ALLEGATO 1

Social Sciences and Humanities

SH1 Individuals, Markets and Organisations: Economics, finance and management

SH1_1 Macroeconomics; monetary economics; economic growth
SH1_2 International trade; international business; international management; spatial economics
SH1_3 Financial economics; monetary economics
SH1_4 Financial economics; banking; corporate finance; international finance; accounting; auditing; insurance
SH1_5 Labour and demographic economics; human resource management
SH1_6 Econometrics; operations research
SH1_7 Behavioural economics; experimental economics; neuro-economics
SH1_8 Microeconomics; game theory
SH1_9 Industrial organisation; strategy; entrepreneurship
SH1_10 Management; marketing; organisational behaviour; operations management
SH1_11 Technological change, innovation, research & development
SH1_12 Agricultural economics; energy economics; environmental economics
SH1_13 Public economics; political economics; law and economics
SH1_14 Quantitative economic history; institutional economics; economic systems

SH2 Institutions, Values, Environment and Space: Political science, law, sustainability science, geography, regional studies and planning

SH2_1 Political systems, governance
SH2_2 Democratisation and social movements
SH2_3 Conflict resolution, war
SH2_4 Legal studies, constitutions, human rights, comparative law
SH2_5 International relations, global and transnational governance
SH2_6 Sustainability sciences, environment and resources
SH2_7 Environmental and climate change, societal impact and policy
SH2_8 Energy, transportation and mobility
SH2_9 Urban, regional and rural studies
SH2_10 Land use and regional planning
SH2_11 Human, economic and social geography
SH2_12 GIS, spatial analysis; big data in political, geographical and legal studies

SH3 The Social World, Diversity, Population: Sociology, social psychology, demography, education, communication

SH3_1 Social structure, social mobility
SH3_2 Inequalities, discrimination, prejudice, aggression and violence, antisocial behaviour

SH3_3 Social integration, exclusion, prosocial behavior
SH3_4 Attitudes and beliefs
SH3_5 Social influence; power and group behaviour; classroom management
SH3_6 Diversity and identities, gender, interethnic relations
SH3_7 Social policies, welfare
SH3_8 Population dynamics; households, family and fertility
SH3_9 Health, ageing and society
SH3_10 Social aspects of learning, curriculum studies, educational policies
SH3_11 Communication and information, networks, media
SH3_12 Digital social research
SH3_13 Science and technology studies

SH4 The Human Mind and Its Complexity: Cognitive science, psychology, linguistics, philosophy of mind

SH4_1 Cognitive basis of human development and education, developmental disorders;
comparative cognition
SH4_2 Personality and social cognition; emotion
SH4_3 Clinical and health psychology
SH4_4 Neuropsychology
SH4_5 Attention, perception, action, consciousness
SH4_6 Learning, memory; cognition in ageing
SH4_7 Reasoning, decision-making; intelligence
SH4_8 Language learning and processing (first and second languages)
SH4_9 Theoretical linguistics; computational linguistics
SH4_10 Language typology
SH4_11 Pragmatics, sociolinguistics, discourse analysis
SH4_12 Philosophy of mind, philosophy of language
SH4_13 Philosophy of science, epistemology, logic

SH5 Cultures and Cultural Production: Literature, philology, cultural studies, anthropology, study of the arts, philosophy

SH5_1 Classics, ancient literature and art
SH5_2 Theory and history of literature, comparative literature
SH5_3 Philology and palaeography; historical linguistics
SH5_4 Visual and performing arts, film, design
SH5_5 Music and musicology; history of music
SH5_6 History of art and architecture, arts-based research
SH5_7 Museums, exhibitions, conservation and restoration
SH5_8 Cultural studies, cultural identities and memories, cultural heritage
SH5_9 Social anthropology, religious studies, symbolic representation
SH5_10 Metaphysics, philosophical anthropology; aesthetics
SH5_11 Ethics; social and political philosophy
SH5_12 History of philosophy
SH5_13 Computational Modelling and Digitisation in the Cultural Sphere

SH6 The Study of the Human Past: Archaeology and history

SH6_1 Historiography, Theory and methods in history, including the analysis of digital data
SH6_2 Classical archaeology, history of archaeology
SH6_3 General archaeology, archaeometry, landscape archaeology
SH6_4 Prehistory, palaeoanthropology, palaeodemography, protohistory
SH6_5 Ancient history
SH6_6 Medieval history
SH6_7 Early modern history
SH6_8 Modern and contemporary history
SH6_9 Colonial and post-colonial history
SH6_10 Global history, transnational history, comparative history, entangled histories
SH6_11 Social and economic history
SH6_12 Gender history; Cultural History; History of Collective Identities and Memories
SH6_13 History of Ideas, Intellectual History, history of economic thought
SH6_14 History of Science, Medicine and Technologies

Physical Sciences and Engineering

PE1 Mathematics: All areas of mathematics, pure and applied, plus mathematical foundations of computer science, mathematical physics and statistics

PE1_1 Logic and foundations
PE1_2 Algebra
PE1_3 Number theory
PE1_4 Algebraic and complex geometry
PE1_5 Geometry
PE1_6 Topology
PE1_7 Lie groups, Lie algebras
PE1_8 Analysis
PE1_9 Operator algebras and functional analysis
PE1_10 ODE and dynamical systems
PE1_11 Theoretical aspects of partial differential equations
PE1_12 Mathematical physics
PE1_13 Probability
PE1_14 Statistics
PE1_15 Discrete mathematics and combinatorics
PE1_16 Mathematical aspects of computer science
PE1_17 Numerical analysis
PE1_18 Scientific computing and data processing
PE1_19 Control theory and optimisation
PE1_20 Application of mathematics in sciences
PE1_21 Application of mathematics in industry and society

PE2 Fundamental Constituents of Matter: Particle, nuclear, plasma, atomic, molecular, gas, and optical physics

PE2_1 Fundamental interactions and fields
PE2_2 Particle physics
PE2_3 Nuclear physics
PE2_4 Nuclear astrophysics
PE2_5 Gas and plasma physics
PE2_6 Electromagnetism
PE2_7 Atomic, molecular physics
PE2_8 Ultra-cold atoms and molecules
PE2_9 Optics, non-linear optics and nano-optics
PE2_10 Quantum optics and quantum information
PE2_11 Lasers, ultra-short lasers and laser physics
PE2_12 Acoustics
PE2_13 Relativity
PE2_14 Thermodynamics
PE2_15 Non-linear physics
PE2_16 General physics
PE2_17 Metrology and measurement
PE2_18 Statistical physics (gases)

PE3 Condensed Matter Physics: Structure, electronic properties, fluids, nanosciences, biophysics

PE3_1 Structure of solids and liquids
PE3_2 Mechanical and acoustical properties of condensed matter, Lattice dynamics
PE3_3 Transport properties of condensed matter
PE3_4 Electronic properties of materials, surfaces, interfaces, nanostructures, etc.
PE3_5 Semiconductors and insulators: material growth, physical properties
PE3_6 Macroscopic quantum phenomena: superconductivity, superfluidity, etc.
PE3_7 Spintronics
PE3_8 Magnetism and strongly correlated systems
PE3_9 Condensed matter – beam interactions (photons, electrons, etc.)
PE3_10 Nanophysics: nanoelectronics, nanophotonics, nanomagnetism, nanoelectromechanics, etc.
PE3_11 Mesoscopic physics
PE3_12 Molecular electronics
PE3_13 Structure and dynamics of disordered systems: soft matter (gels, colloids, liquid crystals, etc.), glasses, defects, etc.
PE3_14 Fluid dynamics (physics)
PE3_15 Statistical physics: phase transitions, noise and fluctuations, models of complex systems, etc.
PE3_16 Physics of biological systems

PE4 Physical and Analytical Chemical Sciences: Analytical chemistry, chemical theory, physical chemistry/chemical physics

PE4_1 Physical chemistry
PE4_2 Spectroscopic and spectrometric techniques
PE4_3 Molecular architecture and Structure
PE4_4 Surface science and nanostructures
PE4_5 Analytical chemistry
PE4_6 Chemical physics
PE4_7 Chemical instrumentation
PE4_8 Electrochemistry, electrodialysis, microfluidics, sensors
PE4_9 Method development in chemistry
PE4_10 Heterogeneous catalysis
PE4_11 Physical chemistry of biological systems
PE4_12 Chemical reactions: mechanisms, dynamics, kinetics and catalytic reactions
PE4_13 Theoretical and computational chemistry
PE4_14 Radiation and Nuclear chemistry
PE4_15 Photochemistry
PE4_16 Corrosion
PE4_17 Characterisation methods of materials
PE4_18 Environment chemistry

PE5 Synthetic Chemistry and Materials: Materials synthesis, structure-properties relations, functional and advanced materials, molecular architecture, organic chemistry

PE5_1 Structural properties of materials
PE5_2 Solid state materials
PE5_3 Surface modification
PE5_4 Thin films
PE5_5 Ionic liquids
PE5_6 New materials: oxides, alloys, composite, organic-inorganic hybrid, nanoparticles
PE5_7 Biomaterials, biomaterials synthesis
PE5_8 Intelligent materials – self assembled materials
PE5_9 Coordination chemistry
PE5_10 Colloid chemistry
PE5_11 Biological chemistry
PE5_12 Chemistry of condensed matter
PE5_13 Homogeneous catalysis
PE5_14 Macromolecular chemistry
PE5_15 Polymer chemistry
PE5_16 Supramolecular chemistry
PE5_17 Organic chemistry
PE5_18 Molecular chemistry
PE5_19 Combinatorial chemistry

PE6 Computer Science and Informatics: Informatics and information systems, computer science, scientific computing, intelligent systems

PE6_1 Computer architecture, pervasive computing, ubiquitous computing
PE6_2 Computer systems, parallel/distributed systems, sensor networks, embedded
systems, cyber-physical systems
PE6_3 Software engineering, operating systems, computer languages
PE6_4 Theoretical computer science, formal methods, and quantum computing
PE6_5 Cryptology, security, privacy, quantum crypto
PE6_6 Algorithms, distributed, parallel and network algorithms, algorithmic game
theory
PE6_7 Artificial intelligence, intelligent systems, multi agent systems
PE6_8 Computer graphics, computer vision, multi media, computer games
PE6_9 Human computer interaction and interface, visualisation and natural language
processing
PE6_10 Web and information systems, database systems, information retrieval and digital
libraries, data fusion

PE6_11 Machine learning, statistical data processing and applications using signal
processing (e.g. speech, image, video)
PE6_12 Scientific computing, simulation and modelling tools
PE6_13 Bioinformatics, biocomputing, and DNA and molecular computation

PE7 Systems and Communication Engineering: Electrical, electronic, communication, optical and systems engineering

PE7_1 Control engineering
PE7_2 Electrical engineering: power components and/or systems
PE7_3 Simulation engineering and modelling
PE7_4 (Micro and nano) systems engineering
PE7_5 (Micro and nano) electronic, optoelectronic and photonic components
PE7_6 Communication technology, high-frequency technology
PE7_7 Signal processing
PE7_8 Networks (communication networks, sensor networks, networks of robots, etc.)
PE7_9 Man-machine-interfaces
PE7_10 Robotics
PE7_11 Components and systems for applications (in e.g. medicine, biology, environment)
PE7_12 Electrical energy production, distribution, application

PE8 Products and Processes Engineering: Product design, process design and control, construction methods, civil engineering, energy processes, material engineering

PE8_1 Aerospace engineering
PE8_2 Chemical engineering, technical chemistry
PE8_3 Civil engineering, architecture, maritime/hydraulic engineering, geotechnics, waste
treatment
PE8_4 Computational engineering
PE8_5 Fluid mechanics, hydraulic-, turbo-, and piston engines
PE8_6 Energy processes engineering
PE8_7 Mechanical and manufacturing engineering (shaping, mounting, joining, separation)
PE8_8 Materials engineering (metals, ceramics, polymers, composites, etc.)
PE8_9 Production technology, process engineering
PE8_10 Industrial design (product design, ergonomics, man-machine interfaces, etc.)
PE8_11 Sustainable design (for recycling, for environment, eco-design)
PE8_12 Lightweight construction, textile technology
PE8_13 Industrial bioengineering

PE9 Universe Sciences: Astro-physics/chemistry/biology; solar system; stellar, galactic and extragalactic astronomy, planetary systems, cosmology, space science, instrumentation

PE9_1 Solar and interplanetary physics
PE9_2 Planetary systems sciences
PE9_3 Interstellar medium
PE9_4 Formation of stars and planets
PE9_5 Astrobiology
PE9_6 Stars and stellar systems
PE9_7 The Galaxy
PE9_8 Formation and evolution of galaxies
PE9_9 Clusters of galaxies and large scale structures
PE9_10 High energy and particles astronomy – X-rays, cosmic rays, gamma rays, neutrinos
PE9_11 Relativistic astrophysics
PE9_12 Dark matter, dark energy
PE9_13 Gravitational astronomy
PE9_14 Cosmology
PE9_15 Space Sciences
PE9_16 Very large data bases: archiving, handling and analysis
PE9_17 Instrumentation - telescopes, detectors and techniques

PE10 Earth System Science: Physical geography, geology, geophysics, atmospheric sciences, oceanography, climatology, cryology, ecology, global environmental change, biogeochemical cycles, natural resources management

PE10_1 Atmospheric chemistry, atmospheric composition, air pollution
PE10_2 Meteorology, atmospheric physics and dynamics
PE10_3 Climatology and climate change
PE10_4 Terrestrial ecology, land cover change
PE10_5 Geology, tectonics, volcanology
PE10_6 Palaeoclimatology, palaeoecology
PE10_7 Physics of earth's interior, seismology, volcanology
PE10_8 Oceanography (physical, chemical, biological, geological)
PE10_9 Biogeochemistry, biogeochemical cycles, environmental chemistry
PE10_10 Mineralogy, petrology, igneous petrology, metamorphic petrology
PE10_11 Geochemistry, crystal chemistry, isotope geochemistry, thermodynamics
PE10_12 Sedimentology, soil science, palaeontology, earth evolution
PE10_13 Physical geography
PE10_14 Earth observations from space/remote sensing
PE10_15 Geomagnetism, palaeomagnetism
PE10_16 Ozone, upper atmosphere, ionosphere
PE10_17 Hydrology, water and soil pollution
PE10_18 Cryosphere, dynamics of snow and ice cover, sea ice, permafrosts and ice sheets

Life Sciences

LS1 Molecular and Structural Biology and Biochemistry: Molecular synthesis, modification and interaction, biochemistry, biophysics, structural biology, metabolism, signal transduction

LS1_1 Molecular interactions
LS1_2 General biochemistry and metabolism
LS1_3 DNA synthesis, modification, repair, recombination and degradation
LS1_4 RNA synthesis, processing, modification and degradation
LS1_5 Protein synthesis, modification and turnover
LS1_6 Lipid synthesis, modification and turnover
LS1_7 Carbohydrate synthesis, modification and turnover
LS1_8 Biophysics (e.g. transport mechanisms, bioenergetics, fluorescence)
LS1_9 Structural biology (crystallography and EM)
LS1_10 Structural biology (NMR)
LS1_11 Biochemistry and molecular mechanisms of signal transduction

LS2 Genetics, Genomics, Bioinformatics and Systems Biology: Molecular and population genetics, genomics, transcriptomics, proteomics, metabolomics, bioinformatics, computational biology, biostatistics, biological modelling and simulation, systems biology, genetic epidemiology

LS2_1 Genomics, comparative genomics, functional genomics
LS2_2 Transcriptomics
LS2_3 Proteomics
LS2_4 Metabolomics
LS2_5 Glycomics
LS2_6 Molecular genetics, reverse genetics and RNAi
LS2_7 Quantitative genetics
LS2_8 Epigenetics and gene regulation
LS2_9 Genetic epidemiology
LS2_10 Bioinformatics
LS2_11 Computational biology
LS2_12 Biostatistics
LS2_13 Systems biology
LS2_14 Biological systems analysis, modelling and simulation

LS3 Cellular and Developmental Biology: Cell biology, cell physiology, signal transduction, organogenesis, developmental genetics, pattern formation in plants and animals, stem cell biology

LS3_1 Morphology and functional imaging of cells
LS3_2 Cell biology and molecular transport mechanisms
LS3_3 Cell cycle and division
LS3_4 Apoptosis
LS3_5 Cell differentiation, physiology and dynamics
LS3_6 Organelle biology
LS3_7 Cell signalling and cellular interactions

LS3_8 Signal transduction
LS3_9 Development, developmental genetics, pattern formation and embryology in
animals
LS3_10 Development, developmental genetics, pattern formation and embryology in plants
LS3_11 Cell genetics
LS3_12 Stem cell biology

LS4 Physiology, Pathophysiology and Endocrinology: Organ physiology, pathophysiology, endocrinology, metabolism, ageing, tumorigenesis, cardiovascular disease, metabolic syndrome

LS4_1 Organ physiology and pathophysiology
LS4_2 Comparative physiology and pathophysiology
LS4_3 Endocrinology
LS4_4 Ageing
LS4_5 Metabolism, biological basis of metabolism related disorders
LS4_6 Cancer and its biological basis
LS4_7 Cardiovascular diseases
LS4_8 Non-communicable diseases (except for neural/psychiatric, immunity-related,
metabolism-related disorders, cancer and cardiovascular diseases)

LS5 Neurosciences and Neural Disorders: Neurobiology, neuroanatomy, neurophysiology, neurochemistry, neuropharmacology, neuroimaging, systems neuroscience, neurological and psychiatric disorders

LS5_1 Neuroanatomy and neurophysiology
LS5_2 Molecular and cellular neuroscience
LS5_3 Neurochemistry and neuropharmacology
LS5_4 Sensory systems (e.g. visual system, auditory system)
LS5_5 Mechanisms of pain
LS5_6 Developmental neurobiology
LS5_7 Cognition (e.g. learning, memory, emotions, speech)
LS5_8 Behavioural neuroscience (e.g. sleep, consciousness, handedness)
LS5_9 Systems neuroscience
LS5_10 Neuroimaging and computational neuroscience
LS5_11 Neurological disorders (e.g. Alzheimer’s disease, Huntington’s disease, Parkinson’s
disease)
LS5_12 Psychiatric disorders (e.g. schizophrenia, autism, Tourette’s syndrome, obsessive
compulsive disorder, depression, bipolar disorder, attention deficit hyperactivity
disorder)

LS6 Immunity and Infection: The immune system and related disorders, infectious agents and diseases, prevention and treatment of infection

LS6_1 Innate immunity and inflammation
LS6_2 Adaptive immunity
LS6_3 Phagocytosis and cellular immunity
LS6_4 Immunosignalling
LS6_5 Immunological memory and tolerance
LS6_6 Immunogenetics
LS6_7 Microbiology
LS6_8 Virology
LS6_9 Bacteriology
LS6_10 Parasitology
LS6_11 Prevention and treatment of infection by pathogens (e.g. vaccination, antibiotics,
fungicide)
LS6_12 Biological basis of immunity related disorders (e.g. autoimmunity)
LS6_13 Veterinary medicine and infectious diseases in animals

LS7 Diagnostic Tools, Therapies and Public Health: Aetiology, diagnosis and treatment of disease, public health, epidemiology, pharmacology, clinical medicine, regenerative medicine, medical ethics

LS7_1 Medical engineering and technology
LS7_2 Diagnostic tools (e.g. genetic, imaging)
LS7_3 Pharmacology, pharmacogenomics, drug discovery and design, drug therapy
LS7_4 Analgesia and Surgery
LS7_5 Toxicology
LS7_6 Gene therapy, cell therapy, regenerative medicine
LS7_7 Radiation therapy
LS7_8 Health services, health care research
LS7_9 Public health and epidemiology
LS7_10 Environment and health risks, occupational medicine
LS7_11 Medical ethics

LS8 Evolutionary, Population and Environmental Biology: Evolution, ecology, animal behaviour, population biology, biodiversity, biogeography, marine biology, ecotoxicology, microbial ecology

LS8_1 Ecology (theoretical and experimental; population, species and community level)
LS8_2 Population biology, population dynamics, population genetics
LS8_3 Systems evolution, biological adaptation, phylogenetics, systematics, comparative biology
LS8_4 Biodiversity, conservation biology, conservation genetics, invasion biology
LS8_5 Evolutionary biology: evolutionary ecology and genetics, co-evolution

LS8_6 Biogeography, macro-ecology
LS8_7 Animal behaviour
LS8_8 Environmental and marine biology
LS8_9 Environmental toxicology at the population and ecosystems level
LS8_10 Microbial ecology and evolution
LS8_11 Species interactions (e.g. food-webs, symbiosis, parasitism, mutualism)

LS9 Applied Life Sciences and Non-Medical Biotechnology: Applied plant and animal sciences; food sciences; forestry; industrial, environmental and non-medical biotechnologies, bioengineering; synthetic and chemical biology; biomimetics; bioremediation

LS9_1 Non-medical biotechnology and genetic engineering (including transgenic organisms, recombinant proteins, biosensors, bioreactors, microbiology)
LS9_2 Synthetic biology, chemical biology and bio-engineering
LS9_3 Animal sciences (including animal husbandry, aquaculture, fisheries, animal welfare)
LS9_4 Plant sciences (including crop production, plant breeding, agroecology, soil biology)
LS9_5 Food sciences (including food technology, nutrition)
LS9_6 Forestry and biomass production (including biofuels)
LS9_7 Environmental biotechnology (including bioremediation, biodegradation)
LS9_8 Biomimetics
LS9_9 Biohazards (including biological containment, biosafety, biosecurity)