

Amtliches Mitteilungsblatt



Lebenswissenschaftliche Fakultät

Fachspezifische Studien- und Prüfungsordnung für den internationalen Masterstudiengang Horticultural and Plant Sciences

Überfachlicher Wahlpflichtbereich für andere
Masterstudiengänge

Herausgeber: Die Präsidentin der Humboldt-Universität zu Berlin
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tungsmanagement

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Fachspezifische Studienordnung für den internationalen Masterstudiengang „Horticultural and Plant Sciences“

Gemäß § 17 Abs. 1 Ziffer 3 der Verfassung der Humboldt-Universität zu Berlin in der Fassung vom 24. Oktober 2013 (Ämtliches Mitteilungsblatt der Humboldt-Universität zu Berlin Nr. 47/2013) hat der Fakultätsrat der Lebenswissenschaftlichen Fakultät am 19. November 2025 die folgende Studienordnung erlassen*:

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§ 1 Anwendungsbereich

(1) Diese Studienordnung enthält die fachspezifischen Regelungen für den internationalen Masterstudiengang Horticultural and Plant Sciences. Sie gilt in Verbindung mit der fachspezifischen Prüfungsordnung für den internationalen Masterstudiengang Horticultural and Plant Sciences und der Fächerübergreifenden Satzung zur Regelung von Zulassung, Studium und Prüfung (ZSP-HU) in der jeweils geltenden Fassung.

(2) Der Studiengang wird an der Humboldt-Universität zu Berlin angeboten und umfasst Lehrangebote der Humboldt-Universität sowie Angebote der am Konsortium dieses Studiengangs beteiligten Partner Universität für Bodenkultur Wien (Österreich), Università di Bologna (Italien), Freie Universität Bozen (Italien) sowie Hungarian University of Agriculture and Life Sciences – MATE (Ungarn). Die Studierenden, die im Geltungsbereich dieser Studienordnung an der Humboldt-Universität zu Berlin studieren, sind an der Humboldt-Universität zu Berlin immatrikuliert und schließen ihr Studium an der Humboldt-Universität zu Berlin ab. Diese Studienordnung regelt das Studienangebot an der Humboldt-Universität zu Berlin und gewährleistet die Kompatibilität mit dem Studium an den einzelnen Partneereinrichtungen und die Sicherstellung des allgemeinen übergeordneten Studienziels dieses Studiengangs.

§ 2 Beginn des Studiums

Das Studium kann zum Wintersemester aufgenommen werden.

§ 3 Ziele des Studiums

(1) Das Masterstudium ist der zweite berufsqualifizierende Abschluss für das Gebiet Horticultural and Plant Sciences. Sein Ziel ist es, auf berufliche Tätigkeit vorzubereiten bzw. die Basis für eine Promotion zu legen.

(2) Die Module werden in englischer Sprache angeboten. Im überfachlichen Wahlpflichtbereich können Module in deutscher Sprache gewählt werden. Die Studierenden nutzen die Möglichkeiten zum Erwerb und der Anwendung fremdsprachlicher Kenntnisse.

(3) Nach erfolgreichem Studienabschluss sind die Studierenden befähigt, einen gezielten Beitrag zur Lösung von Problemen auf Gebieten der Garten- und Pflanzenbauwissenschaften zu leisten. Sie sind in der Lage, naturwissenschaftliche und gesellschaftliche Zusammenhänge zu analysieren und konkrete Maßnahmen zu entwickeln und umzusetzen, die auf Problemlösungen im Garten- und Pflanzenbau abzielen.

(4) Mit dem Masterstudium haben die Studierenden die fachlichen, theoretischen, methodischen und sozialen Kompetenzen erworben, die für wissenschaftliches Arbeiten unabdingbar sind. Sie haben Kreativität, Innovationsbereitschaft und Verantwortungsbewusstsein unter Beweis gestellt.

(5) Die Studierenden haben die für ein breites und sich ständig wandelndes Berufsfeld erforderlichen überfachlichen Schlüsselqualifikationen erworben. Sie können das erworbene Wissen kritisch einordnen, bewerten und vermitteln. Zu lebenslangem Lernen und zur Teamarbeit auf nationaler und internationaler Ebene sind sie befähigt.

(6) Der erfolgreiche Abschluss des Studiums qualifiziert für Forschung und Lehre im universitären Umfeld und die Mitwirkung an nationalen und internationalen Forschungs- und Entwicklungsprojekten sowie für Tätigkeiten in Berufsfeldern wie Garten- und Pflanzenbau, öffentliche Verwaltung und Wissenschaftsjournalismus, pharmazeutische Industrie, Lebensmittelhandel, Forschung und Entwicklung in Unternehmen und Dienstleistungen.

* Die Universitätsleitung hat die Studienordnung am 7. Mai 2026 bestätigt.

§ 4 Module des Studiums

(1) Der Masterstudiengang Horticultural and Plant Sciences an der Humboldt-Universität zu Berlin beinhaltet Module im Umfang von insgesamt 120 LP. Die Module des Pflichtbereiches und des fachlichen Wahlpflichtbereiches sind folgenden inhaltlichen Schwerpunkten zugeordnet:

- A: Breeding and Biotechnology
- B: Horticulture Economy / Horticultural Systems – Management and Research
- C: Production Process Design and Quality Management
- D: Plant Physiology and Chemistry
- E: Plant Pathology and Protection

(a) Pflichtbereich (60 LP)

HoPla CM 1 (C): Methods in Ecophysiology and Crop Quality Assessment (10 LP)

HoPla CM 2 (E): Advanced Plant Pathology (10 LP)

EGAF CM 1 (B): Transdisciplinary Research on Agriculture, Horticulture, Food and Natural Resources (10 LP)

HoPla CM 3: Final Module / Master Thesis (30 LP)

(b) Fachlicher Wahlpflichtbereich (50 LP)

Die Studierenden wählen aus dem nachfolgenden Modulangebot Module in einem Umfang von 50 LP:

HoPla FM 1 (D): Seminar Horticultural Science (10 LP)

HoPla FM 2 (C): Monitoring and Evaluation of Agrarian Processes (10 LP)

HoPla FM 3 (D): Plant Nutrition in Horticultural and Agricultural Systems (10 LP)

HoPla FM 4 (E): Current Topics in Phytomedicine (10 LP)

HoPla FM 5 (E): Plant Pathogens in the Environment and Control Management (10 LP)

HoPla FM 6 (C): Combined Farming Systems (10 LP)

HoPla FM 7 (B): Modelling and Phenotyping in Crop Science (10 LP)

HoPla FM 8 (A): Horticulture of the Future (10 LP)

HoPla FM 9 (E): Soil Systems, their Regeneration and Improvement (10 LP)

HoPla FM 10 (E): Current Development in Horticultural and Agricultural Systems (10 LP)

HoPla FM 11 (E): Specific Phytomedicine (10 LP)

HoPla FM 12 (C): Plant Laboratory Sciences (10 LP)

HoPla FM 13 (D): Plant-Microbe Interactions (10 LP)

HoPla FM 14 (B): Field and Laboratory Methods in Soil Research (10 LP)

INRM FM 1 (B): Quantitative and Qualitative Methods (10 LP)

EGAF FM 1 (B): Business and Management (10 LP)

(c) Überfachlicher Wahlpflichtbereich (10 LP)

Im überfachlichen Wahlpflichtbereich sind Mastermodule aus den hierfür vorgesehenen Modulkatalogen anderer Fächer oder zentraler Einrichtungen im Umfang von insgesamt 10 LP nach freier Wahl zu absolvieren.

§ 5 Module für den überfachlichen Wahlpflichtbereich anderer Masterstudiengänge

Für den überfachlichen Wahlpflichtbereich anderer Masterstudiengänge werden folgende Module angeboten:

HoPla FM 4: Current Topics in Phytomedicine (10 LP)

§ 6 In-Kraft-Treten

(1) Diese Studienordnung tritt mit Wirkung vom 1. Oktober 2026 in Kraft.

(2) Diese Studienordnung gilt für alle Studentinnen und Studenten, die ihr Studium nach dem In-Kraft-Treten dieser Studienordnung aufnehmen oder nach einem Hochschul-, Studiengangs- oder Studienfachwechsel oder einer Wiederimmatrikulation fortsetzen.

(3) Für Studentinnen und Studenten, die ihr Studium vor dem In-Kraft-Treten dieser Studienordnung aufgenommen oder nach einem Hochschul-, Studiengangs- oder Studienfachwechsel oder einer Wiederimmatrikulation fortgesetzt haben, gilt die Studienordnung für den internationalen Masterstudiengang Horticultural Sciences vom 15. September 2014 (Amtliches Mitteilungsblatt der Humboldt-Universität zu Berlin Nr. 88/2014), zuletzt geändert am 9. April 2024 (Amtliches Mitteilungsblatt der Humboldt-Universität zu Berlin Nr. 18/2024) übergangsweise fort. Alternativ können sie diese Studienordnung einschließlich der zugehörigen Prüfungsordnung wählen. Die Wahl muss schriftlich gegenüber dem Prüfungsbüro erklärt werden und ist unwiderruflich. Mit Ablauf des 30. September 2028 tritt die Studienordnung vom 15. September 2014 (Amtliches Mitteilungsblatt der Humboldt-Universität zu Berlin Nr. 88/2014), zuletzt geändert am 9. April 2024 (Amtliches Mitteilungsblatt der Humboldt-Universität zu Berlin Nr. 18/2024) außer Kraft. Das Studium wird dann auch von den in Satz 1 benannten Studentinnen und Studenten nach dieser Studienordnung fortgeführt. Bisherige Leistungen werden entsprechend § 110 ZSP-HU berücksichtigt.

Anlage 1: Modulbeschreibungen

E = Exercise, L = Lecture, PR = Practical, SE = Seminar

The following modules of the curriculum are offered by other study programmes and are open to students of the International Master's Programme Horticultural and Plant Sciences. The module descriptions can be found in the study regulations of the respective degree programmes.

Master's programme "Economics and Governance of Agriculture and Food"

- EGAF CM 1: Transdisciplinary Research on Agriculture, Horticulture, Food and Natural Resources (10 LP)
- EGAF FM 1: Business and Management (10 LP)

Master's programme "Integrated Natural Resource Management"

- INRM FM 1 (B): Quantitative and Qualitative Methods (10 LP)

The **language of teaching** in all modules is English. Special working tasks and examinations are completed in English.

The **examinations** mentioned in the following module descriptions can be conducted as face-to-face examinations, digital face-to-face examinations according to § 96b Abs. 2 ZSP-HU or digital distance examinations according to § 96b Abs. 3 ZSP-HU. The examiners decide on the form of execution.

If **alternative forms of examination** are specified in the module descriptions, the examiners determine the form of examination and inform the students of this at the beginning of the lecture period.

Guidelines for seminar attendance in the compulsory elective modules HoPIa FM 8 (A): Horticulture of the Future and HoPIa FM 10 (E): Current Development in Horticultural and Agricultural Systems:

If students attend more than two seminars within the above mentioned compulsory elective modules, these seminars are included in the compulsory elective module in chronological order (semester of attendance).

If students take more than two seminars within a compulsory elective module within the same semester, the Examinations Office must be informed which seminars are to be included in the compulsory elective module. This notification must be made in writing to the Examinations Office and is irrevocable.

It is not permitted to transfer surplus seminars to the interdisciplinary compulsory elective area (üWP).

HoPla CM 1: Methods in Ecophysiology and Crop Quality Assessment		Credit Points: 10 Total workload: 300 hours	
<p>Learning objectives: Students</p> <ul style="list-style-type: none"> • have a clear understanding and know-how of the theory of methods for the quality determination and evaluation of plant-based food crops, • have a fundamental know-how of destructive and non-destructive methods for the quality determination and evaluation of perishable crops, • have the capability to apply common biochemical, physical and instrumental methods for the quality determination of plant-based food crops including food nutritional issues. 			
Preconditions: none			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, contents
L	<u>2 SWS</u> <u>60 hours</u> 25 hours attendance time, 35 hours preparation of the course	2 credits, participation	Theoretical basics of <ul style="list-style-type: none"> • methods of the quality evaluation and determination of food crops • destructive and non-destructive/ invasive methods • methods for quality control including food safety issues
PR	<u>5 SWS</u> <u>180 hours</u> 60 hours attendance time, 120 hours of preparation of the course and the special working task	6 credits, participation, special working tasks of group C (see annex 2)	Lab-course for practical training of destructive and invasive methods for the quality determination of food crops
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input checked="" type="checkbox"/> winter semester <input type="checkbox"/> summer semester		
Applicability of module	M.Sc. Horticultural and Plant Sciences		

HoPla CM 2: Advanced Plant Pathology		Credit Points: 10 Total workload: 300 hours	
<p>Learning objectives: The students</p> <ul style="list-style-type: none"> • have a clear understanding of the procedure to diagnose pathogens and how to distinguish them, • are able to apply bioassays, serological and molecular methods for the detection of pathogens, • know how to assess the pathogenicity of pathogens, • reflect the relevance of pathogens in crops as well as the quality rating of the applied methods, • are capable to evaluate the results of diverse methods applied in diagnosis, • are capable to read and summarize scientific articles on plant pathogens/pests published in peer-reviewed journals and implicate the findings/highlights. 			
preconditions: none			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, contents
L	<u>3 SWS</u> <u>90 hours</u> 35 hours presence in class, 55 hours preparation and learning	3 credits, participation	Relevance of particular pathogens, pathogenicity and epidemiology of pathogens, diagnostic methods (tools and procedures, limitations, suitability), plant health and plant protection strategies
E	<u>1 SWS</u> <u>30 hours</u> 15 hours presence in class, 15 hours preparation and learning	1 credit, participation	Following the lecture, the exercise is designed to expertise skills in experimental techniques applied in laboratory and greenhouse including design and analysis
SE	<u>3 SWS</u> <u>120 hours</u> 35 hours presence in class 85 hours preparation and learning of the course and the special working task	4 credits, special working tasks of group B (see annex 2)	Seminar discussions based on literature to deepen the knowledge on distribution of pathogens/pests (e.g. new, invasive, introduced) and their relevance for production, trade, processing, food security and safety
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input checked="" type="checkbox"/> winter semester <input type="checkbox"/> summer semester		
Applicability of module	M.Sc. Horticultural and Plant Sciences		

HoPla CM 3: Final Module / Master Thesis		Credit Points: 30 Total Workload: 900 hours	
<p>Learning objectives: Students are able to plan and conduct a scientific project from a horticultural and plant sciences discipline at current research standards independently. They are able to integrate existing and new knowledge in complex contexts, even on the basis of limited information; design research questions; choose concrete ways of operationalising research and justify them; select research methods and justify their choice; explain research results and interpret them critically.</p>			
Preconditions: HoPla CM 1, HoPla CM 2 and EGAF CM 1 must be successfully completed.			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, contents
Master thesis	<u>900 hours</u> Master Thesis (approx. 90,000 to 180,000 characters including spaces / approx. 50 to 100 pages), weighting 50 %, and oral defense in a colloquium (60 minutes: 20 minutes presentation, 40 minutes discussion), weighting 50 %; Editing time: 24 weeks	30 credits, pass	In the case of a study period at a partner university within the consortium in accordance with § 1 (2) study regulations, the Master thesis must be written in cooperation with the partner university. The partner university provides the second examiner.
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input checked="" type="checkbox"/> winter semester <input checked="" type="checkbox"/> summer semester		

HoPla FM 1: Seminar Horticultural Science		Credit Points: 10 Total workload: 300 hours	
<p>Learning objectives: Students have gain practical experience in a sub-area of horticultural sciences, have knowledge about accumulation and selection of information, know about analysis, processing, preparation and discussion of data from experiments and have developed abilities for structuring and execution of manuscripts for publication.</p>			
Preconditions: none			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, contents
SE 1	<u>2 SWS</u> <u>60 hours</u> 25 hours attendance time, 35 hours of preparation of the course and special working task	2 credits, participation, special working tasks of group A (see annex 2)	<ul style="list-style-type: none"> • Introduction to different horticultural topics • Preparing of experiments to transfer results into good horticultural practice • The right handling with laboratory equipment • How to interpret data from data collection • Structuring and writing scientific articles • Analysis of English scientific articles • Presentation of a scientific topic
SE 2	<u>4 SWS</u> <u>180 hours</u> 45 hours attendance time, 135 hours preparation of the course and the special working task	6 credits, participation, special working tasks of group C (see annex 2)	<ul style="list-style-type: none"> • Study of original literature on questions concerning current topics in horticulture • Project seminar for the application and problem-oriented consolidation of scientific knowledge and methods, e.g., in the field of phythomedicine, urban plant ecophysiology, biosystems engineering, plant nutrition • Conduct an experiment / or collect metadata • Accumulation and selection of horticultural information • Accumulation and selection of experimental data • Discussion of results of scientific findings
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input checked="" type="checkbox"/> winter semester <input type="checkbox"/> summer semester		
Applicability of module	M.Sc. Horticultural and Plant Sciences		

HoPla FM 2: Monitoring and Evaluation of Agrarian Processes		Credit Points: 10 Total workload: 300 hours	
<p>Learning objectives: The students have in-depth knowledge and practical experience in the evaluation of technical systems in horticulture. They know the principles of energy systems, hydraulic systems, and greenhouse technology. They are able to evaluate quality parameters in farms and are aware of the complex interactions between people and technology in intensive horticultural production. They can independently analyse sources of information and to critically evaluate technical solutions, including technology assessment.</p>			
Preconditions: none			
Teaching format	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, Content
SE 1	<u>3 SWS</u> <u>90 hours</u> 35 hours attendance time, 55 hours of preparation of the course and special working task	3 credits, participation, special working tasks of group A (see annex 2)	Imparting knowledge and acquiring skills on the following topics: Basic Knowledge of sensors and measurement technology, technical thermodynamics of heat pumps, hydrostatics of piping networks, light optics, ergonomics and hygiene in work processes, heat energy saving. Impart knowledge based on seminar discussions to independently address issues using literature on the topic of Monitoring and Evaluation of technical Systems.
SE 2	<u>3 SWS</u> <u>150 hours</u> 35 hours attendance time, 115 hours of preparation of the course and special working task	5 credits, participation, special working tasks of group C (see annex 2)	Practical seminar with guided implementation of a project accompanied in practical fields on the subject of agrarian processes, e.g., <ul style="list-style-type: none"> • testing and calibrating measurement sensors • measuring and evaluating efficiency on a heat pump, selecting, and evaluating centrifugal pumps, and pressure drop on fittings and pipes in piping systems. • evaluation of lighting systems in greenhouses, • evaluation of drip irrigation systems, • phytomonitoring, • evaluation of productivity in large-scale greenhouse farms, • evaluation of energy measures in greenhouse operations.
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input type="checkbox"/> winter semester <input checked="" type="checkbox"/> summer semester		
Applicability of module	M.Sc. Horticultural and Plant Sciences		

HoPla FM 3: Plant Nutrition in Horticultural and Agricultural Systems			Credit Points: 10 Total workload: 300 hours
<p>Learning objectives: The students get a deeper understanding of sustainable plant nutrition in different horticultural and agricultural systems (for example, controlled environments with aquaponics or hydroponics, substrate-based horticulture, soil- and field-based systems). They are able to design new horticultural and agricultural systems with low nutrient and energy requirements, contributing to climate change mitigation by a positive carbon balance, with a focus on re-cycling of nutrients. They develop a clear understanding of the effect of mineral nutrients and other environmental factors on plant composition and quality, in order to achieve healthy and nutritious plant food from horticulture.</p>			
Preconditions: none			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, contents
SE 1	<u>3 SWS</u> <u>120 hours</u> 35 hours presence in class, 85 hours preparation and learning, and special working task	4 credits, participation, special working task of Group B (see annex 2)	Provide knowledge, based on seminar discussions, for independent research using literature on plant nutrition in horticultural and agricultural systems, including: <ul style="list-style-type: none"> • Environmental benefits and costs of fertilization in horticultural and agricultural systems • Interactions of fertilization with carbon cycles • Low-energy horticultural and agricultural production and intelligent nutrient supply systems • Plant nutrition in biological horticultural and agricultural production systems • Functions of mineral elements in the primary and secondary metabolism of plants • Effects of plant nutrition and other environmental factors on plant composition, taste, and quality
SE 2	<u>3 SWS</u> <u>120 hours</u> 35 hours presence in class, 85 hours of preparation of the course and the special working task	4 credits, participation, special working task of Group B (see annex 2)	Project seminar for the application and problem-oriented deepening of scientific knowledge on concrete examples of climate-friendly, cycling nutrient supply systems in horticulture and agriculture. Small groups will design and implement a discussion paper on the use of nutrients in climate-smart horticulture and agronomy for healthy plant foods. Students are given the opportunity to contact producers with different nutrient supply systems.
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input checked="" type="checkbox"/> winter semester <input type="checkbox"/> summer semester		

Applicability of module	M.Sc. Horticultural and Plant Sciences
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HoPla FM 4: Current Topics in Phytomedicine		Credit Points: 10 Total workload: 300 hours	
<p>Learning objectives: Building on the acquired scientific methodological competences, the students are able to independently process, evaluate and present questions on pathogens and pests. They have competences in:</p> <ul style="list-style-type: none"> • the application and explanation of the term "pathogenicity" and its significance for harmful organisms and plant protection measures • the assessment of the harmful effects of pathogens and pests on yield and quality of crops • the explanation of innovative diagnostic tools and plant protection strategies as well as the assessment of the suitability of these methods/procedures for selected scenarios • the evaluation of experimental results, especially those for the diagnosis of plant diseases and the identification of pests • the evaluation of plant protection measures (prophylactic, biological and chemical methods) 			
Preconditions: none			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, contents
SE 1	<u>3 SWS</u> <u>120 hours</u> 35 hours presence in class, 85 hours preparation and learning, and special working task	4 credits, participation and special working task of group B (see annex 2)	Changing focal points, examples: <ul style="list-style-type: none"> • Isolation and identification of pathogens and pests from soil, plants and water • Case Studies of selected tropics • Plant protection management in selected crops • Integrated pest management with a focus on biological pest management • Plant protection management in public green spaces
SE 2	<u>3 SWS</u> <u>120 hours</u> 35 hours presence in class, 85 hours preparation and learning, and special working task	4 credits, participation and special working task of group B (see annex 2)	Project seminar for the application and problem-oriented consolidation of scientific knowledge and methods in the field of phytomedicine. Competence in experimental techniques applied in the laboratory and greenhouses will be imparted.
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input type="checkbox"/> winter semester <input checked="" type="checkbox"/> summer semester		
Applicability of module	M.Sc. Horticultural and Plant Sciences		

HoPla FM 5: Plant Pathogens in the Environment and Control Management		Credit Points: 10 Total workload: 300 hours	
<p>Learning objectives: The students</p> <ul style="list-style-type: none"> • have a clear understanding of the impact of pathogens/pests on crops and environment, • gain knowledge on symptomatology of diseased plants and the isolation/purification of specific pathogens and pests, • have a clear understanding of pathogenicity, biology, and virulence of selected pathogens/pests, • are able to select suitable methods for diagnosis and are capable to evaluate the test results • are aware of the impact of pathogen/pest on the environment, • are familiar with plant protection tools. 			
Preconditions: none			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, contents
SE 1	<u>2 SWS</u> <u>90 hours</u> 25 hours presence in class, 65 hours preparation and learning, and specific working task	3 credits, participation, and special working tasks of group A (see annex 2)	Provide knowledge, based on seminar discussions, for independent research using literature on plant pathogens in the environment, including: - relevance of selected pathogens/pests in agriculture and horticulture - isolation and purification of specific pathogens alternatively isolation and preparation of pests from water, soil and plants - pathogenicity and virulence
SE 2	<u>4 SWS</u> <u>150 hours</u> 45 hours presence in class, 105 hours preparation and learning, and special working task	5 credits, participation, and special working tasks of group C (see annex 2)	Project seminar for the application and problem-oriented consolidation of scientific knowledge and methods in the field of control management. In small groups, knowledge/skills will be imparted on the following topics: - plant protection measures - ecotoxicology in regard to chemical plant protection - case studies on individual pathogens, pests or methods - experimental series in laboratory, climate chamber, greenhouse and field sites - application of tools to isolate, identify and characterize plant pathogens/pests including evaluation of test results
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input checked="" type="checkbox"/> winter semester <input type="checkbox"/> summer semester		
Applicability of module	M.Sc. Horticultural and Plant Sciences		

HoPla FM 6: Combined Farming Systems			Credit Points: 10 Total workload: 300 hours
<p>Learning objectives: Students</p> <ul style="list-style-type: none"> • understand principle and potential of sustainable combined farming systems, • have concise definition of hydroponics, bioionics, aquaponics to get a comprehensive understanding of the variety of such systems, • have engineering expertise in aquaculture (RAS), hydroponics, and insect production and their coupling in modern AI-controlled closed greenhouses, • know the functions of nutrients produced in fish, plant and insect production and their exchange interactions, • know the material and energy flows between production units for fish, plants and insects, • are able to chemically characterize plant nutrient solutions and water from fish production. 			
Preconditions: none			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, contents
SE 1	<u>3 SWS</u> <u>90 hours</u> 35 hours attendance time, 55 hours of preparation of the course and special working task	3 credit, participation, special working tasks of group A (see annex 2)	Provide knowledge, based on seminar discussions, for independent research using literature on combined farming systems, including: <ul style="list-style-type: none"> • definition and principles of combined farming strategy, • basics in fish biology, • technical principles of recirculating aquaculture systems (RAS) under controlled environmental conditions, • management of water, energy and gas exchange.
SE 2	<u>3 SWS</u> <u>150 hours</u> 35 hours attendance time, 115 hours of preparation of the course and special working task	5 credits, participation, special working tasks of group C (see annex 2)	Project seminar for the application and problem-oriented consolidation of scientific knowledge and methods in the field of combined farming systems. In small groups, knowledge will be imparted on the following topics: <ul style="list-style-type: none"> • Coupling of hydroponics, aquaculture and insect production and process engineering, • sensors, algorithms and automation for process control, • technical principles of hydroponics and insect farming technology under controlled environmental conditions, • basics in plant and insect physiology • improving yield and quality, • the economic importance of combined farming systems • current developments.
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		

Start of module	<input checked="" type="checkbox"/> winter semester <input type="checkbox"/> summer semester
Applicability of module	M.Sc. Horticultural and Plant Sciences

HoPla FM 7: Modelling and Phenotyping in Crop Science		Credit Points: 10 Total workload: 300 hours	
<p>Learning objectives:</p> <p>The students develop</p> <ol style="list-style-type: none"> 1) advanced understanding of systems properties and systems modelling; 2) ability to transform biological hypothesis into a mathematical model; 3) ability to quantify the effects of single traits on whole plant performance; 4) ability to use simulation and data management software (e.g. R) for problem solving; 5) advanced understanding of the recent development in phenotyping and phenotyping platform and 6) ability to link phenotyping and modelling. 			
Preconditions: none			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics
SE 1	<u>3 SWS</u> <u>120 hours</u> 35 hours of attendance time, 85 hours of preparation of the course	4 credits, participation, special working tasks of group B (see annex 2)	Simple descriptive/mechanistic growth model, photosynthesis model, 3D-architecture model, types of phenotyping platform, using phenotyping data for modelling
SE 2	<u>3 SWS</u> <u>120 hours</u> 35 hours of attendance time, 85 hours of preparation of the course and the special working task	4 credits, participation, special working tasks of group B (see annex 2)	Using software R for data processing and modelling, working with dynamic simulations, simple mechanistic growth models, 3D-architecture model, physiological models, current topics in crop modelling and phenotyping, modelling project, phenotyping project
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input checked="" type="checkbox"/> winter semester <input type="checkbox"/> summer semester		
Applicability of module	M.Sc. Horticultural and Plant Sciences		

HoPla FM 8: Horticulture of the Future		Credit Points: 10 Total workload: 300 hours	
<p>Learning objectives: Students gain knowledge of the latest trends in horticultural research and gain experience in analysing the respective approaches and strategies in both disciplinary and interdisciplinary contexts (e.g., in the field of horticultural plant breeding, international floriculture, urban horticulture, plant health management, quality assurance of perishable crops or modern innovative working techniques such as molecular biological methods). They develop skills to explain, discuss and evaluate such concepts and strategies. This is a seminar-based module. Students chose two seminars from those offered in a semester.</p>			
Preconditions: none			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, contents
SE 1	<u>3 SWS</u> <u>120 hours</u> 35 hours attendance time, 85 hours of preparation of the course and special working task	4 credits, participation, special working tasks of group B (see annex 2)	Specialisation in different horticultural topics, e.g., urban horticulture, international Floriculture, Horticultural plant breeding <ul style="list-style-type: none"> • Study of original literature on the respective semester topic • Analysis of scientific articles and discussion of the studies in an interdisciplinary context • Assessment of current concepts and tools for the horticulture of the future • Presentation of a scientific topic
SE 2	<u>3 SWS</u> <u>120 hours</u> 35 hours attendance time, 85 hours of preparation of the course and special working task	4 credits, participation, special working tasks of group B (see annex 2)	Specialisation in different horticultural topics, e.g., techniques in molecular Biology, plant health management, food quality management <ul style="list-style-type: none"> • Study of original literature on the respective semester topic • Analysis of scientific articles and discussion of the studies in an interdisciplinary context • Assessment of current concepts and tools for the horticulture of the future • Presentation of a scientific topic
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input type="checkbox"/> winter semester <input checked="" type="checkbox"/> summer semester		
Applicability of module	M.Sc. Horticultural and Plant Sciences, M.Sc. Integrated Natural Resource Management		

HoPla FM 9: Soil Systems, their Regeneration and Improvement		Credit Points: 10 Total workload: 300 hours	
<p>Learning objectives: Students acquire in-depth knowledge of soil systems, the interactions between soil, plants and the environment and soil processes as well as the short and long-term characteristics of soil degradation and regeneration. They are able to specify functionally unfavourable soils and to work with soil information systems. Included is knowledge about, among other things, water, carbon and nutrient cycles and the mobility of pollutants in soils, soil functions and underlying soil processes, soil-plant interactions, the influence of climate change and different soil management, short- and long-term dynamics, resilience, degradation of soil systems, current issues in soil degradation and re-generation as well as about methods in terms of literature research and in-depth presentation of a case study.</p>			
Preconditions: none			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, contents
SE 1	<u>4 SWS</u> <u>150 hours</u> 45 hours attendance time, 105 hours of preparation of the course and special working task	5 credits, participation, special working tasks of group C (see annex 2)	Literature research and in-depth presentation of a case study, including the following topics: <ul style="list-style-type: none"> • Water, carbon and nutrient cycles and the mobility of pollutants in soils • Soil functions and underlying soil processes • Soil-plant interactions, influence of climate change and different soil management • Short- and long-term dynamics, resilience, degradation of soil systems • Current issues in soil degradation and re-generation • Methods: literature research and in-depth presentation of a case study
SE 2	<u>2 SWS</u> <u>90 hours</u> 25 hours attendance time, 65 hours preparation of the course and the special working tasks	3 credits, participation, special working tasks of group A (see annex 2)	Field studies and work with soil information systems, including the following topics: <ul style="list-style-type: none"> • Soil systems in the landscape • Spatial distribution of functionally different soils and its relation to matter and water transport and spatial variability of biomass production of an area
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input checked="" type="checkbox"/> winter semester <input type="checkbox"/> summer semester		
Applicability of module	M.Sc. Horticultural and Plant Sciences		

HoPla FM 10: Current Development in Horticultural and Agricultural Systems		Credit Points: 10 Total workload: 300 hours	
<p>Learning objectives: Based on examples e.g. from digitalization, field crops management, plant breeding, plant pathology or rehabilitation of devastated landscapes, students gain knowledge about latest trends in horticultural and agricultural research, gain experience in approaches for analysis of current challenges in horticulture and agriculture, have knowledge about current optimization strategies in horticultural and agricultural systems and have developed abilities for explaining, discussing and assessing such strategies. This is a seminaristic module. Students chose two seminars from those offered in a semester.</p>			
Preconditions: none			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, contents
SE 1	<u>3 SWS</u> <u>120 hours</u> 35 hours attendance time, 85 hours of preparation of the course and special working task	4 credits, participation, special working tasks of group B (see annex 2)	<ul style="list-style-type: none"> • Seminal and up-to date literature on the selected current developments in horticultural and agricultural systems (e.g. digitization for sustainable food systems, quarantine organisms and invasive species, rehabilitation of devastated landscapes). • Analysis and assessment of current concepts and tools in horticultural and agricultural systems.
SE 2	<u>3 SWS</u> <u>120 hours</u> 35 hours attendance time, 85 hours preparation of the course and the special working tasks	4 credits, participation, special working tasks of group B (see annex 2)	<ul style="list-style-type: none"> • Seminal and up-to date literature on the selected current developments in horticultural and agricultural systems (e.g. diagnosis and plant protection, field crops management, plant breeding,). • Analysis and assessment of current concepts and tools in horticultural and agricultural systems.
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input type="checkbox"/> winter semester <input checked="" type="checkbox"/> summer semester		
Applicability of module	M.Sc. Horticultural and Plant Sciences		

HoPla FM 11: Specific Phytomedicine		Credit Points: 10 Total workload: 300 hours	
<p>Learning objectives: The students are familiar with plant protection tools (prophylactic procedures, biological and chemical measures) and gain knowledge about latest trends in plant protection management. They acquire experience in analysis and disciplinary and interdisciplinary assessment of innovative strategies/approaches and have developed abilities for explaining, discussing and assessing such strategies. The students are able to identify research fields and discuss approaches to solutions based on seminal and up-to date literature.</p>			
preconditions: none			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, contents
SE 1	3 SWS <u>120 hours</u> 35 hours presence in class, 85 hours preparation and learning, and special working task	4 credits, participation, special working task of group B (see annex 2)	Application and problem-oriented consolidation of scientific knowledge and methods in the field of plant protection management. In small groups, knowledge will be imparted on different topics e.g. trends in crop protection technology, legal and normative requirements, protection of user and environment
SE 2	3 SWS <u>120 hours</u> 35 hours presence in class, 85 hours preparation and learning	4 credits, participation	Analysis and assessment of current concepts and tools in diagnosis of plant pathogens (visual, analytical, molecular biological) and use of sensors as well as in plant protection in horticulture focusing on, e.g., natural resources (water, soil, air, biodiversity), non-target organism, transmission of pathogens, yield and food quality.
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input type="checkbox"/> winter semester <input checked="" type="checkbox"/> summer semester		
Applicability of module	M.Sc. Horticultural and Plant Sciences		

HoPla FM 12: Plant Laboratory Sciences		Credit Points: 10 Total workload: 300 hours	
<p>Learning objectives: The students develop</p> <ol style="list-style-type: none"> 1) ability to design and conduct experiments with plants; 2) ability to collect phenotypic data, including morphological, physiological and chemical traits; 3) advanced understanding of sample preparation according to sample matrix (soil, plant, water), sampling regulations/guidelines/legal regulations; conservation during sample transport/storage; sieving, grinding, filtering, centrifuging; 4) ability to determine macro-, microelements, trace elements, nitrogen/carbon, water soluble carbohydrates/sugars and heavy metals in plants, soil and water sample; 5) ability to assure data quality, including calibration of instruments, blank value analyses, ring analyses, reference analyses, compliance with good professional practice; 6) ability to curate, process and analyse experimental data following FAIR principles. 			
Preconditions: none			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, contents
SE 1	<u>3 SWS</u> <u>120 hours</u> 35 hours of attendance time, 85 hours of preparation of the course and the special working task	4 credits, participation, special working tasks of group B (see annex 2)	Experimental design, conducting greenhouse experiments, collecting phenotypic data, encompassing morphological and physiological, traits, data management following the FAIR (Findable, Accessible, Interoperable, and Reusable) principles to ensure data integrity and reproducibility.
SE 2	<u>3 SWS</u> <u>120 hours</u> 35 hours of attendance time, 85 hours of preparation of the course and the special working task	4 credits, participation, special working tasks of group B (see annex 2)	Advanced preparation for soil, plant, and water samples, techniques and analytical methods in agricultural research, sampling regulations, conservation during transport/storage, lab techniques (e.g. sieving, grinding, filtering, and centrifuging), instrument calibration, blank value analyses, ring analyses, reference analyses, and adherence to good professional practices.
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input type="checkbox"/> winter semester <input checked="" type="checkbox"/> summer semester		
Applicability of module	M.Sc. Horticultural and Plant Sciences		

HoPla FM 13: Plant-Microbe Interactions		Credit Points: 10 Total workload: 300 hours	
Learning objectives: Students <ul style="list-style-type: none"> • are familiar with fundamentals of microbe-plant interaction • have insights into basic laboratory techniques in microbiome analysis • have knowledge of the structure and presentation style of scientific papers • are able to analyse a scientific paper in the field of plant-microbe interactions or related topics in the context of plant production • know examples that illustrate the symbiotic interactions of microbes and plants • understand and are able to describe experimental approaches in the field of plant-microbe interactions 			
Preconditions: none			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, contents
SE 1	<u>3 SWS</u> <u>120 hours</u> 35 hours attendance time, 85 hours of preparation of the course and special working task	4 credits, participation, special working tasks of group B (see annex 2)	Plant Microbiota: <ul style="list-style-type: none"> • Structure & Plant Beneficial Functions • Gene markers for microbiome structure • Metagenomics for microbiota functions • Detection methods such as qPCR • Cereal crops and other annual crops
SE 2	<u>3 SWS</u> <u>120 hours</u> 35 hours attendance time, 85 hours of preparation of the course and special working task	4 credits, participation, special working tasks of group B (see annex 2)	<ul style="list-style-type: none"> • study of original literature on plant-microbe interactions in the rhizosphere, phyllosphere and stem tissue, with a special emphasis on woody plants • understanding of parasitism, mutualisms, symbioses, saprotrophy and myco-heterotrophy and different forms of "cooperation" in ecosystems • chemical communication and interactions of plants and microorganisms and modulation of plant growth and development via growth regulators and signalling molecules • the role of plant-microbe interactions in organic agriculture • presentation of a paper in journal-club-style
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input type="checkbox"/> winter semester <input checked="" type="checkbox"/> summer semester		

Applicability of module	M.Sc. Horticultural and Plant Sciences
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HoPla FM 14: Field and Laboratory Methods in Soil Research		Credit Points: 10 Total workload: 300 hours	
<p>Learning objectives: Students acquire knowledge and practical skills in the fundamentals of soil analysis for assessing soil quality, quantifying soil processes and soil potentials. They learn methods, strategies and current trends in soil sampling and the analysis of these. They gain knowledge of quality standards and long-term monitoring of soils. In addition, students are able to plan and implement soil investigations in a specific area, including data documentation and evaluation.</p>			
Preconditions: none			
Teaching formats	Hours per week, workload in hours	Credits and pre-conditions for granting	Topics, contents
SE 1	<u>2 SWS</u> <u>90 hours</u> 25 hours attendance time, 65 hours of preparation of the course and special working task	3 credits, participation, special working tasks of group A (see annex 2)	Discussion, literature studies and presentation of selected methods on the following subjects: <ul style="list-style-type: none"> • Principals of soil testing for the assessment of soil quality, quantification of soil processes and soil potentials • Methods and strategies of soil sampling • Laboratory analyses of soil • Quality standards • Long-term soil monitoring • Current trends in soil investigation methods
SE 2	<u>4 SWS</u> <u>150 hours</u> 45 hours attendance time, 105 hours preparation of the course and the special working tasks	5 credits, participation, special working tasks of group C (see annex 2)	Practical seminar and preparation of a project report with the following contents: <ul style="list-style-type: none"> • Planning and carrying out soil investigations in a given area, including data documentation and evaluation, and soil assessment
Final exam	<u>60 hours</u> Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes), and preparation	2 credits, pass	
Duration of module	<input checked="" type="checkbox"/> 1 semester <input type="checkbox"/> 2 semesters		
Start of module	<input type="checkbox"/> winter semester <input checked="" type="checkbox"/> summer semester		
Applicability of module	M.Sc. Horticultural and Plant Sciences		

Anlage 2: Übersicht über die speziellen Arbeitsleistungen

Group A (corresponds to 1 credit)

- Preparation of an elaborated performance (e.g. presentation, lecture, written homework), if necessary including presentation during the attendance time.
- Literature study, including a test during attendance time (e.g. oral quiz, multiple-choice tests) or outside attendance time (e.g. answering study questions).
- Practical exercises as part of the course

Scope: written work (up to 9,000 characters including spaces, up to 5 pages), oral work or practical exercises (up to 10 minutes or up to 20 minutes as a group). Written assignments can be divided into several individual assignments as long as the total length remains within the specified framework. If special working tasks are completed in group work, the individual work must be recognisable as such and correspond to the required scope.

Group B (corresponds to 2 credits)

- Preparation of an elaborated performance (e.g. presentation, lecture, written homework), if necessary including presentation during the attendance time.
- Literature study, including a test during attendance time (e.g. oral quiz, multiple-choice tests) or outside attendance time (e.g. answering study questions).
- Practical exercises as part of the course

Scope: written work (up to 18,000 characters including spaces, up to 10 pages), oral work or practical exercises (up to 20 minutes or up to 30 minutes as a group). Written assignments can be divided into several individual assignments as long as the total length remains within the specified framework. If special working tasks are completed in group work, the individual work must be recognisable as such and correspond to the required scope.

Group C (corresponds to 3 credits)

- Preparation of an elaborated performance (e.g. presentation, lecture, written homework), if necessary including presentation during the attendance time.
- Literature study, including a test during attendance time (e.g. oral quiz, multiple-choice tests) or outside attendance time (e.g. answering study questions).
- Project work in individual or group work, including presentation or documentation in report form.
- Practical exercises as part of the course

Scope: written work (up to 27,000 characters including spaces up to 15 pages), oral work or practical exercises (up to 30 minutes or up to 40 minutes as a group). Written assignments can be divided into several individual assignments as long as the total length remains within the specified framework. If special working tasks are completed in group work, the individual work must be recognisable as such and correspond to the required scope.

Language: Special working tasks are completed in English.

Anlage 3: Idealtypischer Studienverlaufsplan¹

Here you will find a distribution of the modules over the semesters, which corresponds to an ideal, but not obligatory course of study. Studying according to this study plan is only possible if the study programme is taken up in the winter semester.

No. of module	Module title	1st semester winter term	2nd semester summer term	3rd semester winter term	4th semester summer term
Compulsory modules (60 LP)					
HoPla CM 1	Methods in Ecophysiology and Crop Quality Assessment	7 hours/week 10 credits			
HoPla CM 2	Advanced Plant Pathology	7 hours/week 10 credits			
EGAF CM 1	Transdisciplinary Research on Agriculture, Horticulture, Food and Natural Resources	4 hours/week 10 credits			
HoPla CM 3	Final Module / Master Thesis				30 credits
Compulsory elective modules (50 credits) HU or semester(s) abroad					
HoPla FM 2, HoPla FM 4, HoPla FM 8, HoPla FM 10, HoPla FM 11, HoPla FM 12, HoPla FM 13, HoPla FM 14, EGAF FM 1			Hours/week according to students' choice 3 x 10 credits		
HoPla FM 1, HoPla FM 3, HoPla FM 5, HoPla FM 6, HoPla FM 7, HoPla FM 9, INRM FM 1 ²				Hours/week according to students' choice 2 x 10 credits	
Elective modules (ÜWP) (10 credits)					
ÜWP	Modules of other programmes or central institutions			Hours/week according to students' choice 10 credits	
Total hours/week/credits per semester		18 hours/week 30 credits	Hours/week according to students' choice 30 credits	Hours/week according to students' choice 30 credits	30 credits

¹ The 2nd and 3rd semester are particularly suitable for studying at a partner university/university abroad. To simplify the recognition of the coursework and examinations completed at the foreign university, it is strongly recommended to settle a learning agreement in advance to the studies abroad.

² The courses in module INRM FM 1 are offered in the winter and summer terms.

Fachspezifische Prüfungsordnung

für den internationalen Masterstudiengang „Horticultural and Plant Sciences“

Gemäß § 17 Abs. 1 Ziffer 3 der Verfassung der Humboldt-Universität zu Berlin in der Fassung vom 24. Oktober 2013 (Amtliches Mitteilungsblatt der Humboldt-Universität zu Berlin Nr. 47/2013) hat der Fakultätsrat der Lebenswissenschaftlichen Fakultät am 19. November 2025 die folgende Prüfungsordnung erlassen*:

- § 1 Anwendungsbereich
- § 2 Regelstudienzeit
- § 3 Prüfungsausschuss
- § 4 Modulabschlussprüfungen
- § 5 Masterarbeit
- § 6 Abschlussnote
- § 7 Akademischer Grad
- § 8 In-Kraft-Treten

Anlage: Übersicht über die Prüfungen

§ 1 Anwendungsbereich

(1) Diese Prüfungsordnung enthält die fachspezifischen Regelungen für den internationalen Masterstudiengang Horticultural and Plant Sciences. Sie gilt in Verbindung mit der fachspezifischen Studienordnung für den internationalen Masterstudiengang Horticultural and Plant Sciences und der Fächerübergreifenden Satzung zur Regelung von Zulassung, Studium und Prüfung (ZSP-HU) in der jeweils geltenden Fassung.

(2) Der Studiengang wird an der Humboldt-Universität zu Berlin angeboten und umfasst Lehrangebote der Humboldt-Universität sowie Angebote der am Konsortium dieses Studiengangs beteiligten Partneruniversität für Bodenkultur Wien (Österreich), Università di Bologna (Italien), Freie Universität Bozen (Italien) sowie Hungarian University of Agriculture and Life Sciences – MATE (Ungarn). Die Studierenden, die im Geltungsbereich dieser Prüfungsordnung an der Humboldt-Universität zu Berlin studieren, sind an der Humboldt-Universität zu Berlin immatrikuliert und schließen ihr Studium an der Humboldt-Universität zu Berlin ab. Diese Prüfungsordnung regelt das Studienangebot an der Humboldt-Universität zu Berlin und gewährleistet die Kompatibilität mit dem Studium an den einzelnen Partnereinrichtungen und die Sicherstellung des allgemeinen übergeordneten Studienziels dieses Studiengangs.

§ 2 Regelstudienzeit

Der internationale Masterstudiengang Horticultural and Plant Sciences hat eine Regelstudienzeit von vier Semestern.

§ 3 Prüfungsausschuss

Für die Prüfungsangelegenheiten des internationalen Masterstudienganges Horticultural and Plant Sciences ist der Prüfungsausschuss des Thaer-Instituts für Agrar- und Gartenbauwissenschaften zuständig.

§ 4 Modulabschlussprüfungen

(1) Mündliche und praktische Modulabschlussprüfungen werden in Anwesenheit einer sachkundigen Beisitzerin oder eines sachkundigen Beisitzers abgenommen, soweit nicht nach Maßgabe der ZSP-HU zwei Prüferinnen und Prüfer bestellt werden. Die Beisitzerin oder der Beisitzer beobachtet und protokolliert die Prüfung. Sie oder er beteiligt sich nicht am Prüfungsgespräch und der Bewertung.

(2) Modulabschlussprüfungen werden in englischer Sprache absolviert. Im Überfachlichen Wahlpflichtbereich können Modulabschlussprüfungen in deutscher Sprache absolviert werden.

§ 5 Masterarbeit

(1) Im Falle eines Studiums an einer Partneruniversität innerhalb des Konsortiums gemäß § 1 Absatz 2 der Studien- und Prüfungsordnung und des Erwerbs eines Double Degrees gem. § 7 Absatz 2 der Prüfungsordnung ist die Masterarbeit in Kooperation mit der beteiligten Partneruniversität anzufertigen. Die Partneruniversität stellt den/die Zweitprüfer/Zweitprüferin.

(2) Die Masterarbeit ist in englischer Sprache anzufertigen.

(3) Bestandene Masterarbeiten sind zu verteidigen. Im Falle von Absatz 1 erfolgt die Verteidigung in der Regel als Videokonferenz gemäß § 96a ZSP-HU.

(3) Bei der Berechnung der Note der Masterarbeit werden die Note für den schriftlichen Teil und die Note für die Verteidigung im Verhältnis 50 % : 50 % gewichtet.

* Die Universitätsleitung hat die Prüfungsordnung am 7. Mai 2026 bestätigt.

§ 6 Abschlussnote

(1) Die Abschlussnote des internationalen Masterstudiengangs Horticultural and Plant Sciences wird aus den Noten der Modulabschlussprüfungen und der Note des Abschlussmoduls, gewichtet nach den gemäß Anlage für die Module ausgewiesenen Leistungspunkten, berechnet.

(2) Modulabschlussprüfungen, die nicht benotet werden oder im Rahmen einer Anrechnung mangels vergleichbarer Notensysteme lediglich als „bestanden“ ausgewiesen werden, sowie die für die entsprechenden Module ausgewiesenen Leistungspunkte werden bei den Berechnungen nach Abs. 1 nicht berücksichtigt.

(3) Im Fachlichen Wahlpflichtbereich (50 LP) werden nur die Noten der drei am besten bewerteten Module (30 LP) für die Berechnung der Abschlussnote berücksichtigt. Die restlichen 20 LP gehen nicht in die Berechnung der Abschlussnote ein.

(4) Werden mehr Module absolviert, als ohne Wertung in die Abschlussnote eingehen, bleiben diese Module unberücksichtigt. Entscheidend für die Berücksichtigung der Module ist die zeitliche Reihenfolge der Prüfungstermine (Datum und Uhrzeit) der bestandenen Modulabschlussprüfungen.

§ 7 Akademischer Grad

(1) Wer den internationalen Masterstudiengang Horticultural and Plant Sciences erfolgreich abgeschlossen hat, erlangt den akademischen Grad „Master of Science“ (abgekürzt „M.Sc.“).

(2) Der akademische Grad kann als Double Degree von der Humboldt-Universität zu Berlin und einer der Partneruniversitäten innerhalb des Konsortiums gemäß § 1 Absatz 2 verliehen werden. Für die Vergabe des Double Degree sind an der Partneruniversität im Rahmen des fachlichen Wahlpflichtbereiches Modulleistungen in einem Umfang von mindestens 30 LP im gartenbauwissenschaftlichen Bereich zu erbringen und die Masterarbeit gemäß § 5 der Prüfungsordnung unter Beteiligung der Partneruniversität anzufertigen.

§ 8 In-Kraft-Treten

(1) Diese Prüfungsordnung tritt mit Wirkung vom 1. Oktober 2026 in Kraft.

(2) Diese Prüfungsordnung gilt für alle Studierenden, die ihr Studium nach dem In-Kraft-Treten dieser Prüfungsordnung aufnehmen oder nach einem Hochschul-, Studiengangs- oder Studienfachwechsel oder einer Wiederimmatrikulation fortsetzen.

(3) Für Studierende, die ihr Studium vor dem In-Kraft-Treten dieser Prüfungsordnung aufgenommen oder nach einem Hochschul-, Studiengangs- oder Studienfachwechsel oder einer Wiederimmatrikulation fortgesetzt haben, gilt die Prüfungsordnung für den internationalen Masterstudiengang Horticultural Sciences vom 15. September 2014 (Amtliches Mitteilungsblatt der Humboldt-Universität zu Berlin

Nr. 88/2014), zuletzt geändert am 7. März 2024 (Amtliches Mitteilungsblatt der Humboldt-Universität zu Berlin Nr. 03/2024) übergangsweise fort. Alternativ können sie diese Prüfungsordnung einschließlich der zugehörigen Studienordnung wählen. Die Wahl muss schriftlich gegenüber dem Prüfungsbüro erklärt werden und ist unwiderruflich. Mit Ablauf des 30. September 2028 tritt die Prüfungsordnung vom 15. September 2014 (Amtliches Mitteilungsblatt der Humboldt-Universität zu Berlin Nr. 88/2014), zuletzt geändert am 7. März 2024 (Amtliches Mitteilungsblatt der Humboldt-Universität zu Berlin Nr. 03/2024), außer Kraft. Das Studium wird dann auch von den in Satz 1 benannten Studierenden nach dieser Prüfungsordnung fortgeführt. Bisherige Leistungen werden entsprechend § 110 ZSP-HU berücksichtigt.

Anlage: Übersicht über die Prüfungen

Internationaler Masterstudiengang/International Master's Programme Horticultural and Plant Sciences

The following modules of the curriculum are offered by other study programmes and are open to students of the International Master's Programme Horticultural and Plant Sciences. The exam overview can be found in the examination regulations of the respective degree programmes.

Master's programme "Economics and Governance of Agriculture and Food"

EGAF CM 1: Transdisciplinary Research on Agriculture, Horticulture, Food and Natural Resources (10 LP)

EGAF FM 1: Business and Management (10 LP)

Master's programme "Integrated Natural Resource Management"

INRM FM 1: Quantitative and Qualitative Methods (10 LP)

The **examinations** mentioned in the following module descriptions can be conducted as face-to-face examinations, digital face-to-face examinations according to § 96b Abs. 2 ZSP-HU or digital distance examinations according to § 96b Abs. 3 ZSP-HU. The examiners decide on the form of execution.

If **alternative forms** of examination are specified in the module descriptions, the examiners determine the form of examination and inform the students of this at the beginning of the lecture period.

The examinations mentioned in the following overview regarding to the modules EGAF FM 1: "Business and Management" and INRM FM 1: "Quantitative and Qualitative Methods" can be taken as **group work** except written exam. The lecturers decide on the possibility of group work.

No. of module	Title of module	credits	Subject-specific admission requirements for the examination	Form, duration/processing time/scope, if applicable language of the examination within the meaning of § 108 Para. 2 ZSP-HU ³	Grading
Compulsory modules (60 credits)²					
EGAF CM 1	Transdisciplinary Research on Agriculture, Horticulture, Food and Natural Resources	10	In accordance with the annex to the examination regulations for the Master's degree programme in Economics and Governance of Agriculture and Food in the currently valid version.		
HoPla CM 1	Methods in Ecophysiology and Crop Quality Assessment	10	None	Written exam (90 min) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes)	Yes
HoPla CM 2	Advanced Plant Pathology	10	None	Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces) or oral exam (30 minutes)	Yes
HoPla CM 3	Final Module / Master Thesis	30	Successful completion of compulsory modules HoPla CM 1, HoPla CM 2 and EGAF CM 1	Master Thesis (approx. 90,000 to 180,000 characters including spaces / approx. 50 to 100 pages), weighting 50 %, and oral defense in a colloquium (60 minutes: 20 minutes presentation, 40 minutes discussion), weighting 50 % Editing time: 24 weeks	Yes
Subject-related compulsory elective modules (50 credits)³					
EGAF FM 1	Business and Management	10	In accordance with the annex to the examination regulations for the Master's degree programme in Economics and Governance of Agriculture and Food in the currently valid version.		
INRM FM 1	Quantitative and Qualitative Methods	10	In accordance with the annex to the examination regulations for the Master's degree programme in Integrated Natural Resource Management in the currently valid version.		
HoPla FM 1	Seminar Horticultural Science	10	None	Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes)	Yes
HoPla FM 2	Monitoring and Evaluation of Agrarian Processes	10	None	Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes)	Yes

³ Please note § 4 section 2 of the examination regulations.

⁴ In the compulsory area, all modules must be completed.

⁵ Please note § 6 section 3 of the examination regulations.

No. of module	Title of module	credits	Subject-specific admission requirements for the examination	Form, duration/processing time/scope, if applicable language of the examination within the meaning of § 108 Para. 2 ZSP-HU³	Grading
HoPla FM 3	Plant Nutrition in Horticultural and Agricultural Systems	10	None	Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes)	Yes
HoPla FM 4	Current Topics in Phytomedicine	10	None	Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes)	Yes
HoPla FM 5	Plant Pathogens in the Environment and Control Management	10	None	Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes)	Yes
HoPla FM 6	Combined Farming Systems	10	None	Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes)	Yes
HoPla FM 7	Modelling and Phenotyping in Crop Science	10	None	Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces) or oral exam (30 minutes)	Yes
HoPla FM 8	Horticulture of the Future	10	None	Written exam (90 minutes), term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes)	Yes
HoPla FM 9	Soil Systems, their Regeneration and Improvement	10	None	Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes)	Yes
HoPla FM 10	Current Development in Horticultural and Agricultural Systems	10	None	Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes)	Yes
HoPla FM 11	Specific Phytomedicine	10	None	Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes)	Yes
HoPla FM 12	Plant Laboratory Sciences	10	None	Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes)	Yes
HoPla FM 13	Plant-Microbe Interactions	10	None	Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes)	Yes

No. of module	Title of module	credits	Subject-specific admission requirements for the examination	Form, duration/processing time/scope, if applicable language of the examination within the meaning of § 108 Para. 2 ZSP-HU ³	Grading
HoPla FM 14	Field and Laboratory Methods in Soil Research	10	None	Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes)	Yes
Interdisciplinary elective modules (10 credits)					
ÜWP	In the interdisciplinary compulsory elective area, master modules from the module catalogues of other subjects or central institutions provided for this purpose are to be completed at the student's own choice.	10 in total	The modules are completed in accordance with the regulations of the other subjects or central institutions. The Examination Board of the Thier Institute of Agricultural and Horticultural Sciences decides on the consideration of achievements.		No

Interdisciplinary elective modules open to other Master programmes

No. of module	Title of module	credits	Subject-specific admission requirements for the examination	Form, duration/processing time/scope, if applicable language of the examination within the meaning of § 108 Para. 2 ZSP-HU	Grading
HoPla FM 4	Current Topics in Phytomedicine	10	None	Written exam (90 minutes) or term paper (approx. 18,000 characters including spaces, 10 pages) or oral exam (30 minutes)	Yes