



UNIVERSITY OF L'AQUILA



Department of Health, Life and
Environmental Sciences

Profile of
2nd Cycle Degree in
HEALTH AND NUTRITION BIOLOGY

Laurea Magistrale in
BIOLOGIA DELLA SALUTE E DELLA NUTRIZIONE

DEGREE PROFILE OF Laurea Magistrale in BIOLOGIA DELLA SALUTE E DELLA NUTRIZIONE Second Cycle Degree in HEALTH AND NUTRITION BIOLOGY		
TYPE OF DEGREE & LENGTH	Single master degree (120 ECTS credits, 2 years)	
INSTITUTION(S)	Università degli Studi dell'Aquila (Italia) - University of L'Aquila (Italy)	
ACCREDITATION ORGANISATION(S)	Italian Ministry of Education, Ordine Nazionale dei Biologi Italiani (<i>Italian Register of Biologists</i>) – Sec A (ONB, http://www.onb.it)	
PERIOD OF REFERENCE	Programme validated for 3 years for cohorts starting in January 2013	
CYCLE /LEVEL	QF for EHEA: 2 nd cycle; EQF: 7; NQF: Laurea Magistrale	
A	PURPOSE	
	<p>The programme in <i>Health and Nutrition Biology</i> aims to provide students with advanced theoretical and technical knowledge of the biomedical and nutrition sciences. Graduates are professionally trained specialists who can apply biological and biochemical methods and tools in activities developed in industry, health and other related areas and may assume responsibility for projects and structures. Students have the opportunity to acquire, through significant experience of experimental work in laboratories, both cultural tools and ability for critical analysis needed to manage biological and microbiological laboratories, take care of quality control and certification of products of biological origin and carry out clinical analysis and research activities. The programme meets the requirements of European and National laws and Directives and provides the graduates with the certification enabling them to work as independent Health service Biologists and/or Nutritionists. Furthermore degree holders obtain the credentials for the enrolment on the Register of Biologists.</p>	
B	CHARACTERISTICS	
1	DISCIPLINE(S) / SUBJECT AREA(S)	Biochemistry, Genetic Engineering, Pharmacology-Toxicology, Anatomy-Pathophysiology; Biotechnology (20:20:20:20:20)
2	GENERAL / SPECIALIST FOCUS	Specialized with focus on two main tracks: Bio-health professional and Nutrition Professional.
3	ORIENTATION	It is an academic degree with strong practical orientation based on skills for an multidisciplinary approach to Health and Nutrition, according to International and National Directives.
4	DISTINCTIVE FEATURES	This degree has a strong component of interdisciplinary learning with other Health Care professionals and benefits of a stimulating research environment. Students have a 6-months placement in labs/companies in Italy and/or abroad for thesis preparation. The Programme is developed according to two main tracks: " <i>Bio-Health</i> " and " <i>Nutrition</i> ". The graduates acquire knowledge and skills for working in different and varied contexts.
C	EMPLOYABILITY & FURTHER EDUCATION	
1	EMPLOYABILITY	Graduates, after the successful national test, can be enrolled in the Register of Professional Biologists (Section A) and carry out professional activities as professionals in Biology and related fields. They can work in public and private facilities as employees and freelance as for instance labs, food and pharmaceutical companies, and other non traditional fields. Educational and outreach activities related to neuroscience.
2	FURTHER STUDIES	Graduates can access to the Specialization health professional Schools recognized by the Ministry of Health as well as to PhDs in the biomedical fields.
D	EDUCATION STYLE	
1	LEARNING & TEACHING APPROACHES	Lectures, seminars, placement, research activity aimed to the preparation of the thesis.
2	ASSESSMENT METHODS	Oral and written exams. The final exam consists of the presentation of a written text aimed at demonstrate that the candidate has acquired the essential professional skills and

	competences related to the professional profile.
E	PROGRAMME COMPETENCES
1	GENERIC
	<ul style="list-style-type: none"> — Analysis and synthesis: Capacity for analysis and synthesis using logical arguments and proven facts; - ability to apply knowledge in practical situations and to make reasoned decisions; - knowledge and understanding of the subject area and understanding of the profession of Biologist and Nutritionist; — Flexible mind: acquisition of a flexible mind, open to apply basic biological knowledge and competences in a biomedical and nutritional field; — Team-work: capability to perform guided teamwork, also in a international context, in a lab setting and related special skills demonstrating capacity for handling the rigor of the discipline and for time management (including meeting deadlines); - ability to make reasoned decisions and to interact with others in a constructive manner, even when dealing with difficult issues. — Communication skills: Ability to communicate effectively and to present complex information in a concise manner orally and in writing, using informatics tools and appropriate technical language; ability to solve problems and write scientific reports. — Popularization skills: Ability to communicate with non-experts, including some teaching skills; — Learning ability: Ability, through independent study, to enter new fields by using biological knowledge; — Problem solving: capacity to handle stress and to deal effectively with practical problems; — Commitment to health, well-being and safety: ability to evaluate the impact of societal decisions on the health and well-being of humans and other organisms; — Other competences: ability to plan and manage time and to evaluate and maintain the quality of work produced.
2	SUBJECT SPECIFIC
	<p>The Programme meets all the Specific Competences as established and agreed in collaboration with the field stakeholders, clustered within the key overarching competences summarized below.</p> <p>Graduates of the 2nd Cycle Degree in Health and Nutrition Biology should have</p> <p>Deep knowledge and understanding of:</p> <ul style="list-style-type: none"> - basic biology especially regarding functional, regulatory and physiological mechanisms of living systems, focusing particularly on mankind; - normal and altered functioning of the human body, human food and of the nutritional and environmental relations key factor for health protection and well-being; - factors that may affect human health and environmental quality as well as safety of products of biological origin; - drugs, medicines and other prevention and therapy means; - products of biological and synthetic origin that can influence the health and well-being of man, animals, plants and microorganisms; - legislation regarding laboratories, health and environment; - standard operation procedures, methods and tools for maintaining a safe laboratory environment; - the use of equipment, instrumentation and techniques both generic and specific of the area of Nutrition and Health; - the interaction of science (biology), technology, and society, and how the impact of applying technology to the sciences can influence societal issues and are a critical part of the large area of Biology. <p>Capacity to apply knowledge and understanding:</p> <ul style="list-style-type: none"> -ability to gather, interpret and process important scientific data derived from laboratory observation and measurements that may also relate to statistics; - ability to use and summarize concepts of physical science related to their field of study; - ability to apply mathematical reasoning to solve problems; - ability to apply scientific method and draft scientific reports in both Italian and English; - ability to use techniques for scientific communication and education; - ability to use advanced research equipment and proper techniques utilized within their specific research areas. <p>Ability for analysis and synthesis:</p> <ul style="list-style-type: none"> - practical skills in analytical chemistry for clinical, integrated physiological and anatomical applications, and for human and molecular genetics, biochemical methodologies for health, clinical microbiology, parasitology and virology, pathology, hygiene and science of drugs and clinical biochemistry; - ability to synthesize content knowledge, laboratory skills, and mathematical analysis in order to identify biological problems to study and in order to determine the appropriate methods to apply; - capacity to appraise and/or defend proposed solutions to advanced biological problems; - ability to design experiments utilizing advanced laboratory skills appropriate for a research-specific discipline; - general skills in the area of health biology as applied to many other contexts. <p>Creativity skills:</p>

	<ul style="list-style-type: none"> - ability to exercise critical judgment on social, scientific and ethical issues; - analytical and summarising skills for the management and sharing of experimental data within a scientific context; - ability to resolve theoretical and experimental problems independently within the area of biology and health; - ability to generate and interpret statistical output; - skills in planning and time-management; - problem-solving skills. <p>Evaluation skills:</p> <ul style="list-style-type: none"> - ability to collect data, analyze, and evaluate the results; - ability to evaluate research-specific methodologies; - ability to perform continuous quality assessment and evaluation of outcomes and results; - ability to identify training needs, design and provide continuing training courses for themselves and for the professional figures working with them; <p>Communication skills:</p> <ul style="list-style-type: none"> - ability to present, orally and in writing, scientific arguments to an informed audience within an international context; - ability to communicate effectively both orally and in writing in English within their professional field; - ability to adapt to new situations and develop critical judgments; - ability to work in a team, particularly in the management of laboratory activities.
F	COMPLETE LIST OF PROGRAMME LEARNING OUTCOMES
	<p>A newly graduated Master of Health and Nutrition Biology should:</p> <ul style="list-style-type: none"> - acquire a solid practical training in laboratory work regarding molecular, microbiological, cellular and genetic techniques, focusing particularly on nutrition applications; - acquire in-depth applied interdisciplinary competences for biological analysis of methodological , technological and instrumental kind (analytic tools, data collection and analysis methodologies, mathematical and computer tools as support to scientific methodology); - develop skills in analytical chemistry for clinical, integrated physiological and anatomical applications, and for human and molecular genetics, biochemical methodologies for health, clinical microbiology, parasitology and virology, pathology, hygiene and science of drugs and clinical biochemistry; - develop general skills in the area of health biology as applied to many contexts, with focus on Nutrition and related topics; - acquire autonomous awareness and capacities in managing projects, in exercising responsibility for lab staff and equipment in identifying innovative development perspectives/strategies and in analyzing, interpreting and processing literature data; -acquire capacity to analyze key concepts of physical sciences: physics, chemistry, earth science, and environmental sciences; -be able to select the appropriate mathematical techniques to analyze biological problems and debate proposed solutions to problems for each concept; - have capacity to debate proposed solutions to problems for each concept; - be able to design and conduct experiments using appropriate methodology, and analyze data to test working hypotheses; - demonstrate the use of advanced research equipment and proper techniques utilized within specific research areas; - collect data following proper laboratory protocols and analyze results; - troubleshoot and perform quality checks of equipment; - demonstrate effective time management; - be able to acquire, allocate, and utilize resources efficiently; - acquire and use professional deontology and apply a critical and responsible approach especially to bioethics issues; - demonstrate proficiency in using English language, including subject area terminology, for literature consultation; - demonstrate professional interpersonal, oral, and written communications skills; - demonstrate professional conduct and apply legal, social, and ethical responsibilities within the health care environment; - be able to apply basic scientific principles in learning new techniques and procedures and develop teaching capacities relating to their specific professional profile through tutorials and the coordination of internships aiming to provide basic, further and continuing training; - acquire good working habits and show concern for social equity.

**Comprehensive Scheme of the 2nd Cycle Degree in
HEALTH AND NUTRITION BIOLOGY**

TRACK "BIOHEALTH"

YEAR	CODE	COURSE	Credits (ECTS)	Semester
I	F0264	Analytical Chemistry	6	1
	F0212	Public Health and Hygiene	6	1
	F0537	Human Anatomy and Physiology	12	1 and 2
	F1018	Bio-molecular Techniques and Genomics	12	1 and 2
	F0547	Molecular Cell and Developmental Biology	6	2
	F1034	Cellular Biotechnologies	6	2
II	F0567	Clinical Microbiology and Virology	6	1
	F0583	Biochemical Analysis	6	1
	F0577	Clinical Pharmacology and Toxicology	6	2
	F1027	Neurobiology and Applied Neurobiology	6	2
	F1122	General Pathology and Physiopathology	6	2
	F0103	Thesis	27	2
I or II	F1159	<i>Free choice course</i>	9	1 and/or 2
	F0633	<i>English language level B1</i>	3	1 and/or 2
	F0635	Internship	3	1 and/or 2

TRACK "NUTRITION"

I	F0264	Analytical Chemistry	6	1
	F1022	Food Microbiology and Mycology	9	1
	F0537	Human Anatomy and Physiology	12	1 and 2
	F1020	Public Health, General and Food Hygiene	9	1 and 2
	F1023	Genetic Engineering and Genomics	6	2
II	F0671	Applied Dietetic Sciences	6	1
	F1021	Molecular Plant Biotechnology	6	1
	F1024	Food Biochemistry	6	2
	F0643	Food Toxicology	6	2
	F1037	Drugs and Feeding	6	2
	F1122	General Pathology and Physiopathology	6	2
	F0103	Thesis	27	2
I or II	F1159	<i>Free choice course</i>	9	1 and/or 2
	F0633	<i>English language level B1</i>	3	1 and/or 2
	F0635	Internship	3	1 and/or 2