Fields of R&D for the FY 2016 Higher Education Research and Development Survey

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
   - Management information systems (moved to Non-S&E Fields, Business Management and Business Administration)

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 engineering (moved to Other Engineering)
   - Petroleum refining process
   - Polymer, plastics engineering
   - Wood science (moved to Life Sciences, Agricultural Sciences)
4. Civil Engineering
   - Architectural engineering
   - Architecture (moved to Non-S&E Fields, Other Non-S&E Fields)
   - Construction engineering
   - Engineering management, administration
   - Environmental, environmental health engineering
   - Geotechnical and geoenvironmental engineering
   - Sanitary engineering
Fields of R&D for the FY 2016 Higher Education Research and Development Survey

- 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
   - Electrical and electronics engineering
   - Laser and optical engineering
   - Power
   - Telecommunications engineering

6. (NEW) Industrial and Manufacturing Engineering
   - Industrial engineering *(moved from Other Engineering)*
   - Manufacturing engineering *(moved from Other Engineering)*
   - Operations research *(moved from Mathematics and Statistics)*
   - Systems engineering *(moved from Other Engineering)*

7. Mechanical Engineering
   - Electromechanical engineering
   - Engineering mechanics *(moved to Other Engineering)*
   - Mechatronics, robotics, and automation engineering

8. Metallurgical and Materials Engineering
   - Ceramic sciences and engineering
   - Geophysical, geological engineering
   - Materials engineering
   - Materials science *(moved to Physical Sciences, Materials Science)*
   - Metallurgical engineering
   - Mining and mineral engineering
   - Textile sciences and engineering
   - Welding

9. Other Engineering
   - Agricultural engineering
   - Engineering design
   - Engineering mechanics, physics, and science *(moved from Mechanical Engineering)*
   - Forest engineering
   - Industrial engineering *(moved to Industrial and Manufacturing Engineering)*
   - Manufacturing engineering *(moved to Industrial and Manufacturing Engineering)*
   - Nanotechnology
   - Naval architecture and marine engineering
Fields of R&D for the FY 2016 Higher Education Research and Development Survey

Nuclear engineering
Ocean engineering
**Petroleum engineering** (moved from Chemical Engineering)
Systems engineering (moved to Industrial and Manufacturing 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

2. Geological and Earth Sciences
   - Cartography (moved to Social Sciences, Other Social 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
Fields of R&D for the FY 2016 Higher Education Research and Development Survey

D. Life Sciences

1. Agricultural Sciences
   Agricultural business and management
   Agricultural chemistry
   **Agricultural economics (moved from Social Sciences, Economics)**
   Agricultural engineering—report in Engineering
   Agricultural production operations
   Animal sciences
   Applied horticulture and horticultural business services
   Aquaculture
   Conservation (moved to Natural Resources and Conservation)
   Fishing and fisheries sciences and management
   Food science and technology
   Forestry
   International agriculture
   Landscape architecture (moved to Non S&E Fields, Other Non-S&E Fields)
   Plant sciences
   Renewable natural resources (moved to Natural Resources and Conservation)
   Soil sciences
   Veterinary medicine (moved to Health Sciences)
   **Wood science (moved from Engineering, Chemical Engineering)**

2. Biological and Biomedical Sciences (previously Biological Sciences)
   Allergies and immunology
   Biochemistry, biophysics, and molecular biology
   Biogeography
   Biology and biomedical sciences, general
   Biomathematics, bioinformatics, and computational biology
   Biotechnology
   Botany and plant biology
   Cell, cellular biology, and anatomical sciences
   Epidemiology, ecology and population biology
   Foods and nutrition studies (moved to Non-S&E Fields, Other Non-S&E Fields)
   Genetics
   Microbiological sciences and immunology
   Molecular medicine
   **Neurobiology and neuroscience (moved from Health Sciences)**
   Nutritional sciences (renamed Dietetics and clinical nutrition services and moved to Health Sciences)
   Pharmacology and toxicology
   Physical anthropology (moved to Social Sciences, Anthropology)
   Physiology, pathology and related sciences
Fields of R&D for the FY 2016 Higher Education Research and Development Survey

Veterinary medicine (moved to Health Sciences)
Zoology, animal biology

3. Health Sciences (previously Medical Sciences)
Advanced, graduate dentistry and oral sciences
Allied health and medical assisting services
Bioethics, medical ethics
Clinical/medical laboratory science/research and allied professions (moved from Other Life Sciences)
Clinical medicine research (includes several medical fields that had been previously listed separately)
Communication disorders sciences and services (moved from Other Life Sciences)
Dentistry
Dietetics and clinical nutrition services (previously Nutritional sciences; moved from Biological and Biomedical Sciences)
Gerontology, health sciences (moved from Other Life Sciences)
Health and medical administrative services (moved from Other Life Sciences)
Health, medical preparatory programs
Kinesiology and exercise science
Medical clinical science, graduate medical studies
Medical illustration and informatics
Medicine
Mental health
Neurosciences (moved to Biological and Biomedical Sciences)
Nursing (moved from Other Life Sciences)
Optometry
Osteopathic medicine, osteopathy
Pharmacology (moved to Biological and Biomedical Sciences)
Pharmacy, pharmaceutical sciences, and administration
Podiatric medicine, podiatry
Public health
Radiological science
Registered nursing, nursing administration, nursing research and clinical nursing (moved from Other Life Sciences)
Rehabilitation and therapeutic professions (Some subdisciplines moved from Other Life Sciences.)
Veterinary biomedical and clinical sciences
Veterinary medicine (Some subdisciplines moved from Agricultural Sciences or Biological and Biomedical Sciences.)
4. (NEW) Natural Resources and Conservation
Natural resources conservation and research (moved from Agricultural Sciences)
Natural resources economics (moved from Social Sciences, Economics)
Renewable natural resources (moved from Agricultural Sciences)
Natural resources management and policy
Wildlife and wildlands science and management

5. Other Life Sciences
Clinical/medical laboratory technologies (moved to Health Sciences)
Communication disorders sciences and services (moved to Health Sciences)
Gerontology, health sciences (moved to Health Sciences)
Health and medical administrative services (moved to Health Sciences)
Nursing (moved to Health Sciences)
Occupational therapy (part of Rehabilitation and therapeutic professions; moved to Health Sciences)
Physical therapy (part of Rehabilitation and therapeutic professions; moved to Health Sciences)
Registered nursing, nursing administration, nursing research and clinical nursing (moved to Health Sciences)
Rehabilitation services (part of Rehabilitation and therapeutic professions; moved to Health Sciences)
Therapeutic services (part of Rehabilitation and therapeutic professions; moved to Health Sciences)
Other life sciences that cannot be classified using the fields listed above

E. Mathematics and Statistics
Applied mathematics
Mathematics
Operations research (moved to Engineering, Industrial and Manufacturing Engineering)
Statistics

F. Physical Sciences
1. Astronomy and Astrophysics
Astronomy
Astrophysics
Planetary astronomy and science
2. Chemistry (except Biochemistry—report in Biological and Biomedical Sciences)
Analytical chemistry
Chemical physics (moved from Physics)
Environmental chemistry
Forensic chemistry
Fields of R&D for the FY 2016 Higher Education Research and Development Survey

- Inorganic chemistry
- Organic chemistry
- Organo-metallic chemistry
- Pharmaceutical chemistry (moved to Life Sciences, Health Sciences)
- Physical chemistry
- Polymer chemistry
- Theoretical chemistry

3. **(NEW) Materials Science**
   - Materials chemistry
   - Materials science (moved from Engineering, Metallurgical and Materials Engineering)

4. Physics
   - Acoustics
   - Atomic, molecular physics
   - Chemical physics (moved to Chemistry)
   - 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
   - Animal behavior (part of Zoology; moved to Life Sciences, Biological and Biomedical Sciences)
   - Art therapy (part of Rehabilitation and therapeutic professions; moved to Life Sciences, Health Sciences)
   - Clinical psychology
   - Counseling and applied psychology
   - Human development
   - Research and experimental psychology

H. Social Sciences
   1. **(NEW) Anthropology**
      - Cultural anthropology (moved from Sociology, Demography, and Population Studies)
      - Medical anthropology
      - Physical and biological anthropology (moved from Life Sciences, Biological and Biomedical Sciences)
Fields of R&D for the FY 2016 Higher Education Research and Development Survey

2. Economics
   - Agricultural economics (moved to Life Sciences, Agricultural Sciences)
   - 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
   - Resource economics (moved to Life Sciences, Natural Resources and Conservation)

3. Political Science and Government
   - Comparative government
   - Government
   - International relations and affairs (moved to Other Social Sciences)
   - Legal systems
   - Political economy
   - Political science
   - Political theory
   - Public administration (moved to Non-S&E Fields, Other Non-S&E fields)
   - Public policy analysis (moved to Other Social Sciences)
   - Regional studies (moved to Other Social Sciences)

4. Sociology, Demography, and Population Studies
   - Anthropology, cultural and social (moved to Anthropology)
   - 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 (moved from Geosciences, Atmospheric, and Ocean Sciences, Geological and Earth Sciences)
   - City, urban, community and regional planning
   - Criminal science and corrections
   - Criminology
Fields of R&D for the FY 2016 Higher Education Research and Development Survey

Geography
Gerontology, social sciences
History of science *moved to Non-S&E Fields, Humanities*

International relations and national security studies *moved from Political Science and Government*
Linguistics
Public policy analysis *moved from Political Science and Government*
Regional studies *moved from Political Science and Government*
Urban studies, affairs

I. Other Sciences
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. Education
   Education administration and supervision
   Education research
   Teacher education, specific levels and methods
   Teaching fields

2. Law
   Law
   Legal studies

3. Humanities
   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

4. Visual and Performing Arts
   Drama, theatre arts and stagecraft
   Film, video, and photographic arts
   Fine and studio arts
   Music

5. Business Management and Business Administration
   (previously Business and Management)
   Business administration
   Business management
   Business, managerial economics
Fields of R&D for the FY 2016 Higher Education Research and Development Survey

Management information systems and services *(moved from Computer and Information Sciences)*
Marketing management and research

6. Communication and Communications Technologies
(Previously Communication, Journalism, and Library Science)
Communication and media studies
Communications technologies
Journalism
Library science *(moved to Other Non-S&E Fields)*
Radio, television, and digital communication

7. Social Work
(no specific examples)

8. Other Non-S&E Fields
Architecture *(moved from Engineering, Civil Engineering)*
Family, consumer sciences and human sciences
Foods, nutrition, and wellness studies *(moved from Life Sciences, Biological and Biomedical Sciences)*
Landscape architecture *(moved from Life Sciences, Agricultural Sciences)*
Library science *(moved from Communication and Communications Technologies)*
Military technology and applied science
Parks, sports, recreation, leisure and fitness
Public administration and public affairs *(moved from Social Sciences, Political Science and Government)*
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.