

Università	Università degli Studi di BRESCIA
Classe	LM-67 - Scienze e tecniche delle attività motorie preventive e adattate
Nome del corso	Science and technology for population health and wealth - Scienze e tecnologie per la salute e il benessere della popolazione <i>adeguamento di: Science and technology for population health and wealth - Scienze e tecnologie per la salute e il benessere della popolazione (1345478)</i>
Nome inglese	Science and technology for population health and wealth
Lingua in cui si tiene il corso	inglese
Codice interno all'ateneo del corso	08647^99^017029 Modifica
Data di approvazione della struttura didattica	14/02/2014
Data di approvazione del senato accademico/consiglio di amministrazione	18/02/2014
Data della relazione tecnica del nucleo di valutazione	28/01/2014
Data della consultazione con le organizzazioni rappresentative a livello locale della produzione, servizi, professioni	27/01/2014 -
Data del parere favorevole del Comitato regionale di Coordinamento	30/01/2014
Modalità di svolgimento	convenzionale
Eventuale indirizzo internet del corso di laurea	
Dipartimento di riferimento ai fini amministrativi	MEDICINA MOLECOLARE E TRASLAZIONALE
EX facoltà di riferimento ai fini amministrativi	
Massimo numero di crediti riconoscibili	<i>DM 16/3/2007 Art 4</i> Nota 1063 del 29/04/2011
Corsi della medesima classe	SCIENZE E TECNICHE DELLE ATTIVITÀ MOTORIE PREVENTIVE E ADATTATE <i>approvato con D.M. del 05/05/2009</i>

Qualifying educational objectives of the degree class: LM-67 Sciences and techniques of preventive and adapted motor activities

Graduate students of the LM-67 class Master's Degree Course must be able, with extensive decision-making powers and autonomy, to use advanced cultural, methodological and practical technical tools necessary for:

the design and execution of motor activity programs aimed at achieving, recovering and maintaining the best psycho-physical wellbeing conditions for various age group subjects in different physical conditions, with attention to gender specificity;
the organization and planning of specific activities and lifestyles aimed at the prevention of disease and improvement in the quality of life through physical exercise;
the prevention of postural vices and the post-rehabilitative motor recovery aimed at maintaining physical efficiency
the planning, coordination and evaluation of motor activities suitable for people with disabilities or for individuals in clinically controlled and stabilized health conditions

To achieve this, graduate students must acquire, relative to specific professional objectives of the course, adequate motor techniques for not less than 20 credits through internships at suitable facilities under the direct responsibility of the universities; they must also have in-depth knowledge of the modifications and the functional adaptations deriving from physical exercise; of the methods of assessing the state of physical efficiency and exercise planning, for healthy subjects as well as for disabled individuals or with stabilized functional limitations of various types, deriving from pathologies that can benefit from physical exercise; of the methodologies and the educational, communicative and psycho-motor techniques aimed at the subjects practicing the exercise; the knowledge of at least one written and oral language of the European Union in addition to Italian.

The specific and characterizing skills of a Master's degree graduate in this degree class should therefore primarily concern: the benefits and risks of practicing motor activities in people of different age, gender, psycho-physical conditions, psycho-motor skills, and the level of risk associated with chronic outcomes of various diseases; the technical direction and supervision of motor programs adapted to healthy adults, adolescents, the elderly, subjects with postural defects or with stabilized clinical pictures concerning different organs and apparatuses, knowing the possible complications that exercise
can involve in each category and the precautions to prevent them; the planning and supervision of individualized physical exercise proposals, based on health indications and motor assessment data, establishing type of exercise, intensity, duration, frequency, progression, precautions, for a wide variety of chronic pathologies and physical and mental conditions of disability;
adaptations of the human organism vital functions in response to physical activity practices, in relation to gender, age, state of health or clinical

condition of each subject;

post-rehabilitative physical exercise evaluation tests, in terms of modalities, protocols, physiological measurements and expected results, specific for different populations, including subjects with cardiovascular, pulmonary, metabolic and other disease in a stabilized phase from the point of view clinical and rehabilitation, children and the elderly; functional modifications and absolute contraindications and related to the exercise tests, the recognition of subjects requiring health supervision during the sub-maximal and maximal exercise tests, as well as subjects requiring a health assessment before engaging in a motor program; risk factors for individuals with cardiovascular, pulmonary, metabolic disease and of other nature, and understanding of prognostic indicators for high-risk subjects; the knowledge of the effects of these diseases on the physical performance and health of the subject during the tests and the practice of physical exercise; the technical conditions and clinical symptoms that require the arrest of an exercise test; the most frequently used pharmacological strategies for

prophylactic and therapeutic purposes in diseases causing disability in the different age groups, the effects of these on the responses to the exercise tests, as well as the changes in the activity of drugs induced by the exercise itself; procedures to cope with cardio-respiratory emergency situations, which may arise before, during and after an exercise test or a guided motor activity session; the necessary behavioral strategies for changes in lifestyle, including exercise, nutrition and methods of dealing with stress and disease; the recognition of symptoms of maladjustment and / or inability to cope with pathological or socio-environmental problems that may require consultation of qualified practitioners in the psychological field; elementary cognitive-behavioral interventions useful to improve adherence to motor activity programs and perseverance in their continuation; educational, communicative and psycho-motor methodologies and techniques addressed to disabled people, children, adults, the elderly and those who need assistance and social and civil rehabilitation.

Summary of the technical report of the evaluation team

The "NUCLEO" has reviewed the documentation prepared by the PAQ, in particular the minutes of the DMMT and the Consultation with the local organizations, the report for the Comitato Lombardo di Coordinamento Universitario, the draft SUA-CdS with the educational objectives and the table with the teaching coverage forecast preliminarily calculated according to the new indications of Ministerial Decree 1049/2013.

It is clear from the available documentation that the new institution proposal is fully integrated into the strategic development plan of the University, called Health&Wealth@uniBS and that this proposal has garnered the approval of the interested parties even if, due to the very tight deadlines which have to be respected in order to present the institution application, the interested parties have been urgently convened and without the possibility to carry out in-depth analysis of disciplinary and generic expected learning outcomes. It is also noted that the motivations that led to the proposed activation of the new master's degree course have been clearly stated, despite the presence of another course in the same class, as well as the relevance and originality of the proposal within the regional educational and professional offer.

The "NUCLEO", after extensive discussion and based on the documentation presented today, considering the strategic relevance of the new Educational project for the University and its foreseeable sustainability, expresses a preliminary favorable opinion to the establishment of the proposed new Master's Degree course proposed by the DMMT "Science and Technology for Population Health and Wealth" as regards the fulfillments required for the insertion of the new educational proposal in the MIUR database by 05.02.2014.

Summary of the consultation with the representative local organizations of production, services, professions

On 27th January 2014, at 10.15 am, at the Sala Consiliare of the Faculty of Medicine and Surgery of the University of Brescia, Viale Europa, 11 a meeting was held with the social parties convened by the Rector.

Persons who intervened at the meeting:

the delegate of the Prefect of Brescia, Deputy Prefect Dott.ssa Gabriella Mucci,
the delegate of the President APINDUSTRIA of Brescia, Mr. Roberto Zanolini,
the delegate of the President of FMSI of Milan, Dr. Daniel di Mattia,
the President of CUS Brescia, Mr. Artemio Carra
the General Secretary SNALSCONFSAL of Brescia, Mr. Mario Soldato,
the President of the Faculty of Medicine and Surgery, Prof. Stefano Maria Magrini,
the Director of the Department of Molecular and Translational Medicine, Prof. Silvano Sozzani,
the Rector of the University of Brescia, Prof. Sergio Pecorelli.

The Director of the Department of Molecular and Translational Medicine explains the reasons that made it necessary to convene the social parties: the establishment of a new Master's Degree in Sciences and Technologies for Population Health and Wellness Science and Technology for Population Health and Wealth Master's degree LM-67 belonging to his department. The activation of a new degree course with which it intends to expand the Educational offer, may seem, nowadays, in contrast, but this initiative falls within the new Athenaeum guidelines which want to focus on the Health and Wealth topics, also reflecting the forecast of one of the themes of the European HORIZON 2020 Program aimed at improving health and well-being throughout life.

In this regard, the Degree Course will be delivered in English to better position itself at the European level and attract foreign students, thus strengthening the process of internationalization pursued by the University thanks to the intervention of teachers called from abroad.

He then proceeds to a comparison analysis between the Educational offer of the new degree course and the Master's degree course in Sciences and techniques of preventive and adapted motor activities already active for a few years, illustrating the differences in the distribution of the CFU related to the SSDs foreseen in the RAD, but also the introduction of more transversal skills of these graduates on the four macro-areas present in our University.

He also illustrates the ISTAT professional outcomes.

The Rector intervenes to reiterate the need to launch an educational programme linked to the new University theme: Health, Wellbeing and the Environment, specifying that the intent is to create a new figure that has a real culture of well-being but open on one side to new technologies and on the other to help the system be more sustainable.

The Director of the Department gives the floor to the President of CUS Brescia who, appreciating the new Educational offer proposed, underlines how the use of new technological equipment is essential for these objectives to be attainable and asks, in fact, if the new degree course will have new instruments available.

The Rector replies by informing that accurate Business Plans have already been prepared and that it is the University's intention to participate in the HORIZON 2020 Project which could provide additional funding. He also informed that public and private bodies have been involved, as well as the MIUR and Ministry of Health with which some ten-year program agreements were signed, pursuing this path by further investing in research in the biomedical field.

The Director then gives the floor to the delegate of the Federazione Italiana Medico Sportiva who expresses a strong appreciation for the initiative as it increasingly emerges the need to have qualified graduates in respect of health and well-being able to awaken citizens not only about the importance of prevention but also, for example, about the risk reduction in the performance of various sports.

The Rector and the Department Director thank the attendees for the interventions made and, at the end of the meeting, the social parties unanimously express their positive opinion.

Summary of the opinion of the regional coordination committee

On January 30, 2014 at 11 am in a room of the Rectorate of the University of Bergamo, the Lombard University Coordinating Committee meets on the discussion of item 2. on the agenda: "Opinion on new educational initiatives " at the end of the presentation of the projects, the Committee, having taken note of what has been illustrated by the Rector of the University of Brescia, as well as the Director of the Department of Molecular and Translational Medicine, expresses a favorable opinion regarding the institution, in the LM.-67 class, of the Master's Degree Program entitled "Science and Technology for Population Health and Wealth", to be given entirely in English.

Specific educational objectives of the course and description of the educational path

The course aims to provide students with knowledge and skills related to innovative concepts of prevention, methodology and technological support in the field of population health and well-being and correct lifestyles.

The course, therefore, is aimed at the acquisition of theoretical and technical-practical knowledge of basic, technological and clinic subjects necessary to understand the mechanisms underlying the development of the main multifactorial chronic diseases, which characterize an aging society, with specific attention to the physical exercise, a proper nutritional strategy and an adequate technological support in order to improve population well-being and health and promote healthy lifestyles.

Furthermore, the qualifying element of the educational path is the development of knowledge to promote greater awareness in the use of technical equipment to support the evaluation and/or monitoring of the state of health. The training will be integrated with basic knowledge of the main techniques related to diagnostic instrumentation and sensors for the measurement of biomedical signals, information technology for processing and archiving (also in relation to the current legislation concerning the processing of sensitive data), biomedical signals as well as specific knowledge on rehabilitation systems and their most recent developments.

Finally, biotechnological issues related to emerging areas in the study of genetics (genetic risk factors), metabolism (metabolomics), relationship with the commensal bacterial flora (microbiome) and food safety will be addressed.

On this basis the specific and characterizing skills will primarily have to concern:

- knowledge of functional modifications and adaptations deriving from physical exercise inserted into a correct lifestyle and methods of evaluation of the state of physical efficiency and planning of exercise and nutrition;
- the promotion, monitoring, management and maintenance of a correct lifestyle (i.e. the best conditions of psychophysical, motor and nutritional well-being), in subjects in different health and illness conditions, with attention to gender specificity;
- the planning, organization and implementation of integrated motor activity and nutrition programs, aimed at achieving, recovering and maintaining the best physical and mental health benefits, for the improvement of the health and well-being of the population;
- knowledge of multi-level interactions on environmental quality, physical activity, food quality and ultimately on health;
- collaboration in the development of new technologies applied to the welfare sciences;
- planning, coordination and evaluation of voluntary and assisted motor activities and nutritional strategies through advanced technologies (including smart devices) also in relation to the environment in which the subjects usually live and work;
- the ability to use the English language in professional implementation in Italy and abroad in the context of issues related to the health and welfare of the population.

These objectives are achieved through lectures, seminars and meetings with national and international experts. To this end, the course will also avail itself of the assistance of foreign teachers who will be recruited as Visiting Professors in the framework of the University internationalization program. The course will be organized in such a way as to reserve 20 CFU for internship activities to be carried out in University research laboratories and / or in specially identified suitable approved facilities. In addition, credits will be reserved for the preparation of the final exam and

for activities chosen by the student, for which maximum freedom of choice will be left to the students among the University courses (Article 10, paragraph 5, letter a).

Making judgments

Graduates can evaluate:

1. the presence of sufficient evidence to justify or advise the use of specific, new physical, technological or nutritional methods to improve the well-being and health of the population, the environmental quality and their socio-economic impact in the scientific literature;
2. the risks and benefits of specific interventions aimed at improving the well-being and health of the population based on integrated motor and nutritional activity programs;
3. the risks and benefits of specific interventions aimed at improving the well-being and health of the population based on primary and secondary prevention pharmacological strategies, also in relation to physical exercise;
4. the impact of new technologies applied to welfare sciences and environmental quality improvement;
5. the adequacy of the structures in which to apply the proposed interventions.

Communication skills

Master's graduates know how to:

1. transmit information about the intervention protocols to be applied in a clear and comprehensive way to their collaborators
2. properly inform the target people of their interventions
3. synthesize the acquired knowledge and present the state of the art in the respective fields of activity
4. use the appropriate technical language with great care and precision.

Learning skills

Graduates have skills and capacity to continue independently to develop their knowledge and skills, in light of the continuous evolution of scientific knowledge in the fields in question.

Knowledge Entry requirements

(DM 270/04, art 6, paragraph 1 and 2)

The Master's Degree program in Science and Technology for Population Health and Wealth is a "numerus clausus" according to the law 264/1999. The maximum number of students enrolled per year of study is related to the actual availability of suitable teaching, technical and scientific facilities and equipment. Access is subject to possession of a Bachelor's or Master's Graduate Diploma or other equivalent qualifications obtained abroad according to the Teaching Regulations. In addition, to access the study program, an adequate basic knowledge about the main biomedical subjects (for instance: maths, cellular and molecular biology, anatomy, organic and synthetic chemistry, physics, biochemistry, physiology). The personal preparation will be verified, pursuant to art. 6, paragraph 2, of Ministerial Decree 270/04, as established by the Teaching Regulations of the course of study. The verification will be carried out through an entrance examination to identify training gaps that could be filled potentially even by attending preliminary intensive courses organized at University of Brescia.

The adequate knowledge of the English language will have to be verified and will be an integral part of the evaluation. The access of students coming from non-EU countries is subject to current regulations.

Characteristics of the final examination

(DM 270/04, Article 11, paragraph 3-d)

The final exam consists of the preparation, presentation and discussion of a thesis, elaborated by the student in an original way under the guidance of a lecturer, in which the results of an experimental activity are presented. The presentation takes place in front of a committee of professors composed according to the provisions of the Didactic Regulations of the course of study.

Reasons of establishing multiple courses in the class

At University of Brescia the Master's Degree in Sciences and techniques of preventive and adapted motor activities, also belonging to the LM-67 class, is currently set up in order to train master's graduates to be able to design and manage motor activities with particular reference to elderly, disabled or chronic illnesses. The institution of the new Master's Degree Science and Technology for Population Health and Wealth goes alongside the existing one and aims at providing graduates with knowledge and skills related to innovative concepts of prevention, methodology and technological support in the field of population health and well-being and correct lifestyles.

To this end, Master's graduates will acquire not only extensive knowledge in the areas of motor sciences, but also in the biomedical, nutritional, technological, socio-economic and psychological sciences, in particular contents aimed at designing and analysing interventions for improving population well-being and the health of the entire population with reference to motor, nutritional and environmental quality aspects, including socioeconomic consequences. In this regard, the Master's Degree Course will be delivered in English, to better position itself at the European level and attract foreign students, thus strengthening the University internationalization process.

Through the two Master's Degree Courses, University of Brescia therefore proposes to train operators able on one side to deal with typically

motor aspects related to people ageing and on the other to train health and wellbeing experts able to intervene in motor as well as in nutritional field (both related to correct lifestyles), implementing effective monitoring activities which require biotechnological, engineering and socio-economic skills.

Employment and professional opportunities for Graduates

Function in a work context:

Master's Graduates will be able to focus mainly on carrying out professional activities related to the planning and technical coordination of locomotor and nutritional programs as well as the organization and implementation of primary prevention programs at public entities or consortia of public bodies, private and public structures for the elderly, public and private structures to support people with ambulatory problems, public or private structures active in the field of well-being (including wellness centres associated with hotels, wellness and spa facilities), detention and rehabilitation facilities, voluntary and non-profit associations, or to assume the role (independent or assisting health personnel) of managers and operators of structures and/or services aimed at promoting and maintaining population well-being and correct lifestyles.

Skills associated to the function:

The activity of these Master's Degree graduates will include integrated interventions in the field of physical exercise; they will be related to the motor activity (with reference to various evolutionary phases, sports, the contrast of sedentariness and physical hypoactivity in chronic disease, the recovery due to trauma or acute disease) and to the application of proper nutritional principles in order to pursue an improvement in life quality, lifestyles and wellbeing of the population which also includes fundamental technological, socioeconomic and environmental aspects. The ability to use the English language in professional implementation within the themes related to health and well-being of the population will represent an additional characterizing skill.

Employment opportunities:

According to ISTAT (Italian Institute of Statistics) categorisation, it is possible to refer (at least approximately) to the following employment opportunities:

- 1.3.1.9 Entrepreneurs and managers in small companies in the field of education, training, research, health, assistance and in artistic activities, sports and entertainment
- 2.6.2.2 Researchers and graduated technicians in life and health sciences

Academic preparation for the profession of (According to the ISTAT codes)

- Researchers and graduated technicians in Medical Sciences (2.6.2.2.3)
- Tourist entertainers and similar professions (3.4.1.3.0)
- Trainers in non-competitive sports (3.4.2.4.0)
- Event and sport structures organisers (3.4.2.5.1)

Expected learning outcomes - Knowledge and understanding- Applying knowledge and understanding

Knowledge and understanding

Master's graduates acquire in-depth knowledge in the areas of motor, biomedical, nutritional, technological, socioeconomic and psychological sciences with reference to contents aimed at designing and analysing interventions oriented to improve population well-being and health. In addition, graduates will be able to interface with field specialists to carry out basic and applied research.

Applying knowledge and understanding

Master's graduates can apply the acquired knowledge in order to design and implement specific interventions, with elements of innovation, addressed to improve the well-being and health of the population with reference to motor, nutritional and environmental quality aspects, including socioeconomic consequences.

The Rector declares that in the drafting of the educational regulations of the Course the present course and its possible curricula will differ at least 30 credits from the other courses and curricula of the same class, pursuant to Ministerial Decree 16/3/2007, art. 1 §2.

Attività caratterizzanti

ambito disciplinare	settore	CFU		minimo da D.M. per l'ambito
		min	max	
Discipline motorie e sportive	M-EDF/01 Metodi e didattiche delle attività motorie M-EDF/02 Metodi e didattiche delle attività sportive	20	20	20
Biomedico	BIO/09 Fisiologia BIO/10 Biochimica BIO/12 Biochimica clinica e biologia molecolare clinica BIO/14 Farmacologia BIO/16 Anatomia umana BIO/17 Istologia MED/04 Patologia generale MED/09 Medicina interna MED/10 Malattie dell'apparato respiratorio MED/11 Malattie dell'apparato cardiovascolare MED/13 Endocrinologia MED/26 Neurologia MED/33 Malattie apparato locomotore MED/34 Medicina fisica e riabilitativa MED/39 Neuropsichiatria infantile MED/42 Igiene generale e applicata	30	34	16
Psicologico pedagogico	M-PED/01 Pedagogia generale e sociale M-PED/03 Didattica e pedagogia speciale M-PED/04 Pedagogia sperimentale M-PSI/04 Psicologia dello sviluppo e psicologia dell'educazione M-PSI/05 Psicologia sociale M-PSI/06 Psicologia del lavoro e delle organizzazioni	7	7	7
Sociologico	SPS/08 Sociologia dei processi culturali e comunicativi SPS/10 Sociologia dell'ambiente e del territorio	5	5	5
Minimo di crediti riservati dall'ateneo minimo da D.M. 48:		62		

Totale Attività Caratterizzanti	62 - 66
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Attività affini

ambito disciplinare	settore	CFU		minimo da D.M. per l'ambito
		min	max	
Attività formative affini o integrative	AGR/11 - Entomologia generale e applicata AGR/12 - Patologia vegetale AGR/15 - Scienze e tecnologie alimentari AGR/17 - Zootecnica generale e miglioramento genetico BIO/11 - Biologia molecolare CHIM/07 - Fondamenti chimici delle tecnologie CHIM/10 - Chimica degli alimenti ICAR/03 - Ingegneria sanitaria - ambientale ICAR/20 - Tecnica e pianificazione urbanistica ING-IND/13 - Meccanica applicata alle macchine ING-IND/34 - Bioingegneria industriale ING-INF/01 - Elettronica ING-INF/04 - Automatica ING-INF/05 - Sistemi di elaborazione delle informazioni ING-INF/06 - Bioingegneria elettronica e informatica ING-INF/07 - Misure elettriche ed elettroniche IUS/01 - Diritto privato IUS/10 - Diritto amministrativo MED/01 - Statistica medica MED/03 - Genetica medica MED/05 - Patologia clinica MED/07 - Microbiologia e microbiologia clinica MED/16 - Reumatologia MED/46 - Scienze tecniche di medicina di laboratorio MED/49 - Scienze tecniche dietetiche applicate	20	26	12

	SECS-P/03 - Scienza delle finanze SECS-P/05 - Econometria SECS-S/01 - Statistica			
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Totale Attività Affini	20 - 26
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Altre attività

ambito disciplinare		CFU min	CFU max
A scelta dello studente		8	8
Per la prova finale		3	10
Ulteriori attività formative (art. 10, comma 5, lettera d)	Ulteriori conoscenze linguistiche	-	-
	Abilità informatiche e telematiche	-	-
	Tirocini formativi e di orientamento	20	20
	Altre conoscenze utili per l'inserimento nel mondo del lavoro	-	-
Minimo di crediti riservati dall'ateneo alle Attività art. 10, comma 5 lett. d			
Per stage e tirocini presso imprese, enti pubblici o privati, ordini professionali		-	-

Totale Altre Attività	31 - 38
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Riepilogo CFU

CFU totali per il conseguimento del titolo	120
Range CFU totali del corso	113 - 130

Reasons for the inclusion in related sector activities envisaged by the class or related activities

The course aims at providing in-depth knowledge in the emerging sectors of motor and wellbeing sciences to improve life quality, lifestyle and the well-being of the population, including also fundamental nutritional, technological, socioeconomic and environmental aspects. To this end, the course is characterized by the introduction of similar activities that include disciplines in scientific-disciplinary sectors of the various culturally involved themes.

Notes related to other activities

The other activities consist mainly of training activities, which will take place in the form of both practical activities both within the laboratory structures of the University of Brescia included in the training structure of the degree course, and in external structures (companies, centres, public or private bodies) operating under an agreement with the University of Brescia for the degree course in question. The aim is to associate the theoretical teaching activity ex-cathedra with the practical knowledge that derives from it, directing the student's education towards a more complete professionalism. Within an offer prepared by the Consiglio di Corso di Laurea, the student proposes an internship plan for the requested credits, which must be approved by the Consiglio di Corso di Laurea. The other activities also include the student's free choice credits, which may be acquired either by attending courses in other Degree Courses present in the Educational offer of the University of Brescia (also in Italian) of similar subjects, although not provided for of the Master's Degree Program in question, and/or attending other formative or seminar activities present in the University Educational offer.

Notes on the characterizing activities

The characterizing activities correspond to the provisions of the annex to the declaration of the Degree Class.