



Luiz de Queiroz College of Agriculture

Course Offerings

Degree codes:

- 11010 - Agriculture
- 11020 - Forestry
- 11040 - Licentiate Degree in Agriculture
- 11050 - Economics
- 11061 - Food Science
- 11070 - Biological Sciences (104 = Licentiate Degree; 4 = Bachelor Degree)
- 11080 - Environmental Management
- 11090 - Management

ID	Course Name	Professor	Course Content Summary	Total Course Hours	Semester	Degree code
LCB0103	Plant Morphology	Beatriz Appezzato da Gloria Marcilio de Almeida	Plant body internal organization: Tissue and cell summary; Embryology: From embryo to adult plant; Root (external and internal morphology); Stem (external and internal morphology); Leaf (external and internal morphology); Flower (external morphology); Inflorescence (external morphology); Fruit (external morphology); Seed (external morphology).	60	1 st	11020 11010
LCB0109	General Botany	Lindolpho Capellari Junior	Basic notions of external and internal organography of the plant; Plant basic physiological mechanisms; Reproduction; Botanic species and/or family identification; Two field trips with the aim of recognizing the physionomic aspects of natural ecosystems in two biomes in the state of São Paulo; Degrading and reforesting areas.	90	1 st	11080
LCB0140	Plant Anatomy	Beatriz Appezzato da Gloria Marcilio de Almeida	Internal organization of the plant body. Plant cell and tissues; Embryology: from the embryo to the adult plant; Root (anatomy); Stem (anatomy); Leaf (anatomy); Flower (anatomy); Fruit (anatomy); Seed (anatomy).	60	1 st	11070
LCB0177	History of Biological Thought	Alexandre Reis Percequillo	Biology as a science and its conceptual framework; Historical changes on the biological thought; DIVERSITY: the science of species; EVOLUTION: evolution before Darwin; Evidence presented by Darwin to natural evolution and common ancestry; The causes of evolution; Towards a science of science.	150	1 st	11070



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LCB0185	Vertebrate Zoology I	Jaime Aparecido Bertoluci	Introduction to basal chordates and non-amniote vertebrate groups; Origin and phylogeny; Ectothermy; Morphological and biological characterization; Diversity, classification and evolution; Conservation.	90	2 nd	11070
LCB0206	Forest Systematic Botany	Ricardo Ribeiro Rodrigues	Systematic Botany; Phylogenetic Systems; Binary Nomenclature; Classification units; Evolution notions; Cronquist system , Angiosperm Phylogeny Group Systems - APG (2003 e 2009) - main families and species of forestry interest.	90	2 nd	11020
LCB0208	Biochemistry	Helaine Carrer	Carbohydrates; Lipids; Amino acids; Proteins; Enzymology; Carbohydrate degrading metabolism (glycolysis and fermentation) and pentose phosphate pathway; Triglyceride metabolism; Biological oxidations (Krebs cycle and electron transport chain); Amino acid and protein metabolism; Photosynthesis; Nitrogen cycle; Metabolic integration and regulation; Colorimetric and spectrophotometric methods; Lactose quantification; Amino acid paper chromatography; Casein quantification; Km and Vm determination for the yeast invertase and Hill's reaction: water photolysis.	60	2 nd	11020 11010
LCB0210	Environmental Systematic Botany	Lindolpho Capellari Junior	Applied morphology to botanical family recognition highly used in forest systems and landscape; Traditional and recent classification systems based on macromolecular analysis; Technical botanical language and taxonomic terminology.	90	2 nd	11080



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LCB0213	Biochemistry I		Introduction to biochemistry; Thermodynamics; Amino acids; Peptides and proteins; Enzymology; Carbohydrates; Lipids; Colorimetric and spectrophotometric methods; Lactose quantification; Amino acid paper chromatography; Casein quantification; Km and Vm determination for the yeast invertase.	60	1 st	11070
LCB0217	Community Ecology	Flávio Bertin Gandara Mendes	Community definitions; Biodiversity creation and maintenance mechanisms; Theories about communities; Community description and organization processes; Agroecosystems; Plant community evolution and regeneration; Natural regeneration in different plant communities; New ecological paradigms; Ecological restoration.	90	1 st	11070
LCB0218	Biochemistry	Daniel Scherer de Moura	Introduction to biochemistry; Thermodynamics; Amino acids; Peptides and proteins; Enzymology; Carbohydrates; Lipids; Colorimetric and spectrophotometric methods; Lactose quantification; Amino acid paper chromatography; Casein quantification; Km and Vm determination for the yeast invertase.	60	1 st	11061



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LCB0246	Molecular Biology	Daniel Scherer de Moura Helaine Carrer	DNA structure, function, replication, recombination, mutation and repair; Transcription, gene structure, promoters, transcription factors; RNA polymerase; Protein synthesis: initiation, elongation and termination; Regulation of protein synthesis; Cell organelles; Endosymbiotic theory; Gene regulation; Genomics, sequencing, genome comparative analysis and expression analysis; Recombinant DNA Technology; Restriction enzymes; DNA isolation and purification; Gene cloning: plasmid isolation, digestion and ligation; Polymerase chain reaction; Competent cell preparation; Bacteria transformation; DNA sequencing; Bioinformatics basic concepts.	90	1 st	11061 11070 11080 11020 11010
LCB0260	Comparative Herpetology	Jaime Aparecido Bertoluci	Origin and evolution of amphibian and reptile lineages; Diversity, phylogeny and classification of living groups; Comparative study of form and function, behavior, ecology and conservation of living taxa.	120	2 nd	11070
LCB0285	Vertebrate Zoology II	Alexandre Reis Percequillo	Introduction to endothermic vertebrates; Origin and phylogeny; Morphological and biological characterization; Endothermy; Diversity, classification and evolution; Collection and preservation methods; Conservation and management.	120	1 st	11070



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LCB0311	Plant Physiology	Paulo Roberto de Camargo e Castro	Diffusion, osmosis and absorption; Osmotic cell relations; Potential determination methods; Absorption and loss of water by plants; Guttation and perspiration; Stomatic mechanism; Water internal competition; Hydric stress; Mineral nutrient transportation; Nutrient redistribution; Organic solute translocation; Source-drainage relations; Photosynthesis; Photochemical phase; Calvin's cycle; Dicarboxylic acid cycle; Crassulacean acid metabolism; Photorespiration; Photoperiodism; Florescence mechanism; Temperature and plant; Growing and development; Plant differentiation; Plant regulators; Tropism and fast movements; Maturation and senesce.	60	1 st	11010
LCB0313	Biochemistry II		Carbohydrate metabolism (glycolysis and fermentation) and pentose phosphate pathway; Triglyceride metabolism; Biological oxidations (Krebs cycle and electron transport chain); Amino acid and protein metabolism; Photosynthesis; Nitrogen cycle; Metabolic integration and regulation.	30	2 nd	11070
LCB0320	Plant Systematics and Morphology	Vinicius Castro Souza	Superior plant organography; Main botanical families; Spermathophyte evolution; Classification system history; Notions about nomenclature; Notions about cladistics.	210	2 nd	11070



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LCB0323	Plant Physiology	Lazaro Eustaquio Pereira Peres	Diffusion, osmosis and absorption; Osmotic cell relations; Potential determination methods; Absorption and loss of water by plants; Guttation and perspiration; Stomatic mechanism; Water internal competition; Hydric stress; Mineral nutrient transportation; Nutrient redistribution; Organic solute translocation; Source-drainage relations; Photosynthesis; Photochemical phase; Calvin's cycle; Dicarboxylic acid cycle; Crassulacean acid metabolism; Photorespiration; Photoperiodism; Florescence mechanism; Temperature and plant; Growing and development; Plant differentiation; Plant regulators; Tropism and fast movements; Maturation and senesce.	60	1 st	11070
LCB0380	Animal Behavior	Jaime Aparecido Bertoluci	Comparative study of animal behavior using the evolutionary approach.	120	2 nd	11070
LCB0390	Mammals: Origin, Evolution and Biogeography	Alexandre Reis Percequillo	Origin and evolution of Synapsida; Evolution and diversification of mammal lineages; Diversity, phylogeny and classification of recent orders; Origin, evolution and diversity of the South American mammals; Comparative study of form and function, behavior, ecology and conservation of the living groups.	180	1 st	11070



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LCB0420	Protists	Maria do Carmo Bittencourt de Oliveira	Chlorophyta; Choanoflagellata; Kinetoplastida (Trypanosoma, Leishmania); Parabasilida (Trichomonas, Trichonympha); Diplomonadida (Giardia); Rhizopoda (nude and shelled amoebas); Granuloreticulosa; Actinopoda; Apicomplexa (Gregarina, Plasmodium, Toxoplasma); Dinophyta (dinoflagellates); Euglenophyta (euglenoids); Chlorarachniophyta, Microspora (nosema); Ciliophora (paramecium), algae with a-chlorophylla and phycobilins, and Heterokontophyta (brown algae and diatoms); Prokaryote: Cyanobacteria (blue-green algae and prochlorophyta); Endosymbiosis events.	90	1 st	11070
LCB0455	Monograph	Alexandre Reis Percequillo	The monograph content varies according to the research area chosen, but it must: Develop the observation, experimentation and inductive and deductive knowledge; Develop the scientific writing and duties of a researcher; Apply rules to solve a non-answered matter; Divide the research work in steps to be reached; Analyze the simplest matter to each of the most complex ones.	330	1 st /2 nd	11070
LCB0610	Diversified Agroforestry Systems	Flávio Bertin Gandara Mendes	Scientific bases and applications of Agroforestry Systems showing its potential for agricultural production sustainability. Main forms of production in agroforestry systems. Methodologies and criteria for its diagnosis, design and evaluation. The multifunctionality of Agroforestry Systems and avenues for research and development in this area.	60	1 st	11020 11010



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LCB0615	Supervised Internship on Biological Sciences 	Vinicius Castro Souza	Systematic Botany: Plant species identification; Plant Physiology; Light and radiation, temperature, humidity, CO ₂ , photosynthesis, porometry, leaf area and image instrumentation notions; Photosynthesis; Transpiration, temperature, leaf area and stomatal conductance measuring instruments management; Biochemistry; These activities will happen inside ESALQ and out of it, in public or private institutions, where the students will have the monitoring of a supervisor; Ecology: development of activities related to the plant ecology study, agroecology and ecological restoration; Vertebrate Zoology: elaboration and execution of research and extension projects on amphibian and reptile biology or bibliographic reviews on vertebrate biology; Plant Anatomy: Histological slides preparation; Slide analysis; Plant anatomy supervised studies.	105	1 st /2 nd	11070 11020 11010
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LCB0635	Supervised Internship in Biological Sciences II	Ricardo Ribeiro Rodrigues	Systematic botany: text readings, elaboration of monographs in systematic botany and plant ecology, development of projects on forest and natural remaining structural surveys; Biochemistry: activities related to agronomizing and forest in plant biochemistry. These activities will be released in the dependencies of ESALQ and out of it, in public or private institutions, where the students will have the monitoring of a supervisor; Ecology area: activities related to plant ecology, agroecology and ecological restoration studies; Vertebrate Zoology: elaboration and execution of research and extension projects on amphibian and reptile biology or bibliographic reviews on vertebrate biology; Plant Anatomy: elaboration and execution of a research project in the area.	105	1 st /2 nd	11070 11020 11010
LCB1204	Systematic Botany	Lindolpho Capellari Junior	Systematic Botany; Main Phylogenetic Systems (Engler, Cronquist, Gifford & Foster, APG II); Botanical Nomenclature; Units of a classification system; Characterization of families and species of economic interest.	60	2 nd	11010
LCB1402	Plant Ecology	Sergius Gandolfi	Ecosystems, agroecosystems and development; Ecology and evolution basic concepts; Natural vegetation description; Brazilian phytogeography aspects; Plant community organization; Plant community regeneration and evolution; Agroecology; Degraded areas restoration; Environmental legislation aspects; Experimental ecology.	60	2 nd	11010



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LCB1500	Seminars in Biotechnology I	Helaine Carrer	Biotechnological advances in agriculture, livestock, micro-organisms and environment; Biosafety in research and agriculture.	30	1 st	11061 11050 11070 11080 11020 11010
LCB1555	Seminars in Biotechnology II	Helaine Carrer	Biotechnological advances in agriculture, livestock, micro-organisms and environment; Biosafety in research and agriculture.	30	1 st	11061 11050 11070 11080 11020 11010
LCB2330	Medicinal and Aromatic Plant Systematics	Lindolpho Capellari Junior	Introduction and history; Medicinal and aromatic plant classification systems (Cronquist, Engler, APG II; Gifford & Foster); Active principles and pharmacology; Field trips: technical visits to a research site in medicinal and aromatic plants and also to an agriculture site in the Atlantic Forest.	90	2 nd	11070 11080 11020 11010