

(2) Grants-in-Aid for Scientific Research FY2014 List of Categories, Areas, Disciplines and Research Fields

○ List of Disciplines and Research Fields with a Time Limit

Area	Detail	Item Number	Set Period
Integrated Nutrition Science	<p>Nutrition science has contributed greatly to health promotion and improvement of physical strength/shape through the understandings of physiology, nutrients, and metabolism necessary for growth and maintenance of life. However, new issues such as overeating, food satiation, lifestyle-related diseases, stress, and aging, have been emerged. Recent advances in life science and analytical informatics technology enabled new approaches in this field: molecules, cells, laboratory animals to human population can now be included for research design. In order for such expansion in nutrition science to accelerate, establishment of a cross-sectoral research community beyond the existing frame, including eating habits studies, applied health science, food science, and clinical medicine is required.</p> <p>The goal of this new research field is to contribute toward maintaining/promoting health, preventing diseases, and potentiating therapeutic effects in the complex and diverse modern society. A broad range of studies with aim to build the platform of nutritional science and put the accomplishment into practice is encouraged.</p> <p>Nutrition science has contributed greatly to health promotion and improvement of physical strength/shape through the understandings of physiology, nutrients, and metabolism necessary for growth and maintenance of life. However, new issues such as overeating, food satiation, lifestyle-related diseases, stress, and aging, have been emerged. Recent advances in life science and analytical informatics technology enabled new approaches in this field: molecules, cells, laboratory animals to human population can now be included for research design. In order for such expansion in nutrition science to accelerate, establishment of a cross-sectoral research community beyond the existing frame, including eating habits studies, applied health science, food science, and clinical medicine is required.</p> <p>The goal of this new research field is to contribute toward maintaining/promoting health, preventing diseases, and potentiating therapeutic effects in the complex and diverse modern society. A broad range of studies with aim to build the platform of nutritional science and put the accomplishment into practice is encouraged.</p>	9047	FY2011 — FY2014
Regenerative medicine	<p>Human beings are composed of many organs and various types of cells within. These cells must self-renew themselves even after birth as well as during development, to maintain the homeostasis of the organ and to maintain their life against various environmental stresses. Regenerative medicine intends to repair and regenerate the damaged tissue/organ by manually controlling the self-renewing system, which resides endogenously in the organisms. Three-step approach, which includes in vitro, in vivo, and translational researches, is required for clinical application of the regenerative medicine. Identification of the cell-type specific differentiation factor and the establishment of the cell-type specific protocol for effective differentiation and purification system using somatic stem cells, embryonic stem (ES) cells, and induced pluripotent stem (iPS) cells are the important goals of in vitro researches. Thereafter, in vivo approaches using laboratory animals is important to establish the method to deliver the cells and to keep them alive and functional at the damaged lesion, in order to re-organize the damaged organ within the living organisms. To reach the final goal toward the clinical application, in vitro and in vivo findings should be gathered and translated into clinical medicine. Immunologic problem, such as rejection, or the differences in the organ size between experimental animals and humans are the challenges that should be solved in translational researches. Development of tissue engineering technology is one of the helpful candidates for solving those problems. Regenerative medicine is expected to become a new hope for the patients of refractory disorders such as heart diseases and neurodegenerative diseases. Moreover, regenerative medicine could reduce the inflated healthcare cost, which is becoming a big economic issue in the advanced country, by improving the quality of life of the elderly in the graying society. We are eager for the challenging proposals that would greatly advance this field.</p>	9048	

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Care Studies	<p>The twenty-first century is expected to be a “century of care”, faced with such problems as an aging society coupled with a declining birthrate, ethical issues in medical treatment and nursing, mental difficulties suffered by people of all ages, and other issues. The English word “care” has been translated into various Japanese words which refer to nursing, care-giving, care-taking, treatment, consideration, concern, etc., and these Japanese words had been used and discussed separately in diverse fields such like medical treatment, nursing, care-giving, welfare, psychology, education, ethics, philosophy, etc. Recently, however, the original word “care” came to be used in a broader sense, out of the necessity, for cross-field discussions, so as to avoid limiting the problems to a particular field by using a specific Japanese term.</p> <p>From the 1980s on, research on “cross-field” care emerged, and this trend rapidly developed after the enforcement of the Nursing Care Insurance in 2000. It is hoped that care studies will be established as an independent area of study through multi-disciplinary participation by researchers of various scholarly fields, which include not only clinical investigation and on-the-spot investigation, but also fundamental theoretical research based on investigation of the literature and international academic exchange. JSPS is expecting research that will contribute significantly to the development of this field.</p>	9049	
Cultural Research	<p>This category includes broad research areas in the humanities and social sciences with special reference to language and culture. These are interdisciplinary research fields such as research in culture, cultural studies, cultural history, comparative culture (comparative literature), cross-cultural understanding/international understanding, international exchange, history of cultural interexchange, nationalism, post-colonialism, identity, migration and so forth.</p> <p>This category does not exclude fields where sociological, economical and legal knowledge methodology and interest is involved, and encourages a broadened approach with the possibility of interdisciplinary research.</p> <p>For example, within research on nationalism, it may be necessary to include considerations of research on culture, sociology, politics and law, among others, but in addition to consideration of research results from other fields, this kind of research should increase the possibilities of interdisciplinary research while it absorbs the various results and outcomes of cultural research to contribute to the positive development of the field.</p>	9050	FY2012 — FY2014
Land, Housing and Real Estate Study	<p>In our modern society of aging and decrease of birthrate, the research on the land, housing and real estate is extending to cover the vitalization in city center, community development, vitalization in urban and regional area, property market, real estate finance, valuation of real estate, bad debt problem, real estate securitization.</p> <p>The land, housing and real estate, whose values are occupying large portion of our gross national wealth, need to be appropriately evaluated and efficiently used by households, firms, and public organizations for improving our quality of life.</p> <p>This subject expects the inter-disciplinary study of economics, urban planning/social engineering, law, social welfare, sociology, psychology, political science, architecture, and housing e.t.c.</p>	9051	
Measurement Science and Technology in Omics	<p>As a newly emerging area of study in natural sciences, "Measurement Science and Technology in Omics" deals with measurement principles and techniques in omics sciences, which include proteomics, metabolomics (biological and natural objects, cells and etc.), metabonomics (pharmacology), glycomics, lipidomics, metallomics, adductomics, genomics, transcriptomics and combined omics (e.g., glycoproteomics). The suffix -ome as used in molecular biology refers to a totality of some sort, and the related suffix -omics is used to address the objects of study of such fields. Hence, "Measurement Science and Technology in Omics" is based on identification and analyses of molecules in a wide range of scientific fields. Each omics has its own molecular characteristics and requires intrinsic measurement techniques. For example, sugar chains are different from chains of lipids and those of peptides/protein. Measurement techniques in this area include non-destructive measurement, visualization/imaging analyses, on-site measurement, spectroscopy, mass spectrometry, ion measurement, and laser measurement, including information processing of measured data. Mass spectrometry research in this area covers qualitative and quantitative analyses, structural analyses, functional analyses, molecule-based analyses, and their application research. We are looking forward to receiving many good proposals which will greatly contribute to this area of research.</p>	9052	

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Space life science	<p>Space life science is a research field rich in originality and covering a wide range of sciences such as astrobiology which uses space environment for studies on the origin of life, gravity- and radiation-biology which aim to clarify adaptation and survival mechanisms of microbes, plants and animals, and human, by bringing them to the space environment definitely different from the earth, and engineering, medical and agricultural sciences necessary for experiment performance and human expeditions in the space. It is anticipated that experiments accomplished in the space environment will elucidate the fundamental mechanisms by which diverse organisms arose, adapted and evolved on the earth. Besides, space life science is the only current discipline that can deal the issues related to promotion of space development and utilization, environmental preservation from extraterrestrial view points, education for next generations of space ages. We are eager for the challenging proposals that would greatly contribute to the advancement of this field.</p>	9053	FY2012 — FY2014
Sleep Science	<p>Sleep science comprises multidisciplinary research fields ranging from basic biology (physiology, pharmacology, molecular biology, psychology and behavioral science), clinical medicine (psychiatry, neurology, respiratory medicine, otolaryngology, oral surgery, dentistry), sociology, cultural science to engineering. Sleep science has become an important research subject and has been gaining more and more attention worldwide from scientific interests as well as from social needs, partly because big traffic accidents occurred due to sleep disorders.</p> <p>We expect many highly motivated research proposals from various fields including basic research (sleep, circadian rhythms, or biological clock), clinical research (the pathophysiology and/or treatment of sleep abnormalities, parasomnia, or sleep disorders), sociology, engineering and cultural science.</p>	9054	FY2012 — FY2014
Natural Disaster Issues and Humanities/Social Sciences	<p>Large natural disasters, such as the Great East Japan Earthquake, cause immense human loss and material damage, posing various risks to Japanese society. To overcome these risks, research centered on civil engineering and construction is, of course, needed to get a grasp of the damage that can be caused to the physical environment and infrastructure and to devise measures for their restoration and reconstruction. Of concomitant importance is a need to advance systematic research on socio-economic damage and measures for its recovery and reconstruction as well. Required for this purpose are a diversified research approach with cross-disciplinarity, sustained research support, capability to respond to a wide expanse of affected areas and damage regionally, and an enhanced knowledge base for supporting restoration and mitigating damage in the future. To this end, thematic research on “earthquake disaster issues” will need to be advanced across a spectrum of humanities and social sciences fields.</p> <p>In this area, research will need to be undertaken in fields that do not fit neatly within existing research field categories. As research will need to be advanced from new perspective, an opportunity is accorded to systematically establish a new domain oriented to disaster issues within the humanities and social sciences. A strong demand to do this opens up opportunities for research that transcends topic setting within existing fields and enables research advancement and knowledge sharing across fields of the humanities and social sciences in ways that make it possible to gain a full-scope, cross-disciplinary grasp of earthquake damage and restoration.</p>	9055	FY2013 — FY2015

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Reconstruction Agriculture	<p>The Great East Japan Earthquake left as teachings that the subdivided conventional agriculture research was not able to respond quickly and comprehensively to social needs on restoration and revival from an unexpected catastrophic natural disaster. We are anxious about not only catastrophic natural disasters, such as an earthquake, a volcanic eruption, and local severe rain but also the environmental degradation in the forest, arable-land, coastal region and sea areas used as the base of the agriculture, forestry and fisheries by a global weather change and community development. Furthermore we are anxious also about the infection damage caused by foot and mouth disease, BSE, avian flu, etc. In order to make environmental preservation and population support for human beings to develop, it is clearly important to maintain the continuous activity of agriculture, forestry and fishery. Therefore, it is necessary to restore and reproduce the agriculture, forestry and fishery environments where they were damaged and deteriorated and to develop production system based on the interaction between land area and hydrosphere. Furthermore, it is required to develop the consistent production technology in the limited resources and various unstable environments. An environmental indicator living thing also needs to be used for evaluation of environmental perturbation efficient. Moreover, it also becomes important approach to search for and use the various functions of the animals, plants and microbes in the ecosystem of the area. In the field of reconstruction agriculture, the proposals of the research task which can serve as an element to contribute for the sustainable development of agriculture, forestry and fisheries are expected from an interdisciplinary viewpoint. Furthermore, revival, reproduction, and development of agriculture, forestry and fisheries can be expected to execute an application subject in the future.</p> <p>The field of reconstruction agriculture includes following research subjects as example. Construction of the sustainable agricultural system based on an understanding of the correlation of an ecosystem (a forest, a valley, farmland, coast, and ocean), Monitoring and impact evaluation of an environmental pollutant in the land area and hydrosphere (an understanding and kinetic analysis of movement, accumulation and metabolism / action mechanism of a pollutant in agricultural and marine products), Development of the simple assay method, concentration and removal technique of pollutant (the technology of environmental restoration and purge, the bio/phyto-remediation using microbes and plants, etc.), Screening of a genetic resource which has stress tolerance, Breeding of crops with salt and/or acid resistance, Effective use of waste to the biomass fuel, Protection and regulation against the invasion of the foreign pathogens that injure men, livestock and crops, Construction of the food system and food circulation which guarantees relief and safety, such as construction of an emergency perishable-foods feed system, Maintenance of the infrastructure in the area of agriculture and fisheries, Community formation of a city associated with the primary industry, A scene design, and The risk communication at the time of a disaster, etc.</p>	9056	FY2013 — FY2015
Public Policy	<p>Public policy research entails economic policy, urban planning and disaster-response policy on both the central and regional levels. A wide definition also includes policy, strategy, implementation and assessment stratum. Many of the research papers published in the reports, journals and bulletins of the Public Policy Studies Association JAPAN over the past 15 years can be attributed to the fields of law, political science and economics. What can also be seen in them is the emergence of a new research field called policy economics, created through collaboration and linkage among existing disciplines. One typical example of such merger is a field born out of collaboration between law and economics. Political economics became main stream for at least some period of time in the worldwide political science domain. Public economics advanced around the field of economics (by James M. Buchanan and others) has become a required component of high-level political-science education. In public policy literature, its formation process is the object of political-science analysis. Regarding policy concepts, results of public policy has been produced in various research areas, including, economics, welfare, the environment and urban planning. In actuating these results, only when various policies, laws, ordinance and rules are established on the central and local government levels, they give it generality. Furthermore, when the validity of public policy comes into question, judicial precedents in the courts are analyzed. A trend can be seen in an expansion of the social sciences under the name of public policy, which merges existing disciplines with disciplines in a variety of other research domains. Collaboration and linkage among the fields of social sciences can elevate the standard of research in each of them, and potentially lead to the creation of new research fields. The key words in the public policy domain include law and economics, political economics, policy assessment, urban planning, welfare policy, environmental policy, governance, NGO/NPO, public economics, public choice, national debt/budget deficits, financing/bubble, strategic theory, and international public policy. Advancing research in them is expected to contribute significantly to the development of this field.</p>	9057	

(Note 1)

This table, in combination with the main table, applies only to “Scientific Research (C)”, screening division “General”.

(Note 2)

The set period is the fiscal year when the call for proposals is organized. Notwithstanding the set period, research projects of 3 to 5 years are being sought.