## **ANEXA 4 - Scientific Domains**

<b>Domain Code:</b>	SH
Subdomain Code:	SH1, SH2, SH3, SH4, SH5, SH6
Research Area Code:	SH1_1SH1_12, SH2_1SH2_14

# DOMAIN 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, behavioral 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	<b>Institutions, values, beliefs and behavior:</b> 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	<b>Environment and society:</b> 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	<b>Cultures and cultural production:</b> 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	
SH6_11	Collective memories, identities, lieux de mémoire, oral history	
SH6_12	Cultural heritage	

<b>Domain Code:</b>	PE
Subdomain Code:	PE1, PE2, PE3 PE10
Research Area Code:	PE1_1PE1_18, PE2_1PE2_17

# DOMAIN MATHEMATICS, PHYSICAL SCIENCES, INFORMATION AND COMMUNICATION, ENGINEERING, UNIVERSE AND EARTH SCIENCES

PE1	<b>Mathematical foundations:</b> 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	<b>Physical and Analytical Chemical sciences:</b> 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	<b>Materials and Synthesis:</b> 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	<b>Computer science and informatics:</b> 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_3	Simulation engineering and modelling	
PE7_4	Systems engineering, sensorics, actorics, automation	
PE7_5	Micro- and nanoelectronics, optoelectronics	
PE7_6	Communication technology, high-frequency technology	
PE7_7	Signal processing	
PE7_8	Networks	
PE7_9	Man-machine-interfaces	
PE7_10	Robotics	
PE8	<b>Products and process engineering:</b> 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	<b>Universe sciences:</b> 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	<b>Earth system science:</b> 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_12	Sedimentology, soil science, palaeontology, earth evolution	
PE10_13	Physical geography	
PE10_14	Earth observations from space/remote sensing	
PE10_15	Geomagnetism, paleomagnetism	
PE10_16	Ozone, upper atmosphere, ionosphere	
PE10_17	Hydrology, water and soil pollution	

Domain Code:	LS
Subdomain Code:	LS1,LS2LS9
Research Area Code:	LS1_1LS1_8,LS2_1LS2_14

### DOMAIN 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	<b>Physiology, Pathophysiology and Endocrinology:</b> 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	<b>Neurosciences and neural disorders:</b> 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	<b>Immunity and infection:</b> 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	<b>Diagnostic tools, therapies and public health:</b> 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
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LS7_11	Environment and health risks including radiation
LS7_12	Occupational medicine
LS7_13	Medical ethics
LS8	<b>Evolutionary, population and environmental biology:</b> 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 Evolution, 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	<b>Applied life sciences and biotechnology:</b> 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
LS9_6	Food sciences
LS9_7	Forestry, biomass production (e.g. for biofuels)
LS9_8	Environmental biotechnology, bioremediation, biodegradation
LS9_9	Biotechnology, bioreactors, applied microbiology
LS9_10	Biomimetics
LS9_11	Biohazards, biological containment, biosafety, biosecurity

#### Ariile de cercetare din ştiințele sociale sunt următoarele:

- 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
- 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\_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
- 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\_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\_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\_13 Education: principles, techniques, typologies

#### Ariile de cercetare din ştiințele umaniste sunt următoarele:

- SH1\_12 Economic history, development
- SH2\_4 Myth, ritual, symbolic representations, religious studies
- SH2\_5 Ethnography
- SH2\_14 History of science and technology
- SH4\_6 Typological, historical and comparative linguistics
- SH4\_10 Philosophy, history of philosophy
- SH4\_11 Epistemology, logic, philosophy of science
- SH4\_12 Ethics and morality, bioethics
- 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\_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
- SH6 11Collective memories, identities, lieux de mémoire, oral history
- SH6\_12 Cultural heritage

**Domeniile de cercetare cu specific românesc** sunt limba și literatura română și dreptul românesc, care se încadrează în următoarele arii de cercetare:

- SH2\_10 Private, public and social law
- SH5\_2 History of literature
- SH5\_3 Literary theory and comparative literature, literary styles
- SH5\_4 Textual philology and palaeography