Division of Environmental Studies

Department of International Studies

Laboratory	Faculty	Introduction of research activities and laboratory	Key words	Projects or activities summer program students can participate
Horita Laboratory	Prof. Masahide HORITA	Our research group explores how societies manage decision-making processes towards cooperation particularly when faced with conflicting interests. We pay particular attention to international infrastructure projects, where a large number of stakeholders from different backgrounds work together towards a collective outcome, usually a public good itself. Coming from various academic backgrounds including engineering, management, economics and political sciences, the members of our group are aiming at overarching the related fields such as decision analysis, public choice theory, mechanism design, applied linguistics and many others, in an effort to systematically apply this wide range of knowledge to the real-world management issues. Among those research topics we are currently working on are: mechanism design of public-private partnerships (PPP) projects; project governance and conflict management in the infrastructure sector; evolution of decision rules for natural resource management; and evolution of cooperation and public goods provision.	collective decision-making; infrastructure management; evolution of public goods provision	Participants in this program will have an opportunity to be involved in on-going research projects that our group is currently carrying out. These include: building a theoretical model for public goods provision in either the infrastructure or the forestry sector; numeric simulation using the theoretical models; strategy building for infrastructure asset management in local governments; and model-based simulation analysis on procurement processes in PPP projects. For each project, the participants will work closely with their supervising professor and other postgraduate students. It is expected that technical skills for data analysis, programming, simulation and case studies are to be acquired through these research activities. Some of the projects may include the possibility of short-term travelling and/or field work in or outside Japan.

Honda Research Group / Laboratory	Prof. Riki HONDA	Our society is exposed to various types of risks including natural disasters. Preparation for such risks is essential, but no countermeasure can provide perfect protection against severe disasters. In the presence of various threats such as climate change, huge earthquakes and tsunamis, society needs to be endowed with capability of adaptation and resilience. In our group, mechanism of collective behavior observed in the society coping with the situation with severe uncertainty is discussed from the viewpoints of social networks, game theory, adaptive systems theory, etc. Innovative mathematical approach for uncertainty management, such as financial problems and stock management is also in our scope. Development and management of infrastructure systems, advanced design methods, asset management and international technology transfer are also of our interest.	Infrastructure; natural disaster; community resilience	Candidate of topics are as follow. Other topics are also possible within the scope of our research group (see Section 3.) (1) Infrastructure stock management Long term policy is essential for the asset management of public infrastructure. Due to various uncertain factors such as deteriorating ratio and environmental conditions, . Change in management plan itself is also uncertainty factor. It is a valuable and difficult issue to develop a maintenance policy that should be efficient over the long term under uncertain condition. The mission of the intern will be survey and numerical simulation of the state of infrastructures and maintenance policy. (2) Statistical Analysis of Community Behavior It is essential for disaster management, to be accepted by concerned people with affirmative attitude. In order to discuss how such attitude is developed and what kind of factors affect, various cases are discussed from various viewpoints. The mission of the intern will be analysis and numerical simulation of statistical analysis over the collected survey data.