Systems Science at Beijing Normal University (BNU)

——Striving for Excellence

Systems science, as a new scientific field, is a featured top-ranking discipline of Beijing Normal University (BNU), geared to the needs of contemporary scientific progress and social development. In order to achieve the goal of the First-class Discipline Plan, BNU has decided to center around developing the fundamental theories of systems science through interdisciplinary collaboration with other disciplines, such as brain and cognitive neuroscience, global change and earth system science, and social governance, thereby deepening our knowledge of all fields concerned and discovering the underlying laws of complex systems.

The History and Achievements of Systems Science at BNU

Since the early 1980s, there have been four BNU scholars who went to the Free University of Brussels and earned their Ph.D. degrees from Professor Ilya Prigogine, the 1977 Nobel laureate in chemistry and founder of the "Brussels school". Back in China, they introduced self-organization theory into Chinese academia. With the full support of Professor Qian Xuesen(Hsue-shen Tsien), BNU founded the undergraduate program of systems theory in 1985 and initiated the construction of systems science discipline.

In the course of more than 30 years of discipline construction, BNU, by virtue of its unique academic heritage and innovation, has greatly advanced the construction of China's systems science discipline. Having inherited the academic advantages of the "Brussels School", BNU is committed to developing the general concepts and universal methods in complex systems and helps set the direction for the research of the basic theories in complex systems in China. BNU has built the world's first complete framework of systems science talent development and formed a prominent multidisciplinary collaborative research platform, with a great reputation at home and abroad. Its research findings are highly valued by the international academic community, reported and reviewed by such international media as Nature, Science, Science Today, MIT Technology Review, and BBC.

Opportunities and Challenges in Systems Science

The 21st century is a century of complexity. The development of science and technology has ushered us into the era of researching and regulating complexity. The importance of systems science in the future academic framework has gained the consensus of the international academic community. In the National Plan for the Development of Science and Technology, the Chinese government has made it a point to "the giant open system and complex systems" as a frontier research topic. "Complex systems, disaster formation and predictive control" are listed as basic research areas as required by the national strategies. Driven by the development of information technology, the core issues that arise in many disciplines, such as social economy, biological ecology, resources, environment, and education, tend to be systematic and complex. Social and economic development also brings about overall and complex problems. To solve these problems, systems science is urgently needed.

Contents and Objectives of Systems Science Discipline Construction at BNU

As the core discipline of the First-Class Discipline Plan, systems science is expected to spearhead the improvement of BNU's discipline construction, meet the demands of the new era for the development of science and technology, and achieve the goal of the national development strategy.

i. Cultivate high-quality compound talents who understand the basic concepts and master the analytical methods in systems science, so that BNU will become a crucial base for talent training of all levels in systems science.

ii. Strengthen the research on the basic theories of systems science, discover the universal laws underlying complex adaptive systems, and improve the concepts, theories and methods of systems science. To meet the needs of major national strategies, BNU will conduct interdisciplinary research to solve key issues in science, technology and the national economy. Breakthroughs are expected to be made in the areas of group decision making, brain and cognitive neuroscience, global change, and social governance.

iii. Create a social service platform of systems science, establish a national-level consulting service center based on big data analysis, develop a social service training framework of systems science, disseminate the idea of systems science, and demonstrate the discernible value of systems science.

iv. Build a platform for international exchange and cooperation in systems science, expand the international academic influence of systems science as a discipline, establish the "BNU International Science Center for Mathematics and Complex Systems" and become an important international base for talent training and scientific research in systems science.

Building a first-class team on systems science research is not only one of the goals of discipline construction, but also the basis for achieving its many other goals. BNU will attach equal importance to cultivating the most promising talents and hiring the most qualified experts. We cordially welcome job applicants and visiting scholars with expertise in systems science and related areas.

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