

Escola Superior Agrária de Coimbra

**AGRICULTURA
ENSINO
SUPERIOR
COIMBRA**



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Bachelor programmes

GENERAL INFORMATION

Academic unit	Coimbra College of Agriculture (ESAC-IPC)
Type	Undergraduate Major Program
Level of qualification	Level 6. First Cycle (Bachelor's Degree) Program.
Qualification awarded	The students who successfully complete the program are awarded the degree of Bachelor of Science (B.S.)
Mode of study	Full-Time. 30 ECTS/semester during 3 years
Admission requirements and recognition of prior learning	<p>To enrol in ESAC-IPC undergraduate degree programmes, foreign European Union citizens may apply:</p> <ul style="list-style-type: none"> (a) Through a national contest; (b) Students already enrolled in a foreign Higher Education Institution may ask for transfer during an annual application period, with recognition of prior learning. <p>Non EU citizens who wish to enrol in ESAC-IPC undergraduate degree programmes must apply via the annual application for International Students, using one of the following:</p> <ul style="list-style-type: none"> (a) Those with a qualification giving access to Higher Education, meaning any diploma or certificate issued by a competent authority in the country in which it was awarded can apply directly to the desired bachelor degree; (b) Those or a Diploma of Portuguese secondary school or equivalent degree must apply for the specific ESAC-IPC bachelor degree exams (www.esac.pt); <p>More information on how to apply for the Portuguese first-cycle bachelor programmes: Study in Portugal website.</p>
Qualification requirements	The undergraduate students in a program must be successful in all the courses with a minimum achievement grade of 10, including their compulsory traineeship, and must have completed at least 180 ECTS credits.
Access to graduate studies	The graduates of this program can apply to master programs to enhance their academic skills and career.
Examination regulations, assessment and grading	<p>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 $\geq 75\%$.</p> <p>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).</p> <p>Continuous evaluation, final, resit and graduation exams</p> <p>(1) All courses contemplate continuous evaluation, which may be carried out in different ways specified in the respective Course Datasheet.</p> <ul style="list-style-type: none"> 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. <p>(2) Final exams: may assess one or more course modules or the whole course.</p> <p>(3) Resit exams: are the final opportunity for a student to pass a course in a given academic year and are subject to prior registration and fee payment at the Academic Services. The resit exams may assess one or more course modules or the whole course.</p> <p>(4) Graduation exams: available to finalist students with, at the most, three failed courses to fulfil the bachelor program requirements.</p>

Academic calendar

Fall semester: mid-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

L=Lecture; LP=Lecture-Practical; Lab=Laboratory; TG=Tutorial guidance.

BIODIVERSITY AND NATURE CONSERVANCY

Code	Title	L	LP	Lab	TG	ECTS
1st year – 1st (Fall) Semester						
8810021	Mathematical analysis	22.5	37		9	6
8810022	Chemistry and biochemistry I	30		30	9	6
1061101	General ecology		52.5		8	6
1041102	Biometry		30		4.5	3
1041103	Geography and surveys		60		9	6
1041104	Introduction to nature conservancy		37.5		5.5	3
1st year – 2nd (Spring) Semester						
8810028	Statistics		45		7	5
8810025	Chemistry and biochemistry II	30		30	9	6
1041201	Botany and dendrology		60		9	6
8810026	English language and communication		30		4.5	3
1061201	Soils		45		6	4
1041203	Inventory of natural resources		60		9	6
2nd year – 3rd (Fall) Semester						
8810031	GIS and remote sensing		60		9	6
1062102	Water resources		60		9	6
1042101	Natural resources economics		60		9	6
1062101	Ecophysiology		60		9	6
1062103	General silviculture		60		9	6
2nd year – 4th (Spring) Semester						
1062201	Conservation biology		60		9	7
1072202	Aquatic and terrestrial ecology		45		6	5
1042202	Biophysical planning		60		9	6
1042203	Agroforest systems		60		9	6
1062202	Ecosystem intervention techniques		60		9	6
3rd year – 5th (Fall) Semester						
1063101	Natural engineering		60		9	7
1063102	Fire management		60		9	6
1043101	Management of faunal resources		60		9	6
1063103	Management of natural resources		60		9	6
1063300	Elective course 1		45		6	5
3rd year – 6th (Spring) Semester						
1073202	Environmental impact assessment		56		8	5
1063102	Nature tourism		30		4.5	3
1073204	Environmental education		24		4	2
1063300	Elective course 2		45		6	5
1043202	Traineeship		350		20	15

BIOTECHNOLOGY

Code	Title	L	LP	Lab	TG	ECTS
1st year – 1st (Fall) Semester						
8810020	Biology I		52		8	6
8810022	Chemistry and biochemistry I	30		30	9	6
8810023	Physics I		45		7	6
8810029	Numerical methods and programming	22.5	37.5		9	6
2011001	Introduction to biotechnology		45		7	3
2011002	Technical-scientific English and communication		45		7	3
1st year – 2nd (Spring) Semester						
8810021	Mathematical analysis	22.5	37.5		9	6
8810024	Biology II		52		8	6
8810025	Chemistry and biochemistry II	30		30	9	6
8810027	Physics I		45		7	6
2012002	Physiology and plant production		38		6	3
2012003	Fundamentals of bioprocesses		15	30	7	3
2nd year – 3rd (Fall) Semester						
2021001	Instrumental analysis	30		38	6	5
2021003	Genetics		45		7	5
2021004	Molecular biology	30		38	6	5
2021007	Anatomy, physiology and animal histology	15		38	6	5
2021008	Technological laboratory	15		38	6	5
8810028	Statistics		45		7	5
2nd year – 4th (Spring) Semester						
2022002	Genetic engineering	30		38	6	5
2022003	Applied microbiology	15		38	6	5
2022004	Immunology	15		38	6	5
2022007	Enzyme technology	15		38	6	4
2022008	Culture of animal cells	15		30	3	3
2022009	Culture of plant cells	15		30	3	3
Elective course 1						5
3rd year – 5th (Fall) Semester						
2031101	Unit Operations in Biotechnology	15	30	15	7	5
2031002	Enterprise management and entrepreneurship		60		9	5
2031003	Animal biotechnology		45		7	5
2031004	Plant biotechnology		45		7	5
2022001	Biochemical engineering	15	15	30	7	5
Elective course 2						5
3rd year – 6th (Spring) Semester						
2032002	Project analysis and organization	15	30		5	3
2032003	Environmental biotechnology	15	30		5	3
2032004	Food biotechnology	15	30		5	3
2032006	Fermentation technology	15	30		5	3
Elective course 3						3
2032005	Traineeship		350		50	15

CROPS AND LIVESTOCK ENGINEERING

Code	Title	L	LP	P/Lab	TG	ECTS
1st year – 1st (Fall) Semester						
1511002	General agriculture and animal science I		52.5		8	4.5
8810020	Biology I		52.5		8	6
8810033	Geology and climatology		45		7	4.5
8810026	English language and communication		30		4.5	3
8810029	Numerical methods and programming	22.5	37.5		9	6
8810022	Chemistry and biochemistry I	30		30	9	6
1st year – 2nd (Spring) Semester						
1512002	General agriculture and animal science II		52.5		8	4.5
8810024	Biology II		52.5		8	6
1512001	Soils		45		7	4.5
8810030	Technical English and communication		30		4.5	3
8810021	Mathematical analysis	22.5	37.5		9	6
8810025	Chemistry and biochemistry II	32		20	9	6
2nd year – 3rd (Fall) Semester						
1521001	Economy and sociology		32		10.5	3.5
1521002	Animal biological unit		74		37	8
1521003	Pastures and fodders		30		12.5	3
1521004	Plant protection		60		25	6
1521005	Horticulture		30		12.5	3
1521006	Rural engineering I		74		28	6.5
2nd year – 4th (Spring) Semester						
1522001	Monogastric animal production I		60		25	7
1522002	Ruminant animal production I		60		25	6
1522003	Arable crops I		30		12.5	3
1522004	Fruticulture and viticulture I		75		27	7
1522005	Rural engineering II		45		23	4
1522006	Vocational activities		30		12.5	3
3rd year – 5th (Fall) Semester						
1531001	Enterprise management and entrepreneurship		62		23	6
1531002	Monogastric animal production II		59		26	6
1531003	Ruminant animal production II		59		26	5
1531004	Arable crops II		30		12.5	3
1531005	Fruticulture and viticulture II		60		25	6
1531006	Floriculture and gardening		30		12.5	3
3rd year – 6th (Spring) Semester						
1532001	Animal welfare and food safety		60		25	5
1532002	Agricultural production framework		60		25	7
1532003	Traineeship				51	18

ENVIRONMENTAL TECHNOLOGY AND MANAGEMENT

Code	Title	L	LP	Lab	TG	ECTS
1st year – 1st (Fall) Semester						
8810021	Mathematical analysis	22.5	37.5		9	6
8810020	Biology I		52.5		8	6
8810023	Physics I		45		7	6
1071101	Introduction to environmental protection		52.5		8	3
8810026	English language and communication		30		4.5	3
8810022	Chemistry and biochemistry I	30		30	9	6
1st year – 2nd (Spring) Semester						
8810024	Biology II		52.5		8	6
8810027	Physics II		45		7	6
1071201	Geology and climatology		52.5		8	3
8810030	Technical English and communication		30		4.5	3
8810029	Numerical methods and programming	22.5	37.5		9	6
8810025	Chemistry and biochemistry II	30		30	9	6
2nd year – 3rd (Fall) Semester						
1072102	General ecology		52.5		8	4.5
1072103	Economy and sociology		30		4.5	3.5
8810028	Statistics		45		7	5
8810032	Hydraulics and hydrology		60		9	6
1072101	Pedology	22.5		30	8	5
8810031	GIS and remote sensing		60		9	6
2nd year – 4th (Spring) Semester						
1072205	Physicochemical analyses	30		37.5	10	5.5
1072202	Aquatic and terrestrial ecology		45		7	5
1072204	Hygiene and safety at work		30		4.5	4
1072203	Environmental microbiology	22.5		30	8	5
1072201	Environmental pollution	30		30	9	5.5
1072206	Physicochemical treatments	15	30		7	5
3rd year – 5th (Fall) Semester						
1073103	Environmental and quality certification		45		7	5
1073106	Gaseous effluents and treatment processes		60		9	5.5
1073101	Energy management		37.5		5.5	4
1073104	Solid wastes and treatment processes		60		9	5.5
1073102	Clean technologies and MDT		37.5		5.5	4
1073105	Biological treatments		60		9	6
3rd year – 6th (Spring) Semester						
1073203	Analysis of environmental systems		56		8	5
1073202	Environmental impact assessment		56		8	5
1073204	Environmental education		24		4	2
1073201	Regional and urban planning		28		5	3
1073205	Traineeship		350		20	15

FOOD TECHNOLOGY

Code	Title	L	LP	Lab	TG	FCTS
1st year – 1st (Fall) Semester						
8810021	Mathematical analysis	22.5	37.5		9	6
8810020	Biology I		52.5		8	6
8810023	Physics I		45		7	6
1031101	Introduction to food technology I		52.5		8	3
8810026	English language and communication		30		4.5	3
8810022	Chemistry and biochemistry I	30	30		9	6
1st year – 2nd (Spring) Semester						
8810024	Biology II		52		8	6
8810027	Physics II		45		7	6
8810030	Technical English and communication		30		4.5	3
1031201	Introduction to food technology II		52.5		8	3
8810029	Numerical methods and programming	22.5	37.5		9	6
8810025	Chemistry and biochemistry II	30	30		9	6
2nd year – 3rd (Fall) Semester						
8810028	Statistics		45		7	5
1032101	Food microbiology		60		9	4
1032103	General food processing		60		9	6
1032104	Plant and animal production		30		4.5	4
1032105	Food chemistry		45		7	5
1032102	Food processing technology I		60		9	6
2nd year – 4th (Spring) Semester						
1032201	Physical and chemical food analyses		45		7	5
1032202	Sensorial analysis		52.5		8.5	5
1032205	Food biochemistry		45		6.5	5
1032203	Quality management and control		45		6.5	4
1032206	Technology workshops I		67.5		10	6
1032204	Food processing technology II		45		6.5	5
3rd year – 5th (Fall) Semester						
1033102	Food economics		45		6.5	5
1033101	Water, waste and effluent management in the food industry		45		6.5	5
1033103	Enterprise management and entrepreneurship		45		6.5	4
1033104	Facilities, equipment and instrumentation		45		6.5	5
1033105	Technology workshops II		67.5		10	6
1033106	Industrial planning		52.5		9	5
3rd year – 6th (Spring) Semester						
1033201	Packaging of food products		28		4	3
1033204	Food hygiene and safety		28		4	3
1033202	Logistics and distribution		28		4	3
1033203	Nutrition and dietetics		28		4	3
1033205	Project		48		7	3
1033206	Traineeship		350		20	15

FOREST SCIENCES AND NATURAL RESOURCES

Code	Title	L	LP	Lab	TG	ECTS
1st year – 1st (Fall) Semester						
8810021	Mathematical analysis	22.5	37		9	6
8810022	Chemistry and biochemistry I	30		30	9	6
1041101	Ecology		52.5		8	6
1041102	Biometry		30		4.5	3
1041103	Geography and surveys		60		9	6
1041104	Introduction to the profession		37.5		5.5	3
1st year – 2nd (Spring) Semester						
8810028	Statistics		45		7	5
8810025	Chemistry and biochemistry II	30		30	9	6
1041201	Botany and dendrology		60		9	6
8810026	English language and communication		30		4.5	3
1041202	Forest soils		45		6	4
1041203	Inventory of natural resources		60		9	6
2nd year – 3rd (Fall) Semester						
8810031	GIS and remote sensing		60		9	6
8810032	Hydraulics and hydrology		60		9	6
1042101	Natural resources economics		60		9	6
1042102	Physiology and reproduction of forest plants		60		9	6
1042103	Silviculture		60		9	6
2nd year – 4th (Spring) Semester						
1042201	Forest operations		60		9	6
1042202	Biophysical planning		60		9	6
1042203	Agroforest systems		60		9	6
1042204	Local development		60		9	6
1042205	Forest health		60		9	6
3rd year – 5th (Fall) Semester						
1043101	Management of faunal resources		60		9	6
1043102	Forest defence against fire		60		9	6
1043103	Enterprise management and entrepreneurship		60		9	6
1043104	Management of natural resources		60		9	7
1043213	Management of natural areas		45		6	5
3rd year – 6th (Spring) Semester						
1043201	Forest policy and certification		56		8	5
1043211	Forest exploitation		45		6	5
1043212	Forest improvement		45		6	5
1043202	Traineeship		350		20	15

ORGANIC AGRICULTURE

Code	Title	L	LP	P/Lab	TG	ECTS
1st year – 1st (Fall) Semester						
1911002	Introduction to organic agriculture		52.5		8	4.5
8810020	Biology I		52.5		8	6
8810026	English language and communication		30		4.5	3
8810029	Numerical methods and programming	22.5	37.5		8	6
8810022	Chemistry and biochemistry I	30		30	9	6
8810033	Geology and climatology		45		7	4.5
1st year – 2nd (Spring) Semester						
1912002	Plant physiology	15	30		7	5
8810024	Biology II		52.5		8	6
8810030	Technical English and communication		30		4.5	3
8810021	Mathematical analysis	22.5	37.5		8	6
8810025	Chemistry and biochemistry II	30		30	9	6
1912001	Pedology	22.5	30		8	4
2nd year – 3rd (Fall) Semester						
1921001	Economy and sociology		32		19	4
1921002	Soil fertility and plant nutrition		36		15	4
1921003	Animal anatomy and physiology		43		25	5
1921004	Plant health		42		26	4.5
1921005	Animal health		43		25	4.5
1921006	Animal reproduction		36		15	4
1921007	Traineeship				7	4
2nd year – 4th (Spring) Semester						
1922001	Animal nutrition and feeding		41		27	4
1922002	Irrigation and drainage		45		23	5
1922003	Pastures and conservation		35		16	5
1922004	Small ruminants		35		16	4
1922005	Fruticulture and viticulture I		35		16	4
1922006	Crop protection		41		27	4
1922007	Traineeship				7	4
3rd year – 5th (Fall) Semester						
1931001	Enterprise management and entrepreneurship		62		23	5
1931002	Cattle production		48		20	5
1931003	Arable crops		47		21	5
1931004	Agricultural mechanisation		47		21	5
1931005	Pig production		48		20	5
1931006	Fruticulture and viticulture II		48		20	5
3rd year – 6th (Spring) Semester						
1932001	Equine management and horse riding		17.5		3.5	2
1932002	Horticulture		35		7	5
1932003	Aviculture		35		7	5
1932004	Traineeship				40	18

TOURISM IN RURAL AND NATURAL AREAS

Starting 2018/2019: only first year available

Code	Title	L	LP	Lab	TG	ECTS
1st year – 1st (Fall) Semester						
1811001	Evolutionary Biology		60			6
1811002	Communication and Interpersonal Relationships		30			3
1811003	English I		30			3
1811004	Geographic Information Systems		60			6
1821001	Environment and Society		60			6
(ESEC)	Introduction to Tourism		60			6
1st year – 2nd (Spring) Semester						
1812001	Equestrian Activities		30			3
1812003	Tourism Economics		60			6
1812004	English II		30			3
1812005	Applied Statistical Methods		60			6
1822005	Ethnobotany		60			6
(ESEC)	Creation and Management of Tourism Products		60			6



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