



ASIIN Seal

Accreditation Report

Master's Degree Programme
Animal Science

PhD Programme
Animal Science

Provided by
Universitas Gadjah Mada (UGM)

Version: 24.06.2023

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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
Program Studi Magister Ilmu Peternakan	Study Program of Master in Animal Science	ASIIN	/	08
Program Studi Doktor Ilmu Peternakan	Study Program of Doctor in Animal Science	ASIIN	/	08
<p>Date of the contract: 27.07.2021</p> <p>Submission of the final version of the self-assessment report: 05.03.2022</p> <p>Date of the onsite visit: 21.-23.03.2022</p> <p>at: Due to continuing travel and safety restrictions caused by the Covid-19 pandemic, the audit was carried out digitally in agreement with the principal decision of the Accreditation Commission for Study Programmes.</p>				
<p>Peer panel:</p> <p>Prof. Dr. Matthias Gauly, Free University of Bozen-Bolzano</p> <p>Mag.med.vet. Christian Gruber, MME, Veterinarian and Veterinary Consultant at veted-consulting</p> <p>Prof. Dr. Nicole Kemper, University of Veterinary Medicine Hannover</p> <p>Mr. Komarudin, PhD Student at IPB Bogor</p>				
<p>Representative of the ASIIN headquarter: Christin Habermann</p>				

¹ ASIIN Seal for degree programmes

² TC: Technical Committee for the following subject areas: TC 01 - Mechanical Engineering/Process Engineering; TC 02 - Electrical Engineering/Information Technology; TC 03 - Civil Engineering, Geodesy and Architecture; TC 04 - Informatics/Computer Science; TC 05 - Physical Technologies, Materials and Processes; TC 06 - Industrial Engineering; TC 07 - Business Informatics/Information Systems; TC 08 - Agriculture, Nutritional Sciences and Landscape Architecture; TC 09 - Chemistry; TC 10 - Life Sciences; TC 11 - Geosciences; TC 12 - Mathematics; TC 13 - Physics.

Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines as of 15.05.2015 ASIIN General Criteria as of 28.03.2014 Subject-Specific Criteria of Technical Committee 08 – Agriculture, Nutritional Sciences and Landscape Architecture as of 09.12.2011 ASIIN Additional Criteria for Structured Doctoral Programmes as of March 15, 2021	

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
Animal Science	M.Sc.	Animal Nutrition; Animal Production System; Policy and Livestock Business; Animal Product Technology; Tropical Animal Reproduction and Breeding	7	Full time	/	4 Semester	40 sks 98,4 ECTS	February and August of every year
Animal Science	PhD	/	8	Full time		6 Semester	50 sks 164,8 ECTS	February and August of every year

For both study programmes the institution has presented the following profile in the self-assessment report:

“The Graduate Program of Animal Science (GP-AS) aims to produce qualified graduates who can deeply analyze animal science problems, develop science, and develop animal industry policy concepts. Universitas Gadjah Mada (UGM) also expect to have graduates who can integrate with specific animal science expertise, including animal production, animal nutrition, feed science, livestock social economics, animal products technology, and animal breeding and reproduction. The GP-AS UGM has adopted Outcome-Based Education (OBE) to support the achievement of outcomes and qualifications students intended to attain. The GP-AS consists of two study programs: the Study Program of Master in Animal Science (SP-MAS) and the Study Program of Doctor in Animal Science (SP-DAS). The SP-MAS is a two-year graduate program that consists of coursework, seminar, laboratory works, and master thesis that covers overall 98,4 ECTS. The SP-DAS is a three-year graduate program consisting of coursework, seminar, laboratory works, and doctoral dissertation covering 164,8 ECTS. Upon completing all courses and graduate thesis/dissertation, the student is

³ EQF = The European Qualifications Framework for lifelong learning

awarded the Master of Science (M.Sc.) degree for SP-MAS graduate and Doctor of Animal Science (Dr.) for SP-DAS graduate. [...]

The curriculum of the GP-AS UGM adapts the curriculum of the Natural Science Program. The course content, delivery methods, assessment methods, and evaluation methods are available in the Course Outlines. Curriculum Design is based on inputs from stakeholders (lecturers, students, supporting staffs, alumni, and industries) and dynamic and advanced science in animal science. The learning structure at the master level is more on courses with a total of about 28 credits (50,4 ECTS) and a thesis of 12 credits (48 ECTS), while for the doctoral program, it is education with a depth of material in science so that the research load and dissertation are 34 credits (136 ECTS) and coursework for 14 to 18 credits (28,8 ECTS). SP-DAS students are also required to publish in a reputable international journal. SP-MAS and SP-DAS students are regularly monitored and evaluated to graduate in time.”

C Peer Report for the ASIIN Seal⁴

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 plans of the degree programmes
- Module descriptions
- Webpage of both study programmes
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The auditors refer to the Subject-Specific Criteria (SSC) of the Technical Committee Agriculture, Nutritional Sciences and Landscape Architecture (TC 08) as a basis for judging whether the intended learning outcomes of the Master's degree programme Animal Science, as defined by UGM, correspond with the competences as outlined by the SCC. For the PhD programme Animal Science, the auditors further refer to the ASIIN Additional Criteria for Structure Doctoral Programmes. They come to the following conclusion:

Both, the Master's and the PhD programme aim to produce qualified graduates who can deeply analyse problems within the field of animal science, develop scientific methods as well as animal industry policy concepts. Further, graduates are expected to gain specific expertise in the following fields: animal breeding and husbandry, animal nutrition, feed science, livestock social economics, animal product technology as well as animal product quality.

⁴ This part of the report applies also for the assessment for the European subject-specific labels. After the conclusion of the procedure, the stated requirements and/or recommendations and the deadlines are equally valid for the ASIIN seal as well as for the sought subject-specific label.

The qualification objectives of the Master's degree programme Animal Science should enable graduates to develop the current field of animal science and apply its theories, to further develop the fields of livestock production, animal nutrition and feed, animal products technology as well as livestock social economics regarding food security and the environment. In addition, graduates should be able to make innovations in animal science based on the development of science, technology and arts, design interdisciplinary and multidisciplinary research in animal science, formulate and solve problems in national development with regard to animal science as well as solve problems and anticipate issues in the development of research and the animal industry.

The qualification objectives of the PhD programme Animal Science should enable graduates to master scientific philosophy and develop new science and technology in animal science based upon useful, competitive and environmentally sound research with a multidisciplinary approach. Further, graduates hold the capability to develop new science and technology concepts to solve problems in the field of animal science through multi- and transdisciplinary approaches. In addition, graduates are capable of developing science and technology through creative, original and novelty research, independently designing and carrying out inter-, multi-, and transdisciplinary research for the development of animal husbandry as well as managing, leading and developing research in the field of animal husbandry as well as communicating the results and gaining recognition at national and international levels for the benefit of humankind.

The auditors hold the view that the objectives and intended learning outcomes of both degree programmes under review are reasonable and well founded. They learn that various stakeholders (alumni, industrial and governmental representatives) are involved in the constant review and development of the curricula. For example, industrial representatives are regularly invited to give suggestions on the skills and expertise graduates must possess and which new materials or topics should be added to the curricula. While there exists a national standard for designing the curriculum, especially the elective modules allow UGM to adapt to the suggestions from their stakeholders.

This cooperation between UGM and especially their industrial partners, results in good chances for the graduates on the national job markets as well as the opportunity to transfer to other academic programmes or to further their career in research. The employers confirm during the audit discussions that there is a high demand for the graduates of both degree programs. Furthermore, they emphasize that graduates from UGM are their first choice because they are generally better qualified than graduates from other Indonesian universities are.

Criterion 1.2 Name of the degree programme

Evidence:

- Self-Assessment Report

Preliminary assessment and analysis of the peers:

The auditors confirm that the English translation and the original Indonesian names of the Master's degree programme Animal Science and the PhD programme Animal Science 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
- Module descriptions
- Webpage of both study programmes
- Discussions during the audit

Preliminary assessment and analysis of the peers:

According to the self-assessment report, the curricula of both study programmes are based upon the programmes' vision, mission and learning objectives. The latest curriculum review was performed in 2018. As a result, for example, the Master's programme now holds five instead of four specializations for the students to choose. UGM provides a detailed list of the changes that were made, displaying the topicality and relevance of the current curricula as well as UGM's cooperation with the stakeholders involved in the review process, especially industrial and governmental partners as well as student and alumni.

The Master's degree programme is based upon the Decree of Rector No. 11 of 2016. The minimum study load that must be taken is 98,4 ECTS, consisting of lecturer activities and thesis writing research activities. Students must take 25,2 ECTS in compulsory modules, a minimum of 10,8 ECTS of compulsory specialisation courses and 14,4 ECTS of elective specialisation courses. 48 ECTS are reserved for research and thesis writing. The latter consists of various components, such as writing a research proposal, individual research, a seminar, publication of the research as well as the thesis or dissertation examination. Students can choose one of five specialisations: animal nutrition, animal production system, policy and livestock business, animal product technology, tropical animal reproduction and breeding.

The implementation of the PhD programme refers to Rector Decree UGM No. 11 (2016). This study programme is open for students with a Master's degree in Animal Science and for students with a Master's degree in a different albeit related field of study, such as Agriculture. Students with a Master's degree in Animal Science have to take a total of 164,8 ECTS in order to finish their doctoral programme. Students must complete a minimum of 28,8 ECTS of courses or modules, among them "Latest Animal Science Progress" and "Research Philosophy and Ethics", and 136 ECTS on researching, writing and defending their dissertation. The study load of students with a Master's degree in a different field amounts to 193,6 ECTS. While 136 ECTS continue to be awarded for the doctoral thesis, these students must earn a total of 57,6 ECTS points in the form of modules. This serves to catch up on knowledge from the Animal Science master's program that graduates of other programs lack and thus optimally prepare them for a scientific career.

For both study programmes the auditors gain the impression that the curricula are well thought out and contain all the necessary knowledge, skills and methodologies to prepare the students for their future career either in the industry or within the area of research. They laude that the Master's programme offers five distinct specialisations that allow students to focus their studies in a direction they are most interested in and thus allows for an individual study profile. In addition, the auditors also see that students may take more modules in their specification that strictly necessary for completing the degree, which further aids the students in becoming experts in their chosen field of animal science.

As for the PhD programme, the auditors confirm that graduates acquire advanced, cutting-edge knowledge and are able to demonstrate on the level of internationally recognised scientific research a deep and comprehensive understanding of their research field. That the curriculum has been adapted for students that do not hold a Master's degree is viewed positive by the auditors. This allows more students to undertake research and importance in the ever-important field of animal science while ensuring that they hold all the necessary knowledge and expertise first.

The auditors thus gain the impression that the graduates of both programmes under review are well prepared for entering the labour market or continue their academic career and can find adequate professions in Indonesia. During the discussion with the auditors, UGM's partner from the industry/public sector confirm their satisfaction with the graduates' level of skills, competencies and professionalism.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report
- Academic Guidelines
- Decree of Minister of Research, Technology and Higher Education No. 2, 2015
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The admission process of both study programmes is carried out with a centralised system by UGM and opens up two rounds annually, one in June and one in December. All information regarding the admission are published through UGM's online platform. In addition, UGM reaches out and visits remote regions, not only in Indonesia but also other countries such as Malaysia, Philippines or Laos, to promote the study programme and to draw more students from varied backgrounds and regions.

For the Master's programme, students must hold a Bachelor's degree in Animal Science or in an agricultural-related field. They must further show prove of a TOEFL score of 400 or equivalent as well as an AP score of 450 or equivalent.

For the PhD programme, students must possess a Master's degree in Animal Science or agricultural-related sciences, a TOEFL score of 450 or equivalent and an AP score of 500 or equivalent.

Applicants who lack meeting one or two requirements may get conditional acceptance depending on each individual case. For example, for those applicants who are severely below the necessary TOEFL or AP points, UGM encourages and provides time for applicants to obtain the required score to be fully admitted. However, no such leverage is granted with regards to the prior knowledge of the students. If a PhD-applicant, for example, does not hold a Master's degree in Animal Science, he/she must take additional courses in this field.

Despite a higher number of applicants, each year only 80 students can be enrolled in the Master's degree programm in order to sustain effective learning and teaching activities in line with the number of facilities, infrastructure and staff available. Similarly, only 20 students can be enrolled in the PhD programme per year despite a higher rate of applications.

In summary, the auditors find the terms of admission to be binding and transparent. They confirm that the admission requirements support the students in achieving the intended learning outcomes.

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

In summary, the auditors regard this criterion as **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
- Webpage of both study programmes
- Discussions during the audit

Preliminary assessment and analysis of the peers:

Both study programmes, Master of Animal Science and PhD of Animal Science, consist of compulsory and specialisation courses. The study programmes' compulsory courses are courses that students have to take in order to complete their degree while the students can choose elective courses given their individual interests. The specializations - Animal Nutrition; Animal Production System; Policy and Livestock Business; Animal Product Technology; Tropical Animal Reproduction and Breeding - exist in both programs, although they are much more pronounced in the master's program. Here, each specialization consists of 8-10 modules. In the PhD, on the other hand, there are two modules per specialization, but this is of course related to the fact that most of the curriculum is devoted to the dissertation anyway.

The auditors notice that most of the modules in both programmes are rather small and compass between 1 and 3 SKS (Indonesian credits). To reach the usual workload, students must attend on average 8 modules per semester. The auditors understand that this is usual in Indonesian higher education institutions and the students confirm that these small modules cause no problems to them. The auditors notice, however, that some of the elective modules in the Master's programme take place at the same time, thus meaning that students cannot take all modules they wished for. As this is a common problem given the number of modules available, the auditors do not see a grand problem here as the overlapping does not cause a prolongation of the studies.

After analysing the module descriptions and the study plans, the peers confirm that all degree programmes under review are divided into modules and that each module is a sum of coherent teaching and learning units. In addition, the peers gain the impression that the choice of modules and the structure of the curriculum ensures that the intended learning outcomes of the respective degree programme can be achieved

Mobility:

According to the self-assessment report, students' activities overseas are usually in the form of student exchange programs as courses taken at foreign universities can be recognised in both degree programmes under review. Examples of those activities show that students partake in international summer courses, scientific forums or conferences but rarely spent an entire semester abroad.

The students confirm during the discussion with the peers that some opportunities for international academic mobility exist. However, they also point out that they wish for more places, more exchange programmes and more scholarships. The peers discuss with UGM's management if there is a strategic concept to increase the international mobility of students and teachers. They learn that UGM has many international partners, has developed a fellowship programme, and provides scholarships for foreign students that what to study at UGM. Moreover, international guest lecturers are invited, and a cooperation with agreement with the German Academic Exchange Service (DAAD) and the similar Dutch organisation exists for senior Professors that are invited to teach for some time at UGM. Finally, summer courses are conducted with international participants and double degree and exchange programmes are established with different countries. The peers support these measures; however, they recommend increasing the effort to further internationalise UGM by establishing more international cooperation and exchange programmes and offering more and better endowed scholarships. Especially with regard to the PhD Programme, the auditors understand that some students undertake most of their research in other parts of Indonesia and that they are provided with opportunities for academic mobility and international collaborations with an integrated framework of cooperation between universities and other partners.

In summary, the peers appreciate the effort to foster international mobility and support both the Faculty of Animal Sciences and UGM to further pursuing this path. Nevertheless the university should also offer options outside the classical destinations (e.g. Europe. US).

Criterion 2.2 Work load and credits
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Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Module descriptions
- Academic Guidelines
- Discussions during the audit

Preliminary assessment and analysis of the peers:

Based on the National Standards for Higher Education of Indonesia (SNPT), both programmes use a credit point system called SKS, which is regulated as follows:

Type of activity	Definition of 1 CSU/week/semester	Duration (min)	TOTAL (min)
Classroom course	Classroom meeting	50	170
	Structured task	60	
	Independent work	60	
Practical course	Practical work	170	170
Seminar	Seminar meeting	100	170
	Independent work	70	

In comparison to ECTS credit system, wherein 1 ECTS equals 25-30 hours of students' workload per semester, it is determined that 1 SKS is awarded for 170 minutes of workload per week and the relation between the different kind of learning (contact hours, self-studies) is fixed.

To complete the Master's programme, student must take 40 SKS or 98,4 ECTS in a total of two years (four semesters). For the PhD programme, students take 50 SKS or 164,8 ECTS during three years (six semesters). This amounts to a workload per semester of 24,6 ECTS in the Master's and 27,4 ECTS in the PhD programme.

Data provided by UGM shows that during the last five years, all students who have enrolled in one of the two programmes have also finished them. In addition, nearly all students finish their degree on time.

The auditors gain the impression that workload for all degree programmes is generally suitable, that modules are adequately credited and that the programmes operate within an appropriate duration.

Criterion 2.3 Teaching methodology

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the peers:

Both degree programmes adopt outcome-based education as their main learning method, an approach that emphasises the continuity of the learning process innovatively and interactively.

UGM further has the goal to support the transition from a teacher-centered to a student-oriented teaching method, in order to involve all students in the learning process and to develop their thinking and analytical skills. In addition, blended learning is introduced as a modern way of teaching. The use of e-learning elements in the learning process allows for class activity without physical attendance. At UGM, it is possible to use e-learning for a maximum of 30 % of the course. To provide support and guidance to the teachers in utilizing these instruments, all members of teaching staff attended workshops on blended learning. To facilitate the use of blended learning, UGM has developed a moodle-based e-learning system (eLok) and has subscribed for using the webinar platform Cisco Webex.

Both degree programmes make use of several different education methods for each course, such as lecturers, laboratory work, seminars or peer group presentations.

To ensure that students follow most teaching and learning activities, the faculty of animal science requires students to meet a minimum of 75% of class attendance for each course they take. Students who fail to comply with the requirement will not be allowed to take the course exam. Furthermore, a failure in completing the required course component will also result in an incomplete grade for the course.

In addition to teaching and learning activities, both programmes also support students' personal development activities through company visits, seminars, workshops, trainings as well as research and community development grants.

In summary, the peer group judges the teaching methods and instruments to be suitable to support the students in achieving the intended learning outcomes.

Criterion 2.4 Support and assistance

Evidence:

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

Preliminary assessment and analysis of the peers:

UGM offers a comprehensive advisory system for all its students. At the start of the first semester, all new students are assigned an academic supervisor, usually one of the heads of the study programmes. Starting in the second semester, where students usually begin their thesis project, they are under the guidance of a thesis supervisor instead. The academic advisor is responsible for providing academic assistance, motivating students in their learning success and guiding the students in academic planning to finish their studies within an allocated time. To maintain student advising effectiveness, the faculty limits the number of students whom each advisor can handle to 9 for the Master's and 6 for the PhD programme. If during the process of final thesis completion there are some constraints or students want to change their research plan, they can request for replacement of an advisor. For the PhD programme, a transparent contractual framework of shared responsibilities between doctoral candidates, supervisors, the institution is in place and continuous support by the supervisors is provided. During the discussions with the students, the auditors learn that especially the PhD students choose UGM for its excellent supervisory system and the great teachers and lecturers working here. In generally, students were very happy with the support they get from their university, especially during the ongoing Covid-pandemic, where UGM for example was able to provide scholarships for purchasing laptops so all students could join the online classes.

The peers notice the good and trustful relationship between the students and the teaching staff; there are enough resources available to provide individual assistance, advice and support for all students. 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 – Mobility

UGM present documents that showcase that students have also spent an entire semester abroad at European universities, such as BOKU University in Austria or UMI-Saving Pongidae, Brno, Czech Republic. The auditors thank UGM for this clarification.

Given that mandatory modules are still overlapping sometimes, the auditors regard this criterion as **mostly fulfilled**.

3. Exams: System, concept and organization

Criterion 3 Exams: System, concept and organization
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Evidence:

- Self-Assessment Report
- Module descriptions
- Academic Guidelines
- Academic Calendar

Preliminary assessment and analysis of the peers:

According to the Self-Assessment Report, the students' academic performance is evaluated based on their attendance and participation in class, their laboratory works and reports, assignments, homework, presentations, mid-term exam, and the final exam at the end of each semester.

If a student fails, student must repeat the entire module in the following semesters; it is not possible to retake just parts of the course or to just retake the final exam. The further details are described the Academic Guidelines. The peers discuss with the students how many and what kind of exams they have to take each semester. They learn that for each course there is one mid-term exam and one final exam in every semester. Usually, there are additional practical assignments or oral tests. The final grade is the sum of the sub-exams.

The inclusion of academic research and writing can be seen in the Master's thesis as well as the dissertation project. After assigned to a thesis supervisor, the student explores the

research topic in their best interest. The research proposal contains the exploration that includes background, literature review, hypothesis and research methodologies. Further, students present this proposal in the research proposal seminar. The research proposal formulation and presentation processes equip students with the skills to design a research project. Under the guidance of the thesis supervisor, the student will then conduct their research. Generally, the research takes up to one semester in the Master's and up to three semester in the PhD programme and is followed by the writing process. Before having the thesis or dissertation defense, students have to publish their research in a scientific journal and present the paper in peers reviewed seminars.

The peers also inspect a sample of examination papers as well as Master's and PhD theses and are overall satisfied with the general quality of the samples.

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

In summary, the auditors regard this criterion as **fulfilled**.

4. Resources

Criterion 4.1 Staff

Evidence:

- Self-Assessment Report
- Staff Handbook
- Study plans
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the peers:

At UGM, 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.

Currently, the teaching staff at the Faculty of Animal Science consists of 55 lecturers, all of which hold PhD degrees both from Indonesia and various places abroad (mainly Asia). The lecturer activities related to education (teaching, examining, and supervising) and research are monitored and evaluated each semester. In addition, there are a number of visiting professors from national and international institutions whose visits are planned according to the scientific need of the programs.

All members of the teaching staff are obliged to be involved in (1) teaching/advising, (2) research, and (3) community service. As the peers learn during the audit, all teachers have a workload between 12 and 16 credits per semester (one credit equals 170 minutes of activities per week). However, the workload can be distributed differently between the three areas from teacher to teacher.

The peers discuss with UGM's management, how new staff members are recruited. They learn that every year the faculties and departments announce their vacancies to UGM's management. Since UGM is semi-autonomous, they can decide themselves what staff members to hire.

In summary, the peers confirm that the composition, scientific orientation and qualification of the teaching staff are suitable for successfully implementing and sustaining the degree programmes. The auditors are impressed by the excellent and open-minded atmosphere among the students and the staff members. This atmosphere of understanding and support is one of the strong points of the degree programmes.

Criterion 4.2 Staff development

Evidence:

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

Preliminary assessment and analysis of the peers:

UGM 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 (to keep up with current developments and trends in animal science), whereas other training courses are intended to further improve the teachers' didactic skills and to introduce new teaching methods (e.g. blended learning).

The professional and scientific development of the staff members is coordinated by the Vice Dean for Finance, Administration and Human Resources and the Vice Dean for Academic and Student Affairs. 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. In addition, the faculty hosts international scientific events, facilitates sabbatical leaves, and invites international professors to further the international framework of the study programmes.

The peers 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 at UGM, 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 UGM offers sufficient support mechanisms and opportunities for members of the teaching staff who wish to further develop their professional and teaching skills.

Criterion 4.3 Funds and equipment

Evidence:

- Self-Assessment Report
- On-site visit of the facilities
- Discussions during the audit

Preliminary assessment and analysis of the peers:

Basic funding of the degree programme and the facilities is provided by UGM and the Faculty of Animal Science. Additional funds, e.g. for research activities or special equipment, can be provided by UGM or the Indonesian Government, but the teachers have to apply for them. In addition, around 40% of the capital is received through third-party funding.

As the audit was conducted online, the peers were not able to visit the laboratories and teaching spaces. Instead, UGM has provided extensive documentation, including lists of laboratories and equipment and a variety of videos. In addition, during the audit, members of the teaching staff gave a live-tour through some of the many laboratorial spaces UGM hold and answered questions the peers had. In addition, the Self-Assessment Report also provided details regarding the overall infrastructure of the university and its campuses. The peers are convinced that the teaching and office facilities, the libraries and the computer labs are sufficient for all students and staff members. With regard to the PhD students, the

auditors find that they are provided with an adequate research environment that allows them to appropriately carry out their research projects.

The recommends, however, that UGM prolong the opening hours of the library, which currently closes at 6pm, to allow the students more time for their research work.

During the virtual tour through the laboratories, the audit teams also witnessed that safety protocols in the laboratory were not always followed, such as wearing laboratory coats when accessing the labs or sanitizing the hands.

In summary, the peers confirm that the current funding allows for maintaining the standards as well as purchasing further instruments, if necessary, and that UGM generally holds enough work spaces and laboratories and that all laboratories are equipped with modern and sophisticated instruments.

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

Regarding criterion 4.3 – Library

UGM inform the auditors that UGM’s central library is open until 18.00 pm, same as the library for the Faculty of Animal Science. Furthermore, the faculty plans to open the reading room services until 21.00 pm and open the library on Saturday from 08.00 am – 12.00 am. The auditors support this plan.

Regarding criterion 4.3 – Safety Protocols and Modern Equipment

UGM has added photos of the safety protocol documents in three different laboratories as samples. The auditors see that safety protocols do indeed exist and ask UGM to follow them at all times.

In summary, the auditors regard this criterion as **fulfilled**.

5. Transparency and documentation

Criterion 5.1 Module descriptions
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Evidence:

- Self-Assessment Report
- Module descriptions

- UGM's web page: www.ugm.ac.id

Preliminary assessment and analysis of the peers:

The students, as all other stakeholders, have access to the module descriptions via UGM's 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.

After studying the module descriptions, the peers confirm that they include all necessary information about the persons responsible for each module, the teaching methods and work load, the awarded credit points, the intended learning outcomes, the content, the applicability, the admission requirements, and details explaining how the final grade is calculated. They notice, however, that information about the form of the exams is missing and ask UGM to include this in the module descriptions as well.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report
- Sample Diploma 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 both 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 contains all 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.

Criterion 5.3 Relevant rules

Evidence:

- Self-Assessment Report
- All relevant regulations as published on the university's webpage: www.ugm.ac.id
- Preliminary assessment and analysis of the peers:

Preliminary assessment and analysis of the peers:

The auditors confirm that the rights and duties of both UGM 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 peers after the comment of the Higher Education Institution regarding criterion 5:

Regarding criterion 5.1 – Module descriptions

UGM has added the form of exams to all module descriptions. The auditors see that the module descriptions now contain all necessary information.

In summary, the auditors 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 auditors discuss the quality management system at UGM with the programme coordinators and the students. They learn that there is a continuous process in order to improve the quality of the degree programmes and it is carried out through internal and external evaluation. The quality assurance system at UGM is conducted by the Office of Quality Assurance (KJM), which is supported by the Quality Assurance Unit (K3A) at faculty level and the Semester Coordination Team (TKS) at department level.

Internal evaluation of the quality of the degree programmes is mainly provided through student and alumni surveys (annual tracer study conducted by the university). The students

give their feedback on the courses by filling out the questionnaire online (EDOM). Giving feedback on the classes is compulsory for the students; otherwise, they cannot access their account on the digital platform SIMASTER. There are 12 categories in the questionnaire (e.g. schedule, course materials, workload, and motivation). The course evaluations are held during the final exam week. A compilation of the students' feedback is sent to the respective lecturers. As the students point out during the discussion with the peers, there is also the possibility to give a direct and informal feedback to the teacher.

In addition to the surveys, there is an annual Internal Quality Audit (AMI) in order to evaluate whether the general learning objectives have been achieved. AMI is held annually, assessing all aspects of the educational process conducted by the degree programme. The assessment is carried out by two auditors, which are appointed by KJM. In the course of the AMI, lecturers, students, administrative staff, and degree programme management are interviewed by the auditors.

Students are also involved in the quality assurance system. Besides the EDOM questionnaires and informal feedback, there is a students' coordinator for each entrance year in all programmes; the coordinator is appointed by the Faculty of Agriculture and Forestry, respectively. Moreover, each TKS has a student member and students receive a questionnaire from each laboratory to evaluate the performance and technical equipment.

The results of internal quality assessments are evaluated on faculty level during the Management Review Meetings (RTM), attended by the dean, vice deans, heads of departments, heads of laboratories, degree programme managements and the Quality Assurance Unit. The RTM takes the final decision on all audit findings and initiates corrective actions if necessary.

During the audit, the peers learn that the results of the surveys are accessible by the students and the members of the teaching staff. If there is negative feedback, the Dean talks to the respective teacher, analyses the problem, and offers guidance. Furthermore, there is a complain box for the students that can be used for suggestions or criticism. The auditors gain the impression that the students' feedback is taken seriously by the faculties and changes are made if there is negative feedback.

External quality assessment of the degree programmes is provided by the Board of National Accreditation (BAN-PT) and LAMPT-Kes (Independent Accreditation Institute for Health Sciences Higher Education of Indonesia). In addition, both degree programmes have been accredited by the ASEAN University Network Quality Assurance (AUN-QA).

The peers discuss with the representatives of UGM's partners from public institutions and private companies that there are regular meetings with the partners on faculty level, where

they discuss the needs and requirements of the employers and possible changes to the degree programmes. Besides this informal feedback, there is also advisory board. The peers see that due to the feedback from the employers, changes in the curriculum are implemented.

As the peers consider the input of the employers to be very important for the further improvement of the degree programmes, they appreciate the existing culture of quality assurance with the involvement of all stakeholders in the quality assurance process. Moreover, UGM and the Faculty of Animal Science stay in close contact with their alumni who also support the Faculty by raising funds.

In summary, the peer group confirms that the quality management system is suitable to identify weaknesses and to improve the degree programmes. All relevant stakeholders are involved in the process.

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

In summary, the auditors regard this criterion as **fulfilled**.

D Additional Documents

Before preparing their final assessment, the panel ask that the following missing or unclear information be provided together with the comment of the Higher Education Institution on the previous chapters of this report:

- D 1. Detailed information on animal welfare regulations for laboratorial and research animals
- D 2. Information on the availability of disinfectant stations in the laboratories.

E Comment of the Higher Education Institution (06.06.2022)

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

- Detailed information on animal welfare regulations for laboratorial and research animals
- Information on the availability of disinfectant stations in the laboratories.

F Summary: Peer recommendations (12.06.2022)

Taking into account the additional information and the comments given by UGM the peers 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
Ma Animal Science	With requirements for one year	30.09.2027	–	/
PhD Animal Science	With requirements for one year	30.09.2027	–	/

Requirements

For all degree programmes

- A 1. (ASIIN 2.1) It must be ensured that mandatory modules do not overlap by taking place at the same time.

Recommendations

For all degree programmes

- E 1. (ASIIN 4.3) It is recommended to extend the opening hours of the library.

G Comment of the Technical Committee 08 – Agriculture, Forestry, Food Science and Landscape Architecture (13.06.2022)

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 08 – Agriculture, Forestry, Food Science and Landscape Architecture recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ma Animal Science	Wählen Sie ein Element aus.	30.09.2027	–	/
PhD Animal Science	Wählen Sie ein Element aus.	30.09.2027	–	/

Requirements

For all degree programmes

- A 1. (ASIIN 2.1) It must be ensured that mandatory modules do not overlap by taking place at the same time.

Recommendations

For all degree programmes

- E 1. (ASIIN 4.3) It is recommended to extend the opening hours of the library.

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 procedures and follows the assessment of the auditors and the technical committee.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ma Animal Science	With requirements for one year	30.09.2027	–	/
PhD Animal Science	With requirements for one year	30.09.2027	–	/

Requirements

For all degree programmes

- A 1. (ASIIN 2.1) It must be ensured that mandatory modules do not overlap by taking place at the same time.

Recommendations

For all degree programmes

- E 1. (ASIIN 4.3) It is recommended to extend the opening hours of the library.

I Fulfilment of Requirements (24.06.2023)

Analysis of the peers and the Technical Committee (09.06.2023)

For all degree programmes

- A 1. (ASIIN 2.1) It must be ensured that mandatory modules do not overlap by taking place at the same time.

Initial Treatment	
Peers	fulfilled Justification: The university adapted the curriculum to ensure that mandatory modules no longer overlap by taking place at the same time.
TC 08	fulfilled Justification: The technical committee follows the assessment of the expert team.

Decision of the Accreditation Commission (24.06.2023)

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ma Animal Science	All requirements fulfilled	/	30.09.2027
Phd Animal Science	All requirements fulfilled	/	30.09.2027

Appendix: Programme Learning Outcomes and Curricula

According to the Academic Guidebook the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Master degree programme Animal Science:

Programme Educational Objectives (PEO):

1. Graduates who can recognize, analyze, execute an approach and scientific reasoning, and seek problem resolution in animal science.
2. Graduates who have the capability and expertise for occupying the positions at appropriate levels in animal science institutions.
3. Graduates who can develop animal science and continue to study at a higher level of education.
4. Graduates who can design and conduct research to develop science and technology and solve problems in livestock.
5. Have sustainable cooperation with alumni, industry, the business community, society, overseas colleges, and other institutions.
6. Have the improving quality of human resources supported by educational facilities and infrastructure development.

Expected Learning Outcomes (ELO)

A. Attitudes

1. The graduates are able to behave well, correctly, and culturally as the result of internalization and actualization of values and norms, which is reflected in a spiritual and social life through learning process, experience, research, and/or community development in the animal husbandry.
2. Piety to God and be able to show religious attitude and maintain the humanity values in carrying the task, which is based on religion, moral, and ethics.
3. Be proud and love the homeland, show nationalism, and contribute to the improvement of the life quality in the community, nation and country, and the advancement of civilization according to Pancasila.
4. Showing the social sensitivity and attention to the community and environment by respecting the culture diversity, view, religions, beliefs, and other people's opinion, and also obey the rules.

5. Be accountable in carrying the professional practice that includes ability to accept accountability towards decision and professional action. It shall be according to the scope of the practice under their responsibility and laws.

B. Mastery in Science

1. Master the theory of the current science in the animal husbandry and its application.
2. Able to master the current animal science and its application theory.
3. Able to master the livestock production science, animal nutrition and feed science, animal products technology, and the livestock social economics in relation to food security and environment.
4. Able to master the design, management, and development of livestock research.

C. Special Skills

1. The graduates are able to develop science, technology, and arts in the animal husbandry through interdisciplinary/multidisciplinary innovative and tested research.
2. Able to make innovation in the animal husbandry based on the development of science, technology and arts.
3. Able to design interdisciplinary and multidisciplinary research in the animal husbandry.
4. Able to formulate and solve problems in the national development especially in terms of animal husbandry.
5. Able to solve problems and anticipate issues in the development of animal science and industry.

D. General Skills

1. The graduates are able to manage resources by utilizing the science, technology, and arts to solve problems in the animal husbandry with current science and also conduct research with accountability and full responsibility.
2. Able to develop logical, critical, systematic, and creative thought through scientific research, creation of design in the science and technology, which pays attention and applies humanity values according to their expertise. The graduates are able to arrange the scientific concept and the study result based on the principles, procedures, and scientific ethics.
3. Able to identify the science that becomes their research object and position it to a research map by using information technology in the context of science development and expertise implementation developed through interdisciplinary or multidisciplinary approaches.

4. Able to make a decision in the context of solving problems in the development of science and technology, which pays attention and applies humanity values based on analysis study or experiment towards information and data.
5. Able to communicate the result of reasoning and scientific research in form of thesis and scientific writing responsibly based on academic ethics in the accredited national journals.
6. Able to maintain the academic integrity generally and avoid the plagiarism practice.
7. Able to communicate spoken and written English effectively by using the information technology for the development of animal science and its implementation.

The following **curriculum** is presented:

consist of specialization s compulsory and specialization s elective courses.

Study Program's Compulsory Courses

Semester	Code	Course	Credit
Odd/Even	PTU 6001	Philosophy of Science	2/0
Odd/Even	PTU 6002	Experiment Design	2/0
Odd/Even	PTU 6003	Animal Production System	2/0
Odd/Even	PTU 6004	Advanced Animal Products Processing	2/0
Odd/Even	PTU 6005	Tropical Animal Feed	2/0
Odd/Even	PTU 6006	Livestock Agribusiness Planning Strategy	2/0
Odd/Even	PTU 6007	Development of Animal Genetic Resources	2/0
Odd/Even	PTU 7099	Thesis	12/0

Specialization's Courses

1. Animal Nutrition Specialization

Semester	Code	Course	Compulsory/ Elective	Credit
Odd	PTN 6101	Comparative Nutrition	Specialization's Compulsory	1/1
Odd	PTN 6102	Forage Manipulation and Feed Technology	Specialization's Compulsory	2/0
Even	PTN 6103	Research Techniques in Animal Nutrition and Feed Science	Specialization's Compulsory	2/0
Odd	PTN 6104	Nutritional Biochemistry and Physiology	Specialization's Elective	2/0
Odd	PTN 6105	Biodynamic in Grazed Animal Feed	Specialization's Elective	2/0
Odd	PTN 6106	Feed Quality Control	Specialization's Elective	1/1
Odd	PTN 6107	Animal Microbiology	Specialization's Elective	1/1
Odd	PTN 6108	Ruminant Nutrition	Specialization's Elective	1/1
Even	PTN 6109	Instrumentation in Animal Nutrition and Feed Science	Specialization's Elective	2/0
Even	PTN 6110	Forage and Pasture Production	Specialization's Elective	1/1

Even	PTN 6111	Feed Fabrication	Specialization's Elective	1/1
Even	PTN 6112	Poultry and Non Ruminant Nutrition	Specialization's Elective	2/0
Even	PTN 6113	Fermentation and Enzyme Technology	Specialization's Elective	1/1

2. Animal Production System Specialization

Semester	Code	Course	Compulsory/ Elective	Credit
Odd	PTD 6201	Dairy Production System	Specialization's Compulsory	2/0
Odd	PTD 6202	Meat, Draught, and Companion Animal Production System	Specialization's Compulsory	2/0
Even	PTD 6203	Poultry Production System	Specialization's Compulsory	2/0
Odd	PTD 6204	Lactation Biology of Tropical Dairy Animals	Specialization's Elective	3/0
Odd	PTD 6205	Industrial Techniques of Meat, Sport, and Companion Animals	Specialization's Elective	3/0
Odd	PTD 6206	Tropical Poultry Industry	Specialization's Elective	3/0
Even	PTD 6207	Dairy and Milk Industry	Specialization's Elective	2/1
Even	PTD 6208	Production Biology of Meat, Draught, and Companion Animals	Specialization's Elective	3/0
Even	PTD 6209	Research Techniques in Animal Production	Specialization's Elective	2/0
Even	PTD 6210	Poultry Behavior and Welfare	Specialization's Elective	3/0

3. Policy and Livestock Business Specialization

Semester	Code	Course	Compulsory/ Elective	Credit
Odd	PTE 6301	Statistic in Social and Business	Specialization's Compulsory	2/0
Odd	PTE 6302	Experimental Design in Livestock Socio and Business	Specialization's Compulsory	2/0
Even	PTE 6307	Livestock Agribusiness Policy	Specialization's Compulsory	2/0
Odd	PTE 6304	Managerial Economics	Specialization's Elective	2/0
Odd	PTE 6305	Extension Science and Education	Specialization's Elective	2/0
Odd	PTE 6306	Project Management	Specialization's Elective	3/0

Even	PTE 6303	Marketing Management	Specialization's Elective	2/1
Even	PTE 6308	Livestock Business Communication	Specialization's Elective	2/0
Even	PTE 6309	Human Resource Management	Specialization's Elective	2/0
Even	PTE 6310	Rural Economic Development	Specialization's Elective	2/0

4. Animal Products Technology Specialization

Semester	Code	Course	Compulsory/ Elective	Credit
Odd	PTH 6401	Animal Products Bioprocess	Specialization's Compulsory	3/0
Even	PTH 6402	Animal Products Quality Control	Specialization's Compulsory	3/0
Odd	PTH 6403	Muscle Biology	Specialization's Elective	2/0
Odd	PTH 6404	Leather Science and Industry	Specialization's Elective	2/0
Odd	PTH 6405	Advanced Milk Science and Technology	Specialization's Elective	2/0
Odd	PTH 6406	Packaging and Display of Animal Products	Specialization's Elective	2/0
Odd	PTH 6407	Functional Food of Animal Products	Specialization's Elective	2/0
Even	PTH 6408	Advanced Egg Science and Technology	Specialization's Elective	2/0
Even	PTH 6409	Meat Processing and Industry	Specialization's Elective	2/0
Even	PTH 6410	Research Techniques In Animal Products Technology	Specialization's Elective	2/0
Even	PTH 6411	Animal Waste Technology	Specialization's Elective	2/0

5. Tropical Animal Reproduction and Breeding Specialization

Semester	Code	Course	Compulsory/ Elective	Credit
Odd	PTR 6501	Improvement of Animal Reproduction Efficiency	Specialization's Compulsory	2/1
Even	PTR 6502	Improvement of Animal Genetic Quality	Specialization's Compulsory	3/0
Odd	PTR 6503	Environmental Physiology of Tropical Animals	Specialization's Elective	2/0
Odd	PTR 6504	Advanced Animal Breeding	Specialization's Elective	3/0

Odd	PTR 6505	Advanced Animal Evaluation and Judgment	Specialization's Elective	3/0
Even	PTR 6506	Advanced Animal Endocrinology	Specialization's Elective	2/0
Even	PTR 6507	Animal Reproduction and Physiology	Specialization's Elective	2/1
Even	PTR 6508	Cytogenetics	Specialization's Elective	2/0

According to the Academic Guidebook the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the PhD Animal Science:

Programme Educational Objectives (PEO):

1. Graduates who have the spirit of Pancasila, scientific integrity, are responsible for the development of science, technology, and art as well as the issues in the society.
2. Graduates who master the approach of theory, concept, and paradigm, have the capability and technical competency required for adapting or creating new methods for studying rules obediently.
3. Graduates who are able to develop new knowledge, technology, and art in animal science by conducting research and producing creative, original, specific and tested outcomes.
4. Graduates who can solve scientific issues, technology and art in animal science through the interdisciplinary, multidisciplinary or transdisciplinary approach.
5. Graduates who are able to manage, lead and develop research that can be useful for science and humanity and acknowledged in national and international level.
6. Graduates who are able to adapt and develop the latest science and technology in the world of work.

Expected Learning Outcomes

A. Attitudes and behaviors

8. Be long life learning with basic character as religious attitudes, humanity, nationalism, tolerance, moderate, respecting in cultural diversity based on National Five Principle of Pancasila
9. Be accountable for professional practices that consist of accepting sue for any professional decision and action according to their area's scope and according to the law/regulations.

B. Mastery in Science

1. Able to master scientific philosophy and develop new science and technology in animal science is useful, competitive, and environmentally sound research with a multidisciplinary approach.
2. Able to develop new science and technology concepts to solve problems in the field of animal husbandry through research with multidisciplinary and transdisciplinary approaches

C. Special skills

1. Able to develop science and technology through creative, original, and novelty research.
2. Able to independently design and carry out inter-, multi-, and transdisciplinary research for the development of animal husbandry science and technology.
3. Able to manage, lead and develop research in the field of animal husbandry, as well as communicate the results and get recognition at the national and international levels for the benefit of humankind.

D. General skills

1. Able to find or develop new theories/concepts/ideas and contribute to the development and practice of science and/or technology by producing scientific research based on scientific methodology, logical, critical, systematic, and creative thinking through interdisciplinary, multidisciplinary, or transdisciplinary approaches, pay attention to and apply human values in their field of expertise.
2. Able to develop a research roadmap to compile scientific, technological, or artistic arguments and solutions based on a critical view of facts, concepts, principles, or theories with an interdisciplinary, multidisciplinary, or transdisciplinary approach, based on a study of the main objectives of the research and their constellation on broader targets
3. Able to communicate the result of reasoning and scientific research in the form of dissertation and scientific writing responsibly based on academic ethics.

The following **curriculum** is presented

A. Study Program's Compulsory Courses

No	Code	Course	Credits
1.	PTO 891	Research Philosophy and Ethics	2/0
2.	PTO 892	Latest Animal Science Progress	2/0
3.	PTO 893	Special Course I	3/0
4.	PTO 894	Special Course II	3/0
5.	PTO 899	Dissertation	34
		Dissertation proposal and seminar (4 credits)	
		Comprehensive examination (3 credits)	
		Research and dissertation writing (16 credits)	
		Research result seminar (2 credits)	
		Dissertation defence(4 credits)	
		Publication (5 credits)	

B. Specialization's Compulsory Courses

No	Code	Course	Credits
1	PTN 811	Feed Biotechnology	2/0
2.	PTD 821	Animal Production System Progress	2/0
3.	PTE 831	Agribusiness Institution Policy and Innovation	2/0
4.	PTH 841	Advanced Animal Food Science	2/0
5.	PTR 851	Molecular Approach to Animal Breeding and Reproduction	2/0

C. Specialization's Elective Courses

No	Code	Course	Credits
1	PTN 812	Functional Food Development	2/0
2.	PTD 822	Research on Current Animal Production	2/0
3.	PTE 832	Development Philosophy and Food Sovereignty	2/0
4.	PTH 842	Science and Technology of Protein of Animal Products	2/0
5.	PTR 852	Biometric Genetics and Physiology	2/0

Notes:

All courses are offered every semester