

# SETTORI ERC

## **Social Sciences and Humanities**

### **SH1 Individuals, institutions and markets:** economics, finance and management

- SH1\_1 Macroeconomics, growth, business cycles
- SH1\_2 Microeconomics, institutional economics
- SH1\_3 Econometrics, statistical methods
- SH1\_4 Financial markets, banking and corporate finance
- SH1\_5 Competitiveness, innovation, research and development
- SH1\_6 Consumer choice, behavioural economics, marketing
- SH1\_7 Organization studies, strategy
- SH1\_8 Human resource management, employment and earnings
- SH1\_9 Public administration, public economics
- SH1\_10 Income distribution, poverty
- SH1\_11 International trade, economic geography
- SH1\_12 Economic history, development

### **SH2 Institutions, values, beliefs and behaviour:** sociology, social anthropology, political science, law, communication, social studies of science and technology

- SH2\_1 Social structure, inequalities, social mobility
- SH2\_2 Ageing, work, social policies
- SH2\_3 Kinship, cultural dimensions of classification and cognition, individual and social identity, gender
- SH2\_4 Myth, ritual, symbolic representations, religious studies
- SH2\_5 Ethnography
- SH2\_6 Globalization, migration, interethnic relations
- SH2\_7 Transformation of societies, democratization, social movements
- SH2\_8 Political systems, legitimacy of governance
- SH2\_9 Legal systems, constitutions, foundations of law
- SH2\_10 Private, public and social law
- SH2\_11 Global and transnational governance, international law, human rights
- SH2\_12 Communication networks, media, information society
- SH2\_13 Social studies of science and technology, S&T policies, science and society
- SH2\_14 History of science and technology

### **SH3 Environment and society:** environmental studies, demography, social geography, urban and regional studies

- SH3\_1 Environment and sustainability
- SH3\_2 Environmental regulation and mediation
- SH3\_3 Social and industrial ecology
- SH3\_4 Geographical information systems, cartography
- SH3\_5 Human and social geography
- SH3\_6 Spatial and regional planning
- SH3\_7 Population dynamics
- SH3\_8 Urbanization and urban planning, cities
- SH3\_9 Mobility and transportation

### **SH4 The Human Mind and its complexity:** cognition, psychology, linguistics, philosophy and education

- SH4\_1 Evolution of mind and cognitive functions, animal communication
- SH4\_2 Human life-span development
- SH4\_3 Neuropsychology and cognitive psychology
- SH4\_4 Clinical and experimental psychology,
- SH4\_5 Formal, cognitive, functional and computational linguistics
- SH4\_6 Typological, historical and comparative linguistics
- SH4\_7 Acquisition and knowledge of language: psycholinguistics, neurolinguistics
- SH4\_8 Use of language: pragmatics, sociolinguistics, discourse analysis
- SH4\_9 second language teaching and learning, language pathologies, lexicography,

terminology

SH4\_10 Philosophy, history of philosophy

SH4\_11 Epistemology, logic, philosophy of science

SH4\_12 Ethics and morality, bioethics

SH4\_13 Education: principles, techniques, typologies

## **SH5 Cultures and cultural production: literature, visual and performing arts, music, cultural and comparative studies**

SH5\_1 Classics

SH5\_2 History of literature

SH5\_3 Literary theory and comparative literature, literary styles

SH5\_4 Textual philology and palaeography

SH5\_5 Visual arts

SH5\_6 Performing arts

SH5\_7 Museums and exhibitions

SH5\_8 Numismatics, epigraphy

SH5\_9 Music and musicology, history of music

SH5\_10 History of art and architecture

SH5\_11 Cultural studies, cultural diversity

SH5\_12 Cultural memory, intangible cultural heritage

## **SH6 The study of the human past: archaeology, history and memory**

SH6\_1 Archaeology, archaeometry, landscape archaeology

SH6\_2 Prehistory and protohistory

SH6\_3 Ancient history, ancient cultures

SH6\_4 Medieval history

SH6\_5 Modern and contemporary history

SH6\_6 Colonial history, entangled histories, global history

SH6\_7 Military history,

SH6\_8 Historiography, theory and methods of history

SH6\_9 History of ideas, intellectual history

SH6\_10 Social, economic, cultural and political history

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SH6\_11 Collective memories, identities, lieux de mémoire, oral history

SH6\_12 Cultural heritage

## **Mathematics, physical sciences, information and communication, engineering, universe and earth sciences**

**PE1 Mathematical foundations:** 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 Partial differential equations

PE1\_12 Mathematical physics

PE1\_13 Probability and statistics

PE1\_14 Combinatorics

PE1\_15 Mathematical aspects of computer science

PE1\_16 Numerical analysis and scientific computing

PE1\_17 Control theory and optimization

PE1\_18 Application of mathematics in sciences

**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 Optics and quantum optics

PE2\_9 Lasers and laser physics

PE2\_10 Acoustics

PE2\_11 Relativity

PE2\_12 Classical physics

PE2\_13 Thermodynamics

PE2\_14 Non-linear physics

PE2\_15 General physics

PE2\_16 Metrology and measurement

PE2\_17 Statistical physics (gases)

**PE3 Condensed matter physics:** structure, electronic properties, fluids, nanosciences

PE3\_1 Structure of solids and liquids

PE3\_2 Mechanical and acoustical properties of condensed matter

PE3\_3 Thermal properties of condensed matter

PE3\_4 Transport properties of condensed matter,

PE3\_5 Electronic properties of materials and transport

PE3\_6 Lattice dynamics

PE3\_7 Semiconductors

PE3\_8 Superconductivity

PE3\_9 Superfluids

PE3\_10 Spintronics

PE3\_11 Magnetism

PE3\_12 Nanophysics: nanoelectronics, nanophotonics, nanomagnetism

PE3\_13 Mesoscopic physics

PE3\_14 Molecular electronics

PE3\_15 Soft condensed matter (liquid crystals...)

PE3\_16 Fluid dynamics (physics)

PE3\_17 Statistical physics (condensed matter)

PE3\_18 Phase transitions, phase equilibria

PE3\_19 Biophysics

**PE4 Physical and Analytical Chemical sciences:** analytical chemistry, chemical theory, physical chemistry/chemical physics

PE4\_1 Physical chemistry

PE4\_2 Nanochemistry

PE4\_3 Spectroscopic and spectrometric techniques

PE4\_4 Molecular architecture and Structure

PE4\_5 Surface science

PE4\_6 Analytical chemistry

PE4\_7 Chemical physics

PE4\_8 Chemical instrumentation

PE4\_9 Electrochemistry, electrodialysis, microfluidics

PE4\_10 Combinatorial chemistry

PE4\_11 Method development in chemistry

PE4\_12 Catalysis

PE4\_13 Physical chemistry of biological systems

PE4\_14 Chemical reactions: mechanisms, dynamics, kinetics and catalytic reactions

PE4\_15 Theoretical and computational chemistry

PE4\_16 Radiation chemistry

PE4\_17 Nuclear chemistry  
PE4\_18 Photochemistry

**PE5 Materials and Synthesis:** 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 Corrosion  
PE5\_6 Porous materials  
PE5\_7 Ionic liquids  
PE5\_8 New materials: oxides, alloys, composite, organic-inorganic hybrid, superconductors  
PE5\_9 Materials for sensors  
PE5\_10 Nanomaterials : nanoparticles, nanotubes  
PE5\_11 Biomaterials synthesis  
PE5\_12 Intelligent materials – self assembled materials  
PE5\_13 Environment chemistry  
PE5\_14 Coordination chemistry  
PE5\_15 Colloid chemistry  
PE5\_16 Biological chemistry  
PE5\_17 Chemistry of condensed matter  
PE5\_18 Homogeneous and heterogeneous catalysis  
PE5\_19 Characterization methods of materials  
PE5\_20 Macromolecular chemistry,  
PE5\_21 Polymer chemistry  
PE5\_22 Supramolecular chemistry  
PE5\_23 Organic chemistry  
PE5\_24 Molecular chemistry

**PE6 Computer science and informatics:** informatics and information systems, computer science, scientific computing, intelligent systems

PE6\_1 Computer architecture  
PE6\_2 Database management  
PE6\_3 Formal methods  
PE6\_4 Graphics and image processing  
PE6\_5 Human computer interaction and interface  
PE6\_6 Informatics and information systems  
PE6\_7 Theoretical computer science including quantum information  
PE6\_8 Intelligent systems  
PE6\_9 Scientific computing  
PE6\_10 Modelling tools  
PE6\_11 Multimedia  
PE6\_12 Parallel and Distributed Computing  
PE6\_13 Speech recognition  
PE6\_14 Systems and software

**PE7 Systems and communication engineering:** electronic, communication, optical and systems engineering

PE7\_1 Control engineering  
PE7\_2 Electrical and electronic engineering: semiconductors, components, systems  
PE7\_4 Simulation engineering and modelling  
PE7\_5 Systems engineering, sensorics, actorics, automation  
PE7\_6 Micro- and nanoelectronics, optoelectronics  
PE7\_7 Communication technology, high-frequency technology  
PE7\_8 Signal processing  
PE7\_9 Networks  
PE7\_10 Man-machine-interfaces  
PE7\_11 Robotics

**PE8 Products and process engineering:** product design, process design and control, construction methods, civil engineering, energy systems, material engineering

PE8\_1 Aerospace engineering

PE8\_2 Chemical engineering, technical chemistry

PE8\_3 Civil engineering, maritime/hydraulic engineering, geotechnics, waste treatment

PE8\_4 Computational engineering

PE8\_5 Fluid mechanics, hydraulic-, turbo-, and piston engines

PE8\_6 Energy systems (production, distribution, application)

PE8\_7 Micro(system) engineering,

PE8\_8 Mechanical and manufacturing engineering (shaping, mounting, joining, separation)

PE8\_9 Materials engineering (biomaterials, metals, ceramics, polymers, composites, ...)

PE8\_10 Production technology, process engineering

PE8\_11 Product design, ergonomics, man-machine interfaces

PE8\_12 Lightweight construction, textile technology

PE8\_13 Industrial bioengineering

PE8\_14 Industrial biofuel production

**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

PE9\_18 Solar planetology

**PE10 Earth system science:** physical geography, geology, geophysics, meteorology, oceanography, climatology, 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 Paleoclimatology, paleoecology

PE10\_7 Physics of earth's interior, seismology, volcanology

PE10\_8 Oceanography (physical, chemical, biological)

PE10\_9 Biogeochemistry, biogeochemical cycles, environmental chemistry

PE10\_10 Mineralogy, petrology, igneous petrology, metamorphic petrology

PE10\_11 Geochemistry, crystal chemistry, isotope geochemistry, thermodynamics,

PE10\_13 Sedimentology, soil science, palaeontology, earth evolution

PE10\_14 Physical geography

PE10\_15 Earth observations from space/remote sensing

PE10\_16 Geomagnetism, paleomagnetism

PE10\_17 Ozone, upper atmosphere, ionosphere

PE10\_18 Hydrology, water and soil pollution

## Life Sciences

**LS1 Molecular and Structural Biology and Biochemistry:** molecular biology, biochemistry, biophysics, structural biology, biochemistry of signal transduction

- LS1\_1 Molecular biology and interactions
- LS1\_2 General biochemistry and metabolism
- LS1\_3 DNA biosynthesis, modification, repair and degradation
- LS1\_4 RNA synthesis, processing, modification and degradation
- LS1\_5 Protein synthesis, modification and turnover
- LS1\_6 Biophysics
- LS1\_7 Structural biology (crystallography, NMR, EM)
- LS1\_8 Biochemistry of signal transduction

**LS2 Genetics, Genomics, Bioinformatics and Systems Biology:** genetics, population genetics, molecular 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

- 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, regeneration, tumorigenesis, cardiovascular disease, metabolic syndrome

- LS4\_1 Organ physiology
- LS4\_2 Comparative physiology
- 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 disorders, psychiatry

LS5\_1 Neuroanatomy and neurosurgery

LS5\_2 Neurophysiology

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 Behavioral 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:** immunobiology, aetiology of immune disorders, microbiology, virology, parasitology, global and other infectious diseases, population dynamics of infectious diseases, veterinary medicine

LS6\_1 Innate immunity

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

LS6\_13 Veterinary medicine

**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

LS7\_5 Toxicology

LS7\_6 Gene therapy, stem cell therapy, regenerative medicine

LS7\_7 Surgery

LS7\_8 Radiation therapy

LS7\_9 Health services, health care research

LS7\_10 Public health and epidemiology

LS7\_11 Environment and health risks including radiation

LS7\_12 Occupational medicine

LS7\_13 Medical ethics

**LS8 Evolutionary, population and environmental biology:** evolution, ecology, animal behaviour, population biology, biodiversity, biogeography, marine biology, eco-toxicology, prokaryotic biology

LS8\_1 Ecology (theoretical, community, population, microbial, evolutionary ecology)

LS8\_2 Population biology, population dynamics, population genetics, plant-animal interactions

LS8\_3 Systems eEvolution, biological adaptation, phylogenetics, systematics

LS8\_4 Biodiversity, comparative biology

LS8\_5 Conservation biology, ecology, genetics

LS8\_6 Biogeography

LS8\_7 Animal behaviour (behavioural ecology, animal communication)

LS8\_8 Environmental and marine biology

LS8\_9 Environmental toxicology

LS8\_10 Prokaryotic biology

LS8\_11 Symbiosis

**LS9 Applied life sciences and biotechnology:** agricultural, animal, fishery, forestry and food sciences; biotechnology, chemical biology, genetic engineering, synthetic biology, industrial biosciences; environmental biotechnology and remediation

LS9\_1 Genetic engineering, transgenic organisms, recombinant proteins, biosensors

LS9\_2 Synthetic biology and new bio-engineering concepts

LS9\_3 Agriculture related to animal husbandry, dairying, livestock raising

LS9\_4 Aquaculture, fisheries

LS9\_5 Agriculture related to crop production, soil biology and cultivation, applied plant biology