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L2-BIOTECHNOLOGIES
BIOTECNOLOGIE

Curriculum – Agro-food biotechnologies
Curriculum Agroalimentare

1st YEAR	credits	Sem.
Biology – integrated course		
- Vegetal Biology	6	
- Animal Biology	6	
General and Inorganic Chemistry	6	
Mathematics	6	
Organic Chemistry	6	
Cytology and Histology	6	
English Language	3	
Applied Physics	6	
Bioethics	6	
2nd YEAR	credits	Sem.
Biochemistry	12	
Biology of Development	6	
Molecular Biology	9	
Biophysics and Bioinstrumentation	6	
Genetics – integrated course		
- General and Molecular Genetics	6	
- Applied Molecular Genetics	6	
Recombinant Technologies	6	
Microbiology and Applied Biotechnologies – integrated course		
- Molecular Biotechnologies	3	
- General and Applied Microbiology	6	
3rd YEAR	credits	Sem.
Practice	12	
Clinical Microbiology	6	
Physiology and Immunology – integrated course		
- General Physiology	6	
- Immunology	3	
Hygiene and Physiology – integrated course		
- Physiology of Nutrition	3	
- Food Hygiene and Laboratory Safety	6	
Biotechnologies of Vegetal Productions – integrated course		
- Horti-Flower Crops	3	
- Herbaceous Crops	3	
- Tree Farming	3	
Agro-food industry – integrated course		
- Animal Genetic Improvement	3	
- - Agro-Food Industry	6	
Elective educational activities	12	
Final examination	3	

“Biomedical” Curriculum
Curriculum Biomedico

1st YEAR	credits	Sem.
Biology – integrated course		
- Vegetal Biology	6	
- Animal Biology	6	
General and Inorganic Chemistry	6	
Mathematics	6	
Organic Chemistry	6	
Cytology and Histology	6	
English Language	3	
Applied Physics	6	
Bioethics	6	
2nd YEAR	credits	Sem.
Biochemistry	12	
Biology of Development	6	
Molecular Biology	9	
Biophysics and Bioinstrumentation	6	
Genetics – integrated course		
- General and Molecular Genetics	6	
- Applied Molecular Genetics	6	
Recombinant technologies	6	
Microbiology and Applied Biotechnologies – integrated course		
- Molecular Biotechnologies	3	
- General and Applied Microbiology	6	
3rd YEAR	credits	Sem.
Practice	12	
Clinical Microbiology	6	
Physiology and Immunology – integrated course		
- General Physiology	6	
- Immunology	3	
Hygiene and Physiology – integrated course		
- Physiology of nutrition	3	
- Food Hygiene and Laboratory Safety	6	
Clinical pathology – integrated course (1)		
- Clinical Pathology	3	
- Human Pathology	3	
- Clinical Biochemistry	3	
Anatomy and Pathology – integrated course		
- General Pathology and Oncology	3	
- Human Anatomy	6	
Elective educational activities	12	
Final examination	3	

L-13-BIOLOGY
SCIENZE BIOLOGICHE

1st YEAR	credits	Sem.
Cytology and Histology with Practice	9	
Elements of Mathematics and Statistics with Practice – integrated course		
- Elements of Mathematics with Practice	6	
- Statistics	3	
Principles of Chemistry with Practice – integrated course		
- General Chemistry with Practice	9	
- Physical Chemistry	3	
Physics with Practice	9	
General and Systematic Zoology with Practice – integrated course		
- Zoology I with Practice	6	
- Zoology II with Practice	6	
General and Systematic Botany with Practice – integrated course		
- Systematic Botany with Practice	6	
- General Botany with Practice	6	
2nd YEAR	credits	Sem.
Biochemistry with Practice	9	
Molecular Biology with Practice	9	
Microbiology with Practice	9	
Organic chemistry with Practice	9	
Comparative Anatomy	6	
Vegetal Physiology with Practice	6	
Genetics with Practice	9	
3rd YEAR	credits	Sem.
Biology of Development	6	
General Physiology	9	
Stage	15	
General and applied ecology with Practice – integrated course		
- General Ecology	6	
- Ecology Applications with Practice	6	
(suggested) Elective educational activities	12	
Final examination	6	
(suggested) elective educational activities	credits	Sem.
Marine Biology	6	
Genetic Engineering	6	

L 27 – CHEMISTRY
CHIMICA

1st YEAR	credits	Sem.
General and Inorganic Chemistry	10	
Mathematics I	6	
Basic Computational Methods for Chemistry	6	
Chemical Preparations with Practice	8	
Physics I	7	
English language	3	
Mathematics II	6	
Other useful knowledge for the labour market I	1	
(suggested) Elective educational activities	6	
2nd YEAR	credits	Sem.
Analytical Chemistry	8	
Organic Chemistry I	8	
Physics II	7	
Analytical Chemistry – laboratory	8	
Physical Chemistry I	8	
Organic chemistry II with laboratory – integrated course		
- Organic Chemistry II	8	
- Organic Chemistry II – laboratory	6	
Inorganic chemistry with laboratory	10	
3rd YEAR	credits	Sem.
Biochemistry	8	
Applied and Instrumental Analytical Chemistry – integrated course	6	
- Instrumental Analytical Chemistry	6	
- Applied Analytical Chemistry		
Physical Organic Chemistry	6	
Physical Chemistry II	6	
Stage	6	
Physical Chemistry III with laboratory – integrated course		
- Physical Chemistry III	8	
- Physical Chemistry laboratory	6	
(suggested) Elective educational activities II	6	
Final examination	6	

Suggested elective educational activities	credits	Sem.
History of Chemistry	6	
Theoretical Chemistry	6	

L-30 – PHYSICS
SCIENZE FISICHE

1st YEAR	credits	Sem.
Physics I	12	
Geometry and Algebra	9	
English language	3	
Physics I – Laboratory	12	
Mathematical Analysis I	12	
Computer Science and Programming	6	
Chemistry I	6	
2nd YEAR	credits	Sem.
Physics II	12	
Physics II – Laboratory – Integrated Course		
- Electromagnetism And Optics Experiences	6	
- Electrical Circuits	6	
Mathematical Analysis II – integrated course		
- Complex Analysis and Differential Equations	6	
- Differential and Integral Calculus of More Variables	6	
Analytical Mechanics and Relativity Theory – integrated course		
- Analytical Mechanics	6	
- Relativity and Statistics	6	
Numerical methods	6	
(suggested) Elective educational activities	6	
3rd YEAR	credits	Sem.
Astronomy	6	
Structure of Matter	9	
Quantum Mechanics – integrated course		
- Hydrogen Atom and Perturbation Calculus	6	
- Introduction to Quantum Mechanics	6	
Modern Physics – laboratory	6	
Nuclear and Particle Physics	6	
Other educational activities	3	
Chemistry II	6	
(suggested) Elective educational activities II	6	
Final examination	6	
(suggested) elective educational activities	credits	Sem.
Complements of Classical Physics	6	
Innovative physical Technologies	6	

L-31-COMPUTER SCIENCE INFORMATICA

1st YEAR	credits	Sem.
Mathematical Analysis – integrated course		
- Mathematical Analysis II	6	
- Mathematical Analysis I	6	
Physics – integrated course		
- Electromagnetism and Optics	6	
- Point Mechanics	6	
Programming and Laboratory – integrated course		
- Structured C Programming	6	
- Abstract Data Structures	6	
Discrete mathematics – integrated course		
- Combinatory Structures	6	
- Principles of Discrete Mathematics	6	
English Language	3	
Geometry	6	
2nd YEAR	credits	Sem.
Algorithms and Data Structures – integrated course		
- Theory of Algorithms	6	
- Complements of Algorithms and Data Structures	6	
Theoretical Computer Science – integrated course		
- Robot Theory and Formal languages	6	
- Theory of Calculability	6	
Computer Networks	9	
Operating Systems	6	
Data bases	9	
Logic	6	
(suggested) Elective educational activities	6	
3rd YEAR	credits	Sem.
Probability Theory and Statistics	6	
Numerical Analysis	6	
Compilers	6	
Digital Image Analysis	9	
Practice	8	
Other useful knowledge for the Labour Market	1	
Methodologies for Data Analysis	9	
(suggested) Elective educational activities II	12	
Final examination	6	
(suggested) Elective educational activities	credits	Sem.
Cybernetics	6	
Innovative Communication Techniques	6	

L-32 – NATURE SCIENCE
SCIENZE NATURALI

1st YEAR	credits	Sem.
Cellular Biology	9	
Botany – integrated course		
- Botany II	6	
- Botany I	6	
Mathematics	9	
Zoology – integrated course		
Zoology I	6	
Zoology II	6	
English language	3	
General and Inorganic Chemistry	6	
Educational Trips –I year	1	
Physics	6	
2nd YEAR	credits	Sem.
Comparative Anatomy	6	
Genetics	6	
Physical Geography and Geomorphology	9	
Mineralogy	6	
Organic Chemistry	6	
Educational Trips –II year	2	
Geology	9	
Petrography and Georesources	6	
3rd YEAR	credits	Sem.
Anthropology	9	
Ecology	9	
Applied Entomology	6	
Geochemistry	6	
Physiology	6	
Educational Trips - III year	3	
Palaeontology	6	
Practice	6	
(suggested) Elective educational activities	12	
Final examination	9	

suggested) Elective educational activities	credits	Sem.
Algae Biology	6	
Phytogeography and Landscape Ecology	6	
Primate Biology and Ethology	6	
Evolutionist Genetics	6	

L-32- ENVIRONMENT SCIENCE
SCIENZE AMBIENTALI

1st YEAR	credits	Sem.
Principles of Mathematics	9	
Physical Geography	6	
Zoology – integrated course		
- General Biology	6	
- Systematic Zoology*	6	
Botany – integrated course		
- Systematic Botany	6	
- General Botany	6	
Principles of physics	9	
Principles of Chemistry – integrated course		
- General Chemistry	6	
- Physical Chemistry	6	
2nd YEAR	credits	Sem.
Organic Chemistry	6	
General Ecology	6	
Geology with practice – integrated course		
- Geology	6	
- Geology Practice	3	
Petrography and Petrology with Elements of Mineralogy	9	
Environmental Biomonitoring	6	
Environmental Physical Chemistry	6	
Environment Law	6	
Environment Geochemistry	9	
Elements of Biochemistry	6	
3rd YEAR	credits	Sem.
Stage	2	
Analytical Chemistry with practice	9	
Environmental Geology with practice	6	
English language	3	
Applied Ecology	6	
Principles of Environmental Impact Evaluation	6	
Practice	8	
(suggested) Elective educational activities	12	
Final examination	5	
(suggested) elective educational activities	credits	Sem.
Conservation of Nature	6	
Volcanology	6	

L-34 – GEOLOGY
SCIENZE GEOLOGICHE

1st YEAR	credits	Sem.
General and Inorganic Chemistry with elements of Organic Chemistry – integrated course		
- Organic Chemistry	3	
- General and Inorganic Chemistry	6	
Physical Geography	6	
Mathematics	8	
Computer Science	6	
English language	3	
Physics	9	
Mineralogy with Laboratory	9	
(suggested) Elective educational activities	6	
2nd YEAR	credits	Sem.
Earth Physics	6	
Palaeontology with Laboratory	9	
Geology I with Laboratory – integrated course		
- Geology- Laboratory*	6	
- Stratigraphy and Tectonics	6	
Geochemistry with Laboratory	6	
Geomorphology with Laboratory	9	
Petrography with Laboratory	9	
Geological Survey	6	
(suggested) Elective educational activities II	6	
3rd YEAR	credits	Sem.
Volcanology	6	
Geology II with Practice	9	
Stage	8	
Other useful knowledge for the labour market	8	
Georesources	6	
Applied geophysics with laboratory	6	
Applied Geology with Laboratory – integrated course		
- Thematic Cartography	3+6	
- Applied Geology		
Geotechnical Engineering	6	
Final examination		
(suggested) elective educational activities	credits	Sem.
Vertebrates Palaeontology	6	
Applied Mineralogy Laboratory	6	

L-35_MATHEMATICS
MATEMATICA

1st YEAR	credits	Sem.
Mathematical Analysis 1 – integrated course - Sequences, Limits, Continuity - Differential and Integral Calculus	6 6	
Geometry 1 – integrated course - Affine and Euclidean Geometry - Linear Algebra	6 6	
English language	3	
Programming with Laboratory	6	
Algebra 1	9	
Physics 1	9	
Elements of Mathematical Logic	6	
2nd YEAR	credits	Sem.
Algebra 2	6	
Mathematical Analysis 2 – integrated course - Complex Analysis and Differential Equation - Function Series and Differential Calculus	6 6	
Numerical Analysis	6	
Geometry 2	9	
Dynamic Systems with Laboratory – integrated course - Maps, Equilibriums, Stability - Bifurcations and Singular Perturbations	6 6	
Subsidiary Mathematics	9	
Elective educational activities	12	
3rd YEAR	credits	Sem.
Algebra 3	6	
Mathematical Analysis 3	6	
Geometry 3	6	
Other useful knowledge for the labour market	6	
Probability Theory	6	
Physics 2	9	
Theoretical Mechanics	6	
Group of optional educational activities	6	
Final examination	6	

Group of optional educational activities	credits	Sem.
Theoretical Computer Science	6	
Theory of Algorithms	6	
Elementary Mathematics from a Higher Point of VIEW	6	
Discrete Mathematics	6	