

## 2011 GSP Courses

\*Information provided may change

IARU GSP Host	Course Title	Duration	Financial aid for incoming students	Financial aid for outgoing students
<b>Australian National University</b>	International Environmental Policy	5 - 22 July (18 days)	ANU will sponsor tuition fees for each incoming international student.	ANU will sponsor airfares, accommodation and field trip costs as appropriate. Level of sponsorship of tuition costs to be confirmed.
<b>ETH Zurich</b>	Autonomous Micro Aerial Vehicles: Design, Perception and Control	4 – 8 July (5 days)	Tuition waiver	Contribution towards travel and subsistence costs
	Dynamic Walking and Running with Robots	11 – 15 July (5 days)		
<b>Peking University</b>	Comparative Philosophy: China and the West	4 - 29 July (26 days)	N/A	N/A
<b>National University of Singapore</b>	Asia Now! - Southeast Asian Cosmopolitan Urbanism	27 June – 15 July (20 days)	Tuition and accommodation awards for all incoming students	Travel grants amounting to about SGD32,000 in total
	Southeast Asia in Context	18 June – 23 July (37 days)	N/A	
<b>University of California, Berkeley</b>	<b>A World In Motion:</b> How Forced Migration, Labor Mobility and Human Resettlement are reshaping global institutions and interstate relations of the 21st century	25 July – 12 August (19 days)	N/A	N/A
	<b>Problems Without Passports:</b> Human Security Issues For the 21st Century	13 June – 1 July (20 days, 4 units) 13 June – 15 July (34 days, 6 unit option) <i>held in San Jose, Costa Rica</i>		
<b>University of Cambridge</b>	Shaping the world: understanding the past, predicting the future	11 July – 5 August (26 days)	N/A	N/A

<b>University of Copenhagen</b>	TBC	TBC	TBC	TBC
<b>University of Oxford</b>	TBC	TBC	TBC	TBC
<b>The University of Tokyo</b>	Introduction to the Japanese Language	2 weeks in June and/or July	1) Participation fees for field trips and/or events included in the program will not be charged to incoming students. 2) Partial financial support towards accommodation will be funded by the University of Tokyo. (Will be reflected on the announced accommodation fee)	Partial financial support towards tuition, accommodation, and any field trip fees announced by each hosting university.
	Sustainable Urban Management	2 weeks in June and/or July		
	Nanoscience	2 weeks in June and/or July		
	Japan in Today's World	2 weeks in June and/or July		
<b>Yale University</b>	A Political Science or international themed course	3 July – 5 August (34 days)	Yale will provide tuition waivers to two students from each partner university. If unused it will be granted to other IARU students.	Students on financial aid are eligible to receive an International Summer Award (ISA) for programs over 4 weeks in length.

## Course write-ups:

### Australian National University

***International Environmental Policy*** focuses on the dynamic and rapidly expanding field of international environmental policy. International environmental policy has grown dramatically over the last three decades, driven by concerns over unprecedented and large-scale global environmental change, including climate change, biodiversity loss, deforestation, marine degradation, and expanding trade and consumption. International environmental policy now directly and indirectly affects the behaviors and decisions of governments, corporations, NGOs, local communities and individuals.

This course will incorporate lectures, including external speakers from contexts such as NGOs, corporations and government, and a range of learning approaches such as peer learning, small group seminars, panel discussions, workshops, and a simulated “Conference of the Parties”. The emphasis is on understanding the real-world dynamics of policy formation and debate. The course takes an interdisciplinary approach, drawing insights from areas including ecology, law, economics, international relations and politics.

*Fenner School, ANU: 5 – 15 July (TBC)*

The first 10 days will begin with orientation to the Fenner School, the ANU and Canberra, assisted by Fenner School students who have participated in the IARU GSP program overseas. Against the background of building networks among IARU students, this part of the course focuses on the intellectual foundations of the topics that are the focus of learning in the course and of the issues to be considered, including:

- global dimensions of environmental degradation;
- international cooperation: why do we need it, and why is it difficult?
- what is IEP? who are the main actors, and how does it work?
- where did it come from? its growth and development over recent decades;
- the policy-making process: how does an issue move from a local concern to international agreement?

*Kioloa Coastal Campus: 16 – 19 July (TBC)*

The next four days will be spent at the ANU Kioloa Coastal Campus, where we will continue to explore the major themes of the course, including:

- what do we protect? tensions between conservation and human/economic development;
- who decides? equity and power in international decision-making;
- when do we act? conflicts around knowledge, science, and uncertainty;
- what strategies will work? "command and control" vs market-based approaches.

*Fenner School, ANU: 20 – 22 July (TBC)*

We then return to the ANU where we integrate, both in the classroom and through individual/group work, the principal issues, directions and debates within IEP. We examine:

- dynamics between “North” and “South” – developed and developing countries
- trade, globalization and the environment
- the role of corporations
- the rise of new governance approaches: “governance without governments”.

## ETH Zurich

***Autonomous Micro Aerial Vehicles: Design, Perception and Control:*** Autonomous aerial vehicles are about to play major roles in tasks like reconnaissance for search and rescue, environment monitoring, security surveillance. Their mobility and sensing capabilities – unavailable ground robots – make them the ideal platform for exploration, mapping, and monitoring tasks, and for transport/delivery of payloads in complex three-dimensional environments. If they are further realized in small scale, they can also be used in narrow outdoor and indoor environments, and they represent only a limited risk for the environment and people living in it. However, for such operations today's systems navigating only on GPS information are no longer sufficient. Fully autonomous operation in cities or other dense environments requires the micro aerial vehicle (MAV) to fly at low altitude or indoors – where GPS signals are often shadowed – and to explore actively unknown environments while avoiding collisions and creating maps. This involves a number of challenges on all levels: helicopter design, power supply, perception, actuation, navigation, and control.

In this summer school we will give a compact introduction into the engineering fundamentals of micro aerial vehicles, from design to perception and control. Within this scope, we will first provide the participants with knowledge on design and simulation of different configurations of micro aerial vehicles. We will specifically focus on the design of micro helicopters, namely coaxial and quadcopters. Second, we will provide the state of the art on sensors for MAVs, both proprioceptive and exteroceptive sensors and we will focus in particular on inertial (IMU) and vision sensors as alternative to the more standard laser and GPS. Within this scope, we will include lectures and exercises on fusion of vision and IMU, visual SLAM, and visual place recognition. Emphasis will be given to the design of computationally inexpensive algorithms for low-power, lightweight processors. Finally, we provide the participants with knowledge on control strategies and navigation algorithms for MAVs, stressing the importance of learning from nature.

A number of selected case studies presented by internationally recognized experts in the field, will point to areas of stimulating research and allow you to see beyond the current state of the art.

The school is designed for graduate students of all levels. A solid background in engineering will enable you to profit most from the lectures and exercises, while the course might still serve as good an introduction to people with a different background, who want to learn more about this inspiring field. The summer school is partially sponsored by the European Project sFly.

***Dynamic Walking and Running with Robots:*** 40 years after the first autonomous walking robot and 20 years after Mark Raibert's seminal work on robotic running, research on legged locomotion is renewing itself vibrantly and innovative as never before. With the problem of statically stable locomotion nearly solved, the commercialization of ZMP-controlled bipeds at hand, and the ongoing large-scale application of Raibert's principles, the robotics community now strives to close the performance gap that still separates robotic devices from their counterparts in nature. Energy efficiency, higher locomotion speeds, versatility, and robustness, are the key ingredients that will allow a wide-spread application of legged locomotion in autonomous systems. In this school, we want to prepare a new generation of engineers for these challenges, expose them to the current state of the art, and highlight fascinating areas of future research.

To this end, the school will give a compact introduction into the engineering fundamentals of legged locomotion. It will provide the participants with the necessary concepts, tools, and methods that allow them to extend their knowledge of design, simulation, and control to the thrilling field of legged robotics. Within this general scope, we will specifically focus on all forms of dynamic locomotion and thus include lectures and exercises on exciting issues such as under-actuation, hybrid dynamic modeling, limit cycle analysis, and optimal control. Stressing the importance of learning from nature, the engineering perspective will be complemented by an introduction to the basic concepts of walking and running in biological systems. Physiology, morphology, and the characteristics of different gaits will be discussed and set into perspective with respect to robotics and prosthetics. Finally, in a number of selected case studies presented by internationally recognized experts in the field, we will point to areas of stimulating research and allow you to see beyond the current state of the art.

The school is designed for graduate students of all levels. A solid background in engineering will enable you to profit most from the lectures and exercises, while the course might still serve as a good introduction to people of different background who want to learn more about this inspiring field. This summer school is part of the Swiss National Competence Center for Research in Robotics.

## Peking University

The focus of the *Comparative Philosophy: China and the West* course will be a careful reading of representative texts of the Confucian and Daoist lineages: the Analects of Confucius, the Zhong Yong, the Xiao Jing, the Daodejing, selections from Zhuangzi and the Huainanzi. The objective will be to struggle with imagination to take the Chinese philosophical tradition on its own terms. To this end, we will use several sources—the Book of Changes, Traditional Chinese Medicine, Tang Junyi on Chinese natural cosmology—to establish a lens through which to read these canonical texts. This lens provide us with an interpretive context, and will enable us to be sensitive to the presuppositions we are likely willy-nilly to bring to the texts. Over the tenure of the course, we will attempt to develop a nuanced and sophisticated appreciation of the basic vocabulary of Chinese philosophy.

## National University of Singapore

As an introduction to Asia Now: *Southeast Asian cosmopolitan urbanism*, the module is particularly designed for students with an interest in Southeast Asian region and wish to get a comprehensive in-depth understanding through hands-on and on-site direct learning experience, especially in the area of cultural heritage conservation and management.

This course sets a framework for comprehensive and coherent understanding of cosmopolitan urban heritage – both tangible and intangible - through lectures, field work, synchronic & diachronic mapping, critical analysis, and interactive presentation, conducted in intensive daily activities for two weeks. Participants will be challenged and encouraged to collect first-hand information from all stake-holders, to listen to voices from the streets, to see beyond façade, to explore unfamiliar territories, to discover fundamental problems, to recognize new potentials, and to deliver innovative ideas. Participants will work together as teams in smaller groups covering different aspects of urban mapping, but will also have to focus on specific individual issues. The output of the course is an integrated visual presentation, consisting of textual & graphic reports, website, video clips, and exhibition panels, for public exposure and exhibition.

The course will mostly be conducted in the cosmopolitan city of Melaka (Malaysia). On 8th July 2008, two historic cities of the Straits of Malacca: George Town and Melaka were inscribed as UNESCO World Heritage Sites, because of their outstanding universal values: (1) representing exceptional examples of multi-cultural trading towns in East and Southeast Asia through blending of various cultures and imprinted to the architecture and urban form, (2) living testimonies of the multi-cultural tangible and intangible heritage and tradition of Asia, and of the European colonial influences, as expressed in their religious buildings of different faiths, ethnic enclaves, spoken dialects, festivities, dances, attires, art forms, cuisines and lifestyles, (3) reflecting the blend of influences that result in a unique form of architecture, culture and cityscape incomparable elsewhere in East and South Asia, especially through an exceptional range of shophouses and townhouses from differing eras.

***Southeast Asia in Context*** is a five-week ground-breaking thematically based exploration of Southeast Asia's geographical and cultural diversity. It takes advantage of Singapore's position and character as a microcosm of this diversity. It offers modules on Southeast Asian Studies with archaeological, anthropological and historical concentration. It also blends classroom instruction on NUS Kent Ridge campus with hands-on fieldwork at sites in Singapore, Cambodia, Thailand, and Indonesia.

Modules offered emphasize the culture, history, and contemporary lives of Southeast Asians, including both urban and rural dwellers. Students must indicate their preferable fieldtrip destination on the GSP Application Form. There are two fieldtrip options: A) Cambodia, Laos, and Thailand, which highlights visiting rice farming villages in Northeast Thailand, the historical park in Ayutthaya, urban life in Bangkok and ancient Khmer civilization at Angkor Wat, Siem Reap, Cambodia; and B) Java, Indonesia, where students visit Borobudur, Yogyakarta and traditional Gamelan communities.

The 2011 summer school modules include:

**SE2211 Modern Southeast Asian Social History**

Lecturer: A/P John Miksic

Modular credit: 4

The intrusion of the North Atlantic world into Southeast Asia during the eighteenth century coincided with changes in patterns of social organisation in the region. These changes presented opportunities to some groups of Southeast Asians but undercut the positions of others. Colonial rule led to the emergence of new elite groups and social tensions. In agriculture, immigration, commerce, rebellion, war, and in the achievement of political independence in the mid-twentieth century, we look at how people from all walks of life took an active part in reshaping their worlds.

**SE2222 Southeast Asian Studies in Context**

Lecturer: Dr. Pattana Kitiarsa

Modular Credits: 4

This module introduces students to the transformations of ethnic, religious, national and regional identities in Southeast Asia across time as seen from a variety of perspectives. Students will have the opportunity to learn about: the region's archaeology, seafaring trade and the meanings of its ancient monuments; the major religions of Buddhism, Islam, Christianity and "Animism" and how they figured in movements for change since the 19th century; the modern management of cultural resources and the impact of tourism; and recent anthropological studies with attention on new themes and the ways Southeast Asian societies are understood from the region itself.

## **SE2880 Cultural Mosaics in Southeast Asia**

Lecture: A/P Cynthia Chou

Modular Credits: 4

Southeast Asia is characterized by great ethno linguistic and cultural variation. How can we make sense of and appreciate this diversity? What is an insider's and outsider's perspective? This course will introduce students to the region from an anthropological perspective. Students will be equipped with the analytical tools for the comparative study of society and culture. Ethnographic materials will be used to discuss themes that include ethnicity, identity, family and kinship systems, gender, economy, and social change. The challenge is for students to explore, conceptualize, and understand differences and similarities between social systems and human relationships, and to ask, why?

## University of California, Berkeley

Berkeley proposes 2 courses for GSP Summer 2011, one housed on the Berkeley campus and the other in Costa Rica. We envision the 2 courses as offering different approaches to and perspectives on the study of some of the biggest and interrelated challenges of the 21<sup>st</sup> century, namely migration, human security, and peace, hence 2 different options for GSP students interested in those topics.

***A World In Motion*** brings the question of global migration into conversation with that of human security. It situates these compelling and interrelated concerns within the theoretical and policy frameworks, and moves them beyond theoretical abstraction through the engagement with immigrant communities and organizations in the San Francisco Bay Area. With Northern California as an analytic lens to the global challenge of the 21<sup>st</sup> century, students will be provided with the opportunity to examine these issues in-depth, and to be introduced to the fundamentals and challenges of conducting ethnographic research on those topics and communities. Through field investigation, students will be provided with an additional opportunity, beyond classroom learning, to critically reflect on these issues and processes.

Ideally, we envision this course as a critical building block for the future development of a comprehensive, multifaceted and multi-layered project on Global Migration and Mobility, that would involve institutional partnership among GSP members in the form of faculty collaboration on comparative research on migration (e.g. Europe, Asia and the Americas), graduate and undergraduate research apprenticeship within this comparative research project, and internship/service learning at the respect research hub.

***Problems Without Passports***, in turn, brings together the question of human security and peace building across multiple domains- academic and experiential, theoretical and applied. Students will have an opportunity to extend their classroom learning to field observation and study, and to make direct connection between theory, policy and lived experiences.

This course, inspired by a phrase coined by Kofi Annan during his tenure as Secretary General of the United Nations, was developed in partnership with UPEACE which was created in 1980 as a Treaty Organization (Resolution 35/55 of the General Assembly) to support the peace and security objectives of the United Nations, with the mission to "provide humanity with an international institution of higher learning for peace with the aim of promoting among all human beings a spirit of understanding, tolerance and peaceful coexistence, to stimulate cooperation among peoples and to help lessen obstacles and threats

to world peace and progress.” Thus, from its institutional base to the content and format of the course, “*Problems Without Passports*” is designed with the GSP principles and vision in mind. It also seeks to further advance the goal of fostering and deepening transnational cooperation and citizenship by expanding the network of participants to include voices from the Global South.

Through participation in Problems without Passports, students 1) will deepen their understanding of the changing landscape of contemporary international relations; 2) sharpen critical thinking and communication skills, 3) and develop ethical and citizenship sensibilities commensurate with the demands of the 21<sup>st</sup> century.

## University of Cambridge

***Shaping the World: Understanding the Past, Predicting the Future:*** The leaders of tomorrow will need to be skilled investigators, with ability to place any investigation in context. The ability to take a global perspective on matters which shape our world requires those same future leaders to foster their ability to think beyond an immediate and narrow field of interest. This program offers a unique opportunity for participants to draw upon a rich reserve of knowledge, to attend lectures across a broad range of subjects, and to draw together ideas in a series of focused discussions. Intensive ‘supervisions’ offer the chance to experience Cambridge teaching at its best: Participants will benefit immensely from the exchange of ideas both with lecturers and with their student peers from around the globe.

This four-week program for up to 20 GSP students is comprised of the following elements:

- eight seminar meetings of the GSP group, focusing on major challenges for the twenty-first century. Proposed topics will be drawn from the following range: government, global economy, nationalism, climate change, healthcare, sustainability, transport, universities for the twenty-first century, medical advances.
- four papers to be written on subjects informed by plenary lecture attendance (primarily, but not exclusively, History, Literature or International Relations)
- weekly Cambridge-style supervision sessions (one hour) for individuals or pairs of students, during which their papers are reviewed and discussed
- two or three daily plenary lectures from the International Summer School program:
  - Interdisciplinary: *(theme to be set)*
  - Literature: *Relationships and rivalries*
  - Science: *Impact and responsibility*
  - History: *War and peace*
  - Art History: *Art, light and color*
- research time in the University Library (a Copyright Library) and access to other faculty libraries.
- weekly feedback sessions with the Course Director

Plenary lectures are given by eminent scholars from a wide spectrum of specialist fields, and include question and answer sessions after each talk. Lecture topics range from the latest interpretation of historical events and works of literature to cutting-edge scientific discoveries. For these plenary lectures, the GSP students will be in the company of participants in the International Summer Schools, affording the group a truly global experience.

Tapping in to the full range of subjects on offer will allow GSP students with widely differing fields of interest to benefit from the experience, tailoring - as far as possible - a programme to their own personal areas of interest. Participants will be encouraged to make connections between writings, events, discoveries and disciplines in order to understand how each has influenced the shaping of our world until now, and to establish a base on which predictions for our future world can be made.

The morning and evening plenary lecture programs offer a range of over one hundred talks, covering a vast number of topics. Applicants will be sent final details of speakers (and can access the program lists as they develop on the web), and precise timings so that options can be selected in advance; applicants will be asked to indicate their preferred subject area(s). Selected candidates will be required to submit detailed proposals for the supervision field of study, so that supervisors can be selected and allocated before the start of the program. Supervisions will normally be conducted by experienced University/College lecturers who are also course directors on the International Summer Schools.

GSP students will be welcome to join the evening lecture and social program, and to participate in the optional weekend excursions, giving them a chance to meet with representatives of some 50 other nationalities. Other activities will be arranged just for the GSP group.

## The University of Tokyo

***Introduction to the Japanese Language:*** We will provide an introductory course for those new to Japan which will both facilitate participation in life in Japan, and introduce characteristics of the Japanese language, such as the Japanese writing system, elementary grammar, and communication patterns. Using the Japanese learnt in these classes we hope our students will be able to experience a range of Japanese culture. To improve students' Japanese literacy, certain topics that would usually be taught in the second half of an elementary course, such as the use of dictionaries, will also be included in this course. This will also enable students to continue their study on return to their home country.

This course is aimed at beginners to the Japanese language. When students apply to this course, they are not expected to have any previous knowledge of the Japanese language. However students are expected to be able to read HIRAGANA (a Japanese phonetic character system consisting of 46 characters) before this course starts. The International Center of U-Tokyo provides an e-learning website through which students should study how to read HIRAGANA and numbers up to 100 before coming to Japan. Students will be provided with a password permitting them to access the e-learning materials (usually only available within the International Center) for a limited period.

\*Course only available to students taking either Sustainable Urban Management, Nanoscience and/or Japan in Today's World.

***Sustainable Urban Management:*** In the process of urban development in the 20th century characterized by urban expansion and redevelopment, a huge and advanced complex of urban structures was formed in the industrialized countries. However, with the conventional technologies focused on the construction of structures, it has become difficult to keep urban space adaptable to environmental constraints and economic, social and cultural changes, that is, those conventional technologies can no longer meet the

social demands for upgrading social capital in a sustainable manner and regenerating attractive urban space not only safe and highly efficient but also conscious of historical, cultural and local identities to guarantee a high quality of life for all. Therefore, what is needed is to find a new approach that is able to reorganize the existing social capital and the technologies to implement it. That is neither a mere planning approach nor a mere engineering approach, but a comprehensive approach.

This course is offered by Department of Civil Engineering, Department of Architecture and Department of Urban Engineering as an activity of G-COE (Global Center of Excellence) project (<http://csur.t.u-tokyo.ac.jp/index.html>). Although these three departments belong to School of Engineering, students from non-engineering field are welcome.

The course provides basic knowledge of civil engineering, architecture and urban engineering in the context of sustainable urban management. Planning in national, regional and urban scale, infrastructure design, management of urban stock, historical and cultural aspects of urban area, management of urban environment are taught.

**Nanoscience:** This course provides students with an overview of the rapidly growing field of nanoscience and includes the following three modules: Biotechnology, Biomedicine & Nanobiotechnology, and Nanotechnology. Each module will provide students with an opportunity to visit active laboratories in the University of Tokyo.

**Biotechnology:** This "biotechnology" lecture (at the Graduate School of Pharmaceutical Sciences) focuses on advanced biomedical science and technology bound to the drug discovery. For example, the use of drug transporter function in the delivery of a drug to the target organ will be discussed. Advanced bioimaging technology reveals where and when genes and their products function in the body during the development and pathological processes. Manipulation of biosynthetic enzymes leads to production of novel and pharmaceutically useful secondary metabolites. Unique molecules involved with the carbohydrate recognition and the carbohydrate presentation will be illustrated to play important roles in pathological processes. Tours will be offered to those who desire to visit the laboratories.

**Biomedicine and Nanobiotechnology:** The "biomedicine and nanobiotechnology" lecture focuses on the understanding of the structure and functions of the living systems at the nano level as a basis for the development of bioinspired structures and functions as well as for the establishment of methodologies to integrate living components, including biomolecules and cells, into nanodevices while regulating their functions. To effectively achieve this goal, the course sets three subthemes: (1) bioinspired nanomachines; (2) nanobio sensing systems and (3) nanotechnology and materials science for nanoscale cell therapy. Tours will be offered to those who desire to visit the laboratories.

**Nanotechnology:** This lecture covers fundamentals and applications of nanotechnology mainly established in a field of semiconductors, including the following four topics. (1) Physics and technology of semiconductor nanostructures. (2) Silicon-based integrated nanoelectronics. (3) Nanostructures for advanced photonics. (4) Spintronics: fundamentals and applications. As a part of this lecture, a visiting tour to some laboratories will take place.

***Japan in Today's World:*** The program is designed to show the role being played by Japan in today's world in terms of her diplomatic activities and her contributions through overseas development assistance and to international organizations. The principles that lie behind Japan's activities, as well as the actual extent of her activities, remain relatively little known outside of Japan. The program also aims to enhance the students' understanding of Japan's politics and economy, which are bound up within the global system and yet are not so well understood by those outside Japan.

Through its Human Security Program, the Graduate School of Arts and Sciences at the University of Tokyo has for some years been engaged in teaching and research on policies aimed at ensuring the security of individual human beings, which cannot be achieved merely by ensuring security at the state level. The College and Graduate School of Arts and Sciences also have ample experience in teaching and research on Japanese politics and Japanese company management, the knowledge of which is indispensable for an understanding of Japan's international activities. These resources of the undergraduate college and the graduate school will be utilized in offering this summer program to visiting students from the member universities of IARU, as well as to the students of the University of Tokyo.