

Project Categories

Animal Sciences

This category includes all aspects of animals and animal life, animal life cycles, and animal interactions with one another or with their environment. Examples of investigations included in this category would involve the study of the structure, physiology, development, and classification of animals, animal ecology, animal husbandry, entomology, ichthyology, ornithology, and herpetology, as well as the study of animals at the cellular and molecular level which would include cytology, histology, and cellular physiology.

Subcategories:

- Animal Behavior
- Cellular Studies
- Development
- Ecology
- Genetics
- Nutrition and Growth
- Physiology
- Systematics and Evolution
- Other

BEHAVIORAL AND SOCIAL SCIENCES

The science or study of the thought processes and behavior of humans and other animals in their interactions with the environment studied through observational and experimental methods.

Subcategories:

- Clinical & Developmental Psychology
- Cognitive Psychology
- Neuroscience
- Physiological Psychology
- Sociology and Social Psychology
- Other

BIOCHEMISTRY

The study of the chemical basis of processes occurring in living organisms, including the processes by which these substances enter into, or are formed in, the organisms and react with each other and the environment.

Subcategories:

- Analytical Biochemistry
- General Biochemistry
- Medicinal Biochemistry
- Structural Biochemistry
- Other

BIOMEDICAL AND HEALTH SCIENCES

This category focuses on studies specifically designed to address issues of human health and disease. It includes studies on the diagnosis, treatment, prevention or epidemiology of disease and other damage to the human body or mental systems. Includes studies of normal functioning and may investigate internal as well as external

factors such as feedback mechanisms, stress or environmental impact on human health and disease.

Subcategories:

- Cell, Organ, and Systems Physiology
- Genetics and Molecular Biology of Disease
- Immunology
- Nutrition and Natural Products
- Pathophysiology
- Other

CELLULAR AND MOLECULAR BIOLOGY (Code: CELL)

This is an interdisciplinary field that studies the structure, function, intracellular pathways, and formation of cells. Studies involve understanding life and cellular processes specifically at the molecular level.

Subcategories:

- Cell Physiology
- Cellular Immunology
- Genetics
- Molecular Biology
- Neurobiology
- Other

CHEMISTRY

Studies exploring the science of the composition, structure, properties, and reactions of matter not involving biochemical systems.

Subcategories:

- Analytical Chemistry
- Computational Chemistry
- Environmental Chemistry
- Inorganic Chemistry
- Materials Chemistry
- Organic Chemistry
- Physical Chemistry
- Other

COMPUTATIONAL BIOLOGY AND BIOINFORMATICS

Studies that primarily focus on the discipline and techniques of computer science and mathematics as they relate to biological systems. This includes the development and application of data-analytical and theoretical methods, mathematical modeling and computational simulation techniques to the study of biological, behavior, and social systems.

Subcategories:

- Computational Biomodeling
- Computational Epidemiology
- Computational Evolutionary Biology
- Computational Neuroscience
- Computational Pharmacology
- Genomics
- Other

EARTH AND ENVIRONMENTAL SCIENCES

Studies of the environment and its effect on organisms/systems, including investigations of biological processes such as growth and life span, as well as studies of Earth systems and their evolution.

Subcategories:

- Atmospheric Science
- Climate Science
- Environmental Effects on Ecosystems
- Geosciences
- Water Science
- Other

EMBEDDED SYSTEMS

Studies involving electrical systems in which information is conveyed via signals and waveforms for purposes of enhancing communications, control and/or sensing.

Subcategories:

- Circuits
- Internet of Things
- Microcontrollers
- Networking and Data Communications
- Optics
- Sensors
- Signal Processing
- Other

ENERGY: CHEMICAL

Studies involving biological and chemical processes of renewable energy sources, clean transport, and alternative fuels.

Subcategories:

- Alternative Fuels
- Computational Energy Science
- Fossil Fuel Energy
- Fuel Cells and Battery Development
- Microbial Fuel Cells
- Solar Materials
- Other

ENERGY: PHYSICAL

Studies of renewable energy structures/processes including energy production and efficiency.

Subcategories:

- Hydro Power
- Nuclear Power
- Solar
- Sustainable Design
- Thermal Power
- Wind
- Other

ENGINEERING MECHANICS

Studies that focus on the science and engineering that involve movement or structure. The movement can be by the apparatus or the movement can affect the apparatus.

Subcategories:

- Aerospace and Aeronautical Engineering
- Civil Engineering
- Computational Mechanics
- Control Theory
- Ground Vehicle Systems
- Industrial Engineering-Processing
- Mechanical Engineering
- Naval Systems
- Other

ENVIRONMENTAL ENGINEERING

Studies that engineer or develop processes and infrastructure to solve environmental problems in the supply of water, the disposal of waste, or the control of pollution.

Subcategories:

- Bioremediation
- Land Reclamation
- Pollution Control
- Recycling and Waste Management
- Water Resources Management
- Other

MATERIALS SCIENCE

The study of the integration of various materials forms in systems, devices, and components that rely on their unique and specific properties. It involves their synthesis and processing in the form of nanoparticles, nanofibers, and nanolayered structures, to coatings and laminates, to bulk monolithic, single-/poly-crystalline, glassy, soft/hard solid, composite, and cellular structures. It also involves measurements of various properties and characterization of the structure across length scales, in addition to multi-scale modeling and computations for process-structure and structure-property correlations.

Subcategories:

- Biomaterials
- Ceramic and Glasses
- Composite Materials
- Computation and Theory
- Electronic, Optical, and Magnetic Materials
- Nanomaterials
- Polymers
- Other

MATHEMATICS

The study of the measurement, properties, and relationships of quantities and sets, using numbers and symbols. The deductive study of numbers, geometry, and various abstract constructs, or structures.

Subcategories:

- Algebra
- Analysis
- Combinatorics, Graph Theory, and Game Theory

- Geometry and Topology
- Number Theory
- Probability and Statistics
- Other

MICROBIOLOGY

The study of micro-organisms, including bacteria, viruses, fungi, prokaryotes, and simple eukaryotes as well as antimicrobial and antibiotic substances.

Subcategories:

- Antimicrobial and Antibiotics
- Applied Microbiology
- Bacteriology
- Environmental Microbiology
- Microbial Genetics
- Virology
- Other

PHYSICS AND ASTRONOMY

Physics is the science of matter and energy and of interactions between the two. Astronomy is the study of anything in the universe beyond the Earth.

Subcategories:

- Atomic, Molecular, and Optical Physics
- Astronomy and Cosmology
- Biological Physics
- Condensed Matter and Materials
- Mechanics
- Nuclear and Particle Physics
- Theoretical, Computational, and Quantum Physics
- Other

PLANT SCIENCES

Studies of plants and how they live, including structure, physiology, development, and classification. Includes plant cultivation, development, ecology, genetics and plant breeding, pathology, physiology, systematics and evolution.

Subcategories:

- Agriculture and Agronomy
- Ecology
- Genetics and Breeding
- Growth and Development
- Pathology
- Plant Physiology
- Systematics and Evolution
- Other

ROBOTICS AND INTELLIGENT MACHINES

Studies in which the use of machine intelligence is paramount to reducing the reliance on human intervention.

Subcategories:

- Biomechanics
- Cognitive Systems
- Control Theory
- Machine Learning

- Robot Kinematics
- Other

SYSTEMS SOFTWARE

The study or development of software, information processes or methodologies to demonstrate, analyze, or control a process/solution.

Subcategories:

- Algorithms
- Cybersecurity
- Databases
- Human/Machine Interface
- Languages and Operating Systems
- Mobile Apps
- Online Learning
- Other