

Escola Superior Agrária de Coimbra

AGRICULTURA
ENSINO
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COIMBRA



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Master programmes

GENERAL INFORMATION

Academic unit	Coimbra College of Agriculture (ESAC-IPC)
Type	Graduate Program
Level of qualification	Level 7. Second Cycle (Master's Degree) Program.
Qualification awarded	The students who successfully complete the program are awarded the degree of Master of Science
Mode of study	Fridays and Saturdays. 30 ECTS/semester during 2 years (programmes with 120 ECTS) or 1.5 years (programmes with 90 ECTS)
Admission requirements and recognition of prior learning	To enrol in ESAC-IPC graduate degree programmes citizens may apply during the annual admission contest, from April to September; Applicants: a) Holders of a 1st cycle degree, or a legal equivalent, in the areas of Agricultural, Biological or Natural Sciences, or similar areas; b) Holders of a foreign academic higher education degree in one of the above mentioned areas, or a legal equivalent, from an institution whose 1st cycle degrees comply with the principles of the Bologna Process; c) Holders of a foreign academic higher education degree in one of the above mentioned areas, recognized by the Technical-Scientific Board of ESAC as fulfilling the requirements of a 1st cycle degree; d) Holders of an academic, scientific or professional curriculum recognized by the Technical-Scientific Board of ESAC as attesting to the aptitude to accomplish this study cycle; More information on the ESAC-IPC website: www.esac.pt .
Qualification requirements	The graduate students in a program must be successful in all the courses with a minimum achievement grade of 10, including the final traineeship, and must have completed the total amount of ECTS credits.
Examination regulations, assessment and grading	Assessment of success Assessment of success in a course may be carried out by a) continuous evaluation or b) exam. The students which do not achieve success during continuous evaluation are admitted to the exam if their presence in classes is $\geq 75\%$. Achievement grade Grades are given in an absolute system scoring 0 to 20. Scores 0 to 9 indicate that the student was unsuccessful in a course (fail). Scores 10 to 20 indicate that the student was successful in a course (pass). Continuous evaluation, final, resit and graduation exams (1) All courses contemplate continuous evaluation, which may be carried out in different ways specified in the respective Course Datasheet. a) Assessment by modules: each module is given a percentage contribution to the final grade. The student passes only if the grade for each module is ≥ 7.5 and the final grade of the course is ≥ 9.5 . The failed module(s) may be assessed in the final and/or resit exams or the student may choose to assess the whole subject of the course; b) When the course is not divided in modules, the student passes if the final grade of the course is ≥ 9.5 . The contribution of each evaluation item for the final grade is specified in the Course Datasheet. The complete subject of a failed course must be assessed in the final and/or resit exams. (2) Final exams: a student may take the final exams only if 75% presence in the classes is achieved. The final exams may assess one or more course modules or the whole course. (3) Resit exams: are the final opportunity for a student to pass a course in a given academic year, and are available to all students. The resit exams may assess one or more course modules or the whole course. (4) Graduation exams: available to finalist students with, at the most, three failed courses to fulfil the bachelor program requirements.

Academic calendar

Fall semester: late-September to mid-February | **Spring semester:** mid-February to mid-July. A semester has typically a duration of 15 class weeks

Erasmus+ nominations

Fall semester: 15th July | **Spring semester:** 30th December

Type of classes

T=Lecture; TP=Lecture-Practical; L=Laboratory; S=Seminars; E=Traineeship; OT=Tutorial guidance.

[M755] Agricultural Business Management

1 ST YEAR 1 ST SEMESTER (FALL)	AREA	WORKING HOURS			ECTS
		TOTAL	CONTACT		
1111004 Financial Accounting	340	160	46 TP		6
1111005 Marketing	340	160	30 TP		6
1111001 Markets and Agricultural Policy	314	160	45 OT		6
1111002 Agricultural Production Management	621	160	45 OT		6
1111003 Methodologies and Research Seminars	460	160	45 OT		6
1 ST YEAR 2 ND SEMESTER (SPRING)	AREA	TOTAL	CONTACT		ECTS
1112002 Business Finance	340	160	45 TP		6
1112003 Management Accounting	340	160	45 TP		6
1112004 Information Technologies	480	160	30 TP		6
1112001 Agricultural Enterprise Planning and Control	340	160	45 TP		6
Option 1:	314/340/	160	30 TP		6
1112101 Agricultural Production	380/621/				
1112102 Company Law					
1112103 Economy					
1112104 Rural and Agricultural Space					
1112105 Agri-food chains					
2 ND YEAR 1 ST SEMESTER (FALL)	AREA	TOTAL	CONTACT		ECTS
1121001 Agriculture and Environment	621	160	45 TP		6
1121002 Project Development and Investment Analysis	340	160	45 TP		6
1121003 International Trade	314	160	45 TP		6
1121004 Innovation and Entrepreneurship	340	160	30 TP		6
Option 2:	340/621	160	30 TP		6
1121101 Fiscal Planning and Management					
1121102 Audit					
1121103 Livestock					
1121104 Negotiation and Conflict Management					
1121105 Strategy and Competitiveness					
2 ND YEAR 2 ND SEMESTER (SPRING)	AREA	TOTAL	CONTACT		ECTS
Dissertation / Project Work / Internship and Report	340	800	60 OT+740 E		30

[9399] Biotechnology

1 ST YEAR 1 ST SEMESTER (FALL)	AREA	WORKING HOURS		ECTS
		TOTAL	CONTACT	
2311001 Applied Molecular Biology	420	133	30 TP	5
2311002 Separation Techniques	524	133	30 TP	5
2311003 Process Modelling	524	133	30 TP	5
2311004 Biotechnology and Animal Science	620	133	30 TP	5
Option 1:		133	30 TP	5
2311101 Quality Management				
Option 2:		133	30 TP	5
2311201 Biopolymers				
1 ST YEAR 2 ND SEMESTER (SPRING)	AREA	TOTAL	CONTACT	ECTS
2312001 Bioreactors and Biocatalysis	524	133	30 TP	5
2312002 Biotechnology and Biomass	524	133	30 TP	5
2312003 Phytobiotechnology	620	133	30 TP	5
2312004 Management and Entrepreneurship	345	133	30 TP	5
Option 3:		133	30 TP	5
2312101 Development of New Products				
Option 4:		133	30 TP	5
2312201 Biorefinary				
2 ND YEAR 1 ST TRIMESTER (FALL)	AREA	TOTAL	CONTACT	ECTS
2321001 Bioinformatics	420	82	22 TP	3
2321002 Instrumentation and Control	524	82	22 TP	3
2321003 Project	524	82	22 TP	3
Option 5:		82	22 TP	3
2321101 Functional Foods				
2 ND YEAR 2 ND AND 3 RD TRIMESTERS (SPRING)	AREA	TOTAL	CONTACT	ECTS
2322001 Professional Traineeship	524	1300	54 OT	48

[6802] Crops and Livestock Engineering

1 ST YEAR 1 ST SEMESTER (FALL)	AREA	WORKING HOURS		ECTS
		TOTAL	CONTACT	
5511001 Statistics and Experimental Design	46	133	35 TP + 16 OT	5
5511002 Diagnostic Laboratory Techniques	62	134	28 TP + 14,5 OT	5
5511003 Precision Technologies in Agriculture	52	133	35 TP + 16 OT	5
5511004 Post-Harvest and Traceability	62	133	27 TP + 15,5 OT	5
5511005 Animal Feeding and Nutrition Supplements	62	133	27 TP + 15,5 OT	5
5511006 Animal Breeding and Advanced Reproduction Techniques	64	134	28 TP + 14,5 OT	5
1 ST YEAR 2 ND SEMESTER (SPRING)	AREA	TOTAL	CONTACT	ECTS
5512001 Water Management in Agricultural Systems	52	133	28 TP + 14,5 OT	5
5512002 International Trade and Marketing	34	133	28 TP + 14,5 OT	5
5512003 Sustainable Production	62	107	28 TP + 14,5 OT	4
5512004 Plant Productivity	62	107	28 TP + 14,5 OT	4
5512005 Animal Health and Public Health	64	133	28 TP + 14,5 OT	5
5512006 Environmental Impact and Innovation in Crop and Livestock Production	62	187	40 TP + 19,5 OT	7
2 ND YEAR 1 ST AND 2 ND SEMESTERS (FALL AND SPRING)	AREA	TOTAL	CONTACT	ECTS
Professional Traineeship	62	1600	180 OT	60

[6423] Ecotourism

1 ST YEAR 1 ST SEMESTER*	AREA	WORKING HOURS		
		TOTAL	CONTACT	ECTS
8801101 Strategic Planning and Territorial Marketing	310	133	30 TP + 15 OT	5
8801102 Economy of the Tourism Company	310	133	30 TP + 15 OT	5
8801103 Environmental Management and Sustainability	420	133	30 TP + 15 OT	5
8801104 Landscape and Tourism Units	420	133	30 TP + 15 OT	5
8801105 Tourism Products	812	133	30 TP + 15 OT	5
8801106 Cultural Tourism	812	133	30 TP + 15 OT	5
1 ST YEAR 2 ND SEMESTER*	AREA	TOTAL	CONTACT	ECTS
8801201 Research Methods	310	133	30 TP + 15 OT	5
8801202 Entrepreneurship	340	133	30 TP + 15 OT	5
8801203 Nature Conservation and Ecotourism	420	133	30 TP + 15 OT	5
8801204 Nature Sports and Active Tourism	812	133	30 TP + 15 OT	5
8801205 Planning and Tourism Policy	812	133	30 TP + 15 OT	5
8801206 Rural Tourism	812	133	30 TP + 15 OT	5
2 ND YEAR 1 ST SEMESTER	AREA	TOTAL	CONTACT	ECTS
8802100 Dissertation / Project / Internship	812+420+310	800	85 OT	12+9+9

NOTE: This programme may start on the autumn or Spring semester. Please enquire ri@esac.pt to know which semesters are functioning on Fall and Spring of each academic year

[9296] Environmental Management

1 ST YEAR 1 ST SEMESTER (FALL)	AREA	WORKING HOURS		ECTS
		TOTAL	CONTACT	
7711001 Water Supply and Drainage	851	180	36 TP + 15 OT	7
7711002 Land Planning	581	170	36 TP + 15 OT	6,5
7711003 Environmental Economics	850	150	36 TP + 15 OT	5,5
Option 1:	859/851	150	36 TP + 15 OT	5,5
7711101 Ecotoxicology				
7711102 Global Change and Sustainable Development				
Option 2:	850	150	36 TP + 15 OT	5,5
7711103 Industrial Ecology				
7711104 Chemistry Applied to the Environment				
1 ST YEAR 2 ND SEMESTER (SPRING)	AREA	TOTAL	CONTACT	ECTS
7712001 Water and Wastewater Treatment Systems	851	200	43 TP + 23 OT	8
7712002 Management of Gaseous Effluents and of Sound Pollution	851	150	36 TP + 14 OT	5,5
7712003 Waste Management	851	160	36 TP + 14 OT	6
7712004 Certification Systems	851	160	36 TP + 14 OT	6
Option 3:	851	130	29 TP + 11 OT	4,5
7712101 Strategic Environmental Assessment				
7712102 Ecological Technology and Eco-efficiency				
2 ND YEAR 1 ST TRIMESTER (FALL)	AREA	TOTAL	CONTACT	ECTS
7721001 Economic Evaluation of Equipment and Processes	851	110	29 TP + 0,5 OT	4
7721002 Management and Conservation of Ecosystems	852	110	29 TP + 0,5 OT	4
7721003 Environmental Management Project	851	130	45 TP	5,5
7721004 Management and Entrepreneurship	340	130	45 TP	5,5
7721005 Professional Traineeship	851	60	30 OT	2
2 ND YEAR 2 ND AND 3 RD TRIMESTERS (SPRING)	AREA	TOTAL	CONTACT	ECTS
7722001 Professional Traineeship	851	1120	30 OT	40

[9567] Food Engineering

1 ST YEAR 1 ST SEMESTER (FALL)	AREA	WORKING HOURS			ECTS
		TOTAL	CONTACT		
3311004 System Dynamics	529	160	38 TP + 21,5 OT	6	
3311104 Advanced Food Microbiology	421	133	26 TP + 16,5 OT	5	
3312002 Development of New Products	541	160	38 TP + 21,5 OT	6	
3312003 Hygiene and Industrial Safety	862	108	26 TP + 8 OT	4	
3311102 Applied Mathematics	461	133	27 TP + 15,5 OT	5	
3312004 Sociology of Organizations	312	108	26 TP + 8 OT	4	
1 ST YEAR 2 ND SEMESTER (SPRING)	AREA	TOTAL	CONTACT	ECTS	
3311001 Quality Management and Auditing	529	133	42 TP + 17,5 OT	5	
3311002 Decision Support Methods	345	133	28 TP + 14,5 OT	5	
3312006 Bioprocesses in the Food Industry	541	133	TP:27 + OT:15,5	5	
3312104 Food Product Project	541	133	28 TP + 14,5 OT	5	
3312001 Food Safety	541	133	26 TP + 16,5 OT	5	
3312007 Automatic Process Control	524	133	30 TP + 12,5 OT	5	
2 ND YEAR 1 ST TRIMESTER (FALL)	AREA	TOTAL	CONTACT	ECTS	
3321001 Seminars	541	80	22 TP + 11 OT	3	
3321002 Budgeting and Cost Control	345	80	22 TP + 11 OT	3	
3321004 Industrial Project	541	370	76 TP + 34 OT	14	
2 ND YEAR 2 ND AND 3 RD TRIMESTERS (SPRING)	AREA	TOTAL	CONTACT	ECTS	
3322100 Traineeship / Dissertation / Project	541	1060	100 OT	40	

[6808] Forest Resources

1 ST YEAR 1 ST (FALL) AND 2 ND (SPRING) SEMESTERS*	AREA	WORKING HOURS			ECTS
		TOTAL	CONTACT		
4411001 Applied Geomatics	529	160	36 TP + 15 OT	6	
4411002 Forestry and Dynamics of Forest Systems	623	160	36 TP + 15 OT	6	
4411005 Improvement and Conservation of Forest Resources	623	160	36 TP + 15 OT	6	
Option 1:	623	160	36 TP + 15 OT	6	
4411103 Introduction to Forest Systems					
4411107 Forest Soils and Conservation					
Option 2:	623	160	36 TP + 15 OT	6	
4411105 Ecology and Fire Management					
4411106 Management and Conservation of Ecosystems					
4411003 Collection and Data Analysis in Natural Resources	462	160	36 TP + 15 OT	6	
4411004 Decision Support Models in Natural Resources	629	160	36 TP + 15 OT	6	
4412110 Forest Protection against Biotic Factors	623	160	36 TP + 15 OT	6	
Option 3:	623	160	36 TP + 15 OT	6	
4412102 Forestry Entrepreneurship					
4412126 Prescribed Fire					
4412109 Strategic Environmental Assessment of Natural Resources					
Option 4:	623	160	36 TP + 15 OT	6	
44121116 Fire Analysis and Backing Fire					
44121111 Management of Plant Protection Products					
2ND YEAR 1ST SEMESTER (FALL)	AREA	TOTAL	CONTACT	ECTS	
4421003 Natural Engineering	623	160	36 TP + 15 OT	6	
4412127 Management of Invasive Species	623	160	36 TP + 15 OT	6	
4412108 Wildlife Management	623	160	36 TP + 15 OT	6	
Option 5:	589/319	160	36 TP + 15 OT	6	
4421101 Forestry Policy and Certification					
4421102 Territory Planning					
Option 6:	589/319	160	36 TP + 15 OT	6	
4421001 Landscape Planning and Management					
4411101 Natural Resource Economics					
2ND YEAR 2ND SEMESTER (SPRING)	AREA	TOTAL	CONTACT	ECTS	
4422001 Professional Traineeship	623	800	44 OT	30	

*Please enquire ri@esac.pt to know the distribution of the 1st year courses among the two semesters on each academic year.

[6799] Organic Agriculture

1 ST YEAR 1 ST SEMESTER (FALL)	AREA	WORKING HOURS		ECTS
		TOTAL	CONTACT	
9911001 Organic Agriculture	621	150	36 TP+15 OT	6
9911002 Methodologies in Organic Animal Production	620	150	36 TP+15 OT	6
9911003 Methodologies in Organic Plant Production	621	150	36 TP+15 OT	6
9911004 Crop Protection in Organic Agriculture	620	150	36 TP+15 OT	6
9911005 Organic Matter Management and Fertilisation	621	150	36 TP+15 OT	6
1 ST YEAR 2 ND SEMESTER (SPRING)	AREA	TOTAL	CONTACT	ECTS
9912001 Human Nutrition and Health	720	150	36 TP+15 OT	6
9912002 Animal Health Maintenance and Alternative Treatments	640	150	36 TP+15 OT	6
9912003 Quality, Conservation and Transformation of Organic Products	541	150	36 TP+15 OT	6
9912004 Conservation of Genetic Resources	852	150	36 TP+15 OT	6
9921004 Aromatic, Culinary and Medicinal Plants	621	150	36 TP+15 OT	6
2 ND YEAR 1 ST SEMESTER (FALL)	AREA	TOTAL	CONTACT	ECTS
9921001 Analysis and Indicators of Sustainability	852	150	36 TP+15 OT	6
9921002 Ecology and Ecosystem Management	852	150	36 TP+15 OT	6
9921003 Marketing, Commercialisation, Regulation and Certification	342	150	36 TP+15 OT	6
9922001 Investigation in Organic Agriculture	462	150	36 TP+15 OT	6
9921005 Conversion and Optimisation of Agro-livestock Exploitations	621	150	36 TP+15 OT	6
2 ND YEAR 2 ND SEMESTER (SPRING)	AREA	TOTAL	CONTACT	ECTS
9922002 Final Traineeship	621	750	30 TP+20 OT+30 S	30

[M293] Right to Food and Rural Development

1 ST YEAR 1 ST SEMESTER (FALL)	AREA	WORKING HOURS		ECTS
		TOTAL	CONTACT	
6611001 Food Security	313	150	30 TP + 17 OT	5
6611002 International Trade and Agro-food Marketing	314	150	28 TP + 17 OT	5
6611003 Agriculture and Economic Development	314	150	28 TP + 17 OT	5
6611004 Tropical Agriculture	621	150	28 TP + 17 OT	5
6611004 Adapted Technologies I	851	150	28 TP + 17 OT	5
Option 1:		150	28 TP + 17 OT	5
6611101 Agrarian History of Developing Countries	313			
6611201 Global Change and Sustainable Development	851			
1 ST YEAR 2 ND SEMESTER (SPRING)	AREA	TOTAL	CONTACT	ECTS
6612001 Economics and Natural Resource Management	314	150	28 TP + 17 OT	5
6612002 Rural Development	312	150	28 TP + 17 OT	5
6612003 Adapted Technologies II	541	150	28 TP + 17 OT	5
6612004 International Cooperation and Fight against Hunger	313	150	28 TP + 17 OT	5
6612005 Evaluation of Development Projects	312	150	28 TP + 17 OT	5
Option 2:		150	28 TP + 17 OT	5
6612006 Health, Nutrition and Development	726			
6612007 Agro-Food Distribution Channels for Developing Countries	314			
2 ND YEAR 1 ST AND 2 ND SEMESTERS (FALL AND SPRING)	AREA	TOTAL	CONTACT	ECTS
Professional Traineeship	310	1200	1166 E + 34 OT	60