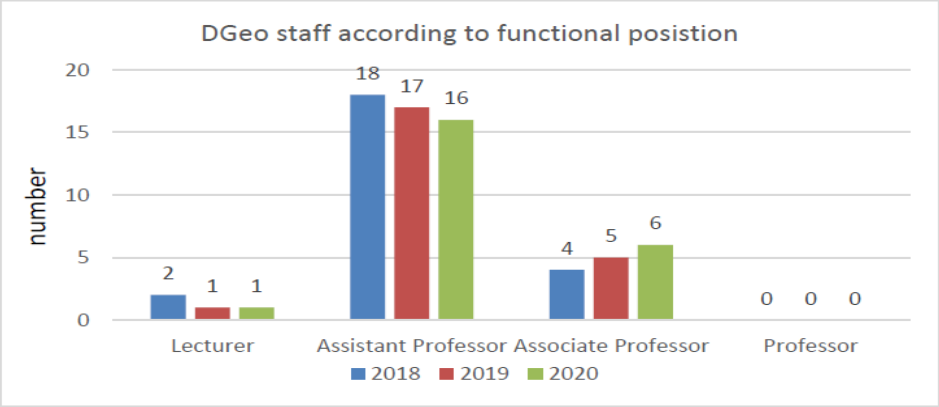
Physics:



Biology:



Geography:



The number of lecturers and supporting staffs meets the national criteria for higher education and, therefore, adheres to the regulation of the ministry. As the peers deem the number of full professors rather low, they asked the teaching staff if they would like to further qualify themselves to be full professors in the future. They learn that the full professorship can only be attained by collecting scores due to publications and teaching experience. The score will be better for publications in renowned journals or if the publication gains international recognition. Taking the next step to the associate or full-professorship level can therefore take several years. As can be seen from the graphs above, the Bachelor's degree programme Mathematics and the Bachelor's degree programme Geography do not have any full professors. The peers consider this problematic because they would expect experienced staff members with scientific reputation and experience to carry out the overall supervision of the programmes. They, therefore, ask the university to improve the balance of the faculty teaching staff across ranks.

The academic staff is involved in a number of research projects funded by grants from the Indonesian government, the university itself or other research funds. This results in publications. If the respective grants allow it, students are involved in these projects, mostly through undergraduate theses.

Criterion 4.2 Staff development

Evidence:

- Self-Assessment Report
- Staff handbook
- Discussions during the audit

Preliminary assessment and analysis of the peers:
According to the self-assessment Report, UI encourages the continuing professional development of its staff. As UI has already identified their number of full professors as one of their weaknesses, various scholarships and funds are used to support lecturers in applying for professorships or to conduct research for the purpose of academic development and recognition. New lecturers are obliged to engage in didactical and pedagogical training and in international collaborations. Furthermore, all lecturers have gone through trainings regarding the new approach of OBE.

The peers appreciate the analysis of the university and support their plan of action. They recommend to further support their teaching staff in their academic development. This means to deal with administrative hurdles as well as financial support and to relieve the staff from teaching duties to create time for scientific and publication efforts. As the peers learned during the discussion with the teaching staff, the actual workload for teaching is higher than indicated in the SAR. The peers deem this problematic because it takes time away, which is needed to conduct research and to develop a scientific career. The peers recommend exploring sabbaticals focused on research as a possibility for staff development. This will also reinforce the university's leading position in the country. From the peers point of view the high amount of teaching hours also needs to be monitored and kept in line with the overall objective of staff development.

The faculty is committed to supporting academic development through domestic and overseas training for teaching staff, even though their competency and expertise have already met the government standard. These trainings aim to improve their teaching, their didactical abilities and their soft skills. The peers appreciate these offers and recognise the efforts which are undertaken to ensure both the quality of teaching and the non-academic support and guidance coming from the lecturers.

The peers appreciate UI's commitment and understand the potential these co-operations depict. The peers emphasise that this will not only strengthen the staff members personal competences but will also lead to the improvement of the curricula of all programmes due to new incoming ideas and the tracking of current developments in the field of studies.

Criterion 4.3 Funds and equipment

Evidence:

- List of laboratories and equipment
- Photos and videos of the facilities
- Partnership agreements
- Recapitulation of budget
- Self-Assessment Report
- Discussions during the audit

Preliminary assessment and analysis of the peers:
The university and the faculty are mainly funded by the Indonesian government through the tuition fees, and through grants for research projects. The figures presented by the university show that the faculty's income is stable, and the funding of the degree programmes is secured. The academic staff emphasise that from their point of view, the four undergraduate programmes under review receive sufficient funding for teaching and learning activities. The students confirm this positive impression and state their satisfaction with the available resources.

In preparation of the audit, the university provides a number of videos showing the laboratories of the programmes. During the online visit, the laboratories, the lecture rooms and the library were shown in more detail. The peers notice that the facilities are in a very good condition and offer equipment on a very high level. Students and teaching staff are satisfied with the offered equipment. The library is well-equipped and the library support together with the research infrastructure offer very good conditions for students and lecturers.

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

UI provides a variety of statistics presenting the lecturer capacity and current developments concerning the lecturer positions. Regarding the lack of full professors for the Math-

ematics and Geography study programmes they can prove a development plan and an increase of the number of full professors. Internal promotion as well as external recruitment are used as measures to improve faculty proficiency. Two associate professors of the Mathematics programme have been promoted to full professors within the year 2022. Additionally, the share of associate professors increased from 12% in 2018 to 22% in 2022.

Within the last year, UI has employed one full professor from Japan for the Geography study programme. The share of associate professors in the Geography study programmes improved from 17% to 27% in 2022.

UI is assigning research grants to lecturers to facilitate them to conduct research that is needed for promotion. Research grants are divided into two categories, namely Q3 journal assigned research grants and Q4 journal output assigned research grants. Q3 is supported with 35 million rupiahs and Q4 is supported by 20 million rupiahs.

The criteria for the research grant recipients are as follows:

I. Prospective grant recipients are not currently receiving DIKTI or UI grants as chairpersons.

II. Has previous publication experience, but the majority in international proceedings.

III. Prospective grantees have an international publication output urgency for the purpose of promotion.

23 lecturers of the study programmes under review received a grant.

The peers appreciate the ongoing improvements concerning the staff numbers and ranks. However, they recommend keeping up these efforts and to further increase the number of full professors for the Geography programme.

Since the university did not submit a statement regarding the lecturer workload, the peers regard this criterion as **partially fulfilled.**

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Module descriptions
- Websites

Preliminary assessment and analysis of the peers:
The module handbooks for all four programmes have been published on UI's website and are thus accessible to the students as well as to all stakeholders. The peers observe that they contain all required information about the people responsible for each module, the teaching methods and workload, the credit points awarded, the intended learning outcomes, the examination requirements, the forms of assessment, the applicability, the admission requirements and details explaining how the final grade is calculated.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Sample Transcript of Records for each degree programme
- Sample Diploma certificate for each degree programme
- Sample Diploma Supplement for each degree programme

Preliminary assessment and analysis of the peers:
The peers confirm that the students of all four undergraduate programmes under review are awarded a Diploma and a Diploma Supplement after graduation. The Diploma consists of a Diploma Certificate and a Transcript of Records. The Transcript of Records lists all courses that the graduate has completed, the achieved credit points, grades, and cumulative GPA. The Diploma Supplements contain all the necessary information about the degree programmes. During the discussion with the students, the peers learn that students have to apply for an English version of the diploma supplement since it is not automatically issued in English. The peers ask the university to provide the English version of the diploma supplement together with the Indonesian version by default.

Criterion 5.3 Relevant rules

Evidence:

- Self-Assessment Reports
- Curriculum handbooks for all degree programmes
- Academic Guidelines
- Examination regulations
- All relevant regulations as published on the university's website

Preliminary assessment and analysis of the peers:
The peers confirm that the rights and duties of both UI and the students are clearly defined and binding. All rules and regulations are published on the university's website and hence available to all stakeholders. In addition, the students can download all relevant course materials through the EMAS.

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

UI states that a process to issue the English version of the Diploma Supplement together with the Diploma Certificate and Transcript of Records has been initiated.

The peers appreciate this process and regard this criterion as fulfilled.

6. Quality management: quality assessment and development

Criterion 6 Quality management: quality assessment and development

Evidence:

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

Preliminary assessment and analysis of the peers:
The peers discuss the quality management system at UI with the programme coordinators. The quality management system of UI involves all stakeholders through the Board of Trustees (MWA), which contains the Minister, the Rector, seven lecturers, six public representatives, one administrative staff member and one student. The peers learn that there are two levels of quality assurance in place. The first level describes the external quality assurance, which consists of an external review of the study programmes by the Higher Education National Accreditation Body (BAN-PT). All programmes have at least been awarded with an "A" for "more than adequate". The second level is formed by an internal quality assurance system, which is divided into three stages. On the university level, the Board of Academy Quality Assurance (BPMA) has developed the Internal Quality Assurance System (SPMI), which is carried out by the Academic Quality Assurance Unit (UPMA) on the faculty level and by the Academic Quality Assurance Team (TPMA) on the department level.

Since UI 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 in the questionnaire online. For this purpose, the university has developed their own tool called Lecturer Evaluation by Student (EDOM). The course evaluations are conducted at the end of each semester. Further, tracer studies 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. However, as previously mentioned, they would appreciate if the university could convey more practical experience on current technological trends.

Concerning the internal feedback loops, the results of the course evaluations are centrally assessed and analysed by the corresponding TPMA. The TPMA 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 matter will be discussed in the annual semester meeting of the department. The Head of the Study Program will contact the respective teacher, discuss the issue and propose solutions. Thus, the peers agree that the quality management circles at UI are well-established and work under participation of all stakeholders.

In summary, the peer group confirms that the quality management system at UI is suitable to identify weaknesses and to improve the degree programmes.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 6:

UI does not comment on this criterion in its statement. The peers consider criterion 6 to be fulfilled.

D Additional Documents

No additional documents needed.

E Statement of the Insitution (Universitas Indonesia)

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

Evidence_2.1_OM_Dean-930-Revision of Module Handbook

Evidence_2.2_UPMath_Module Handbook_research_methods

Evidence_2.3_UPMath_Module Handbook_undergraduate_thesis

Evidence_2.4_UPPhy_Module Handbook_Seminar

Evidence_2.5_UPPhy_Module Handbook_Undergraduate thesis

Evidence_2.6_UPBio-Module Handbook-Fieldwork

Evidence_2.7_UPBio-Module Handbook-Undergraduate thesis

Evidence_2.8__Module_handbook_Geographic-Research-Seminar

Evidence_2.9__Module_handbook_Undergraduate Thesis (Skripsi)

Evidence_4.1_Decree_Prof_Alhadi B_in_Bahasa

Evidence_4.2_Decree_Prof_Titin Siswantining_in_Bahasa

Evidence_4.3_Contract_of_ Prof Ryota DGeo

Evidence_4.4_Dean_Decree_900_Determination of recipients of assignment research grants FMIPA UI 2022

Evidence_4.5_Dean_Decree_901_Determination of recipients of community service FMIPA UI 2022

Evidence_6.1_Certificate_National Accreditation_UPMath_in_Bahasa

Evidence_6.2_Certificate_National Accreditation_UPPhy_in_Bahasa

Evidence_6.3_Certificate_National Accreditation_UPBio_in_Bahasa

Evidence_6.4_Certificate_National Accreditation_UPGeo_in_Bahasa

F Summary: Peer recommendations (30.05.2022)

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

Degree Programme	ASIIN Seal	Subject-specific label	Maximum duration of accreditation
Ba Mathematics	With requirements for one year	-	30.09.2027
Ba Physics	With requirements for one year	-	30.09.2027
Ba Biology	With requirements for one year	-	30.09.2027
Ba Geography	With requirements for one year	-	30.09.2027

Requirements

For all study programs

A 1. (ASIIN 2.2) Establish a system to monitor the actual workload of the students, which also reflects the out-of-class work of the students.

A 2. (ASIIN 2.2) Verify the students' total workload concerning the final thesis and award the ECTS points accordingly.

A 3. (ASIIN 4.2) It has to be ensured that the workload for teaching does not prevent lecturers from doing research or from further qualifying themselves.

Recommendations

For all study programmes

E 1. (ASIIN 2.2) It is recommended to monitor the actual workloads of the students on a regular basis.

E 2. (ASIIN 4.2) It is recommended to explore sabbaticals with focus on research as a way of faculty development.

For Ba Geography

E 3. (ASIIN 4.1) It is recommended to further increase the numbers of full professors.

G Comment of the Technical Committees (13.06.2022)

Technical Committee 10 – Life Sciences (13.06.2022)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the procedure and is in favour of deleting the three recommendations without replacement. Recommendation E1 is already covered by requirement A1 and recommendations E2 and E3 are not relevant, as there are clear legal regulations in Indonesia and at Universitas Indonesia to this respect. The three requirements are approved.

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

Degree Programme	ASIIN Seal	Subject-specific label	Maximum duration of accreditation
Ba Mathematics	With requirements for one year	-	30.09.2027
Ba Physics	With requirements for one year	-	30.09.2027
Ba Biology	With requirements for one year	-	30.09.2027
Ba Geography	With requirements for one year	-	30.09.2027

Requirements

For all study programs

A 1. (ASIIN 2.2) Establish a system to monitor the actual workload of the students, which also reflects the out-of-class work of the students.

A 2. (ASIIN 2.2) Verify the students' total workload concerning the final thesis and award the ECTS points accordingly.

A 3. (ASIIN 4.2) It has to be ensured that the workload for teaching does not prevent lecturers from doing research or from further qualifying themselves.

Technical Committee 11 – Geosciences (13.06.2022)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee 11 – Geosciences recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Subject-specific label	Maximum duration of accreditation
Ba Mathematics	With requirements for one year	-	30.09.2027
Ba Physics	With requirements for one year	-	30.09.2027
Ba Biology	With requirements for one year	-	30.09.2027
Ba Geography	With requirements for one year	-	30.09.2027

Requirements

For all study programs

A 1. (ASIIN 2.2) Establish a system to monitor the actual workload of the students, which also reflects the out-of-class work of the students.

A 2. (ASIIN 2.2) Verify the students' total workload concerning the final thesis and award the ECTS points accordingly.

A 3. (ASIIN 4.2) It has to be ensured that the workload for teaching does not prevent lecturers from doing research or from further qualifying themselves.

Technical Committee 12 – Mathematics (09.06.2022)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the accrediting procedure and follows the assessment of the peers without any changes.

The Technical Committee 12 – Mathematics recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Subject-specific label	Maximum duration of accreditation
Ba Mathematics	With requirements for one year	-	30.09.2027
Ba Physics	With requirements for one year	-	30.09.2027
Ba Biology	With requirements for one year	-	30.09.2027
Ba Geography	With requirements for one year	-	30.09.2027

Requirements

For all study programs

A 1. (ASIIN 2.2) Establish a system to monitor the actual workload of the students, which also reflects the out-of-class work of the students.

A 2. (ASIIN 2.2) Verify the students' total workload concerning the final thesis and award the ECTS points accordingly.

A 3. (ASIIN 4.2) It has to be ensured that the workload for teaching does not prevent lecturers from doing research or from further qualifying themselves.

Technical Committee 13 – Physics (13.06.2022)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee 13 – Physics recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Subject-specific label	Maximum duration of accreditation
Ba Mathematics	With requirements for one year	-	30.09.2027
Ba Physics	With requirements for one year	-	30.09.2027
Ba Biology	With requirements for one year	-	30.09.2027

Degree Programme	ASIIN Seal	Subject-specific label	Maximum duration of accreditation
Ba Geography	With requirements for one year	-	30.09.2027

Requirements

For all study programs

A 1. (ASIIN 2.2) Establish a system to monitor the actual workload of the students, which also reflects the out-of-class work of the students.

A 2. (ASIIN 2.2) Verify the students' total workload concerning the final thesis and award the ECTS points accordingly.

A 3. (ASIIN 4.2) It has to be ensured that the workload for teaching does not prevent lecturers from doing research or from further qualifying themselves.

H Decision of the Accreditation Commission (24.06.2022)

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

The accreditation commission discusses the procedure.

Concerning the recommendations made by the peers, the Commission follows the assessment of the technical committee 10 and decides that all recommendations are already covered by the requirements. Therefore, the Commission is of the opinion that these recommendations are redundant and can be deleted.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN Seal	Subject-specific label	Maximum duration of accreditation
Ba Mathematics	With requirements for one year	-	30.09.2027
Ba Physics	With requirements for one year	-	30.09.2027
Ba Biology	With requirements for one year	-	30.09.2027
Ba Geography	With requirements for one year	-	30.09.2027

Requirements

For all study programs

A 1. (ASIIN 2.2) Establish a system to monitor the actual workload of the students, which also reflects the out-of-class work of the students.

A 2. (ASIIN 2.2) Verify the students' total workload concerning the final thesis and award the ECTS points accordingly.

A 3. (ASIIN 4.2) It has to be ensured that the workload for teaching does not prevent lecturers from doing research or from further qualifying themselves.

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 Mathematics:

No.	Code	Programme learning outcome
		Knowledge
1	K1	Possesses knowledge of basic science (biology, physics and chemistry) generally
2	K2	Possesses further concept of mathematics
3	K3	Possesses concept of algorithm, programming, and data science
		Skill
4	S1	Comprehends concept of mathematics model for analyzing solution
5	S2	Is able to analyze real world problems and model the problem in mathematical statement
		Competency
6	C1	Recognizes mathematics theory and data science in the development of science and technology
7	C2	Masters information technology as support of mathematics and data science
		Interdisciplinary Skill
8	IS1	Have cognitive skill in thinking critically, logically, creatively, and innovatively, and possessing intellectual curiosity for solving problems at an individual level and teamwork.
9	IS2	Have sensitivity and concern on environmental and public issues in the frame of Indonesia nation based on ideology Pancasila.
10	IS3	Masters information and communication technology wisely
11	IS4	Have the ability to use presentation and writing in Bahasa Indonesia and/or English well for academic and non-academic activities
12	IS5	Have non-cognitive skills including social skills such as empathy and conflict resolution and ability to be communicative for networking, interacting, working together with people from divergent backgrounds, origin, culture, and perspective
13	IS6	Having entrepreneurial spirit characterized by innovation and independence based on ethics
14	IS7	Having attitude and behavior reflecting spiritual values

The following **curriculum** for Mathematics is presented:

Undergraduate Programme in Mathematics – Curriculum Overview

Semester	Modules							
I	Logics and sets (4,77)	Calculus 1 (4,77)	Elementary Linear Algebra (4,77)	Algorithm and programming (4,77)	Introduction to Data Science (3,18)	General Chemistry (3,18)	Religion (3,18)	English (3,18)
II	Calculus 2 (4,77)	Linear Algebra 1 (4,77)	Numerical Methods (4,77)	Mathematical Statistics 1 (4,77)	General Biology (3,18)	Integrated Character Education (7,95)		
III	Real analysis 1 (6,36)	Discrete Mathematics (4,77)	Calculus 3 (4,77)	Mathematical Programming (4,77)	Data Structure (4,77)	Ordinary Differential Equations (4,77)	Basic Physics (3,18)	
IV	Real analysis 2 (4,77)	Vector Calculus (4,77)	Partial Differential Equations and Boundary Condition (4,77)	Analytic Geometry (4,77)	Graph Theory (4,77)	Data Science (4,77)	Numerical Differential Equation (4,77)	
V	Method of Research (3,18)	Algebra (6,36)	Complex Function	(6,36)	Mathematical Modelling (4,77)	(9,54)		
VI	(28,62)							
VII	(33,39)							
VIII	Undergraduate Thesis (9,54)							

According to the self-assessment report the following **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree programme Physics:

1. Applying classical and modern Physics concepts in general physics problems.
2. Applying mathematical methods to solve Physics problems analytically and computationally.
3. Applying the concepts of one of the following fields of Physics or Applied Physics: a. Theoretical Nuclear-Particle Physics and Astrophysics; b. Material Physics; c. Condensed Matter Physics; d. Systems & Instrumentations of Physics, e. Medical Physics & Biophysics
4. Formulating problems and solving Physics and its application, as well as interdisciplinary problems related to science and mathematics clusters critically, creatively, and innovatively
5. Explaining the basic principles of experiments, applying the measurement methods of Physics, and able to analyze the results correctly
6. Practicing attitudes, leadership, and managerial skills that support success at work and in participating in community activities
7. Having the knowledge of Bahasa Indonesia and English as well as utilizing information technology (IT) in the field of Physics, science and technology
8. Summarizing the basic knowledge in science and technology
9. Applying the knowledge of Physics in community and practical life, as well as identifying and adapting to new things

10. Developing and deepening the knowledge gained in the bachelor degree programme in a sustainable manner, and being able to continue to the master's and doctoral education levels
11. Solving simple scientific problems and presenting them orally and in writing

The following **curriculum** for Mathematics is presented:

Undergraduate Programme in Physics – Curriculum Overview

Semester	Modules								
I	Basic Physics 1 (6.36)	Basic Physics Laboratory work 1 (1,59)	Elementary Linear Algebra (3,18)	Calculus 1 (4,77)	Introduction to Data Science (3,18)	General Chemistry (3.18)	General Biology (3.18)	Religion (3,18)	English (3,18)
II	Basic Physics 2 (6,36)	Basic Physics Laboratory work 2 (1,59)	Mathematical Methods in Physics 1 (4,77)	Calculus 2 (4,77)	Electronics 1 (3,18)	Electronics Laboratory work 1 (1,59)	Integrated Character Education (7,95)		
III	Modern Physics (4,77)	Advanced Physics Laboratory work 1 (1,59)	Mathematical Methods in Physics 2 (6,36)	Mathematical Methods in Physics 3 (3,18)	Electronics 2 (3,18)	Electronics Laboratory work 2 (1,59)	Thermodynamics (4,77)	Measurement Physics (3,18)	
IV	Quantum Physics 1 (6,36)	Advanced Physics Laboratory work 2 (1,59)	Electromagnetic field 1 (4,77)	Computational Physics (6,36)	Vibrations & Waves (4,77)	Classical Mechanics (6,36)			
V	Quantum Physics 2 (4,77)	Introduction to Nuclear Physics (4,77)	Electromagnetic field 2 (4,77)	Statistical Physics (6,36)	Seminar (3,18)	Introduction to Solid State Physics (4,77)			
VI	(31,8)								
VII	(31,8)								
VIII	Undergraduate Thesis (9,54)	(6,36)							

According to the self assessment report the following **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree programme Biology:

Code	Programme Learning Outcome
K1	Able to apply the basic principles of mathematics, physics, chemistry, biology, and statistics in solving biological problems
K2	Able to connect the principles of biology when analyzing problems, especially in aspects of biodiversity conservation and prospecting
K3	Able to identify and manage biological resources and the environment based on conservation principles and biodiversity prospecting
K4	Able to identify a variety of innovative entrepreneurship activities independently and ethically
S1	Able to use software, basic instruments, standard methods for analysis and synthesis in general dan specific biological fields
S2	Able to use spoken and written language in Indonesian and English for academic and non-academic activities
S3	Have integrity, able to think critically, in a creative and innovative manner, and have an intellectual curiosity to solve problems as an

	individual or as part of a group
S4	Able to show effort in lifelong learning
C1	Able to provide alternative solutions for various problems that are present in the environment, society, and nation
C2	Able to formulate solutions for biology-related problems, especially in the aspect of biodiversity conservation and prospecting, using relevant principles of biology and technology and upholding ethics and norms, and demonstrating professionalism in the field of biology
C3	Able to recommend relevant principles of biology and technology in analyzing problems, especially in the aspect of conservation and prospecting of biodiversity for the benefit of the community

K: Knowledge; S: Skills, C: Competency

The following **curriculum** for Biology is presented:

Undergraduate Programme in Biology – Curriculum Overview

Semester	Modules									
I	Basic Biology (4,77)	Genetics (4,77)	Genetics LE (1,59)	Cell Biology (4,77)	Basic Mathematics (3,18)	Basic Chemistry (3,18)	Basic Physics (3,18)	Religion (3,18)	English (3,18)	
II	Organic Chemistry (3,18)	Basic Chemistry LE (1,59)	Diversity of Micro organism (4,77)	Diversity of Micro organism LE (1,59)	Animal Structure (3,18)	Animal Structure LE (1,59)	Plant Structure (3,18)	Plant Structure LE (1,59)	Introduction to Data Science (3,18)	Integrated Character Education (7,95)
III	Biometrics (4,77)	Biochemistry (4,77)	Biochemistry LE (1,59)	Bioevolution (4,77)	Diversity of Animals (4,77)	Diversity of Animals LE (1,59)	Diversity of Plants (4,77)	Diversity of Plants LE (1,59)	Molecular biology (4,77)	Molecular biology LE (1,59)
IV	Scientific writing (4,77)	Bioinformatics (4,77)	Biosystematics (4,77)	Animal Physiology (4,77)	Animal Physiology LE (1,59)	Plant Physiology (4,77)	Plant Physiology LE (1,59)	Microbiology (4,77)	Microbiology LE (1,59)	
V	Research Design (4,77)	Fieldwork (3,18)	Biopreneur (3,18)	Ecology (4,77)	Ecology LE (1,59)	(12,72)				
VI	(23,85)									
VII	(23,85)									
VIII	(9,54)	Undergraduate Thesis (9,54)								

According to the self-assessment report the following **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree programme Geography:

Programme Learning Outcomes	
K1	Able to comprehend the application of the principles of natural science, mathematics, and analytical data in geographical studies
K2	Able to examine the application of basic principles of geography at various scales and characteristics of the earth's surface
K3	Able to interpret human-environment interdependence based on spatial perspective
K4	Able to assess life resource problems based on the geographic scientific procedure

K5	Able to formulate spatial models/synthesis
K6	Able to formulate scientific opinions based on geographical facts and theories
S1	Able to analyze the application of geographical theories and methods as well as spatial information technology
S2	Able to validate geographic data and information
S3	Able to communicate a variety of geographic information effectively in visual, verbal, and textual form for relevant parties
C1	Able to perform maturity, tolerance and adaptation in accordance with scientific, professional, and environmental ethics
C2	Able to show self-confidence in exploring intellectual curiosity profes-sionally according to the needs of the community
C3	Able to propose critical and creative proposals on the opportunities of applied geography as a solution to life resource problems

The following **curriculum** for Geography is presented:

Semester	Modules										
I	Thinking Geographically (3,18)	Principles and Perspective in Physical Geography (3,18)	Physical Geography Lab 1 (1,59)	Cartography (3,18)	Cartography Lab (1,59)	Basic Mathematics (3,18)	Introduction to Data Science (3,18)	Basic Physics (3,18)	General Chemistry (3,18)	Religion (3,18)	English (3,18)
II	Principles and Perspective in Human Geography (4,77)	Introduction to Geographic Method (3,18)	System and Process of Physical Geography (6,36)	Physical Geography Lab 2 (1,59)	Surveying and Mapping (3,18)	Surveying and Mapping Lab (1,59)	Elementary Linear Algebra (3,18)	Integrated Character Education (7,95)			
III	Field Work 1 (3,18)	Spatial Organization of Human Activities (6,36)	Human Geography Lab (1,59)	Qualitative Methods in Geography (4,77)	Qualitative Methods in Geography Lab (1,59)	Data and Statistical Geography (4,77)	Statistical Geography Lab (1,59)	Remote Sensing (3,18)	Remote Sensing Lab (1,59)	Hydro geography (3,18)	General Biology (3,18)
IV	Field Work 2 (3,18)	Land Use Dynamics (3,18)	Ecological System and Natural Landscape (3,18)	Climate and Life (3,18)	Spatial Dynamic of Urban Region (3,18)	Space and Economic System (3,18)	Quality of Life and Population Mobility (3,18)	Professional Geography (3,18)	Geographic Research Design (3,18)		
V	34,98										
VI	34,98										
VII	Regional Geography of Indonesia (6,36)	Regional Development (4,77)	Geographic Research Seminar (3,18)	Spatial Simulation and Modeling (3,18)							
VIII	Undergraduate Thesis (9,54)										