Description of R&D Higher Education Research and Development Survey (HERD)

A. Computer and Information Sciences
   - Artificial intelligence
   - Computer and information technology administration and management
   - Computer science
   - Computer software and media applications
   - Computer systems analysis
   - Computer systems networking and telecommunications
   - Data processing
   - Information sciences, studies
   - Information technology

B. Engineering
   1. Aerospace, Aeronautical, and Astronautical Engineering
      - Aerodynamics
      - Aerospace engineering
      - Space technology
   2. Bioengineering and Biomedical Engineering
      - Biological and biosystems engineering
      - Biomaterials engineering
      - Biomedical technology
      - Medical engineering
   3. Chemical Engineering
      - Biochemical engineering
      - Chemical and biomolecular engineering
      - Engineering chemistry
      - Paper science
      - Petroleum refining process
      - Polymer, plastics engineering
   4. Civil Engineering
      - Architectural engineering
      - Construction engineering
      - Engineering management, administration
      - Environmental, environmental health engineering
      - Geotechnical and geoenvironmental engineering
      - Sanitary engineering
      - Structural engineering
      - Surveying engineering
      - Transportation and highway engineering
      - Water resources engineering
   5. Electrical, Electronic, and Communications Engineering
      - Communications engineering
      - Computer engineering
      - Computer hardware engineering
      - Computer software engineering
Description of R&D Higher Education Research and Development Survey (HERD)

Electrical and electronics engineering
Laser and optical engineering
Power
Telecommunications engineering

6. Industrial and Manufacturing Engineering
   Industrial engineering
   Manufacturing engineering
   Operations research
   Systems engineering

7. Mechanical Engineering
   Electromechanical engineering
   Mechatronics, robotics, and automation engineering

8. Metallurgical and Materials Engineering
   Ceramic sciences and engineering
   Geophysical, geological engineering
   Materials engineering
   Metallurgical engineering
   Mining and mineral engineering
   Textile sciences and engineering
   Welding

9. Other Engineering
   Agricultural engineering
   Engineering design
   Engineering mechanics, physics, and science
   Forest engineering
   Nanotechnology
   Naval architecture and marine engineering
   Nuclear engineering
   Ocean engineering
   Petroleum engineering
   Other engineering fields that cannot be classified using the fields above

C. Geosciences, Atmospheric, and Ocean Sciences (previously Environmental Sciences)

1. Atmospheric Science and Meteorology
   Aeronomy
   Atmospheric chemistry and climatology
   Atmospheric physics and dynamics
   Extraterrestrial atmospheres
   Meteorology
   Solar
   Weather modification
Description of R&D Higher Education Research and Development Survey (HERD)

2. Geological and Earth Sciences
   - Earth and planetary sciences
   - Geochemistry
   - Geodesy and gravity
   - Geology
   -Geomagnetism
   - Geophysics and seismology
   - Hydrology and water resources
   - Minerology and petrology
   - Paleomagnetism
   - Paleontology
   - Physical geography
   - Stratigraphy and sedimentation
   - Surveying

3. Ocean Sciences and Marine Sciences
   - Biological oceanography
   - Geological oceanography
   - Marine biology
   - Marine oceanography
   - Marine sciences
   - Oceanography, chemical and physical

4. Other Geosciences, Atmospheric and Ocean Sciences
   Other fields that cannot be classified using the fields listed above

D. Life Sciences

1. Agricultural Sciences
   - Agricultural business and management
   - Agricultural chemistry
   - Agricultural economics
   - Agricultural production operations
   - Animal sciences
   - Applied horticulture and horticultural business services
   - Aquaculture
   - Fishing and fisheries sciences and management
   - Food science and technology
   - Forestry
   - International agriculture
   - Plant sciences
   - Soil sciences
   - Wood science

2. Biological and Biomedical Sciences
   - Allergies and immunology
   - Biochemistry, biophysics, and molecular biology
   - Biogeography
   - Biology and biomedical sciences, general
Description of R&D Higher Education Research and Development Survey (HERD)

Biomathematics, bioinformatics, and computational biology
Biotechnology
Botany and plant biology
Cell, cellular biology, and anatomical sciences
Epidemiology, ecology and population biology
Genetics
Microbiological sciences and immunology
Molecular medicine
Neurobiology and neuroscience
Pharmacology and toxicology
Physiology, pathology and related sciences
Zoology, animal biology

3. Health Sciences
Advanced, graduate dentistry and oral sciences
Allied health and medical assisting services
Bioethics, medical ethics
Clinical/medical laboratory science/research and allied professions
Clinical medicine research
Communication disorders sciences and services
Dentistry
Dietetics and clinical nutrition services
Health and medical administrative services
Health, medical preparatory programs
Gerontology, health sciences
Kinesiology and exercise science
Medical clinical science, graduate medical studies
Medical illustration and informatics
Medicine
Mental health
Nursing
Optometry
Osteopathic medicine, osteopathy
Pharmacy, pharmaceutical sciences, and administration
Podiatric medicine, podiatry
Public health
Radiological science
Registered nursing, nursing administration, nursing research and clinical nursing
Rehabilitation and therapeutic
Veterinary biomedical and clinical sciences
Veterinary medicine

4. Natural Resources and Conservation
Natural resources conservation and research
Natural resources economics
Natural resources management and policy
Renewable natural resources
Description of R&D Higher Education Research and Development Survey (HERD)

Wildlife and wildlands science and management

5. Other Life Sciences
Other life sciences that cannot be classified using the fields listed above

E. Mathematics and Statistics
Applied mathematics
Mathematics
Statistics

F. Physical Sciences
1. Astronomy and Astrophysics (KFS 1421)
Astronomy
Astrophysics
Planetary astronomy and science

2. Chemistry
Analytical chemistry
Chemical physics
Environmental chemistry
Forensic chemistry
Inorganic chemistry
Organic chemistry
Organo-metallic chemistry
Physical chemistry
Polymer chemistry
Theoretical chemistry

3. Materials Science
Materials chemistry
Materials science

4. Physics (KFS 1423)
Acoustics
Atomic, molecular physics
Condensed matter and materials physics
Elementary particle physics
Mathematical physics
Nuclear physics
Optics, optical sciences
Plasma, high-temperature physics
Theoretical physics

5. Other Physical Sciences
Other physical sciences that cannot be classified using the fields listed above

G. Psychology
Clinical psychology
Counseling and applied psychology
Description of R&D Higher Education Research and Development Survey (HERD)

Human development
Research and experimental psychology

H. Social Sciences

1. Anthropology
   Cultural anthropology
   Medical anthropology
   Physical and biological anthropology

2. Economics
   Applied economics
   Business development
   Development economics and international development
   Econometrics and quantitative economics
   Industrial economics
   International economics
   Labor economics
   Managerial economics
   Public finance and fiscal policy

3. Political Science and Government
   Comparative government
   Government
   Legal systems
   Political economy
   Political science
   Political theory

4. Sociology, Demography, and Population Studies
   Comparative and historical sociology
   Complex organizations
   Cultural and social structure
   Demography and population studies
   Group interactions
   Rural sociology
   Social problems and welfare theory
   Sociology

5. Other Social Sciences
   Archeology
   Area, ethnic, cultural, gender, and group studies
   Cartography
   City, urban, community and regional planning
   Criminal science and corrections
   Criminology
   Geography
   Gerontology, social sciences
   International relations and national security studies
   Linguistics
Description of R&D Higher Education Research and Development Survey (HERD)

- Public policy analysis
- Regional studies
- Urban studies, affairs

I. **Other Sciences (KFS 1480)**
   Use this category for R&D that involves at least one S&E field (rows A–H) if it is impossible to report multidisciplinary or interdisciplinary R&D expenditures in specific fields.

J. **Non-S&E Fields**
   1. **Business Management and Business Administration**
      - Business administration
      - Business management
      - Business, managerial economics
      - Management information systems and services
      - Marketing management and research
   2. **Communication and Communication Technologies**
      - Communication and media studies
      - Communication technologies
      - Journalism
      - Radio, television, and digital communication
   3. **Education**
      - Education administration and supervision
      - Education research
      - Teacher education, specific levels and methods
      - Teaching fields
   4. **Humanities (KFS 1530)**
      - English language and literature, letters
      - Foreign languages and literatures
      - History, including history and philosophy of science and technology
      - Humanities, general
      - Liberal arts and sciences
      - Philosophy and religious studies
      - Theology and religious vocations
   5. **Law**
      - Law
      - Legal studies
   6. **Social Work**
   7. **Visual and Performing Arts**
      - Drama, theatre arts and stagecraft
      - Film, video, and photographic arts
      - Fine and studio arts
      - Music
8. Other Non-S&E Fields
   Architecture
   Family, consumer sciences and human sciences
   Foods, nutrition, and wellness studies
   Landscape architecture
   Library science
   Military technology and applied science
   Parks, sports, recreation, leisure and fitness
   Public administration and public affairs
   Other non-S&E fields that cannot be classified using the fields listed above

Also, use this category for R&D that involves multiple non-S&E fields if it is impossible to report multidisciplinary or interdisciplinary R&D expenditures in specific fields.