IARU Global Internships @ NUS

Internship no 1:

Host Faculty/ Department	Department of Biological Sciences Faculty of Science
Vacancy	1
Period	23 May – 15 July 2011 *
Project Title	Genetic variations associated with asthma and atopic diseases
Internship Description	Asthma is a complex airway inflammatory disease. Although more than 200 genes have been associated with asthma in various populations, none have been found to be associated in all populations. There are evidences showing that the association of a gene to asthma is specific to a particular population or environmental conditions. We have performed a genome-wide association study for asthma. This study will analyze potential gene-gene and gene-environment interaction(s) associated with the development of asthma and allergic diseases in Singaporean Chinese.
Learning outcomes (what students can expect to gain from the internship)	The student will be involve in the epidemiological survey and ascertainment of the study population, and as such would have first-hand experience in handling such a project. Additionally, the student will learn how to process the samples e.g., DNA extraction, and design genotyping experiments. Overall, the student will pick up the skills necessary to understand genetic epidemiological techniques including the study designs and statistical methods, apart from basic laboratory competencies.
Skills Required (e.g. languages, subject-specific skills)	Basic competency in molecular biology techniques - PCR, sequencing, genotyping, and basic computing biostatistical and bioinformatic skills.
Supervisor/ Mentor (to oversee the student's work during the internship)	Associate Professor Dr Chew Fook Tim and Dr Ong Tan Ching

Internship no 2:

Host Faculty/ Department	Department of Biological Sciences Faculty of Science
Vacancy	1
Period	23 May – 15 July 2011 *
Project Title	Development of Genome-wide Microsatellite-based Linkage Map of the Oil Palm Genome for Quantitative Trait Loci (QTL) Identification
Internship Description	The project aims to develop a microsatellite (short simple

	repeats or SSR)-based marker system for oil palm research. It is envisaged that SSR markers will saturate existing genetic maps and help improve genome coverage. Their co-dominant nature will also allow integration of the different genetic maps and identification of genomic loci associated with important agricultural traits in oil palm.
Learning outcomes (what students can expect to gain from the internship)	The student will learn how to bring raw sequence data and thereafter identify microsatellites and identify the presence of polymorphisms in different populations. The candidate will also learn how to produce a genetic map based on these markers and how these (genetic maps and markers) are used to identify QTLs (Quantitative Trait Loci) controlling major complex genetic traits. Apart from basic molecular techniques, the student will also learn the experimental designs and statistical tools needed for such studies in general.
Skills Required (e.g. languages, subject-specific skills)	Basic competency in molecular biology techniques - PCR, sequencing, genotyping, and basic computing biostatistical and bioinformatic skills.
Supervisor/ Mentor (to oversee the student's work during the internship)	Associate Professor Dr Chew Fook Tim and Mr Wong Kang Ning

Internship no 3:

Host Faculty/ Department	Department of Mechanical Engineering Faculty of Engineering
Vacancy	1
Period	23 May – 15 July 2011 *
Project Title	Development of brain-machine interface using an EEG based neuronal source localization imaging system
Internship Description	A novel scalp EEG based neuronal source localization imaging system has been developed in the Neurosensors Lab, Department of Mechanical Engineering, National University of Singapore. One of the important applications of the system is to use it for Brain-Machine Interface, in which the system extract a person's attentions and intentions directly from the person's brain in a form of the neuronal source localization patterns for controlling a machine directly by the brain. In the current proposed project, the student will be working on developing the interface between the EEG based neuronal source localization system and a machine or robot, especially on digitizing a person's intentions or attentions presented by the sensed neuronal source localization patterns, for the direct control of a machine or robot.
Learning outcomes (what students can expect to gain from the internship)	Knowledge and skills in scalp EEG measurement, brain-machine interface and brain-computer interface.
Skills Required (e.g. languages, subject-specific skills)	C programming

Supervisor/ Mentor (to oversee the student's work during the internship)	Prof Li Xiaoping (in collaboration with Prof Han Pingchou of Peking University)

Internship no 4:

Host Faculty/ Department	Department of Electrical and Computer Engineering Faculty of Engineering
Vacancy	1
Period	23 May – 15 July 2011 *
Project Title	Tele-rehabilitation and Wearable devices for Home Therapy in Strokes and Parkinson disease patients
Project Description	The ability to monitor and measure accurately, comfortably, and continuously the progress of a patient undergoing rehabilitation, without injecting cumbersome wires or boxes into their activities, has the potential to revolutionize health therapies and services. In this work, we propose to develop affordable, wireless, lightweight and accessible home therapy system that will be well tolerated by stroke and PD patients, and can be performed over the duration needed to obtain results. The sensors will be developed with the direct and frequent involvement of doctors, therapists, and the patients themselves (the end-users), e.g. different types of sensors will be used for different exercises. The proposed therapy system allows patients to improve their motor control by providing them with real-time feedback using wireless sensors embedded in the wearable devices.
Learning outcomes (what students can expect to gain from the internship)	Knowledge on sensors and instrumentations. Development of low cost wearable wireless devices to monitor movement.
Skills Required (e.g. languages, subject-specific skills)	Willingness to work and interact with post-stroke patients/ Parkinson disease patients.
Supervisor/ Mentor (to oversee the student's work during the internship)	Associate Professor Arthur Tay

Internship no 5:

Host Faculty/ Department	International Relations Office
Vacancy	1
Period	23 May – 15 July 2011 *
Project Title	Design of Publications and Collaterals
Project Description	As the promotional arm of International Relations Office, the Marketing Communications Section provides marketing

	support to the office through managing and executing events & visits; creating and producing collaterals; and raising the visibility of the department when communicating with internal and external parties. You will be attached to a team of dynamic and fun-loving staff to assist with the design of publications or/and collaterals. You may also be required to undertake certain copywriting tasks (e.g. newsletter).
Learning outcomes (what students can expect to gain from the internship)	You will be working in an international environment and have contact with local and international students. You will be exposed to how a leading Singapore university reaches out to its students, and gain cross cultural understanding of the marketing strategies that work in Singapore.
Any Other Information/ Requirements	Major in Mass Communication, Journalism, Marketing or Design will be an advantage.
Supervisor/ Mentor (to oversee the student's work during the internship)	Mr Eugene Goh

Internship no 6:

Host Faculty/ Department	NUS Museum
Vacancy	1
Period	23 May – 15 July 2011 *
Project Title	Camping and Tramping through the Colonial Archive: The Museum in Malaya
Project Description	Considering the processes which accompany the production of knowledge, this project investigates the rise of museology in British Malaya. Approached as two-fold: first, as the modern sciences were deployed in making sense of Malaya and its bewildering diversity in the late 19th and early 20th centuries, the Museum became a fascinating staging ground for a project of accumulation and the ordering of knowledge. Second, in the post-colonial attempt at interrogating the rise of the Museum and the practice of exhibition-making in the region, one is led to examine lesser appropriate “texts” which emerged at about the same time, documenting what was perceived as the practice of “magic” and “superstition” amongst the local populous. Lodged between such predicaments, the project will seek to mobilize and reflect upon the staging of science and exposing performances which may enable us to reflect more seriously on what constitutes the colonial archive, how contemporary art practitioners would lay claim to it, and most significantly, what sort of histories one can tell of such encounters in a museological setting.
Skills Required (e.g. languages, subject-specific skills)	Interest in Archival and Bibliographical Work with specific reference to Southeast Asian Art and Museology
Any Other Information/	This internship will specifically require the applicant to gather

Requirements	materials from the archives relating to Museums on the Malaysian Peninsula, the Federated States of Sabah and Sarawak and any other research work related to the project.
Supervisor/ Mentor (to oversee the student's work during the internship)	Mr Shabbir Hussain Mustafa

* The internship dates are from 23 May – 15 July 2011, although applicants who need to deviate from the stipulated period are still welcome to apply and indicate their available dates.