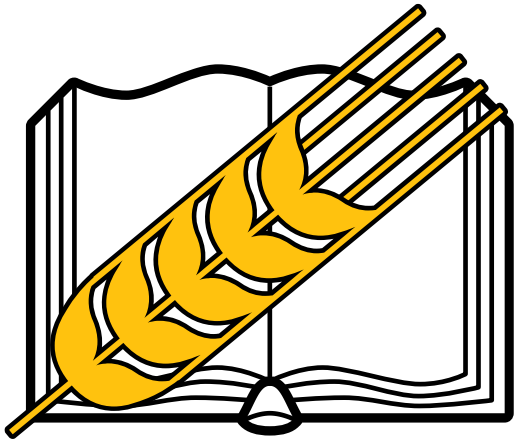
Faculty of Agrobiology,
Food and Natural Resources

STUDY PLANS

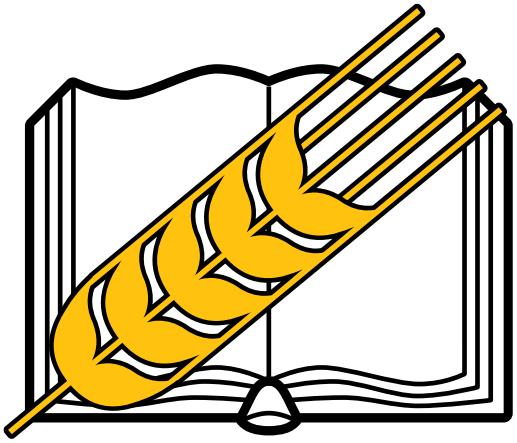


Study Programmes
BACHELOR'S and MASTER´S STUDIES

(English Study Programmes)

2024/2025

STUDY PLANS



https://www.af.czu.cz/en

CONTENT

BASIC INFORMATION ABOUT THE FACULTY OF AGROBIOLOGY, FOOD AND NATURAL RESOURCES 4

FACULTY INFORMATION SYSTEM AND ITS USE BY STUDENTS 7

BACHELOR'S AND MASTER'S DEGREE PROGRAMMES OF THE FACULTY OF AGROBIOLOGY, FOOD AND NATURAL RESOURCES 2024/2025 8

Principles of Bachelor's Studies 8
Principles of Master's Studies 9
Completion of the Bachelor's degree 9
Completion of the Master's degree 10

PRACTICAL TRAINING 11

BACHELOR'S STUDY PLANS 12

Study programme B0811A370002 - Agriculture and Food (AGRIFOB) 13
BSc full time course 13
Study programme B0712A330002 - Sustainable Use of Natural Resources (SUNRB) 15
BSc full time course 15

MASTER'S STUDY PLANS 18

Study programme N0811A370028 – Danube AgriFood Master (DAFM) 19
MSc. **full time course** 19
Study programme N0712A330002 – Natural Resources and Environment (ENVIM) 28
MSc. **full time course** 28
Study program me N0712A370001 - Natural Resources Management and Ecological Engineering (NARMEEM) 31
MSc. **full time course** 31
Study programme N0811A370002 - Sustainable Agriculture and Food Security (AGRIFOM) 41
MSc. **full time course (study at CZU only)** 41
Study programme N0811A370002 - Sustainable Agriculture and Food Security (AGRIFOMD) 44
MSc. **full time course (for double degree students - University of Pisa)** 44

Basic information about the Faculty of Agrobiology, Food and Natural Resources

The Faculty of Agrobiology, Food and Natural Resources (FAPPZ) is an independent organizational unit of the Czech University of Life Sciences in Prague (hereinafter referred to as CZU), which provides comprehensive higher education, conducts habilitation proceedings and proceedings for the appointment of professors in accredited disciplines.

The basis of the Faculty's self-government is the **academic community**. It consists of the academic staff of the faculty and students enrolled for studies. The academic community is convened by the Dean of the Faculty or the Chair of the Academic Senate to discuss important activities of the Faculty.

The self-governing academic bodies of FAPPZ are: the Academic Senate, the Dean, the Faculty Scientific Council, and the Faculty Disciplinary Committee.

The FAPPZ Academic Senate is elected by the academic community of the Faculty for four-year terms from among its members in direct elections with secret ballot. Any member of the FAPPZ academic community, except for the Rector, Vice-Rectors, Dean and Vice-Deans, may be elected as a member of the FAPPZ Academic Senate.

The FAPPZ Dean is the representative of the faculty, manages the faculty and represents it. They are elected by the Academic Senate from among the professors and associate professors of FAPPZ on the basis of proposals from the members of the academic community. The Dean is represented by Vice-Deans in the following areas of activity:

- pedagogical activity
- scientific and research activities
- International Relations and Information Technology
- faculty development and special activities

The FAPPZ Scientific Council is a collective body of the faculty whose task is to discuss habilitation and professorial proceedings and guide the teaching and scientific research activities of the faculty. The members of the Scientific Council are appointed by the Dean. They are prominent representatives of the disciplines in which the faculty carries out mainly educational, scientific and research activities.

The Disciplinary Committee is appointed by the Dean of the Faculty, half of its members are students. The committee discusses disciplinary offences committed by students and submits a proposal for a decision to the Dean.

Dean's Office of the Faculty of Agrobiology, Food and Natural Resources

Dean:	prof. Ing. Josef Soukup, CSc.
Vice Deans:	prof. Ing. Lenka Kouřimská, Ph.D. *for International Affairs*
	doc. Ing. Miloslav Zouhar, Ph.D. *for Educational Affairs and Information Systems*
	prof. Ing. Lukáš Kalous, Ph.D. *for Quality Assurance*
	prof. Ing. Josef Hakl, Ph.D. *for Science, Research and Doctoral Study*
	prof. Ing. Roman Stupka, CSc. *for Development*
Head of Faculty Administration:	Ing. Vladimír Albrecht
Dean's Secretariat:	Ing. Petra Melicharová, Ph.D.

Study administration Office	e-mail	phone
Head of the Study administration Office and the Institute of Practice		
Ing. Tomáš Rejdal	rejdal@af.czu.cz	22438 3238
Andrea Martinková	bartlova@af.czu.cz	22438 4584
Iveta Bajerová	bajerova@af.czu.cz	22438 4585
Alžběta Vančurová	vancurovaa@af.czu.cz	22438 4587
Department of Science and Research:		
Ing. Kateřina Makovcová, Ph.D.	makovcovak@af.czu.cz	22438 4586
International Relations Office:		
	iro@af.czu.cz	22438 4577

Departments and Faculty units FAPPZ CZU Prague:	Phone n.	Shortcut	Course code
Department of Agroecology and Crop Production *prof. Ing. Josef Soukup, CSc.*	22438 2780	KARP	AA, AR, AT
Department of Agroenvironmental Chemistry and Plant Nutrition *prof. Ing. Pavel Tlustoš, CSc., dr. h. c.*	22438 2733	KAVR	AH
Department of Botany and Plant Physiology *doc. Ing. František Hnilička, Ph.D.*	22438 2514	KBFR	AB
Department of Genetics and Breeding *doc. Dr. Ing. Pavel Vejl*	22438 2554	KGŠ	AG
Department of Chemistry *Ing. Matyáš Orsák, Ph.D.*	22438 2720	KCH	AC
Department of Food Science *doc. Ing. Pavel Klouček, Ph.D.*	22438 2885	KKBP	AQ
Department of Microbiology, Nutrition and Dietetics *prof. Ing. Eva Vlková, Ph.D.*	22438 2764	KMVD	AM, AK
Department of Ethology and Companion Animal Science *doc. Ing. Helena Chaloupková, Ph.D.*	22438 3031	KEZCH	AL
Department of Plant Protection *doc. Ing. Miloslav Zouhar, Ph.D.*	22438 2594	KOR	AO
Department of Soil Science and Soil Protection *prof. Dr. Ing. Luboš Borůvka*	22438 2751	KPOP	AP
Department of Animal Science *prof. Ing. Roman Stupka, CSc.*	22438 3062	KCHHZ	AS, AD
Department of Veterinary Sciences *prof. Mgr. Ing. Markéta Sedmíková, Ph.D.*	22438 2939	KVD	AV
Department of Water Resources *Ing. Markéta Miháliková, Ph.D.*	23438 2572	KVZ	AI
Department of Landscape Architecture *doc. Ing. Matouš Jebavý, Ph.D.*	22438 2569	KZKA	AZ, AF
Department of Horticulture *doc. Ing. Martin Koudela, Ph.D.*	22438 2553	KZ	AZ
Department of Zoology and Fisheries *prof. Ing. Iva Langrová, CSc.*	22438 2673	KZR	AE
Study Administration Office *Ing. Tomáš Rejdal*	22438 3238	SO	AW
Demonstrational and Experimental Center *prof. Ing. Miroslav Jursík, Ph.D.*	22438 2608	DEP	AU

Plant Production, Nutrition, and Forage Crops Research Station in Červený Újezd *Ing. Jaroslav Tomášek, Ph.D.*	31269 8035	VS ČÚ	
Canine Behavior Research Center *Ing. Ludvík Pinc, Ph.D.*	22438 2585	CVChP	
Computer Services Center Ing. Matouš Chalupa	22438 2651	CPIS	

Faculty information system and its use by students

Student ID and ISIC card

The basis of communication and access to the CZU premises is the **Student Card** or **ISIC** card**.**

First year students should obtain their card as soon as possible from the Library ČZU Information at https://lib.czu.cz/cs ⇨ Card Centre ⇨ Student Cards). The card - a chip card - is required for access to classrooms, libraries and other areas of the CZU, in the evening it allows access to the faculty. The student card serves as a university electronic wallet (UEP) on the CZU campus.

University Information System (UIS)

The Faculty of Agrobiology, Food and Natural Resources uses the University Information System (UIS) **- https://is.czu.cz/?lang=en** for study records. On **https://www.oikt.czu.cz/en** there are links to tutorials on how to use this system.

Course registration dates are listed in the academic year schedule at **https://www.af.czu.cz/en/r-9372-study/r-9482-study-documents**

The subjects of the study plan of the faculties of the CZU are marked with an alphanumeric code that uniquely identifies them and under this code they are entered into the study system:

X X X 0 0 X

1. position - code of the faculty that teaches the course (A - Faculty of Agrobiology, Food and Natural Resources, E - Faculty of Operations and Economics, L - Faculty of Forestry and Wood Technology, Z - Faculty of Environment, T - Faculty of Technology, I - Faculty of Tropical Agriculture, R - other independent departments of the CZU)

2. position - code of the department that guarantees the course (see the table Department codes at the end of this brochure)

3. position - code of the faculty for which the course is taught - A, E, L, Z, T, I, R

X - the course is intended for students of all faculties of CZU

4. and 5. positions - 00 - numerical code of the course order in the department

Important: numbers 01-69, A1-Z9 indicate **full-time** courses

6. position - end of the course - E - credit and examination, Z - credit

Eg: ABA06E Fundamentals of plant physiology

Computers and computer network at FAPPZ

There are 33 computers available for students at the faculty (25 in classroom 55 on the ground floor near the lecture halls and 8 computers on the floors of the adjacent staircase of the faculty). Additional computers are available for students in the exam room on the ground floor of the Rector's Office, in the CZU Library and in the PC laboratory in the JIH dormitory.

The Eduroam WiFi network is available to students. Instructions on how to connect can be found at https://www.oikt.czu.cz/en.

You can access your e-mail via the web interface at: **http:**//mail.studenti.czu.cz, where you can work with e-mail by entering your username (LOGIN@studenti.czu.cz) and password (the same as for the UIS).

Problems with logging into the systems are solved by the **Helpdesk of the CZU** (line +420 22438 **4444**, e-mail: helpdesk@czu.cz , second floor of the Rector's Office).

Bachelor's and Master's Degree Programmes of the Faculty of Agrobiology, Food and Natural Resources 2024/2025

The aim of the Faculty of Agrobiology, Food and Natural Resources of the Czech University of Life Sciences in Prague is to provide its students with education for the widest possible application in agricultural practice as well as in all fields related to the agro-food complex or the environment and at the same time to enable the development of individual abilities with regard to the student's interests.

The organization of studies at the Faculty of Agrobiology, Food and Natural Resources is determined by Act No. 111/98 Coll., on Higher Education Institutions. The Faculty provides higher education with the award of diploma and degree in accredited study programmes.

The specific content of the study programme in individual semesters is determined by the study plan. The student usually participates in the preparation of part of the study plan by choosing elective courses. The content of the curricula is updated with regard to the development of knowledge in the disciplines studied and the requirements of practice. The student is obliged to monitor and accept any changes to the curriculum in his/her programme on an annual basis. In the following programmes, the form of study is full-time. The student is familiarised with the content of the study plan programmes upon enrolment.

Overview of accredited bachelor´s study programmes at FAPPZ

Bachelor´s study (3-years)

Study programme		Form of study = Full-time
Programme code	Programme name	
B0811A370002	Agriculture and Food (AGRIFOB)	
B0712A330002	Sustainable Use of Natural Resources (SUNRB)	

Overview of accredited master´s study programmes at FAPPZ

Master´s study (2-years)

Study programme		Form of study = Full-time
Programme code	Programme name	
N0811A370028	Danube AgriFood Master (DAFM)	
N0712A330002	Natural Resources and Environment (ENVIM)	
N0712A370001	Natural Resources Management and Ecological Engineering (NARMEEM)	
N0811A370002	Sustainable Agriculture and Food Security (AGRIFOM, AGRIFOMD)	

Principles of Bachelor’s Studies

The standard period of study is 3 years. Open degree programmes are based on the courses offered in the respective curricula, the completion of which is compulsory. Possible specialisation is provided by compulsory electives.

In order to advance to a higher year, it is necessary to complete the enrolled courses of the current year's curriculum and thus obtain a specified number of credit points.

Enrolment of students in the timetable of teaching exercises takes place in accordance with the study schedule using the faculty's information system, usually in the week before the start of the academic year.

Study plans list all approved and included courses (see below for an overview).

If the number of candidates for an elective course is small, the course will not be opened in a given semester. The student is obliged to choose another elective course in the second round of registration.

Enrolling in a course creates an obligation for the student to complete the course within the prescribed scope and semester.

Compulsory and compulsory elective courses must be taken at the FAPPZ and faculties of the CZU; a completed course cannot be re-enrolled. A student of FAPPZ may, with regard to his/her specialisation, enrol in his/her study plan an elective course from the faculty of FAPPZ or another faculty of CZU or, exceptionally, another university after approval of the application by the FAPPZ Vice-Dean for for Educational Affairs, who will evaluate the enrolled course with credit points.

On the basis of an application and upon submission of a proof of completion of the course, or a course syllabus, it is possible to recognise courses taken during LLP - Erasmus internships abroad.

Principles of Master's Studies

Master's programmes are the second level of university studies with a strong specialisation character with a standard duration of 2 years. By completing the study plan, preparing a thesis, defending it and passing the state final examination, the graduate obtains the degree of engineer (Ing.) in the chosen field.

In order to advance to a higher year, it is necessary to complete the courses of the current year's curriculum and thus obtain a specified number of credit points.

Enrolment of students in the timetable of teaching exercises takes place in accordance with the study schedule using the faculty's information system, usually in the week before the start of the academic year.

Study plans list all approved and included courses (see below for an overview).

If the number of candidates for an elective course is small, the course will not be opened in a given semester. The student is obliged to choose another elective course in the second round of registration.

Enrolling in a course creates an obligation for the student to complete the course within the prescribed scope and semester.

Compulsory and compulsory elective courses must be taken at the FAPPZ and faculties of the CZU; a completed course cannot be re-enrolled. A student of FAPPZ may, with regard to his/her specialisation, enrol in his/her study plan an elective course from the faculty of FAPPZ or another faculty of CZU or, exceptionally, another university after approval of the application by the FAPPZ Vice-Dean for for Educational Affairs, who will evaluate the enrolled course with credit points.

On the basis of an application and upon submission of a proof of completion of the course, or a course syllabus, it is possible to recognise courses taken during LLP - Erasmus internships abroad.

In this academic year, Master's courses/programmes will be opened according to accreditation; courses with 10 or more enrolled students will be opened unless the Dean of the Faculty decides otherwise.

Completion of the Bachelor's degree

The condition for completing each year and the entire study is the completion of the compulsory, compulsory elective and elective courses of the programme / field of study and the acquisition of the appropriate number of ECTS credits. Elective courses are any courses of Bachelor's programmes/fields of study ending with an examination, taught for FAPPZ or intended for the whole university (the course code must contain "A" or "X" in the 3rd place and the code

must end with the letter "E", e.g. AEA12E, AEX03E). To complete the year, a minimum of 50 credits must be obtained, to complete the study 180 ECTS credits (see the Study and Examination Rules of the CZU below).

The study is completed on the day of passing the Final State Examination (§ 55 of Act No. 111/98 Coll.) - hereinafter referred to as the FSE

A student may proceed to the FSE after meeting the following conditions:

1. completion of the courses prescribed by the curriculum of the chosen programme / field of study and obtaining a minimum of 180 ECTS by the deadline (see the FAPPZ timetable for details)
2. preparation and submission of the bachelor's thesis in printed and electronic form by approximately mid-April, see the FAPPZ timetable for details).

A student who wishes to graduate in 2025 is required to submit an application for the FSE through UIS **by February 28, 2025.**

The Final State Examination of the bachelor's study includes a defence of the bachelor's thesis and an examination of two or three comprehensive subjects. For an overview, see the curricula of the relevant field of study.

Completion of the Master's degree

The condition for completing each year and the entire study is the completion of the compulsory and compulsory elective courses of the programme / field of study and the acquisition of the appropriate number of ECTS credits. Elective courses are any courses of the Master's degree programme ending with an examination, taught for FAPPZ or intended for the whole university (the course code must contain "A" or "X" in the 3rd place and the code must end with the letter "E", e.g. AEA12E, AEX03E). To complete the year, a minimum of 50 credits must be obtained, to complete the degree 120 ECTS credits (see the Study and Examination Rules of the CZU below).

The study is completed on the day of passing the Final State Examination (§ 55 of Act No. 111/98 Coll.) - hereinafter referred to as the FSE.

A student may proceed to the FSE after meeting the following conditions:

- completion of the courses prescribed by the curriculum of the chosen programme / field of study and obtaining a minimum of 120 ECTS by the deadline (see the FAPPZ timetable for details)
- preparation and submission of the thesis in printed and electronic form by approximately mid-April, see the FAPPZ timetable for details).

A student who wishes to graduate in 2024 is required to submit an application for the FSE through the UIS system **by 29 February 2024.**

The final state examination of the Master's degree includes a defence of the thesis and an examination of three comprehensive subjects. For an overview, see the curricula of the relevant programme/field of study.

Practical training

(Bachelor´s study programmes)

Organisational aspects of practical training are provided by Prof. Jursík. Administration aspects are provided by the Study Administration Office. Detailed information about practical training at **http://www.af.czu.cz/⇨ link Study⇨ Practical training.**

Practical training is provided at many workplaces due to the number of disciplines and student interests. The staff of the Institute of Practice, especially the practice guarantors, strive to bring the students as close as possible to the reality of the operation. Practice at FAPPZ is of two types, teaching practice and professional practice. **Teaching practice** takes place exclusively at the workplaces of the FAPPZ or the entire CZU, while **professional practice takes place** at extracurricular facilities, which the faculty selects according to the individual fields of study and subsequently concludes contracts with them for the provision and professional guidance. In exceptional cases, the student may find a suitable enterprise within the professional practice after consultation with the guarantor of the practice.

The number of announced dates for individual internships is more or less in relation to the total number of students. Therefore, it is necessary to fill all dates evenly because, with regard to the established capacity of the number of students, it is not possible to ensure the fulfillment of the internship only in the last dates. **Enrolment in each term is therefore binding on the students. Failure to register for the internship without prior timely withdrawal is not allowed.** Exceptional cases can be excused at the Institute of Practice, where it is also possible to retroactively withdraw from a forfeited term.

Students with more than five months of practical activity (demonstrable employment) in the field prior to entering the programme may be recognized as having professional experience.

BACHELOR'S STUDY PLANS

S t u d y p r o g r a m m e B0811A370002 - Agriculture and Food (AGRIFOB)

BSc full time course

Programme guarantor: doc. Ing. Jaroslav Havlík, Ph.D.

1st year

	Subject	ECTS	WS	SS
AAA27E	Agricultural Systems	5	2/2 E	
AQA06Z	Bachelor Seminar	2	10s C	
ACA09E	Inorganic and Analytical Chemistry	5	2/2 E	
TAA05E	Methods of Calculation	5	2/2 E	
ABA15E	Plant Physiology	5	2/0 2s E	
RTX16Z	Sport	1	0/2 C	
AWA38Z	Start up module	1	1/0 C	
AEA01E	Zoology	5	2/2 E	
TFA03E	Agricultural Machinery	6		2/2 E
ABA25E	Botany	5		2/2 E
AAA29E	Fundamentals of Agroecology	5		2/2 E
AMA11E	General Microbiology	5		2/2 E
ACA07E	Organic Chemistry	5		2/2 E
APA38E	Soil Science	5		2/2 E
		60		

2nd year

	Subject	ECTS	WS	SS
AKA30E	Animal Nutrition	5	2/2 E	
AEA22E	Aquaculture	5	2/1, 8fp E	
AVA42E	Biological Principles of Livestock Breeding	5	2/2 E	
AOA28E	Fundamentals of Plant Protection	5	2/2 E	
	Compulsory Optional Subject min. 5 Cr.	min. 5	WS or SS	
ASA22E	Animal Production and Environment	5		2/2 E
AWA26Z	BSc. Thesis I	4		100 hours C
AGA44E	Fundamentals of Genetics	5		2/2 E
AZA09E	Horticulture	5		2/1, 16fp E
AHA38E	Plant Nutrition	5		2/2 E
ARA31E	Plant Production and Environment	5		2/2 E
		49 + optional subjects (min 5) = 54 cr.		

3rd year

	Subject	ECTS	WS	SS
EEA17E	Business Economics	5	2/1 E	
AQA36Z	Food practice	10	240 C	
AQA58E	Food Storage and Preservation	5	2/2 E	
ASA59E	Food Technology and Processing of Animal Products	5	2/1, 12fp E	
AQA61E	Food Technology and Processing of Plant Products	5	2/2 E	
AHA33E	Waste Handling	5	2/2 E	
	Compulsory Optional Subject (student in the third year does not have to choose any subject)	X	WS or SS	
AWA27Z	BSc. Thesis II	8+8	200 hours C	200 hours C
AZAD1E	Food Technology and Processing of Garden Products	5		2/2 E
AQA44E	Fundamentals of Quality Control of Animal Products	5		2/2 E
AQA45E	Fundamentals of Quality Control of Plant Products	5		2/2 E
		66 + optional subjects (X) = 66 cr. in total 175 + optional subj. (5) = **180 cr.**		

List of Compulsory Optional Subjects

	Compulsory Optional Subjects	ECTS	WS	SS
APA37E	Applied Cartography	5	2/2 E	
AAA39E	Basic Meteorology and Climatology	5	2/2 E	
ARA45E	Field Crop Technology	5	2/2 E	
APA35E	Fundamentals of Geology	5	2/2 E	
ATA23E	Fundamentals of Turf and Lawn Management	5	2/2 E	
AIA07E	Hydrology and Hydrogeology	5	2/2 E	
ATA26E	Forage Crop Production and Pasture Management	5		2/1,3 s4, 4e E

Explanation: WS = Winter semester; SS = Summer semester; E = Examination; C = Credited, fp = field practice

Optional:

Internship abroad

During their studies, students have the opportunity to participate in a foreign internship for at least 5 days. The guarantor of the foreign internship is doc. Jaroslav Havlík, Ph.D. The total number of credits is graduated according to its length of either 5, 10 or 15 days and more. **Credits correspond to 2, 3 and 5 credits.** These credits are included in the total number of credits for compulsory electives. Students can complete several foreign internships, a maximum of 5 credits can be counted.

Summer school

During their studies, students have the opportunity to participate in a summer school for at least 5 days. The guarantor for the recognition of completion of the summer school is doc. Jaroslav Havlík, Ph.D. **The total number of credits corresponds to the number of summer school credits.** These credits are included in the total number of credits for compulsory electives. Students can attend more than one summer school, only one completed summer school during SP studies is counted towards the total number of credits.

Specialized courses

During their studies, students have the opportunity to participate in specialized courses, which are credited, for a minimum of 5 days. The guarantor for the recognition of completion of a specialized course is doc. Jaroslav Havlík, Ph.D. **The total number of credits corresponds to the number of credits of the specialized course**. These credits are counted towards the total number of credits for compulsory optional subjects. Students can take more specialized courses, only one completed specialized course during SP studies is included in the total number of credits.

Final State Examination

Study programme B0811A370002 **- Agriculture and Food (AGRIFOB)**

BSc full time course

Subject of the FSE (corridor)	Subjects of the corridor
Agriculture and Environment	Horticulture
	Plant Production and Environment
	Animal Production and Environment
	Waste handling
Food Processing	Food Technology and Processing of Plant Products
	Food Technology and Processing of Animal Products
	Food Technology and Processing of Garden Products
Quality of Agricultural Products	Fundamentals of Quality Control of Animal Products
	Fundamentals of Quality Control of Plant Products
Defense of the Bachelor Thesis	

S t u d y p r o g r a m m e B0712A330002 - Sustainable Use of Natural Resources (SUNRB)

BSc full time course

Programme guarantor: doc. Ing. Vít Penížek, Ph.D.

1st year

	Subject	ECTS	WS	SS
APA37E	Applied Cartography	5	2/2 E	
TAA05E	Methods of Calculation	5	2/2 E	
APA35E	Fundamentals of Geology	5	2/2 E	
ACA09E	Inorganic and Analytical Chemistry	5	2/2 E	
RTX16Z	Sport	1	0/2 C	
AWA38Z	Start up module	1	1/0 C	
selected	Foreign Language	2+3	0/2 C	0/2 E
	1x Compulsory Optional Subject I.	min 5.	WS or SS	
APA01Z	Excursion - Geology and Soil	3		3 days C
ACA07E	Organic Chemistry	5		2/2 E
AEA32E	Principles of Agroecology	5		2/2 E
APA38E	Soil Science	5		2/2 E
RTX17Z	Sport	1		0/2 C
ZGX109E	Statistics	6		2/2 E
		52 + optional subjects (5) = **57**		

2nd year

	Subject	ECTS	WS	SS
AAA27E	Agricultural Systems	5	2/2 E	
AAA39E	Basic Meteorology and Climatology	5	2/2 E	
ZGX130E	GIS I	5	2/2 E	
	1x Compulsory Optional Subject I.	min 5.	WS or SS	
	1x Compulsory Optional Subject II.	min 2.	only WS	
	1x Compulsory Optional Subject III.	min 5.	WS or SS	
ASA22E	Animal Production and Environment	5		2/2 E
AWA26Z	BSc. Thesis I	4		100 hours C
APA02Z	Excursion – Soil Protection and Conservation	3		3 days C
AMA11E	General Microbiology	5		2/2 E
ZGX120E	GIS II	5		2/2 E
APA39E	Introduction to Soil Conservation and Protection	5		2/2 E
ARA31E	Plant Production and Environment	5		2/2 E
AUA45Z	Specialised Training	8		25 days C
		55 + optional subjects (12) = **67**		

3rd year

	Subject	ECTS	WS	SS
AIA07Z	Excursion	1	1 day C	
ARA45E	Field Crop Technology	5	2/2 E	
AIA07E	Hydrology and Hydrogeology	5	2/2 E	
ZGX09E	Remote Sensing	4	1/2 E	
AHA33E	Waste Handling	5	2/2 E	
	1x Compulsory Optional Subject II.	min. 5	only WS	
	3x Compulsory Optional Subject III.	min. 15	WS or SS	
AWA27Z	BSc. Thesis II	8+8	200 hours C	200 hours C
AHA30Z	Excursion and Field Training	2		2 days C
		38 + optional subjects (20) = **58** in total 145 + optional subjects (37) = **182 credits**		

List of Compulsory Optional Subjects I. (min 10 C)

	Compulsory Optional Subjects	ECTS	WS	SS
LHA002E	Forest Management	6	2/2 E	
AZA66E	Fundamentals of Landscape Architecture	5	2/2 E	2/2 E
ATA23E	Fundamentals of Turf and Lawn Management	5	2/2 E	

List of Compulsory Optional Subjects II. (min 7 C)

	Compulsory Optional Subjects	ECTS	WS	SS
LRX06E	Environmental Economics	5	2/1 E	
LRX05Z	Forest and Agricultural Politics in CR and EU	2	2/0 C	
IEI001E	Agricultural Policy in Developing Countries	5	2/2 E	

List of Compulsory Optional Subjects III. (min 20 C)

	Compulsory Optional Subjects	ECTS	WS	SS
selected	Chosen Subject from the List of Compulsory Optional Subjects II or Subjects Which Are Taught in English at CULS Prague – (please contact IRO - iro@af.czu.cz)	selected	WS or SS	

Explanation: WS = Winter semester; SS = Summer semester; E = Examination; C = Credited, fp = field practice

Optional:

Internship abroad

During their studies, students have the opportunity to participate in a foreign internship for at least 5 days. The guarantor of the foreign internship is doc. Ing. Vít Penížek, Ph.D. The total number of credits is graduated according to its length of either 5, 10 or 15 days and more. **Credits correspond to 2, 3 and 5 credits.** These credits are included in the total number of credits for compulsory electives. Students can complete several foreign internships, a maximum of 5 credits can be counted.

Summer school

During their studies, students have the opportunity to participate in a summer school for at least 5 days. The guarantor for the recognition of completion of the summer school is doc. Ing. Vít Penížek, Ph.D.. **The total number of credits corresponds to the number of summer school credits.** These credits are included in the total number of credits for compulsory electives. Students can attend more than one summer school, only one completed summer school during SP studies is counted towards the total number of credits.

Specialized courses

During their studies, students have the opportunity to participate in specialized courses, which are credited, for a minimum of 5 days. The guarantor for the recognition of completion of a specialized course is doc. Ing. Vít Penížek, Ph.D. **The total number of credits corresponds to the number of credits of the specialized course**. These credits are counted towards the total number of credits for compulsory optional subjects. Students can take more specialized courses, only one completed specialized course during SP studies is included in the total number of credits.

Final State Examination

S t u d y p r o g r a m m e B0712A330002 **- Sustainable Use of Natural Resources (SUNRB)**

BSc full time course

Subject of the FSE (corridor)	Subjects of the corridor
Theory of Natural Resources	Basic Meteorology and Climatology
	Fundamentals of Geology
	Soil science
Methods of Natural Resources Management	Applied Cartography
	GIS I., II.
	Remote sensing
Care for Natural Resources	Introduction to soil conservation and protection
	Hydrology and Hydrogeology
Defense of the Bachelor Thesis	

MASTER'S STUDY PLANS

S t u d y p r o g r a m m e N0811A370028 – Danube AgriFood Master (DAFM)

MSc. **full time course**

Programme guarantor: doc. Ing. Martin Kulhánek, Ph.D.

1st year - CZU

	Subject	ECTS	WS	SS
AVA54E	Animal Biotechnology	3	1,3/0,5 E 2fp	
ACA12E	Biochemistry	5	2/2 E	
AWA39Z	Online courses 1	3	2/0 C	
AWA38Z	Start up module	1	1/0 C	
	At least 15 Credits from Compulsory elective courses	min. 15	WS or SS	
	At least 9 Credits from Elective courses	min. 9	WS or SS	
AQA62E	Advanced Technology in Food Processing	5		2/2 E
ARA46E	Crop Management Systems	5		2/2 E
ACA13E	Food Chemistry	6		2/3 E
AWA42Z	Internship in the studied field *	3		C
AWA40Z	Online courses 2	3		2/0 C
AHA17E	Soil and Plant Relationship	5		2/2 E
AWA43Z	Winter / Summer school *	3		C
		(36-42) + min. 24 C. Elective c. = 60-66 Cr.		

* *it can be studied in the 2nd year*

2nd year – ULST or SUA or BOKU or UNS or UNIZG

	Subject	ECTS	WS	SS
AWA42Z	Internship in the studied field **	3	WS or SS	
AWA43Z	Winter / Summer school **	3	WS or SS	
	Subjects study ULST or SUA or BOKU or UNS or UNIZG	X	WS or SS	
		(6) + Compulsory courses (min. X Cr.) in total 66 + El. subj. (min 54) = **120 C**		

- ** *if not studied in the first year*

List of Compulsory elective courses (1st year – CZU)

		ECTS	WS	SS
AMA09E	Environmental Microbiology	5	2/2 E	
APA21E	Soil Conservation and Protection	5	2/2 E	
ATA33E	Sustainable Agriculture	5	2/2 E	
AMA18E	Food Microbiology	5	2/2 E	
EED06E	Agricultural Policy	5		2/1 E
AHA39E	Environment Pollution and Remediation	5		2/2 E

List of Elective courses (1st year – CZU)

	Thematic area: Food Safety and Consumer Science	ECTS	WS	SS
AQA25E	Food Quality and Food Safety	5	2/1,8 E 2fp	
AQA55E	Quality Assessment of Plant-Based Foods	5	2/2 E	
AKA39E	Sensory Analysis of Food	4	1/2 E	
AQA59E	Sustainability in the Food Chain	3	1/1 E	
AKA34E	Food, Beverages and Dietary Supplements	5		2/2 E
AQA60E	Quality Assessment of Animal-Based Foods	5		2/2 E
	Thematic area: Sustainable Agriculture	**ECTS**	**WS**	**SS**
AEA17E	Agricultural Ecology	4	2/1 E	
ACA06E	Environmental Analytical Chemistry	5	2/2 E	
AAA30E	Weed Science	5	2/2 E	
AEA38E	Fish Systematics	5		1,3/3 E
ASA48E	Livestock Management	5		2/2 E
	Thematic area: Soil, Water and Climate	**ECTS**	**WS**	**SS**
AAA41E	Advanced Meteorology and Climatology	5	2/2 E	
AIA05E	Hydrogeology	5	2/2 E	
AIA05Z	Excursion (only with AIA05E Hydrogeology)	1	1 day C	
APA17E	Modelling in Soil Science	5	2/2E	
APA22E	Soil Taxonomy, Survey and GIS	5		2/1,7 E 4 fp
AIA04E	Soil and Water Relationship	5		2/2 E
AIA04Z	Excursion (only with AIA04E Soil and Water Relationship)	1		1 day C
	Thematic area: Intercultural learning	**ECTS**	**WS**	**SS**
ZBX121E	Landscape Ecology	5	2/2 E	
EEEF1E	World Economy and Agriculture	5	2/1 E	
EREX4E	Human Resource Management	5		2/1 E
AZA36E	Landscaping	5		2/2 E
EHEA3E	Rural Development	5		2/1 E

Explanation: WS = Winter semester; SS = Summer semester; E = Examination; C = Credited, S = seminar, fp = field practice, e = excursion

	Education provided by partner universities						
	Compulsory courses						
	Subject			Credits	University	Year / semester	
953324	Ecological plant protection			3	BOKU	2/WS	
754325	Food microbiology for safety in food chain (SIFC)			4	BOKU	2/WS	

754317	Food chemistry (for SIFC)			4	BOKU	2/WS	
911327	Soils and global change			4	BOKU	2/WS	
735336	Intercultural communication			3	BOKU	2/SS	
	Biochemistry and Organic Chemistry			7	MATE	1/WS	
	Integrated Crop Production I.			7	MATE	1/WS	
	Biotechnology			7	MATE	1/WS	
	Agrochemistry - Plant Nutrition			7	MATE	1/WS	
	Food Process Control in the Food Industry			7	MATE	1/SS	
	Food Toxicology			7	MATE	1/SS	
P15-0060-I	Food Adulteration and Authentification			4	SUA	2/WS	
P15-0016-I	Genetically Modified Food			6	SUA	2/WS	
P15-0069-I	Foodborne Diseases			4	SUA	2/WS	
P15-0053-I	Accreditation and Certification in Food Industry			4	SUA	2/WS	
	Advanced food processing techniques			4	ULST	2/WS	
	Nutritional biochemistry			2	ULST	2/WS	
	Nutritional cooking and chrononutrition			2	ULST	2/WS	
	Novel food - design and development			4	ULST	2/WS	
	Traditional food products			2	ULST	2/SS	
	Experimental techniques and research			2	ULST	2/SS	
	Nutrition for special category of consumers			2	ULST	2/SS	
169514	Livestock production and the environment			3	UNIZG	2/WS	
146043	Rhizosphere ecology			3	UNIZG	2/WS	
226349	Organic farming			6	UNIZG	2/SS	
146036	Environmental soil science			6	UNIZG	2/SS	
DAF21	Soil Resources			6	UNS	2/WS	
DAF22	Chemistry			6	UNS	2/WS	
DAF23	GIS Applications in Land Consolidation			6	UNS	2/~~SS~~ WS	
	Compulsory elective courses						
	Environmental Hygiene			7	MATE	1/WS	
	Microbiological safety and quality of food production			7	MATE	1/WS	
	Sustainable Agriculture			7	MATE	1/WS	
	Food safety risk analysis			7	MATE	1/SS	
	Agricultural Policy			7	MATE	1/SS	
	Soil inventory			7	MATE	1/SS	
	Elective courses						

	Biochemical and biotechnological methods (analytics design)			3	BOKU	2	
	Field trip – rural water management			1	BOKU	2	
	Interdisciplinary concepts in understanding river-society inter-actions			3	BOKU	2	
	Strategic management			3	BOKU	2	
	Nature and Landscape Conservation			7	MATE	1/WS	
	Plant Protection Strategies and Systems			7	MATE	1/WS	
	Integrated Wildlife and Habitat Management			7	MATE	1/WS	
	Drought Management			7	MATE	1/WS	
	GIS Applications in Natural Resource Management			7	MATE	1/WS	
	Protection of Surface and Subsurface Waters			7	MATE	1/WS	
	Crop Weed Control			7	MATE	1/SS	
	Wildlife Tourism and Economics			7	MATE	1/SS	
	Conflict Management in Wildlife Conservation			7	MATE	1/SS	
	Crop Pests			7	MATE	1/SS	
	Fish Production in Ponds			7	MATE	1/SS	
	Rural Extension			7	MATE	1/SS	
	Basics of the European Union			7	MATE	1/SS	
	Hungarian Language and Culture			7	MATE	1/SS	
	Introduction to Ecotoxicology			7	MATE	1/SS	
	Systems for Environmental Quality Assurance and Condition Assessment			7	MATE	1/SS	
	Complex Food analytical methods			7	MATE	1/SS	
	Sampling of Foods			2	SUA	2	
P15-0099-I	Bioactive Metabolites of Microorganisms			4	SUA	2/SS	
P15-0065-I	Hygiene of Nutrition and Alimentation			6	SUA	2/SS	
P15-0042-I	Poultry and Minority Animal Products Processing			6	SUA	2/WS	
P15-0078-I	Food Sampling			4	SUA	2/WS	
P15-0068-I	Nutrigenomics			6	SUA	2/WS	
P15-0118-I	Sensometrics and Informatics in Food Science			6	SUA	2/WS	
P15-0079-I	Health Safety Aspects of Food			6	SUA	2/WS	
P15-0175-I	Food Chemistry			4	SUA	2/WS	
P15-0106-I	Food Microbiology			6	SUA	2/WS	

P15-0056-I	Food Safety			6	SUA	2/SS	
P15-0061-I	Risk Assessment			4	SUA	2/SS	
P15-0176-I	Xenobiotics and Nutraceuticals			4	SUA	2/SS	
P15-0177-I	Foodstuffs, Nutrition and Metabolism			4	SUA	2/WS	
P15-0049-I	Technology of Foodstuffs of Animal Origin			6	SUA	2/SS	
P15-0067-I	Legislation and Food Control			4	SUA	2/WS	
P15-0109-I	Food Mycology			6	SUA	2/WS	
P15-0127-I	Technology of Foodstuffs of Plant Origin			6	SUA	2/WS	
A15-0188-I	Food Toxicology			6	SUA	2/WS	
U15-0071-I	Administrative Law in Food			4	SUA	2/WS	
	Focus Area “Food safety and consumer science”				BOKU		
754314	Food safety and risk management			3	BOKU	2	
754316	Practical training in food microbiology for SIFC			3	BOKU	2	
752313	Practical course in food processing			5	BOKU	2	
976300	Human nutrition			3	BOKU	2	
754318	Food chemistry practical course for SIFC			3	BOKU	2	
940304	Molecular biology for food analysis			3	BOKU	2	
754310	Food authenticity practical course			3	BOKU	2	
754323	Validation of cleaning processes and hygienic design			3	BOKU	2	
754326	National and international food safety authorities			3	BOKU	2	
771319	Determination of provenance and authenticity of food and food products by modern analytical methods			3	BOKU	2	
790353	Quality management in biotechnology			3	BOKU	2	
790312	Safety aspects of plant biotechnology			3	BOKU	2	
940332	Genetically modified organisms in the environment			2	BOKU	2	
	Focus Area “Sustainable Agriculture”				BOKU		
934307	Transformative development			2	BOKU	2	
952333	Organic horticulture (vegetables and ornamentals)			3	BOKU	2	
951316	Medicinal and aromatic plants			3	BOKU	2	
932302	Animal production in organic agriculture			4	BOKU	2	

913311	Multiple criteria decision making in natural resource management			3	BOKU	2	
953336	Global change and pest management			3	BOKU	2	
831312	Plant and environment			3	BOKU	2	
931362	Production systems and atmospheric pollution			3	BOKU	2	
933303	European regulatory framework for organic production			3	BOKU	2	
933333	Local knowledge and ethnobiology in organic farming – introduction			3	BOKU	2	
940328	Molecular phytopathology			4	BOKU	2	
735315	E-business in the agriculture and food value chain			2	BOKU	2	
731328	Valuation methods for natural resources			2	BOKU	2	
812378	Fish farming and aquaculture			2	BOKU	2	
940328	Aquaculture in practice – lectures and field trips			2	BOKU	2	
933306	Ethics in organic agriculture			3	BOKU	2	
831304	Ecology and population biology of plants in agro-ecosystems			5	BOKU	2	
	Focus Area “Soil, water, climate”				Boku		
816338	Water resources planning and management			3	BOKU	2	
911300	Soil physics and chemistry			3	BOKU	2	
911342	Soils and food security			2	BOKU	2	
814313	Agrometeorology in practice			3	BOKU	2	
814307	Selected projects in meteorology			2	BOKU	2	
815321	Soil conservation			3	BOKU	2	
815345	Soil erosion models and their application			4,5	BOKU	2	
933308	Soil fertility and Soil ecology in organic agriculture			3	BOKU	2	
813300	Global waste management I			3	BOKU	2	
813301	Global waste management II			3	BOKU	2	
970306	Methods in environmental biotechnology			3	BOKU	2	
911306	Soils in the landscape			1	BOKU	2	
812349	Ecological river landscape management			2	BOKU	2	
811362	On site solution for water supply and sanitation			3	BOKU	2	
812387	Environmental impacts on riverine ecosystems I			4	BOKU	2	
812347	Human impacts in riverine landscapes			2	BOKU	2	
871332	Disaster management			2	BOKU	2	
815343	Field trip – rural water management			1	BOKU	2	
893311	Renewable energy resources			3	BOKU	2	

893306	Practical course in energy engineering			3	BOKU	2	
872323	Geothermal energy – geological fundamentals and applications			3	BOKU	2	
970315	Resource efficiency and bioeconomy of bio-based materials			3	BOKU	2	
	Focus Area “Intercultural learning”				BOKU		
112303	Presenting at a scientific conference			3	BOKU	2	
120999	Intercultural competence – acting effectively in an international environment			3	BOKU	2	
120999	Security training for studying and field research abroad – raising awareness for critical and emergency situations			2	BOKU	2	
731333	Globalisation and rural development			3	BOKU	2	
731347	Rural development			3	BOKU	2	
733333	Farming resilience and social sustainability			3	BOKU	2	
733321	Organisational behaviour and gender issues			3	BOKU	2	
E15-0090-I	Food Marketing			6	SUA	2/WS	
	Advances in Food Toxicology and Food Authenticity			2	ULST	2	
	Hygienic design in food factory			2	ULST	2	
	Advanced techniques in food microbiology			2	ULST	2	
	Food chemistry – food authenticity			2	ULST	2	
	Modern techniques in food packaging and labelling			2	ULST	2	
	Practice			2	ULST	2	
	Research			2	ULST	2	
	Hygienic design in food factory			2	ULST	2	
	Food chemistry - food authenticity			2	ULST	2	
	Modern techniques in food packaging and labelling			2	ULST	2	
	Advances in food toxicology and food authenticity			2	ULST	2	
	Advanced techniques in food microbiology			2	ULST	2	
	Biodiversity Conservation			2	ULST	2	
	Soil water and climate change			2	ULST	2	
	Intercultural interferences in different learning process			2	ULST	2	
	Multilinguism and interculturality			2	ULST	2	
146031	Agri-environmental law and policy			3	UNIZG	2	
152068	Applied entomology			6	UNIZG	2	
146061	Aquatic ecosystems and biodiversity			3	UNIZG	2	

152100	Biogeochemistry of soil metals			3	UNIZG	2	
219687	e-marketing for sustainable development			3	UNIZG	2	
146059	Environmental risk analysis and management			3	UNIZG	2	
146066	Field crops and bioenergy cropping systems			3	UNIZG	2	
152076	Financial management in agribusiness			3	UNIZG	2	
152066	Forage crops			6	UNIZG	2	
169513	Geomorphology and landscape ecology			3	UNIZG	2	
197967	Global ecology			6	UNIZG	2	
	Grassland Management				UNIZG	2	
152086	Ichthyology			6	UNIZG	2	
226350	Insects as food and feed			3	UNIZG	2	
152089	Limnology and Oceanology			6	UNIZG	2	
146046	Microbial enzymatic activities in soil			3	UNIZG	2	
152091	Molecular diversity and evolution			6	UNIZG	2	
159808	Natural enemies and principles of biological control			3	UNIZG	2	
146050	Plant ecophysiology			3	UNIZG	2	
238608	Plant pest management			3	UNIZG	2	
152077	Project Management and Projects at Agribusiness			6	UNIZG	2	
152094	Regional marketing			3	UNIZG	2	
169515	Renewable Energy for Rural Areas			3	UNIZG	2	
152075	Strategic Management in Agribusiness			6	UNIZG	2	
238607	Waste management in agriculture			6	UNIZG	2	
146053	Water Management in Agriculture			3	UNIZG	2	
152078	Yield formation in arable crops			3	UNIZG	2	
219688	Agribusiness Marketing and Consumer Behaviour			6			
146027	Agroclimatology and climate change			3			
146033	Hydrology and water resources			6			
238608	Invasive pests in agriculture			6			
152093	Regulation of Water			3			
157664	Use and conservation of water resources			6			
DAFI32	Modern Farm Management			4	UNS	2/WS	
DAFI31	Hydroecology			4	UNS	2/WS	
DAFI44	Constructed Wetlands in Protection of Water Resources			4	UNS	2/WS	
DAFI42	Agricultural meteorology and climatology			4	UNS	2/WS	
DAFI45	Water resources systems analysis techniques			4	UNS	2/WS	

DAFI33	Water resources management for sustainable agriculture			4	UNS	2/WS	
DAFI34	Decision-making in Agriculture			4	UNS	2/WS	
DAFI35	Agroecological Concepts in Sustainable Food Production			4	UNS	2/WS	
DAFI36	Farm crops drying and storing			4	UNS	2/WS	
DAFI37	Fruit and vegetable postharvest technology			4	UNS	2/WS	
DAFI38	Plant nutrition in sustainable agriculture			4	UNS	2/WS	
DAFI39	Crop ecophysiology			4	UNS	2/WS	
DAFI40	Energy efficiency in agriculture			4	UNS	2/WS	
DAFI41	Cover crops for soil conservation			4	UNS	2/WS	
DAFI46	Sustainable Use of Soils			4	UNS	2/WS	
DAFI43	Weather derivatives and risk management in agriculture: Theory and applications			4	UNS	2/WS	

Final State Examination

S t u d y p r o g r a m m e **N0811A370028 – Danube AgriFood Master (DAFM)**

according to the second year university

S t u d y p r o g r a m m e N0712A330002 – Natural Resources and Environment (ENVIM)

MSc. **full time course**

Programme guarantor: prof. Ing. Radka Kodešová, CSc.

1st year

	Subject	ECTS	WS	SS
AAA41E	Advanced Meteorology and Climatology	5	2/2 E	
AMA09E	Environmental Microbiology	5	2/2 E	
AEA17E	Agricultural Ecology	4	2/1 E	
ACA06E	Environmental Analytical Chemistry	5	2/2 E	
AGA47E	Experimental Design and Statistics	5	2/2 E	
AWA38Z	Start up module	1	1/0 C	
ZBX03E	Water Resources Management	5	2/2 E	
	1x Compulsory Optional Subject group 1	min 5.	WS or SS	
APA03Z	Excursion – Soils and Water Resources of the Czech Republic	3		3 days C
AWA64Z	MSc. Thesis I	5		125 hours C
AUA59Z	Practical Diploma Training	5		125 hours C
APA19E	Soil and Chemical Relationship	5		2/2 E
AHA17E	Soil and Plant Relationship	5		2/2 E
AIA04E	Soil and Water Relationship	5		2/2 E
APA22E	Soil Taxonomy, Survey and GIS	5		2/0 20s 4fp E
		63 + optional subject (5) = **68 C**		

2nd year

	Subject	ECTS	WS	SS
EEA16E	Environmental Economics	5	2/1 E	
AIA05E	Hydrogeology	5	2/2 E	
APA17E	Modelling in Soil Science	5	2/2 E	
APA21E	Soil Conservation and Protection	5	2/2 E	
	2x Compulsory Optional Subject group 1	min. 10	WS or SS	
	2x Compulsory Optional Subject group 2	min. 10	WS or SS	
AWA63Z	MSc. Thesis II	6+6	150 hours C	150 hours C
APA23E	Proximal and Remote Sensing in Soil Science	4		2/1 zk
		36 + optional subjects (20) = **56 C** in total 99 + optional subjects (25) = **124 C**		

List of optional subjects ENVIM – group 1

	Compulsory optional subject	ECTS	WS	SS
AIA15E	Agricultural Water Management	5	2/2 E	
APA14E	Environmental Soil Science	5	2/2 E	
ZBX27E	Water in Landscape	5	2/2 E	
AIA13E	Crop and Irrigation Systems Management	5	2/2 E	2/2 E
AIA08E	Hydrology	5	2/2 E	2/2 E
AIA10E	Hydrometeorology	5	2/2 E	2/2 E
ZVX109Z	Applied Hydroinformatics	5		2/2 E
AIA12E	Survey for Soil and Water Relationship	5		2/2 E

List of optional subjects ENVIM – group 2

	Compulsory optional subject	ECTS	WS	SS
ACA12E	Biochemistry	5	2/2 E	
AOA28E	Fundamentals of Plant Protection	5	2/2 E	
AOA29E	General Phytopathology	5	2/2 E	
ATA17E	Management of Turf and Lawn	5	2/0,83 4s 4fp 6e E	
AHA39E	Environment Pollution and Remediation	5		2/2 E

Explanation: WS = Winter semester; SS = Summer semester; E = Examination; C = Credited, S = seminar, fp = field practice, e = excursion

Optional:

Internship abroad

During their studies, students have the opportunity to participate in a foreign internship for at least 5 days. The guarantor of the foreign internship is prof. Ing. Radka Kodešová, CSc. The total number of credits is graduated according to its length of either 5, 10 or 15 days and more. **Credits correspond to 2, 3 and 5 credits.** These credits are included in the total number of credits for compulsory electives. Students can complete several foreign internships, a maximum of 5 credits can be counted.

Summer school

During their studies, students have the opportunity to participate in a summer school for at least 5 days. The guarantor for the recognition of completion of the summer school is prof. Ing. Radka Kodešová, CSc. **The total number of credits corresponds to the number of summer school credits.** These credits are included in the total number of credits for compulsory electives. Students can attend more than one summer school, only one completed summer school during SP studies is counted towards the total number of credits.

Specialized courses

During their studies, students have the opportunity to participate in specialized courses, which are credited, for a minimum of 5 days. The guarantor for the recognition of completion of a specialized course is prof. Ing. Radka Kodešová, CSc. **The total number of credits corresponds to the number of credits of the specialized course**. These credits are counted towards the total number of credits for compulsory optional subjects. Students can take more specialized courses, only one completed specialized course during SP studies is included in the total number of credits.

Final State Examination

Study programme **N0712A330002 – Natural Resources and Environment (ENVIM)**

Subject of the FSE (corridor)	Subjects of the corridor
Soil and Environment	Soil and Chemical Relationship
	Soil Conservation and Protection
Water and Environment	Soil and Water Relationship
	Modeling in Soil Science
	Hydrogeology
Biosphere and Environment	Soil and Plant Relationship
	Agricultural and Environmental Microbiology
	Agricultural Ecology
Diploma thesis defence	

S t u d y p r o g r a m m e N0712A370001 - Natural Resources Management and Ecological Engineering (NARMEEM)

MSc. **full time course**

Programme guarantor: prof. Ing. Pavel Tlustoš, CSc.

1st year - CZU

	Subject	ECTS	WS	SS
AAA41E	Advanced Meteorology and Climatology	5	2/2 E	
AMA09E	Environmental Microbiology	5	2/2 E	
AEA17E	Agricultural Ecology	4	2/1 E	
ACA06E	Environmental Analytical Chemistry	5	2/2 E	
AGA47E	Experimental Design and Statistics	5	2/2 E	
AWA38Z	Start up module	1	1/0 C	
	At least 5 Credits from Compulsory optional subject I	min. 5	WS or SS	
AHA39E	Environment Pollution and Remediation	5		2/2 E
APA19E	Soil and Chemical Relationship	5		2/2 E
AHA17E	Soil and Plant Relationship	5		2/2 E
AIA04E	Soil and Water Relationship	5		2/2 E
AIA04Z	Excursion	1		1 day C
AUA59Z	Practical Diploma Training	5		125 hours C
AWA64Z	MSc. Thesis I	5		125 hours C
		51 + 5 C. optional subject = 56 Cr.		

2nd year – BOKU/CZU

	Subject	ECTS	WS	SS
	At least 25 Credits from Compulsory optional subject I	min. 25	WS or SS	
	At least 22 Credits from Compulsory optional subject II	min. 22	WS or SS	
AWA63Z	MSc. Thesis	6+6	150 hours C	150 hours C
	17 + Compulsory optional subjects (min. 47 Cr.)			
		in total 68 + optional subj. (min 52) = **120 C**		

NARMEE courses

List of compulsory optional subjects I - CZU

	Soil Resources	ECTS	WS	SS
APA14E	Environmental Soil Science	5	2/2 E	
APA21E	Soil Conservation and Protection	5	2/2 E	
APA22E	Soil Taxonomy Survey and GIS	5		2/2 E
	Water Resources and Climate	**ECTS**	**WS**	**SS**
AIA05E	Hydrogeology	5	2/2 E	
AEA62E	Aquaculture	5	2/2 E	
ZBX03E	Water Resources Management	5	2/2 E	
AIA08E	Hydrology	5	2/2 E	2/2 E
AIA13E	Crop and Irrigation Systems Management	5	2/2 E	2/2 E
AIA12E	Survey for Soil and Water Relationship	5		2/2 E
	Bioresources	**ECTS**	**WS**	**SS**
ABA26E	Environmental Physiology of Plant	5	2/2 E	

List of compulsory optional subjects I - BOKU

	Introduction	ECTS	WS	SS
911353	Introduction in natural resources management and ecological engineering	3	x	
731324	Resource and environmental economics	3		x
911341	Biogeochemistry of soils	3		x
815340	Lecture series in soil, water and atmosphere	3	x	

	Fundamentals of natural resources	ECTS	WS	SS
	Soil resources			
911300	Soil physics and chemistry	3	x	
911309	Soil chemistry laboratory	3	x	
833301	Soil ecology	3	x	
911321	Field course soil ecology	3	x	
911350	Soils of the world: genesis and classification	3		x
911304	Soil indicators	3		x
911346	Description, functions of soil structure and its changes in agricultural land use	3		x
911317	Soil properties and processes for ecological engineering	3		x

	Water resources and climate			
812342	Ecology of aquatic systems	3	x	
872330	Hydrogeology	3	x	
814301	Meteorological conditions and precipitation	3	x	
816356	Advanced topics on hydrology	3	x	
812340	Limnology	3	x	
812341	Limnochemistry and nutrient cycling	3	x	
812345	Physical environment of riverine landscape	2	x	
812353	River habitat and landscape assessment	4	x	
811357	Biology, chemistry and microbiology for civil engineering	3		x
819339	Sediment regime and river morphology	3		x
	Bioresources, biodiversity and ecology			
831304	Ecology and population biology of plants in agro-ecosystems	5	x	
833315	Farmland ecology	1	x	
	Biocultural diversity in rural landscapes	3	-	-
834305	Conservation biogeography and genetics	3	x	
812343	Taxonomy and ecology of benthic invertebrates	3	x	
812344	Ecology of fishes	3	x	
812355	Fish sampling and monitoring	3	x	
812356	Fish ecological status assessment	3	x	
812357	Benthic invertebrate sampling and monitoring	3		x
812358	Benthic invertebrate status assessment	3		x
831339	Introduction to tropical ecology	2	-	-
951332	Crop production in the tropics and subtropics	4		x
772300	Biophysical chemistry	3		x
773310	Bioorganic chemistry	3		x
772311	Kinetics of biochemical reactions	3		x
772306	Proteomics	3		x
911354	Stable isotopes (C, N, S, O, H) in soil and environmental sciences	3	x	
815328	Isotope and tracer hydrology	3		x
	Fundamentals of natural resource management			
735318	Decision support systems	3	x	
913311	Multiple criteria decision making in natural resource management	3	x	
731335	Game theory in environmental and natural resource management	3	x	
731325	Principles of commodity markets and trade policy	3		x

List of compulsory optional subjects II – CZU

	Agro-municipal Resource Management	ECTS	WS	SS
AOA29E	General Phytopathology	5	2/2 E	
ARA42E	Alternative Agriculture	5	2/2 E	
LHA002E	Forest Management	6	2/2 E	
LPX001E	Forest Management in Air Polluted Areas	6	2/2 E	
LLX001E	Forest Ecology	6	2/2 E	
LOL010E	Forest Protection	6		2/2 2fc E
LPL007E	Silviculture	6		2/2 E

	Ecological Engineering and Risk Management	ECTS	WS	SS
ZEX27E	Ecology and Ecological Methods	6	2/2 E	
ZUX116E	Landscape and Ecological Applications	6	2/2 E	
ZGX130E	GIS I	5	2/2 E	
ZEX121Z	Aquatic Ecosystem Restoration	6	2/2 C	
AZA36E	Landscaping	5		2/2 E
ZBX114E	Spatial Planning	5		2/2 E

	Nature Conservation And Biodiversity Management	ECTS	WS	SS
ZEX114E	Biodiversity	5	2/1 E	
ZBX121E	Landscape Ecology	5	2/2 E	
LLX002E	Vegetation in Land Management	5	2/2 E	
AEA38E	Fish Systematics	5		1,3/3 E
AEA20E	Parasitology	5		2/2 E
ZOX108E	Paleoecology	3		1/0 E
ZEX120E	Conservation Biology	6		2/1 E
ZEX117E	Ecosystems Conservation and Management	6		2/2 E
LLL014E	Classification of Vegetation	6		2/2 E

	Global Resources And Sustainability Management	ECTS	WS	SS
APA17E	Modeling in Soil Science	5	2/2 E	
ZBX119E	River Restoration	6	2/1 E	
ZEX121E	Conservation Policy	4		2/0 E
ZUX112E	Wetlands Cons. and Management	5		2/1 E

	Human Dimension And Socio-Economic Aspects Of Sustainable Development	ECTS	WS	SS
AQA25E	Food Quality and Food Safety	5	2/2 E	
AKA39E	Sensory Analysis of Food	4	1/2 E	
LRX003E	Forest Enterprise Economics	6		2/2 E
EHI03E	Rural Development	5		2/2 E
EJE48E	Business Law in Practice	4		2/1 E

List of compulsory optional subjects II – BOKU

	Agro-municipal resource management	ECTS	WS	SS
	Soil management and protection			
815321	Soil conservation and soil protection	3	x	
815320	Soil water management	3	x	
933308	Soil fertility and soil ecology in organic agriculture	3		x
911301	Soil protection	3		x
911307	Interdisciplinary project work: soil sciences	6	x	
911312	Rhizosphere processes and application to agriculture and soil protection	3	x	
911344	Ecology and management of the rhizosphere in ecological engineering	3	x	
	Forest services and management			
912317	Air pollution effects on forest ecosystems	3	x	
912313	Forests and water	3	x	
912328	Agroforestry in mountain regions	3		x
912332	Field camp II - concepts and methods of site ecology, forest growth and yield	3		x
916323	Field Camp I - introduction to mountain forestry and forest sciences	2	x	
913338	Natural resource management in mountain forests	4		x
	Water resource planning and waste management			
816338	Water resources planning and management	3	x	
815319	Irrigation design	3	x	
970306	Methods in environmental biotechnology	3		x
813303	Planning and assessment of waste management systems	3		x

	Ecological engineering and risk management	ECTS	WS	SS
	Mitigation of natural hazards and erosion control			
871324	Mountain hazard processes	6	x	
873320	Geotechnics	3		x
874300	Soil and water bioengineering - principles and applications	3		x

819301	Hydraulic engineering and river basin management	3	x	
819336	Integrated flood risk management	3	x	
819340	Ecologically oriented methods and monitoring in river engineering	3		x
816325	Flood forecasting and flood protection	3		x
871360	Risk management and vulnerability assessment	3	x	
871314	Protection and mitigation measures against natural hazards	3		x
	Management and remediation of polluted soils and environments			
911336	Soil pollution and remediation	3		x
911343	In-situ treatment of polluted soils and sediments: phytoremediation, in-situ fixation and attenuation techniques	3		x
	River and river Landscape management and engineering			
812347	Human impacts in riverine landscapes	2	x	
812349	Ecological river landscape management	2	x	
812350	Applications in river landscape management	2	x	x
	Sanitary engineering and water pollution control			
811334	Risk assessment in the aquatic environment	3	x	
811354	Case studies in sanitary engineering	3	x	
811362	On site solutions for water supply and sanitation	3	x	
811358	Planning and design in water supply and wastewater treatment	3		x

	Nature conservation and biodiversity management	**ECTS**	**WS**	**SS**
	Biodiversity and conservation in aquatic, semiterrestrial and terrestrial environments			
812387	Environmental impacts on riverine ecosystems I	4	x	
812388	Environmental impacts on riverine ecosystems II	2	x	
812377	Fisheries management and conservation	2		x
812384	Aquatic biomonitoring and -assessment	2	x	
812354	Ecohydromorphological mapping	2	x	
812360	Ecology, restoration and conservation of aquatic and riparian vegetation	2		x
912337	Biodiversity and conservation of mountain forests	2		x
913327	Fire management in mountain forest ecosystems - prophylaxis and control	2		x
916326	Management and forest protection in high altitude afforestations and protective forests	3		x

912330	Mountain forest dynamics and fire ecology	3		x
933302	Protection of natural resources by organic farming	3	x	
	Crop production systems in organic agriculture	3		x

	Global resources and sustainability management	**ECTS**	**WS**	**SS**
	Global aspects of land and soil resource management			
911342	Soils and food security	2	x	
911327	Soils and global change	4	x	
911347	Soil problems in aridic and semiaridic regions	3		x
911324	Soil management in tropical and subtropical developing regions	3		x
857316	International land management	1,5	x	
854331	International land management	4,5		x
	Global aspects of water and forest resource management and climate change mitigation			
816342	Possible impacts of climate change on water resources	3		x
814308	Interdisciplinary seminar on agriculture, climate change and transition	3	x	
811332	Water resources management in developing cooperation	3		x
811308	Appropriate technologies for water supply & sanitation in developing countries	3		x
732337	Innovations for sustainable forest management	4	x	
913324	Adapting forest management to climate change	2	x	
	Global aspects of waste management			
818306	Radioactive waste management – its perception and acceptance I	2	x	
818307	Radioactive waste management – its perception and acceptance II	2		x
813304	Life cycle management 2	2		x
813300	Global waste management I	3	x	
813301	Global waste management II	3		x
	Global aspects of renewable energy resources			
893311	Renewable energy resources	3	x	
818308	Technology assessment and risk management considering wind power plants	3	x	

	Human dimension and socio-economic aspects of sustainable development	ECTS	WS	SS
	Environmental policy, forecast and networking			
	Applied methods of rural water management in the tropics and subtropics	3	-	-
812348	Water legislation	2	x	
816361	Cooperation development	1	x	
735322	Global networking	6		x
731347	Rural development	3		x
731395	Introduction to development cooperation	3		x
	Land use and global change: Socio-ecological interactions	3	x	
730306	Foresights - what future to expect? (Late lessons from early warnings)	3	x	
736322	Governance of emerging technologies	2	-	-
812318	Environmental history of river systems	3	x	
812327	Interdisciplinary concepts in understanding river-society interactions	3		x
	Transformative Development	3		
	System analysis, strategic planning and policy modelling with system dynamics	3		
	Sustainable development, development research and innovation			
934305	Facilitating change for sustainable development	3		x
934317	Participatory methods in development research and practice	3		x
731330	Growth, development, trade and environment	3		x
852319	Science and technology studies: Understanding sustainable innovation	3		x
934302	Applied development research I	3	x	
934303	Applied development research II	3		x
934306	Negotiating Change: simulating an international conference for sustainable development	6	x	

	General Skills & Research Methods	ECTS	WS	SS
857321	Remote sensing and GIS in natural resource management	3	x	
857320	Remote sensing and GIS in natural resource management	3	x	
857304	Remote sensing and image processing	6		x
851311	Environmental statistics	3		x
851320	Statistics of extreme events and geostatistics	3	x	
816355	Uncertainties in hydrological and ecosystem modelling	3	x	
851311	Environmental statistics	3		x
816334	Hydrological processes and modelling	3	x	
815311	Simulation in vadose zone environment	3	x	

731351	Applied mathematical programming in natural resource management	3	x	
731369	Computer simulation in energy and resource economics	3	x	
819332	Computer based river modelling	3	x	
	Soil erosion models and their application (in Eng.)	3	x	
731348	Managerial economics	3	x	
731328	Valuation methods for natural resources	3		x
735336	Intercultural Communication	3		x
731383	Principles of empirical research methods in the social sciences	3		x
915344	Technology assessment	3	x	
915327	Project management	3		x

	Language	**ECTS**	**WS**	**SS**
ELX..Z	Foreign Language	2	0/2 C	
ELX..E	Foreign Language	3		0/2 E
	BOKU …			

Optional:

Internship abroad

During their studies, students have the opportunity to participate in a foreign internship for at least 5 days. The guarantor of the foreign internship is prof. Ing. Pavel Tlustoš, CSc. The total number of credits is graduated according to its length of either 5, 10 or 15 days and more. **Credits correspond to 2, 3 and 5 credits.** These credits are included in the total number of credits for compulsory electives. Students can complete several foreign internships, a maximum of 5 credits can be counted.

Summer school

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Specialized courses

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Final State Examination

S t u d y p r o g r a m m e **N0712A370001 – Natural Resources Management and Ecological Engineering (NARMEEM)**

Subject of the FSE (corridor)	Subjects of the corridor
Soil Properties and Conservation	Soil and Chemical Relationship
	Soil Conservation and Protection or equivalent
Water Resources and Management	Soil and Water Relationship
	Water Resources Management or equivalent
Atmosphere, Biosphere and Environment	Advanced Meteorology and Climatology
	Soil and Plant Relationship
	Agricultural Ecology
	Environment Pollution and Remediation
Diploma thesis defence	

S t u d y p r o g r a m m e N0811A370002 - Sustainable Agriculture and Food Security (AGRIFOM)

MSc. **full time course (study at CZU only)**

Programme guarantor: doc. Ing. Jaroslav Havlík, Ph.D.

1st year

	Subject	ECTS	WS	SS
AVA43E	Animal Physiology	5	2/2 E	
ACA12E	Biochemistry	5	2/2 E	
AMA09E	Environmental Microbiology	5	2/2 E	
AGA47E	Experimental Design and Statistics	5	2/2 E	
AWA38Z	Start up module	1	1/0 C	
ATA33E	Sustainable Agriculture	5	2/2 E	
	2x Compulsory Optional Subject group 1 in the first or second year	min 10	WS or SS	
	2x Compulsory Optional Subject group 2 in the first or second year	min 7	WS or SS	
ARA42E	Alternative Agriculture	5		2/2 E
ARA46E	Crop Management Systems	5		2/2 E
ACA13E	Food Chemistry	6		2/3 E
ASA48E	Livestock Management	5		2/2 E
AWA64Z	MSc. Thesis I	5		125 hours C
		52 + optional subject (X) = 52 C		

2nd year

	Subject	ECTS	WS	SS
AVA54E	Animal Biotechnology	3	1,3/0,5 E 2tc	
ABA26E	Environmental Physiology of Plant	5	2/2 E	
AMA09E	Environmental Microbiology **	5	2/2 E	
AQA25E	Food Quality and Food Safety	5	2/2 E	
AQA55E	Quality Assessment of Plant-Based Foods	5	2/2 E	
AWA1DZ	MSc. Thesis II	9+9	225 hours C	225 hours C
	2x Compulsory Optional Subject group 1 in the first or second year	min 10	WS or SS	
	2x Compulsory Optional Subject group 2 in the first or second year	min 7	WS or SS	
AQA62E	Advanced Technology in Food Processing	5		2/2 E
AKA34E	Food, Beverages and Dietary Supplements	5		2/2 E
AQA60E	Quality Assessment of Animal-Based Foods	5		2/2 E
		51 + optional subjects (min X) = 51 C in total 103+optional subjects(min 17) = **120C**		

** only 24/25

List of optional subjects – group 1

	Compulsory optional subject	ECTS	WS	SS
ADA21E	Poultry Management	5	2/2 E	
AAA30E	Weed Science	5	2/2 E	
AEA38E	Fish Systematics	5		1,3/3 E
AEA20E	Parasitology	5		2/2 E
EHI03E	Rural Development	5		2/2 E
APA22E	Soil Taxonomy, Survey and GIS	5		2/2 E

List of optional subjects – group 2

	Compulsory optional subject	ECTS	WS	SS
AAA41E	Advanced Meteorology and Climatology	5	2/2 E	
AEA17E	Agricultural Ecology	4	2/1 E	
ACA06E	Environmental Analytical Chemistry	5	2/2 E	
AMA18E	Food Microbiology	5	2/2 E	
AKA39E	Sensory Analysis of Food	4	1/2 E	
AQA59E	Sustainability in the Food Chain	3	1/1 E	
AQA68E	Quality Assessment of Milk and Dairy Products	4		2/1 E
AHA17E	Soil and Plant Relationship	5		2/2 E

Explanation: WS = Winter semester; SS = Summer semester; E = Examination; C = Credited, S = seminar, fp = field practice, e = excursion

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Final State Examination

Study programme **N0811A370002 – Sustainable Agriculture and Food Security (AGRIFOM)**

Subject of the FSE (corridor)	Subjects of the corridor
Sustainable Agriculture	Sustainable Agriculture
	Alternative Agriculture
Food Quality and Food Safety	Food Quality and Food Safety
	Quality Assessment of Plant-based Food
	Quality Assessment of Animal-Based Foods
	Food Chemistry
Food Manufacturing	Advanced Technology in Food Production
	Food, Beverages and Dietary Supplements
Diploma thesis defence	

S t u d y p r o g r a m m e N0811A370002 - Sustainable Agriculture and Food Security (AGRIFOMD)

MSc. **full time course (for double degree students - University of Pisa)**

Programme guarantor: doc. Ing. Jaroslav Havlík, Ph.D.

1st year

	Subject	ECTS	WS	SS
AVA43E	Animal Physiology	5	2/2 E	
ACA12E	Biochemistry	5	2/2 E	
AMA09E	Environmental Microbiology	5	2/2 E	
AGA47E	Experimental Design and Statistics	5	2/2 E	
AMA18E	*Food Microbiology **	*6 (5) ***	*2/2 E*	
AWA38Z	Start up module	1	1/0 C	
ATA33E	Sustainable Agriculture	5	2/2 E	
	1x Compulsory Optional Subject group 1 in the first or second year	min 5	WS or SS	
	1x Compulsory Optional Subject group 2 in the first or second year	min 5	WS or SS	
ACA13E	*Food Chemistry **	*6*		*2/3 E*
AWA64Z	*Msc. Thesis I **	*5*		*125 hours C*
AWA6AZ_1	*Msc. Thesis II **	*9*		*225 hours C*
AQA60E	*Quality Assessment of Animal-Based Foods **	*6 (5) ***		*2/2 E*
		58 + optional subject (X) = 58 C		

** The subject can also be studied as the part of double degree, in the 1st year, summer semester in Pisa, see the table below*

*** The subject will be recognized for 6 credits*

1st year, summer semestr – CZU students in Pisa

	Subject in Pisa	ECTS	Codes at CZU	Equivalent subject at CZU	ECTS
UNIPI	Animal Food Quality	6	AQA60E	*Quality Assessment of Animal-Based Foods ***	5
UNIPI	Food Composition and Analysis	6	ACA13E	*Food Chemistry*	6
UNIPI	Microbial Food Biotechnology	6	AMA18E	*Food Microbiology ***	5
Pisa	Thesis	14	AWA64Z	*MSc. Thesis I*	5
			AWA6AZ_1	*MSc. Thesis II*	9

*** The subject will be recognized for 6 credits*

2nd year

	Subject	ECTS	WS	SS
AVA54E	Animal Biotechnology	3	1,3/0,5 E 2tc	
ABA26E	Environmental Physiology of Plant	5	2/2 E	
AMA09E	Environmental Microbiology **	5	2/2 E	
AQA25E	Food Quality and Food Safety	5	2/2 E	
AQA55E	Quality Assessment of Plant-Based Foods	5	2/2 E	
	1x Compulsory Optional Subject group 1 in the first or second year	min 5	WS or SS	
	1x Compulsory Optional Subject group 2 in the first or second year	min 5	WS or SS	
AQA62E	Advanced Technology in Food Processing	5		2/2 E
ARA42E	Alternative Agriculture	5		2/2 E
ARA46E	Crop Management Systems	5		2/2 E
AKA34E	Food, Beverages and Dietary Supplements	5		2/2 E
ASA48E	Livestock Management	5		2/2 E
AWA6AZ_2	MSc. Thesis II – SS	9		225 hours C
		52 + optional subjects (min X) = 52 C in total 110 + optional subjects (min 10) = **120C**		

* The subject can also be studied as the part of double degree, in the 1st year, summer semestr in Pisa, see the table above

** only 24/25

List of optional subjects – group 1

	Compulsory optional subject	ECTS	WS	SS
ADA21E	Poultry Management	5	2/2 E	
AAA30E	Weed Science	5	2/2 E	
AEA38E	Fish Systematics	5		1,3/3 E
AEA20E	Parasitology	5		2/2 E
EHI03E	Rural Development	5		2/2 E
APA22E	Soil Taxonomy, Survey and GIS	5		2/2 E

List of optional subjects – group 2

	Compulsory optional subject	ECTS	WS	SS
AAA41E	Advanced Meteorology and Climatology	5	2/2 E	
AEA17E	Agricultural Ecology	4	2/1 E	
ACA06E	Environmental Analytical Chemistry	5	2/2 E	
AKA39E	Sensory Analysis of Food	4	1/2 E	
AQA59E	Sustainability in the Food Chain	3	1/1 E	
AQA68E	Quality Assessment of Milk and Dairy Products	4		2/1 E
AHA17E	Soil and Plant Relationship	5		2/2 E

Explanation: WS = Winter semester; SS = Summer semester; E = Examination; C = Credited, S = seminar, fp = field practice, e = excursion

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Pisa students at CZU (Compulsory optional subjects)

	Subject	ECTS	WS	SS
AWA25Z	Thesis	16		400 z
AQA66E	Quality of Animal Products	9		2/4 24s E
ACA13E	Food Chemistry	6		2/3 E
		31 C		

Final State Examination

Study programme **N0811A370002 – Sustainable Agriculture and Food Security (AGRIFOMD)**

Subject of the FSE (corridor)	Subjects of the corridor
Sustainable Agriculture	Sustainable Agriculture
	Alternative Agriculture
Food Quality and Food Safety	Food Quality and Food Safety
	Quality Assessment of Plant-based Food
	Animal Food Quality
	Food Composition and Analysis
Food Manufacturing	Advanced Technology in Food Production
	Food, Beverages and Dietary Supplements
Diploma thesis defence	

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