



University  
Scholars  
Programme

# Prospectus



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The University Scholars Programme (USP) is an interdisciplinary academic programme for NUS undergraduates. USP admits 180 students each year, and offers the freedom to explore across disciplines, a wide range of extracurricular and overseas opportunities, and a community of exceptionally motivated and talented students.

#### My Major + USP

USP students earn 30% of their academic credits in USP, and 70% in their home faculty.

#### USP Curriculum

USP offers a wide range of interdisciplinary modules, on topics as diverse as The Mind, Human Relations, Evolution, Simplicity, and Sonic Arts. USP students take a writing module in year one, which provides a foundation in writing and thinking critically. Beyond year one, additional for-credit options include individual research with a faculty mentor, and overseas academic exchanges and entrepreneurial internships.

#### USP Overseas Experiences

USP encourages, and provides financial support for numerous overseas initiatives. These include exchange programmes at universities such as Harvard, Yale, Stanford, Peking University, and Australian National University; expeditions to destinations such as Himalayas (2006), Cambodia (2006), and South Africa (2004); and overseas field trips.

#### Applying to USP

Students are admitted to USP based on their academic potential, together with their passion, motivation, and curiosity. Application is by transcript, essay, and interview with USP professors.

# USP Curriculum

USP students take 30% of their modules in USP and the remaining modules in their home or other faculties. This 30% is made up of eight USP First-Tier modules, and four USP Advanced modules.

## USP First-Tier Modules

USP First-Tier Modules are central to the USP ethos as they foster critical thinking and interdisciplinary inquiry. They also equip USP students with the skills of self-initiated and -directed learning. USP First-Tier modules provide the foundation for USP Advanced modules.

USP First-Tier modules are organised into the following three domains:

- Writing and Critical Thinking;
- Humanities and Social Sciences;
- Sciences and Technologies.

USP students are required to read eight First-Tier modules. Out of the eight First-Tier modules, USP students read one module from the Writing and Critical Thinking domain, and roughly the same number of modules from the Humanities and Social Sciences, and Sciences and Technologies domains. In addition, USP students are free to read the University Scholars Seminar module to satisfy their First-Tier Modules requirements. Each First-Tier module is worth four credits.

## USP Advanced Modules

USP students are required to read four USP Advanced modules, worth four credits each. They may complete their USP Advanced Modules requirements via any of the following:

### 1. Academic Inquiry

USP students interested in research make use of Academic Inquiry to initiate and study at a higher level and greater depth a topic of their interest, under the guidance of a faculty member. The various options include Independent Study Modules, University Multidisciplinary Seminars, Double Degree Programmes, among others.

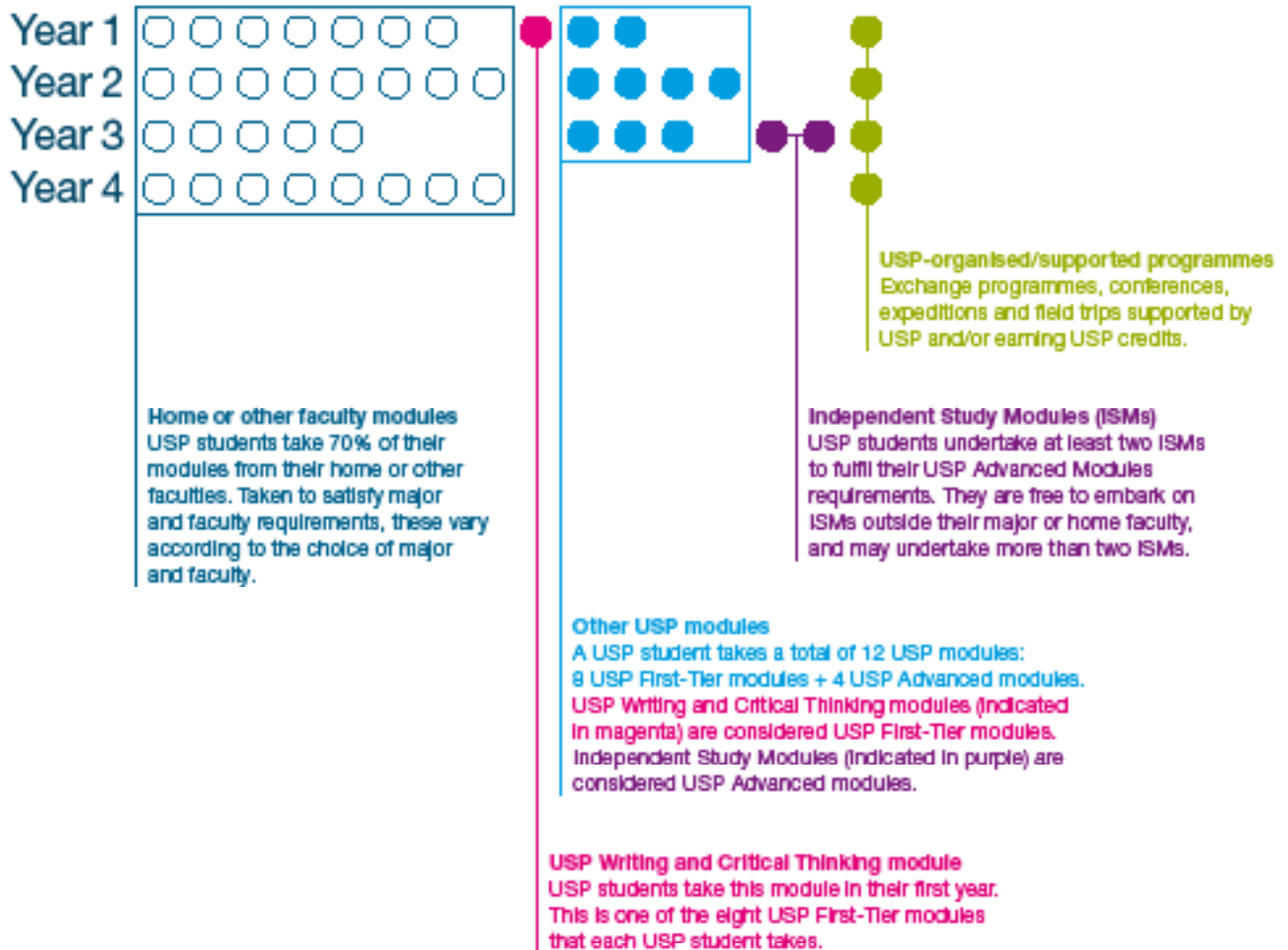
### 2. Cultural Immersion

This option is ideal for students who wish to develop cultural capabilities and networks in a foreign country, through cultural immersion at an overseas partner university for an extended period of time. Open to all USP students (of any major) are cultural immersion programmes with China's Peking University, Japan's Waseda University, and India's Delhi University.

### 3. Entrepreneurial Development

USP students who wish to experience an entrepreneurial culture have the option of spending a year in one of NUS's Overseas Colleges in leading entrepreneurial and academic hubs of the world: Silicon Valley and Philadelphia (USA), Stockholm (Sweden), Shanghai (China) and Bangalore (India). Students intern with start-ups and study entrepreneurship-related courses at overseas partner universities.

# USP Curriculum: An Example





# USP Alumni

USP students come from USP's six partner faculties, namely:

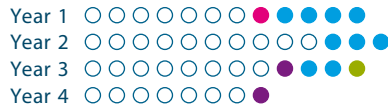
- Faculty of Arts and Social Sciences;
- Faculty of Science;
- Faculty of Engineering;
- NUS Business School;
- School of Computing; and
- School of Design and Environment.

Many USP graduates have leveraged on the opportunities made available by USP and gone on to lead and contribute in the fields of business, research, media, government and the arts.

In this section, eight USP alumni share their USP experiences.

# Shalina Deepa Sudheeran ('05)

COMPUTER ENGINEERING + USP



- Home and other faculty module
- USP Writing & Critical Thinking module
- USP module
- Independent Study module
- USP-organised/supported programmes: Project India expedition

Hi Shalina, can you tell us about your job in the States?

Hi! I work with Applied Materials in Santa Clara, USA, and our company produces semiconductor manufacturing equipment. I work as a Process Engineer and I do R&D to ensure defect reduction in our products.

Which USP module had the biggest impact on you?

I would say Innovations in Technology taught by Professor Anjam Khursheed. Every week, we studied a few inventors to understand their restrictive circumstances. For example, how they worked around not having certain materials as we do today. Then, we were tasked to re-create their inventions whilst subjecting ourselves to the same constraints. Some examples of what I re-created are headphones using bottle caps, and even a magnetic levitation model train from scratch! I realised that in my previous schooling in science, lab work was carefully scripted to minimise mistakes. In contrast, for this module, we were given the time and encouragement to make our own mistakes. So I ended up learning much more. I realised how much I enjoyed creating things, and it opened my eyes to a career in research!

What was your experience of the USP Writing Module like?

I did the class by Professor Chitra Sankaran called Cultural Constructions of Femininity versus Feminist Beliefs. There were only eight of us in class. The best part about USP is the people in it—everyone really wanted to participate, and this led to the many great debates we had. The writing class taught me to be open minded, to take on new ideas and wring the truth out of them, and to read between the lines.

Can you tell us about the student activities you were involved in?

I was in the organising committee of a USP student-organised trip to India. It all started with a USP module called Visual Art in India: Art, Architecture and Cinema. We learnt so much from class that we were inspired to see India for ourselves. We visited Sri Lanka, Delhi, Agra, Jaipur, the Taj Mahal, and Mumbai, and did a cultural documentation of a village in the middle of the Rajastani desert.

What did you do for your Independent Study Module (ISM)?

I started by setting up interviews with at least ten professors in the Faculty of Engineering to find out about their research work. I met Professor Adekunle who was so passionate about his research in Magnetic Random Access Memory that he basically inspired me. In the end, my ISM became the cornerstone for my final year thesis.

How did USP influence your career choice?

USP is definitely the reason I'm doing what I do now. It started with the confidence to speak up and talk to professors during writing class. And the innovations class opened my eyes to the joys of research and invention. Then the ISM led me to work in nanofabrication which I continued for my Master's in Cornell as well as my current job. Surprisingly, it was USP that proved to me, by showing me the passionate side of my home faculty, that engineering was what I should be doing all along.

What do you appreciate most about USP?

The questioning mind was something that was constantly reiterated in USP. Regardless of topic, we were encouraged to discuss thought—how people think, why they think certain things, and how you move forward from an idea—that is something I really appreciate about USP.

# Andrew Wang ('06)

BUSINESS + USP



- Home and other faculty module
- USP Writing & Critical Thinking module
- USP module
- Independent Study module
- USP-organised/supported programmes:
  - 1 Exchange at Wissenschaftliche Hochschule für Unternehmensführung
  - 2 Project Himalaya expedition

Hi Andrew, can you tell us a bit about your work?

I am a management consultant with Shell. I work with senior business leaders at Shell to craft and track business strategies for Shell's downstream businesses, from market entry strategies for the lubricants business in Indonesia to Shell's overall R&D strategy for biofuels.

What is your most memorable USP module?

Democratic Possibilities, a module I did under Professor Kenneth Paul Tan. We obtained a good overview of political philosophy from Plato's Republic to Fukuyama's The End of History. I was amazed at the way that politics and power permeates human interactions. This module opened my eyes to how different groups in our community perceive politics, and the importance of political literacy and involvement.

How did you embark on your Independent Study Module (ISM)?

In 2005, I led the Social Entrepreneurship Forum, a student-initiated forum that promoted social entrepreneurship. After the forum, I embarked on my ISM under Professor Albert Teo. In my ISM, I presented case studies on social enterprises in Singapore and highlighted the challenges they face in managing multiple bottom-lines, for example, in social, environmental, and economic goals. What emerged was an ISM that was well-received by the Ministry of Community Development, Youth and Sports, and the Consortium of Asian Foundations and Organisations.

What was your experience of the USP Writing Module like?

The writing module I took tackled Masculinities, examining the numerous theories surrounding masculinity. We covered films like Priscilla, Queen of the Desert, ques-

tioned the male stereotype, the socialisation of colour preferences, and the desirability of male traits in management roles. For me, it was about getting to the fundamentals, and questioning over and over again to get to the crux of the issue. It was a process and a thinking skill I picked up—the ability to read critically, compare texts, digest, reflect, and apply my thinking.

What was your overseas expedition about?

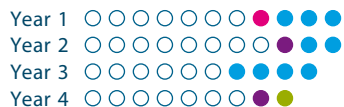
Project Himalaya 2006 was an ecological field trip led by Professor Maharaj Pandit. We spent three weeks at the foothills of the Himalayas in Naugaon Village in the Indian state of Uttaranchal. Each day, we interacted with village heads and farmers, who faced the grim realities of how climate change has affected their harvest and livelihoods. The field trip was a rare opportunity to look beyond picturesque snow-capped mountain ranges to the inter-connectedness of the global environment. I personally have become more mindful of the impact that multi-national corporations and national development policies have on water and land resources.

Can you tell us about your exchange programme?

I did a semester at one of Europe's top business schools, Wissenschaftliche Hochschule für Unternehmensführung (WHU) in Koblenz, Germany. The culture at WHU was highly energetic. Everyone there wanted to be a banker, consultant, global business manager or entrepreneur. The workload was heavy, but the effervescent school culture meant that we still had the chance to catch up over drinks and back-pack around Europe. It was probably here that I knew I wanted to be a management consultant. The best part of the experience is having friends all over the world, all inter-connected, all excited about each other's future.

# Liang Shiqi ('05)

ECONOMICS + USP



- Home and other faculty module
- USP Writing & Critical Thinking module
- USP module
- Independent Study module
- USP-organised/supported programmes:  
Joanna Wong Gold Medal Award  
for Best USP Graduate '05

Hi Shiqi, can you tell us about your job?

I'm currently working in Deutsche Bank in Seoul, as a fixed income/interest rate derivatives trader. I work on the risk management of the bank's bond/swap portfolio in both South Korea and Vietnam, as well as on developing the Vietnamese financial market.

What was your experience of USP modules?

USP modules are very different and interesting in their own right. However, I really found the writing module Interpreting Consumerism to be the most useful in laying strong foundations in research and writing. These foundations were really helpful in all the subsequent classes that I took, both within and outside of USP. Being a "writing" module, there was a strong emphasis on the rules and techniques of writing a paper. This was important because most of us never had such rigorous training in writing. What was the more important skillset was in critical thinking—the writing module involved a lot of research work and a lot of thought to be put into how you support your thesis. The professor always challenged us regarding our ideas and arguments and that forced us to think critically—which was really a refreshing change!

Can you tell us about your Independent Study Modules (ISMs)?

I did two ISMs, one in Game Theory and the other on China's financial markets post-WTO. The best part about ISMs is that you could pretty much choose to study anything you want, a flexibility and privilege which is hard to get outside of the USP. Besides being able to design your own module, you also get to go into much greater depth. To me, they were both "mini honours thesis modules" that prepared me for the real thing.

Do the skills acquired through USP modules help you with other modules?

I think my honours thesis benefited greatly from my USP foundation. By then, I had a lot of experience in research and writing a paper. So, having to plough through piles of books and articles was a breeze. The other skill that was also very helpful was in time management. As the USP curriculum usually required much more time and effort from the student, it became very important for me to manage time and resources efficiently. This definitely helped in juggling non-USP modules as well.

How would you describe the learning culture in USP?

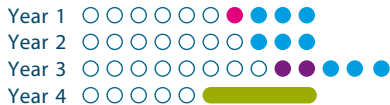
USP is really a family made up of a very diverse group of people, coming from different backgrounds and faculties, with extremely different interests. However, everyone in USP is very passionate about what they're learning, because within USP you don't sign up for a class that you don't like. People prepare for their classes, people go to classes and contribute. You don't just sit there and be a passive listener, you go there and you are a participant. This makes the USP experience much livelier and more fun!

Do you think that USP has defined you in any way?

I think what USP has done is to allow me to be intellectually flexible and adventurous in the sense that I feel much more comfortable and confident now when dealing with a subject that is outside my area of expertise. I feel that USP has stretched my mind in so many different directions, and that has really helped me cope with my current job. USP was really useful in exposing me to a broad range of disciplines and that definitely allowed me to make a much more informed decision!

# Reuben Ng ('06)

PSYCHOLOGY + USP



- Home and other faculty module
- USP Writing & Critical Thinking module
- USP module
- Independent Study module
- USP-organised/supported programmes: WorldSmart Leadership Programme

Hi Reuben, can you tell us what you are working on?

I'm a research psychologist, currently pursuing my Master's at Nanyang Technological University. Funded by the National Youth Council, I'm investigating how one can stay resilient in the face of adversity.

What would you say was the most impactful USP module to you?

The most salient one to me was Conflicts, Negotiation and Mediation taught by Professor Chia Ho Beng. For this module, we were free to define our own project which involved identifying and helping those who might benefit from conflict and negotiation skills. We approached Lakeside Family Centre which ran a rehabilitation programme for ex-gang members, and introduced them to peaceful ways of resolving conflicts.

What did you do for the USP Writing Module?

I did a module called Questioning Evolution and Progress. This was the first time that I was in a class of only nine students! Because the class was small, we all had a chance to speak up. Each of our three assignments was given feedback by both professor and our peers. Our progress was checked every step of the way, such that I knew what to improve and was given help to do so. With all the participation and undivided attention, I learnt a lot and gained a lot of confidence.

How did you get started on your Independent Study Module?

I did an internship with the Psychological Services Division of the Singapore Police Force (SPF) at the end of my second year. I learnt about the increased stress level faced by SPF with the introduction of the integrated resorts to Singapore, and the threat of terrorism. I thought that I could do something to add value to SPF, and so

I went on to do a year-long study on how organisational resilience could be used as a strategy to manage stress. A lot of time and effort was spent on the design of data collection, and the data collection itself. I proposed recommendations that SPF put into operation. My report went on to win an early career award from the International Council of Psychologists. This award was usually given to those who completed their PhD with five years of research experience, but in 2006, I was the first undergraduate and the youngest recipient of this award.

Can you tell us about the student activities you participated in?

I attended the WorldSmart Leadership Programme on scholarship, where I travelled with 54 fellow students from 28 countries to 18 cities in 19 weeks, learning how to manage cross-cultural teams and initiate projects for change. What was most memorable was getting to stay with a different host family in each city, where I felt my "cultural intelligence" increasing with the many friends I made. One other activity I would highlight was going to Penang to interview survivors of the Asian tsunami. I got to understand the impact of a natural disaster, and that really offered a different perspective. I am grateful to the support given by USP for making these experiences possible.

How would you describe the USP culture?

I met a lot of inspiring people in USP—my friends and my professors who really motivated me to go beyond myself—to be creative, bold and entrepreneurial. Every professor I encountered in USP had this culture of mentorship—they sought to bring out the best in you, and they would not stint in helping you discover the best person that you could be.

# Huang Danwei ('06)

LIFE SCIENCES + USP



Year 1 ○○○○○○○○●●●●●1  
 Year 2 ○○○○○○○○○●●●●●2  
 Year 3 ○○○○○○○●●●●●3  
 Year 4 ○○○○○○○○●●4

- Home and other faculty module
- USP Writing & Critical Thinking module
- USP module
- Independent Study module
- USP-organised/supported programmes:
  - 1 Venture Vietnam 2002
  - 2 Venture Vietnam 2003
  - 3 Venture Relief (to Sri Lanka), Crisis Relief (to Pakistan)
  - 4 Joanna Wong Gold Medal Award for Best USP Graduate '06

Hi Danwei, can you tell us about your work?

I'm pursuing a PhD at the Scripps Institution of Oceanography. My current research is on the biogeography of a family of hard corals in the Indo-Pacific region.

Which USP module made the most impact on you?

I think it is the Science module, Simplicity. The module was not as simple as the title suggests! It challenged me to explain seemingly complicated phenomena using simple theoretical models. For my term project, I modelled the growth and proliferation of tumour cells in the body. So I had to read up on the biology and physical aspects of tumour cells, such as the speed of proliferation, and the movements and forces involved. It's an interdisciplinary approach that allowed me to develop skills in both biology and physics using mathematical modelling. Right now, when I go into the field, surrounded by the complex communities in the marine ecosystem, I would be interested to observe processes happening at the smallest scale, such as the biology of individual flora or fauna, finding out their roles in the community, and then try to see patterns at larger scales.

What was your experience of the USP Writing Module like?

I took a very exciting module, Femininity: Of Mind, Body, Or Culture. We explored many different aspects of the subject, such as current ideas on gender, biological determinism in sexual identity, the feminist movement, the interplay between nature and nurture etc. The writing programme was really effective for me because it took away the stress of writing by focusing on interesting topics so that students may be motivated to read and practise writing more often. I'll always remember the one-to-one tutorials with the instructor, who went

through in detail my writing, and suggested ways to make my ideas clearer. Now that I have graduated, I do miss that!

Can you tell us about your USP overseas experiences?

I joined the first USP expedition to northern Vietnam in December 2002 to construct a kindergarten building for the children in a village. The team saw how we could actually make a difference in others' lives. The following year, my friends and I initiated and led a similar expedition to another part of Vietnam. In 2005, I led a humanitarian relief project to Sri Lanka after the Asian tsunami, providing relief supplies and rebuilding the community through furniture construction and school refurbishments. When the South Asian earthquake struck at the end of that year, I organised a team to raise money and relief items in Singapore. We then transported these items to a rural village for the people devastated by the disaster. Through these experiences, I was able to apply critical thinking skills learned during class in an overseas context, such as in assessing the needs of the overseas community and how our service could be both beneficial to the people there and a great learning experience for us Singapore students. On top of that, the wonderful friendships forged over these expeditions are what I've gained for life.

Did USP influence your career choice?

Personally, I received good advice about which schools to apply for postgraduate studies, and where to seek financial assistance. My current graduate position here at Scripps Institution of Oceanography is a direct result of advice from USP directors and supervisors. Regardless of discipline, I was always urged on to follow my passion and interest for the research topics I'm interested in and to explore ways to view them through various vantage points.

# Pearl Maria Forss ('04)

SOCIOLOGY + USP



Year 1 ○○○○●●●●  
 Year 2 ○○○○○●●●●●●  
 Year 3 ○○○○○○○○●●●●●  
 Year 4 ○○○○○○●●●●●

- Home and other faculty module
- USP Writing & Critical Thinking module
- USP module
- Independent Study module
- USP-organised/supported programmes:
  - 1 First President of University Scholars Club
  - 2 USP Recognition Award for exceptional leadership
  - 3 Exchange at University of Toronto
  - 4 Sino-Singapore Undergraduate Exchange Programme

Hi Pearl, can you tell us about your work?

I'm a senior reporter with Channel News-Asia. My job involves interviewing policy makers, ministers, and the man in the street—putting it all together with my own analysis, and beaming out that information to over a million households across Asia. Depending on the assignment, I can be in a tent in Sri Lanka covering the civil war; in a conference room in Singapore speaking to the Education Minister; or out with National Environment Agency officers looking for dengue breeding sites.

Which USP module was most impactful for you?

It was a module called Telling Stories in Cyberspace, taught by George Landow, a professor from Brown University. It taught me deconstruction theory, postmodern theory and how to analyse internet information. It made a huge impact on me because learning how to dissect information to such great detail, and being a cynic wasn't really taught in junior college. The module introduced me to the intellectual fervent, and heated debates, which I subsequently encountered in more USP classes. The professor really brought out the best in all the students.

Did you do an Independent Study Module?

Yes, it was called The State and Terrorism, on how governmental policies fuelled separatism in Aceh and Southern Thailand. I co-wrote a paper with my professor which got presented at an ASEAN academic conference. My part concentrated on Aceh, so I interviewed NGO workers, Aceh Indonesians in Singapore, and monitored Indonesian media reports... I did extensive research. It was really hard work, but it was worth it because I feel my paper shifted the perceptions of some towards separatism in

Aceh specifically.

Did you participate in any exchange programme?

I went on a student exchange programme to the University of Toronto. Weekdays were spent sipping coffee, watching the snow fall and debating sociology with my classmates who came from all over the world. Weekends were spent skiing down Mount Tremblant, and exploring cities like New York, Havana and Montreal. I think there's nothing like an overseas stint to open your mind and widen your horizons. I'm glad to have done that while at USP.

What student activities were you involved in?

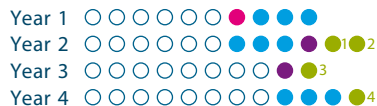
I was the founding president of the University Scholars Club (USC). I will say it's the most important thing I've done in university. I made many close friends there, learnt how to manage events, learnt how to budget, sell proposals to companies... Through USC, I also met many members of the Singapore civil society who we invited for talks—playwrights, politicians, academics, entrepreneurs... It was the most intense period of university, and it took up way more time than any module I've taken. Me and the general secretary used to stay up till 4am drafting the constitution. But given a chance, I'll do it all again! It's so satisfying to create an institution of sorts from scratch with friends.

How has USP helped you in your career development?

The USP experience helps me in my work everyday. As a reporter, I need to have a feel of various topics—from economics, to stem cell research, to ASEAN politics, to medical issues. I would never have gotten that breadth of knowledge in school had I not joined USP and took up its various multidisciplinary modules.

# Tuty Norashikin Binte Suhaiemi ('07)

APPLIED CHEMISTRY + USP



- Home and other faculty module
- USP Writing & Critical Thinking module
- USP module
- Independent Study module
- USP-organised/supported programmes:
  - 1 Vice-President of University Scholars Club
  - 2 Sino-Singapore Undergraduate Exchange Programme
  - 3 Student Academic Symposium
  - 4 Student leader, 8th ASEAN Universities Network Educational Forum

Hi Tuty, what are you doing now?

Currently, I am going through a training programme by Economic Development Board (EDB) and Schering-Plough in Process Chemistry and Chemical Development. I intend to embark on a career in pharmaceuticals as an R&D Chemist after that.

Which USP module made the most impact on you?

I would choose Innovations in Technology where we revisited discoveries in electricity and magnetism. One highlight was when I managed to make an open test-tube light bulb with carbon dioxide without even needing a seal. I appreciated how these experiments took our problem-solving skills and resourcefulness to the next level, engaging our thoughts in every way.

What did USP's Independent Study Modules (ISMs) enable you to do?

With USP, I was able to embark on an ISM outside my home faculty, which I did for my first ISM. This is great for exploring beyond what your home faculty offers. I did an honours module from the Chemical Engineering faculty, on engineering principles in drug delivery with a focus on the chemistry of Paclitaxol, a chemotherapeutic agent with highly undesirable side-effects. Doing the ISM gave me the flexibility to increase the emphasis on research and discourse, and reduce emphasis on examinations. The module not only equipped me with engineering knowledge of drug delivery but also connected me to the forefront of nanotechnology in the delivery of chemotherapeutic drugs.

I did my second ISM with my home faculty, the Faculty of Science, working with a pharmacy professor on multi-resistance proteins and cyclophosphamide. While my first ISM focused on academic research and theoretical concepts, my second ISM

was purely hands-on laboratory research. I fondly remember how I had to gown up before entering the sterile laboratory to handle the hepatic cells. After months of hard work and with the results at hand, I presented a poster during the 17th Singapore Pharmacy Congress where I was treated to an exchange of ideas and wonderful interactions with international participants.

Can you tell us about USP student activities and overseas experiences?

During my second year, I served as Vice-President in the management committee of University Scholars Club (USC), the students club of USP. We completed many successful projects (such as USC's annual drama production and freshman orientation programme) utilising the diverse talents and expertise of USP students, which is truly the hallmark of USP. My greatest gains are the friends I met—I made some of my best of friends through organising events, our small-sized classes or just by bouncing off opinions at our student lounge, the Chatterbox.

In December 2003, I participated in the first Sino-Singapore Undergraduate Exchange. We spent time in Beijing, Shanghai and Suzhou, getting acquainted with China's educational, cultural, political and economic landscapes. Besides taking in the sights and sounds of China, we had dialogue sessions with China's youth leaders. The best part was how we cleared common stereotypes through knowing one another on a personal level. When our Chinese friends came to Singapore, we bonded over team-building exercises and seminars. This is a typical experience offered by USP, with its emphasis on gaining a global outlook and the go-out-and-see-it-for-yourself attitude.





# USP Inter- disciplinary Modules

USP offers a wide range of interdisciplinary modules. USP modules are taught in seminars with class sizes ranging from 12 to a maximum of 35. This facilitates interactions with the professor and among students.

In this section, ten of USP interdisciplinary modules are highlighted, followed by a listing.

## Clothing Identities

How do clothes “speak”? Do they speak the same way language “speaks”?

How does fashion come about?

Clothes say many things, but they seem especially chatty about things like their wearers’ class, race, gender, sexuality, power. Why?

Is it possible that clothes don’t just say something about who we already are, but shape that identity?

Can you control people by controlling what they wear?

What happens when clothes, and the identities they are supposedly tied to, don’t “align” properly—for example, when people cross-dress, or when Western fashion designers use “Oriental” elements in their work?



## ABOUT THE MODULE

What is the relationship between clothes and identity? We often think that the clothes we wear reveal some fact about ourselves, some aspect of what we consider our “identity”. For instance, many of us dress to indicate that we are men or women, or to demonstrate our masculinity or femininity. This would suggest that clothes are primarily expressive—that is, we “have” an identity, and clothes communicate that identity to the outside world. (This would mean that we also need to figure out how clothes do this.) But we also say that “clothes make the man” (or woman), as if clothes do not so much express some sort of innate truth about us, but rather help construct our sense of identity. We seem to feel, for example, that we become “more ethnic” when we wear a traditional ethnic costume. Why do we think this? How, in fact, is it possible to “become” more ethnic? Are clothes therefore an expression of who we are, a construction of who we want to be, or something else altogether?

## STUDENTS' COMMENTS

Dr Lo Mun Hou is a fantastic professor who livens up the class with interesting anecdotes, thought-provoking articles and art house films. I remember that for one assignment, we had to relate a movie to the theme on “Clothes”. That made me feel more like a movie critic than a stressed-up student. It also sharpened my analytical abilities and taught me the need to see things at a much deeper level. In this module, I gained the courage to voice my thoughts even if they ran contrary to convention. The small class setting, which enables every student’s opinion to be heard and valued, makes my USP educational experience unique and remarkable.

—Chua Shi Qian

So you think you can write? This module is about critical thinking and writing in a fun and unique way! Providing a vital foundation for students across all disciplines, USP writing modules empower students with alternative discourses on how objects are viewed and observed, and Clothing Identities gives a new meaning to “fashion” and “identity”. Critical thinking is possible when seen through the lens of fresh perspectives. Every class session is filled with challenging yet “amusing” topics... and Dr Lo Mun Hou is truly passionate in his teaching!

—Lendra Putra Nurezki

Clothing Identities is one of the most enriching modules I have taken. It fuses the necessary writing and analytical skills with interesting topics about clothes and identities, elements of our daily life. Writing papers for this module was always joyous. I cannot forget the enthusiasm and excitement when my ideas were penned down and threaded into a complete essay. Reading this module is my most memorable NUS experience so far!

—Peng Xinxia

## PROFESSOR'S COMMENTS

Starting university is exciting, but also scary. You’re joining a new community—of scholars and thinkers—but, as with any community, there are expectations and unspoken rules. How do academics talk to each other?

One simple answer: academics mostly converse through writing. A very basic aim of this module is thus to help students become accomplished writers of academic essays. Unlike the kinds of writing that pre-university students may be used to, academic essays go beyond recapping. Instead, they tend to be argumentative, in that they put forth and prove a clear point.

Additionally, to be a valued member of the community requires that your perspective be original, which is where “critical thinking” comes in. Logically, you must therefore first know what people have been saying (so that you advance rather than repeat their ideas), so learning to research a topic is another important goal.

Intimidated by the idea that you, a mere mortal of a university student, are expected to contribute new ideas? Don’t be. In this class, we are entering a dialogue about a small, accessible topic: the relationship between clothes and identity. The T-shirt you are wearing right now, for example: surely you have a theory about what it says about you? I’ve had many students who have done exactly that: contributed fresh insights into the topic, whether by thinking about their shoes, or by engaging with a sociological theory that has been around for a hundred years. It’s invigorating when this happens, and the point of this class, ultimately, is to help you give birth to ideas through writing.

—Dr Lo Mun Hou

# Multidisciplinary Perspectives on “Mind”

What is “the mind” and what is its place in the natural and cultural order of things?

Do animals have “minds”? What about machines?

Is “mind” just a kind of brain activity—or is it more than just the electro-chemical exchange of neurons?

Can a “mind” ever comprehend itself in its act of “mind”-ing?

How is it that of all the physical interactions we see happening in nature, only this one particular (yet purely physical) system gives rise to “mental experience”?



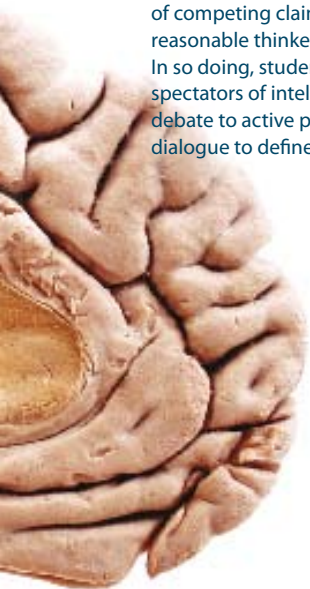
## ABOUT THE MODULE

As minded creatures with brains ourselves, the ways in which we delimit the mind/brain relation have enormous consequences for the ongoing construction of our legal, social, medical and ethical lives.

In this module, I ask students to study how different notions of “the mind” have arisen within the histories of philosophy, neurobiology, and the social sciences, and to attempt to discover what it is about each of these disciplines that might lead them to make the claims they do regarding the “essential nature” of “mind.”

Moreover, because this is primarily a Writing and Critical Thinking module, the objective of this class is not just to learn something about brains and minds, but also to learn how serious thinkers engage with one another’s arguments in attempts to establish effective arguments of their own.

Thus, the still very much unsettled “mind-brain” debate is used here as the platform upon which students learn how to consider the strengths and weaknesses of a variety of competing claims about which equally reasonable thinkers fundamentally disagree. In so doing, students go from being mere spectators of intellectual and scientific debate to active participants in the ongoing dialogue to define human minds and selves.



## STUDENTS' COMMENTS

I enjoyed this module very much. The small class size allowed the professor to give each student attention. We also had very interesting discussions in a comfortable class setting. I learnt much about essay-writing skills and techniques which came in very handy for my other modules. The readings for this module were really interesting; by the end of the module, I gained more clarity about many things.

—Quek Yan Ying

The module was mostly tough, sometimes mind-boggling, seldom frustrating but always endlessly interesting! It is not for the faint-hearted (I almost quit after the first few sessions). The readings were quite dense especially if you had no prior experience in handling such readings. However, the professor is kind and patient in guiding us through. It is only through these dense readings and in-depth discussions that new and different ideas are born. Writing becomes an engaging process when you become both the writer and the reader. By the end of the module, trust me that you will take back not just the three essays and a grade.

—Foo Kay Yang

Dr Don Favareau had a really unique approach to teaching. I remember one lesson when he came to class wearing a snorkel set to make a point about mental models and, in another class, he said nothing at all for two hours! These unique teaching experiences stand out for me and serve as the link to the knowledge that Dr Favareau seeks to impart to us.

—Wayne Jerome Sandhu

## PROFESSOR'S COMMENTS

Producing good, clear academic writing requires the development of a holistic ensemble of reading, thinking, researching and writing skills that will allow one to actively engage in the ongoing dialogue that is academic discourse. To become an effective participant in such a dialogue, however, one must first attain a practical mastery of its community language forms, rhetorical structures, and discourse conventions.

Students in this module thus learn first to recognise and to identify the major elements, forms, and conventions of academic essay writing through their engagement with exemplar texts from a wide variety of academic disciplines. As in learning a second language, the goal here is not the ability to simply “parrot back” such texts, but to learn how to effectively use these language practices as resources for one’s own best thought and its expression.

Moreover, my experience teaching this module to USP students has shown me that their “best thought” is on a very high level, indeed—as some of the most intelligent ideas I have heard propounded on this issue have been in these students’ essays, on the IVLE Forum, and in our class discussions. Thus, although the readings are heavy and run the gamut from 17th century French philosophy to 21st century neurobiology, rarely have I encountered a USP student who is not up for this kind of exhilarating intellectual challenge. And since I enjoy such challenges myself, the chemistry usually works.

—Dr Don Favareau

# Evolution

What is the scientific evidence that supports the theory of evolution?

What roles does human nature play in the debates, scientific and otherwise, that rage around evolution?

How has evolution shaped the body and behaviour of human beings?

What role does evolution play in our lives today?

How does the study of evolution, and particularly models of human evolution, challenge our beliefs about ourselves? How do they reify our beliefs?



## ABOUT THE MODULE

The theory of evolution is controversial, though surprisingly little opposition comes from within science, where evolution is accepted as a unifying cornerstone of natural sciences.

In this module, students are challenged to separate science from faith, fact from preconception. We will focus on the theory of evolution and its power to explain the diversity of life and adaptation; however we will not let the theory go unchallenged. We will examine seemingly incompatible phenomena, like “altruism”, where individuals risk their own lives to help others, and “sexual selection”, which leads to excessive (and life threatening) ornamentation such as the peacock’s tail. We will study key events, such as the origin of sex, and seemingly insignificant ones, such as the event that led to the evolution of humans from a chimpanzee-like ancestor.

Above all, we will focus on evolution as the theory that explains the mind-boggling diversity of life on Earth today, all as the result of a single observation, that DNA—the blueprint for life—replicates itself almost, but not quite, perfectly.

## STUDENTS’ COMMENTS

I learnt not only more about life sciences, but more importantly the process of how to learn. Evolution truly taught me, as with other USP modules, the adage that “You are born with eyes, but you must learn how to see!” Academia can be a daunting path for the uninitiated, but our friendly professors are always willing to light the path. The module was a massive field trip for novices into nature and evolution, the intricate science of it all, and the people behind the experiments and findings. The lessons learnt could be applied far beyond the classroom after the last pupil has left it.

—Seah Ru Han

Being a science student, I had expected this module to be crammed with the necessary but mundane contents of evolutionary biology. I was proven wrong quickly as the professors focused on the intriguing aspects such as the evolution of laughter, hiccups and the ever evasive subject on sexual intercourse. By adopting students’ curiosity as their main lesson plan, professors engaged the class in active discussion. Videos, artifacts and field trips to the botanical and zoological gardens made classes more exciting. The module was challenging as we had to constantly think on our feet and question information fed to us; these questions then became our presentation topics. For the written examination, we were “forced” to be like scientists, to figure out what could have really happened during life’s evolutionary journey. It was also valuable to have learnt the method to approach any scientific fact. I now know how to sieve through overwhelming amount of information, question the ordinary, and experiment with new ideas. I thank my professors for such an enjoyable learning process.

—Subashiyni Ramakrishnan

## PROFESSOR’S COMMENTS

Everyday brings the modern global citizen a bevy of headlines concerning the latest scientific discoveries, such as the gene that makes people fat, gay or depressed, or the fossil that is the new missing link. What are we to make of all this information?

This module is designed as a multidisciplinary examination of the theory of evolution that is relevant and accessible for students ranging from first year art majors to fourth year life sciences majors. The emphasis is on developing critical thinking skills to promote scientific literacy. To accomplish this, we will examine science as the intersection of the scientific method, which is relatively objective, and human motivations, which are decidedly subjective. Students will begin with popular news accounts of recent scientific results, follow these through to the primary literature, examine the studies’ methods, discuss if the interpretations follow from the results, and finally, question the researchers’ biases and how they might have influenced the study.

My primary objective for learning outcomes in teaching this module is to get students thinking about life from the perspective of an evolutionary biologist. Many students come to this module already familiar with the example of the Australian red back spider, a species in which the female eats its mate after copulation. If a student walks into my class with the question: “Wow, that’s so weird; why does the female spider eat its mate after copulation?” I want the student to walk out of my class with the question: “Wow, that’s so weird; I wonder why female humans don’t eat their mate after copulation?” To do this, we will explore the basic mechanisms of evolution: mutation, gene flow, genetic drift, selection, and non-random mating.

—Dr Myron Shekelle

# Cyberart

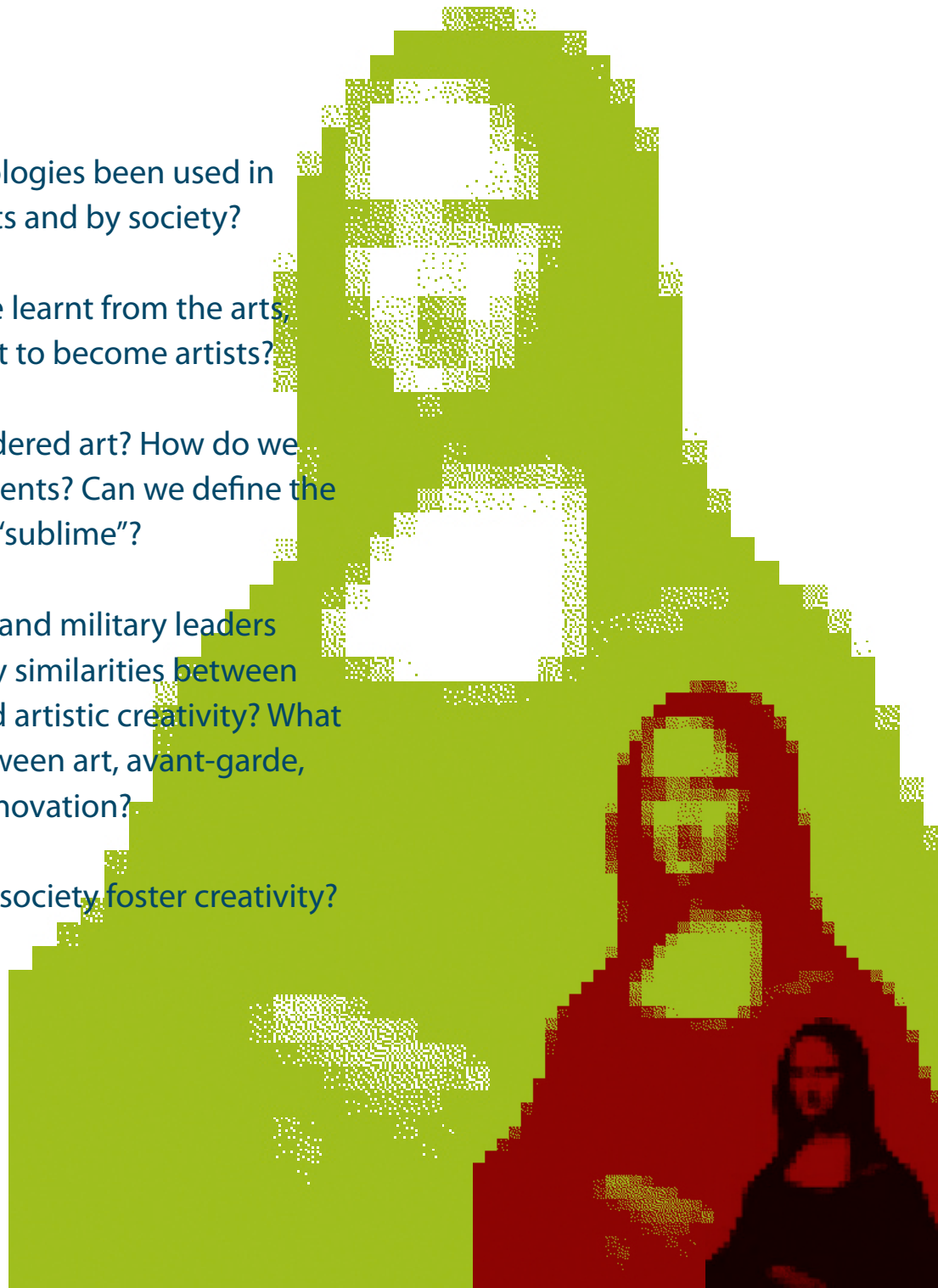
How have new technologies been used in creative ways, by artists and by society?

Is there anything to be learnt from the arts, even if we do not want to become artists?

What actually is considered art? How do we make aesthetic judgments? Can we define the beautiful, and what is “sublime”?

Are business, political and military leaders creative? Are there any similarities between strategic creativity and artistic creativity? What connections exist between art, avant-garde, leadership, risk and innovation?

Which conditions of a society foster creativity?



## ABOUT THE MODULE

The term “Cyberart” refers to a field of contemporary art that makes use of media with cybernetic features. We hereby mean computer-based artworks which have been emerging since 1950s and rely on the developments in the information and communication technologies. In this module, we explore how artists have been inspired by the possibilities of these new media, and in many cases, contributed to various conceptual and technological innovations.

With Cyberart as a starting point, we touch on related aesthetic issues. We learn about main movements of contemporary art and some of the philosophical views on art and its reception. And in an excursion to an exhibition in town, we train our interpretational skills.

The rest of the semester is practice-based: three assignments requiring the use of video and internet or other interactive media follow. Focus lies in the conceptualization of the artworks, the methodology of brainstorming and aesthetic decision-making. Students will also experience interdisciplinary collaboration and the use of theory as a source of inspiration for creative works, i.e., innovations.

We also train the awareness of the relations between artworks and, for example, how to conceptualise meaningful combinations in an exhibition. All stages of the production are discussed together in class.

Finally, we reflect upon our experiences in the broader context of society. For example, we discuss how the creativity of leaders may differ from that of artists and if the lessons learnt may be valuable in other contexts.

## STUDENTS' COMMENTS

The module gave us not just an opportunity to express ourselves aesthetically but helped shape our complex ideas into presentations, short films and websites. Ms Daniela Plewe's efforts in laying the groundwork for brainstorming—both individual and collective—stirred us into creating diverse works that touched on theories spanning Schroedinger's Cat to sine waves and even human agency. One might make the case for Cyberart as the embodiment of education in USP: stimulating, all-encapsulating and truly creative in an interdisciplinary way.  
—Lim Ken Ji, Marc

Through this module, I have learnt many important skills which will follow me way beyond my stay in NUS. Besides taking on the role of actors, directors, playwright, website and Flash designer, and even an MTV producer, I also learnt the skills of group work, team dynamics, and public speaking as we presented our ideas in front of the class. The guidance and insights provided by the instructor Ms Daniela Plewe were invaluable as they were always timely probes to further our explorations in the field of New Media. To a class consisting of many engineers and scientists, the topic of art was never an easy one to begin with; but Ms Plewe has done a great job both as a teacher and as a friend.  
—Lim Shen

## PROFESSOR'S COMMENTS

In this module, I combine theory and practice so that students through the creative experience learn about their creativity and about the reception of creative works.

Artists seem to have some core-competencies in critical thinking, questioning the unquestioned and interpreting the world in unfamiliar ways. Yet, they have to be output-oriented as the artwork is an objective which needs to be realised through a sequence of complex decisions and actions. Artists may even apply marketing-oriented practices to get their works known. All these skills also seem relevant to other professions or roles in life, where creative thinking, leadership and strategising are necessary. I consider the module as initiating some creative adventures and equipping students with the respective methodologies, thereby encouraging risk-taking, goal-oriented brainstorming and other innovation-methods. Students will also see how the theoretical knowledge of any discipline can be subject of works of art.

It is always interesting to observe how students with various backgrounds form interdisciplinary teams to do assignments. I hear about long nights of editing videos with lots of pizza and coke. I consider this a glimpse into the atmosphere of the creative industries. Also, watching the final presentations was always a wonderful experience. I was very happy to perceive the complexity of the student works. Since conceptual rigor is the main focus, some technical imperfections pose no hindrance to getting a good grade. I especially appreciate it when students outsmart and challenge me and my assignments, and deliver surprising results.  
—Ms Daniela Alina Plewe

# Human Relations

Why do we often take mental shortcuts when we make sense of things around us?

Why are our behaviours often inconsistent with our thoughts and feelings?

Why do we stereotype others?

Can we justify our prejudices and discrimination on religious or moral grounds?

Are values universal or context-specific?

Is science value free?

Is being politically correct good or bad?



## ABOUT THE MODULE

This module examines relations among individuals, groups and organizations. Human relations are considered from the perspectives of:

- what individuals, groups and societies consider to be important or unimportant, good or bad, desirable or undesirable (i.e., values);
- the processes by which people form impressions and build up knowledge about others and others' behaviour (i.e., social cognition); and
- the positive or negative feelings or evaluations that people have about themselves and other individuals, groups and societies (i.e., attitudes).

The module recognises the diversity of values and attitudes in society but also emphasises values that are shared across cultures. In addition, the research and debate on the impact of values, attitudes and social cognition are critically examined.

An educated person should have an appreciation of the factors that influence human relations among individuals, groups and organizations. This module uses research in organizational behaviour, sociology and psychology as a basis for students to:

- enhance their understanding of the processes of and influences on social behaviour; and
- apply this understanding in order to work effectively in groups and organizations.

## STUDENTS' COMMENTS

Professor Teo naturally puts everyone at ease and you feel energised to contribute your own thoughts and experiences. Small group tutorials are close-knit affairs where everyone shares and chews over our own values and attitudes. We also got to craft our own social science experiments which we carried out on campus. The instinctive and unrehearsed responses we received from strangers were curious, refreshing and thought-provoking.  
—Dazril Izrar Phua

This course is possibly the only class where you will be part of what you are learning: the examination of how individuals interact with one another. Lessons were packed with videos, fun activities and many real-life stories. Through analysing the cognition, attitudes and values of people, and engaging in lively class discussions, we began to understand how humans "think, feel and do". My understanding of marketing concepts as a business student was further cemented by the links made between consumer behaviour and the delicate art of persuasion. In this class where social "norms" are dismantled and analysed, where questions beget more questions and where answers are hardly ever final, what I have gained is a better understanding of the self.  
—Lee Hui Chay, Felyna

Professor Teo always engages us in a rather "off-defensive" and relaxed mood. As such, we become more "truthful", opening up to and interacting actively with the classmates around us. We are then able to discover more about our inner self, as well as understand why some people behave the way they do! I still vividly remember what most of my classmates said on the last lecture, "I finally know how to 'manipulate' the people around me!"  
—Cheong Kang Hao

## PROFESSOR'S COMMENTS

This module introduces participants to the complexities of human relations. Participants develop an appreciation of three main factors that influence relations among individuals, groups and communities: cognition (i.e., mental processes by which people interpret information and build up knowledge about others); attitudes (i.e., feelings or evaluations that people have about others); and values (i.e., what people consider to be important, good or desirable).

The theories on cognition, attitudes and values that are discussed in class are drawn from various disciplines, such as sociology, psychology and organizational behaviour. Participants get to learn these theories in an experiential way: working on self-assessment instruments; reflecting on their own thoughts, feelings and behaviours; content-analysing movies, television programs, news articles and print advertisements; engaging in debates; and conducting experiments and surveys. Such experiential learning not only exposes participants to extant theories, but also encourages participants to evaluate them critically.

These theories also provide a basis for participants to actively debate various controversial social issues. Some issues that have been able to get participants involved in heated debates include foreign workers; ethnic prejudice and discrimination; sexism and feminism; rape; homosexuality and homophobia; HIV/Aids; political correctness; Asian values; and ethics and life sciences research. While animated, emotional debates are common (given participants' diverse demographic and academic backgrounds), participants know that the class setting is a safe environment where divergent personal opinions can be freely expressed.  
—Associate Professor Albert Teo

# Ethics and the Environment

What are the deep causes of the current environmental crisis?

Is there a philosophical basis for the beliefs and practices that contribute to environmental degradation?

Do animals and other non-human living things have rights? Do wilderness areas have rights?

How do we resolve conflicts between human interests and the interests of the environment, if they have any of their own?



### ABOUT THE MODULE

The environmental crisis, manifested in air and water pollution, environmental degradation, the rate of extinction of animal and plant species, and the depletion of natural resources, has many different aspects, the most important being, arguably, the philosophical aspect.

It may be said that the crisis is due to the way we think about the environment, its value and its moral status, and unless there is a change at this fundamental level, the crisis is likely to worsen.

In this module, students will be introduced to the philosophical debate about environmental issues. The objective is to equip students with concepts and theories that will help them think about the environment at the fundamental level.

Major topics include anthropocentrism and non-anthropocentrism, bio-centred ethics, deep ecology, eco-feminism and environmental virtues.

### STUDENTS' COMMENTS

I've always been concerned about the environment and often lament that many of us do not take good care of the environment. However, I have never really looked at the environment in a philosophical sense. This module showed me how philosophical theories and arguments can be applied to the environment. I am also intrigued by the exciting debates among various philosophers over this issue. By considering things from various perspectives, I learnt to see the environment in a totally new light.  
—Lock Wan Jun

The module exposes me to various perspectives on how we see the environment and how these perspectives influence the way we conduct our actions towards nature. What is particularly interesting to me is the anthropocentric bias some hold towards the environment, i.e., we see nature as a means for our ends only, that nature exists to be exploited solely by humans. This module also discusses various contemporary measures taken to combat environmental issues, for instance, the Kyoto Protocol and what it is about, as well as the recent documentary film by Al Gore. I think this module will definitely be enjoyed by students interested in learning more about environmental issues like global warming... As for the readings provided, they are interesting and written philosophically; but this should not be a cause for worry as Prof Nuyen Anh Tuan is always helpful, and will dissect the readings during the tutorials. This module is definitely my cup of tea. Hope it'll be yours too!  
—Poh Shi Hui

### PROFESSOR'S COMMENTS

Environmental issues are very much in the public consciousness at the present time. We all know about "global warming" and other ecological problems. To tackle these issues is not solely a scientific matter. The involvement of former US Vice-President Al Gore highlights the fact that it has a political dimension. This module makes clear that at the most fundamental level, tackling environmental issues requires rethinking the assumptions we have explicitly or implicitly adopted about the moral status of animals and other living things. The aim of this module is to explore environmental issues at the deepest level. In the process, students get to learn to think more deeply about our relationship with the non-human world, and to know more about ourselves. It is philosophy at the most practical and relevant level.  
—Associate Professor Nuyen Anh Tuan



## Power, Space and Pleasure

To what extent is our understanding of our surroundings subject to questions of power?

What does it mean to live in a world where you are being watched, often without knowing?

What is the relation between space, power, and the body?

What is the relation between the forces of modernization and tradition, progress and heritage, commerce and nostalgia?



### ABOUT THE MODULE

Surveillance and voyeurism: these are terms that tell us about the intimate interconnectedness of power, space, and pleasure. They are different sides of the same coin, different but related aspects of what finding ourselves in space means. We live in a world where being watched, as well as being able to watch others, is more prevalent than ever before. Ours is a world in some respects not too far removed from that presented in the Matrix trilogy. In the films, the landscapes and cityscapes that appear to be real are entirely the products of a massive network of intelligent machines that filter data through human bodies kept in pods. While no one (well, almost no one!) would deny the hard reality of our environment, the films do raise the problem of the relation between image and reality, surveillance and power, our selves and the spaces in which we live.

To what extent is our understanding of our surroundings subject to questions of power? In which ways is the world “out there” connected with our sense of who we are, our identities? What does it mean to live in a world where you are being watched, often without knowing? What does it mean to watch others? What is the relation between space, power, and the body? We will investigate these and other questions by studying films, works of art and literature. All the time, we’ll be considering the relevance of these questions to our immediate environment: the city spaces of Singapore.

### STUDENTS’ COMMENTS

This class was my favourite in my first semester at USP. Dr Johan Geertsema challenged us to link various concepts together and selected interesting but relevant texts which made this course an enjoyable one. We got to watch movies and look at paintings—what more could you ask for? On a practical note, the most important thing I took away with me from the module was the skill of essay writing. This proved to be tremendously helpful for my other classes in NUS. For this module, we had a great class as my classmates were always helpful and engaging.  
—Png Yuxin

I thoroughly enjoyed this module. The material we covered was an exciting sampling of what USP had to offer. There were elements of pop culture (The Truman Show, 1984), theories on art appreciation, as well as architecture and land politics, especially interesting with regards to government endorsed burial “traditions” in Singapore. The multi-domain sources were fun to work with, regardless of whichever faculty or department you hail from. The essay writing skills are most enlightening (if you have ever wondered why your past GP essays or even the essays you are writing now are not reading the way you intended them to be). I think any undergraduate would benefit greatly from doing a Writing and Critical Thinking module in semester one. While there are writing modules in other themes utilising different sources and materials, well... let’s just say the interesting titular scope of power, space, and pleasure does not disappoint!  
—Jeremy Tay

### PROFESSOR’S COMMENTS

This module, like other Writing and Critical Thinking classes in the USP, attempts to offer students the chance to engage closely with fundamental concepts—in this case, power, space, and pleasure—in a rigorous way in order to write academic essays.

Perhaps the most important thing that the module aims to teach students is the ability to ask questions: questions that matter and questions that demand exploration. At the same time, students learn to come up with original ideas which they, in each of the essays they write, need to turn into a thesis which attempts to resolve the problem with which they’ve come up.

The writing process thus takes the form of a sequence: close engagement with material, posing a significant question, and coming up with a potential resolution which the student then needs to defend in the course of the essay s/he writes.

I would be delighted if students who take this module experience rigorous intellectual engagement with ideas and consequently learn how to craft persuasive arguments. To me, it is an amazing experience every time I teach this class: I get to spend a semester with students who have enquiring minds, are keen to learn, and enjoy the experience!  
—Dr Johan Geertsema



# Interpreting Consumerism

How do advertisements work? Are they in some sense coercive, or are consumers able to resist them?

What role or roles does consumption have in human society?

Is consumption intrinsically competitive?

What is coolhunting, and why are modern corporations focusing on youth culture and the youth market?



## ABOUT THE MODULE

This module approaches the question of how to write effectively through a topical investigation of the nature and value of modern consumer culture. Do the barrage of advertisements and the relentless marketing of global brands lend themselves to the satisfaction of needs or the proliferation of desires? Why are corporations increasingly turning their attention to the teenage market, and what are the implications of this shift? Does the present worldwide orientation to a consumer-driven commodity culture create new forms of freedom or more barriers to individual fulfillment?

This module will explore various aspects of a consumer society which seems to possess an increasingly global reach today. Advertising saturates the world in which we live, and we will begin by examining the nature and function of modern advertising with the aim of developing interpretive skills to enable us to decode the often complex connotative meanings within individual ads.

This exploration of advertising will move into a more specific consideration of the special relationship between youth culture and the modern corporation, one that challenges the notion of cultural authenticity in the face of near-instantaneous commercial appropriation of youth subcultures. Next, we will consider the connection between human nature and consumption, and whether consumer culture is imposed upon the public or emerges from natural human tendencies.

Finally, the module will conclude with a practical guide to developing an independent, multi-source project, where students will be asked to explore a topic and research question of their own design.

## STUDENTS' COMMENTS

Reading Veblen for the very first time and for the first lesson was unnerving; you know it's English but you cannot quite make out a coherent meaning. You began to wonder if the module was right for you but I soon realised that taking this module (as with the other Writing and Critical Thinking modules) was very gratifying indeed.

It was the first time I was taught and made to discern and articulate the main stance of any writing as well as to interpret written and visual texts for their hidden meanings. We did all these through stimulating readings as well as advertisements and videos. From these readings, we learnt the meaning and uses of goods across cultures and the history of advertising, and interpreted perfume ads which I realised were not as innocuous as they seemed.

The reading skills we acquired helped us formulate our own thesis for our arguments as well as incorporate sources to bolster our arguments in the essays. Best of all, we got to formulate a research topic which questioned a youth culture phenomenon of our choice. The research had allowed us to make more sense of our modern consumer-driven society.  
—Dazril Izrar Phua

With his patient mentoring, Dr Michael Maiwald encouraged active class participation through the sharing of ideas, and trained us to deliver our arguments in a clear and concise manner. Like other Writing and Critical Thinking modules in USP, Interpreting Consumerism is an important foundation module which teaches a student the writing fundamentals; the teacher plays a pivotal role in imparting crucial skills which a student needs to succeed in the undergraduate studies.  
—Feng Fumin

## PROFESSOR'S COMMENTS

My general goal for this module is one that I'm sure all my colleagues who teach in the writing program share: to help students who are more accustomed to being passive consumers of information make the transition to being active producers of knowledge. While this is an ambitious goal that cannot be attained by every student in a single semester, my more modest and practical aim is to introduce the students to the critical close-reading method and provide them with a strong conceptual and practical foundation for producing an academic essay. If, in addition to these goals, students come away with a greater awareness of some of the theoretical issues that consumption and consumer culture raise, then I consider it a bonus.

—Dr Michael Maiwald

# Sonic Arts and Sciences

Is sound art essentially music, or is it something new and different?

How can sound be used to enhance communication between humans, and between humans and machines?

What does sound tell us about our environment?

How does interactivity work in art and music?

What kind of new instruments do new technologies enable?

What is the historical process by which all sound entered the realm of music?

What is the difference between everyday listening and musical listening?



## ABOUT THE MODULE

A major development in the 20th century was the introduction of “all-sound” into music and other arts. The trend is one hundred years old already and nowhere near a stable mature state. Digital technology is facilitating a tremendous growth phase in how artists work and audiences encounter sonic arts. A solid theoretical foundation for sonic arts is lacking—there is little in the way of systematic education, a common language, or conceptual tools established for understanding and relating to the diversity of works being created.

The goal of this course is to learn how to listen; how to understand the world of sound that we live in, to analyse, think critically, discuss and develop ideas in writing about works of sound-based arts.

We will learn about how sounds are made in nature, and how they can be created and manipulated synthetically. We will study how sound is objectively measured as well as how it is perceived in different ways from “everyday” listening to musical cognition. In short, we will learn to become competent and active participants in the 21st century sonic arts milieu.



## STUDENTS' COMMENTS

This module is very interesting for its unconventional course content, its exposure to both the artistic and scientific fields, and its flexibility. It was fun to get to synthesise and create electro acoustic (EA) music. The hands-on interaction with this genre of music made us appreciate the careful craft of the EA composers. My main takeaway is that education isn't really compartmentalised into exclusive pockets, and the unusual nature of what we learnt here does not make it any less a part of formal learning. We begin with something we like, take it seriously, ask questions, experiment and toy around with essential concepts, and eventually emerge with a whole branch of knowledge about our interests which we never knew before. This module gets my thumbs up.

—Toh Wei Ching, Felicia

The module gives an insight to different types and modes of music, a vast deviation from what we often times think. It taught me to appreciate sounds we hear every day and to make sense of things in a larger reality of nature's harmonic sounds. This module is an amazing combination of the science and the arts.

—Harminder Singh

Sonic Arts and Sciences enlarged the palette of sounds that I would consider artistic. The challenge thrown at our conservative mindsets was: Why should artistic sound be restricted to the narrow range of chromatic tones? A new vocabulary of sonic analysis was introduced to complement the traditional musical analysis. With a computer, we could produce myriad sounds and have a visual representation in terms of sound spectrums. Coupled with Prof Lonce Wyse's enthusiasm, this module was certainly worth reading.

—Tan Weiyu, Colin

## PROFESSOR'S COMMENTS

Sonic Arts and Sciences is a particularly enjoyable course to teach because most students come with only a hint of what sonic arts might be. I have the privilege of watching ears and minds open as students learn to listen in ways they have not listened before.

One of the challenges in teaching this course is the variety of backgrounds that students bring with them. Since the course ranges from the science to the aesthetics of sound, and from critical thinking and writing to the practice of listening and working creatively with sound, each student finds some aspects of the course a breeze and other parts new and challenging. I try to help each student find a way of drawing connections between their own disciplines and the material we cover.

Sound has been pushing the boundaries that define music as it coevolves with new technologies that change the way instruments are constructed and played, the way musicians communicate when they play together, the way composers compose, and even the way audiences encounter music. These deep changing currents in music and the arts reflect those that characterise our contemporary environment at large, so I think of this course as preparing today's students with the creative thinking skills their world is sure to demand of them in the future.

—Associate Professor Lonce Wyse

# How Technologies Work

How does a hand-phone work? How did it originate? How has it influenced human interactions and society?

You, the reader, repeat the above questions for other everyday technologies.

Is it true that “technology never solves a problem without creating another”?



### ABOUT THE MODULE

In this module, the student will be taken on a guided tour of some useful everyday technological products. The main focus in the lectures will be to examine the major and essential physical principles behind the operation of each technology, and to study quantitatively how those principles constrain the operation, size or capabilities of that product.

The introduction of examples in the lectures will be organised around major domains such as fluid dynamics and electromagnetism. In each domain, a number of useful technologies will be introduced, and some features of their operations explored both qualitatively and quantitatively. Additional examples will be explored in the tutorial questions.

In some cases, a particular technology might cover many domains. For example, a discussion of the communication satellite involves the mechanics of placing it in orbit, its power source, its communication capabilities and so on.

In addition, in the reading assignments and the group project, the students will study and debate some important scientific and sociological issues relating to the development and evolution of technologies and their impact on society.



### STUDENTS' COMMENTS

Dr Rajesh Parwani, the lecturer of this module, never fails to engage the interest and attention of the class. I recall the time when we had to compete to construct a paper plane that could glide the furthest. Such an outdoor activity increased my interest in aerodynamics. Besides, when was the last time in your academic life in which you officially get a chance to fly a paper plane during class?

—Ong Zheng Wei, Edwin

This module is really interesting and pretty relaxing. Dr Rajesh Parwani helps us to apply physics theories to objects and situations we encounter in our everyday life. We also had the chance to watch interesting videos in class. Caveat: The videos are tested in the exam! He gave us a lot of room to showcase our creativity in class.

This module is worth taking!  
—Soon Qin Rong, Sharmaine

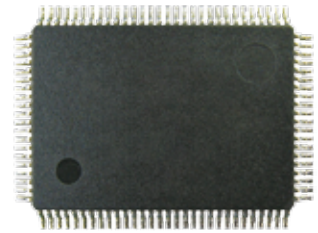
It was one of the first modules I took in USP and it set the bar for my expectations of other modules. Instead of simply lecturing in a conventional boring way, Dr Rajesh Parwani made learning fun by organising class activities like debates, talks on related topics, and outdoor activities like paper plane competition. This module really offers a breath of fresh air. Breathe in and feel the difference!

—Selina Low

### PROFESSOR'S COMMENTS

Students who hated physics in school, still seem to survive and enjoy this module. Hopefully they also learnt something.

—Dr Rajesh Parwani



# USP Interdisciplinary Modules

## FIRST-TIER MODULES

### Writing & Critical Thinking Modules

#### UWC2101H

##### Writing & Critical Thinking: Power, Space and Pleasure

For a full description, including students' and professor's comments, see page 30–31.

#### UWC2101I

##### Writing & Critical Thinking: Interpreting Consumerism

For a full description, including students' and professor's comments, see page 32–33.

#### UWC2101J

##### Writing & Critical Thinking: Sites of Tourism

This module like others in the Writing and Critical Thinking area helps students become better writers of argumentative essays. To do this, we will specifically examine the modern phenomenon that is tourism, asking questions such as: What is a tourist? Why do we become tourists? Why do we send postcards, take photographs, or collect souvenirs? Do tourists find ourselves when we go abroad? Do we lose ourselves? How are cultures packaged for tourists, and is this packaging always reductive? Such questions will help us to understand the assumptions behind tourism, and to explore issues of modernity, nationality, self and other, identity and culture.

#### UWC2101K

##### Writing & Critical Thinking: Questioning Evolution and Progress

A multidisciplinary module that examines crises and debates generated by different concepts of evolution and progress in areas of: natural science and technology, sociology and theology, history and politics, economics and literature. Evolution is examined

from Darwin's Origin of Species to the present day. We address such issues as: telling the difference between "true" science and pseudo-science; use and interpretation of "scientific" evidence; social Darwinism; the ethics and principles of "survival of the fittest" and eugenics. Lastly, the concept of progress is examined in the context of debates about Singaporean history and identity.

#### UWC2101N

##### Writing & Critical Thinking: Clothing Identities

For a full description, including students' and professor's comments, see page 18–19.

#### UWC2101P

##### Writing & Critical Thinking: News and the Public

Students will examine three aspects of the role of journalism in an ongoing debate over whether citizens have the capacity to understand and make decisions about public issues in democratic communities: (1) A news audience's role in establishing "journalistic truth"; (2) Ideological assumptions driving social commentators to different positions in this debate; and (3) News as propaganda. Through a series of smaller sequenced assignments leading up to three larger essays, students will read, respond, and question ideas generated by published writers as well as their classmates.

#### UWC2101Q

##### Writing & Critical Thinking: Civility in the World City

A topic of profound interest to philosophers, social scientists and moralists, civility sets the conditions in which differences of opinion are admitted and aired. All too often, civility is taken for granted: "just good manners." But actually, civility is one of the most social frameworks, perhaps especially in a

world city such as Singapore. This course surveys recent ruminations about civility in personal, professional and civic life to foster discussion of real-world interactions.

#### UWC2101R

##### Writing & Critical Thinking: Multidisciplinary Perspectives on "Mind"

For a full description, including students' and professor's comments, see page 20–21.

#### UWC2101S

##### Writing & Critical Thinking: Danger and National Security

This module introduces students to skills necessary for writing an academic essay. It does so by facilitating students' ability to think critically about the relationship between the concepts of "danger" and "national security". In particular, it asks if the process by which danger is identified by national communities is unquestionable and self-evident, or if they are historically contingent and mutable. In this regard, is "danger" constructed to foster national solidarity and identity? This module examines different cultural and political texts attesting to the changing nature of the national security community, and uses them as the basis of teaching the elements of essay writing.

### Humanities & Social Sciences Domain Modules

#### UAR2201

##### Cyberart

For a full description, including students' and professor's comments, see page 24–25.

#### UAR2204

##### Sonic Arts and Sciences

For a full description, including students' and professor's comments, see page 34–35.

UAR2205

#### [Narrative and Play in Interactive Media](#)

This module will look at interactive media from the perspective of narrative and play. Through hands-on experience playing, critiquing, and designing interactive systems, this module will explore how these two potentially contradictory concepts can be employed within interactive media to create meaningful and engaging experiences. Issues addressed will include: traditional and contemporary theories of narrative and storytelling; hypertext, intertextuality and non-linear narrative; interactivity and play; and recent theoretical developments in the area of game studies. Note that no experience with computer programming is required for this module.

UAR2299A

#### [Special Topics in Arts](#)

Combining the study of painting and art-writing (criticism and art-related literature), "Painting and National Identity" is a cross-disciplinary module that teaches visual literacy. It introduces fundamental concepts and terms of art history (4 Conceptual Areas of Study), through a series of 4 Case Studies of specific figures in the British and Singaporean art worlds. The main purpose of the module is to give students grounding in the fields of art history and aesthetics, by examining how national artistic identities have been formed, evaluated and questioned by painters, critics, and other strategic individuals and institutions in the art world, in Britain and Singapore-from 1769 to the present day.

UCV2201

#### [Islam & Contemporary Muslim Societies](#)

This is an introductory course to Muslim civilisation. Emphasis is on the historical, cultural and social context of the emergence and development of Islam, and the great diversity that exists in the Muslim

world. The course is divided into five sections. The first provides an introduction to the study of civilisations in general. The next set of lectures discusses the spread of Islam and the encounter between Islam and the West in the past. The third part examines the cultural dimension of Muslim civilisation. The fourth part focuses on current issues in the contemporary period. In the epilogue, the discussion centres round an approach to the study of Islam that transcends the divide between Orientalism and Occidentalism.

UCV2203

#### [Civilisations of India Contemporary Indian Communities](#)

This module is an introduction to Indian Civilisation and Culture and India as one of the core Asian traditions. In essence, the course encourages students to situate the study of India in three contexts: India as Civilisation, as Nation, and as Diaspora. The module examines the key elements of Indian "tradition" and inculcates an appreciation of the underlying diversity and the inter-religious dialogue that characterise it. It then examines India's recent historical experience as a "nation" and society and promotes an awareness of India in contemporary terms. Finally, a discussion of the Indian diaspora, with particular reference to Singapore, is taken up.

UCV2204

#### [Visual Culture in India: Art, Architecture, Cinema](#)

This course is an introduction to Indian art forms. It looks at Indian arts in the milieu of ideas and culture in which they were created and establishes connections between art and its social, political and intellectual context. A range of art forms is studied such as sculpture and painting, architecture and cinema. A thematic rather than a chronological approach is followed. Overall,

this course aims to create an appreciation of the distinct idiom which informs the visual in India. The overarching goal of this course is to encourage students to develop an appreciation of the visual culture of India.

UCV2206

#### [Chinese Thought and Culture](#)

Divided into two parts, this module introduces students to various aspects of Chinese civilisation, addressing the issues of the interactions between literati and popular culture, Great Tradition and Small Tradition, and tradition and modernity. Part One of the course examines the intellectual and cultural traditions of China. Part Two will elaborate on the proliferation of Chinese popular culture as well as study the interrelationships of literature, music, theatre and cinema. Three key issues will be addressed: tradition and modernity, text and context, and intellectual and material life. Students are encouraged to re-think the interactions between traditional and modern culture, and the sociality and materiality of Chinese art and thought.

UCV2207

#### [The Politics of Heritage](#)

The module focuses on the relationship between cultural heritage and contemporary political and social situations. It is designed to provide students with opportunities to explore a range of theoretical and intellectual issues from the fields of anthropology, geography and archaeology on cultural heritage and the roles that place and material culture play within the enactment of social practices. It draws upon historical and contemporary case studies which provide real world problems for engaging with the theoretical components of the module. There is an emphasis upon debate, discussion, and problem oriented individual and group projects.

UHB2201

### [Human Relations](#)

For a full description, including students' and professor's comments, see page 26–27.

UHB2204

### [Virtue and Leadership](#)

This module will examine the Biblical, Confucian, Socratic, and Modern or Machiavellian conceptions of the virtuous leader. The module is aimed at exposing students to the most representative texts of each tradition in order to gain depth of understanding of the competing conceptions of leadership, and their underlying assumptions about the nature of human beings. Students will also be expected to interrogate each tradition with a view to discovering its relevance to contemporary life.

ULT2209

### [Analysing Poetry](#)

This course aims to provide students with an introduction to reading strategies that can unlock the incredible world of poetry. It will introduce students to the study of poetry, and provide them with not only practical tools for reading, understanding, and making compelling written arguments about individual poems, but also with a heightened theoretical sense of what constitutes poetic language and separates it from everyday speech and writing. Students will have a heightened understanding of how poetic language operates and a better sense of how to produce a written argument about individual poems. In addition, they will learn how poetry intersects with a variety of other disciplines.

ULT2210

### [The Subject of Reading](#)

Where does meaning come from? Some people think that it resides in the text; some suggest that it originates from the author;

others argue that meaning is created by the reader. This module examines the possibilities and problems of the last answer. To what extent does the reader of a text determine its meaning? Is there a universal, objective reader, or are readers historically specific, biased and always “subjects”? If a reader constructs the text, can the text in turn construct the reader? We will think about these questions by operating on several levels: (1) by discussing literature and films that thematise reading; (2) by assessing how thinkers have debated the reader's role; and (3) by examining our own processes of reading.

ULT2398B

### [Topics in Lit. 1: Literary Nationalisms](#)

Some people low-rate creativity such as poetry, film and ‘pop’ songs. “That’s just for fun,” they say, “no need to get all serious about it.” This module challenges that position by suggesting an under-appreciated social function of stories and images crafted to develop ideas of what it means to be, or belong to, a nation-state. Not a module in literary interpretation or a Political Science seminar, this course fosters interdisciplinary understanding of an intersection between politics and creativity, nation-building and art.

ULT2298C

### [Topics in Lit. 1: Exploring Modernism](#)

The artistic innovations and intellectual responses to modernity presented by European and American Modernisation remain powerful, ambivalent, and challenging artefacts worthy of close study even today. By examining issues such as the catastrophe of World War I, the impact of urban life on the human psyche, and the rise of a mass culture, this module aims to question the narrowly literary and artistic bases of previous conceptions of Modernism, and to offer instead a more interdisciplinary study that

grounds Modernism in the material culture and reality of 19th and early 20th century European and American life.

ULT2299A

### [Topics in Lit. 2: Understanding Irony](#)

This course aims to provide students with an introduction to irony, a central term in literary and cultural studies. Through close engagement with a wide variety of texts which deploy or analyse irony, students will reach a better understanding of the role irony plays not only in literature, but also in society more generally. As the texts are drawn from different historical times and geographical locations, students will, moreover, get a sense of the widespread use of irony in culture and society. Students will be encouraged to consider critically the way in which such forms function in texts and in society.

UPI2201

### [Negotiating Moral Issues](#)

This module is designed to fine-tune the skills that are important in clearly recognising what the individual's value orientation is, and in understanding how such an orientation might apply to issues of the contemporary moral landscape. As such, the module touches on issues of applied ethics that have become the subject of interest in recent times. What it seeks to do is to enhance the students' ability to think clearly in their search for reasonable conclusions and to articulate their reasons for the positions that they might hold on a variety of moral issues. In particular, the focus will be on moral issues arising from recent advances in biomedical technology.

UPI2202

### [The Quest for Moral Excellence](#)

The module will introduce to the student the key concepts relating to the idea of morality and the major theories concerning

how to live morally. The student will have an understanding of how philosophers approach the question of morality, how they reach conclusions about moral matters and how they argue for them. The module will provide the student with resources for reflecting on his or her own moral situations and for responding to them in a way that is morally appropriate. The module aims to contribute to an educational programme for a well-rounded graduate who is intelligent not just logically and emotionally but also morally.

UPI2204

#### [Arguing Intellectual and Social Change](#)

Neil Postman and Charles Weingartner opine, "One way of looking at the history of the human group is that it has been a continuing struggle against the veneration of 'crap'" (Teaching as a Subversive Activity, 16). This module explores how this struggle is waged through argumentation in scholarship on a variety of core ideas that we construct to explain our similarities and differences as human beings like sex, God, and power. The module focuses on learning how scholars use argument to advance core ideas to people whose agreement and cooperation they seek to make more sense of the world.

UPI2205

#### [Ethics and the Environment](#)

For a full description, including students' and professor's comments, see page 28–29.

USE2301

#### [Economic Policy Analysis](#)

The objective of this module is to introduce students to the idea of thinking economically through the process of learning the basic economic principles and applying them to a spectrum of economic questions and policy issues. We begin with the five key principles

of economic analysis, which are the principle of opportunity cost, the marginal principle, the principle of diminishing returns, the spillover principle and the reality principle. The module will then examine some of the major economic policy challenges of the twenty first century, drawing primarily from the experience of Singapore in the global economy. Some of the current economic concerns include ageing and financing social security and health care, deregulation and privatisation, free trade agreements, and economic competitiveness.

USE2302

#### [Democratic Possibilities in Singapore](#)

This module is aimed at helping students make sense of possible answers to questions like "Is Singapore democratic?" or "How democratic is Singapore?" or "How democratic should Singapore be(come)?" or "Will Singapore (ever) become democratic/more democratic?" Students will engage critically with (1) the big ideas about human actions, interactions, purposes, and possibilities; (2) the "really existing" world encountered mostly through mass mediated accounts of events, actions, and reactions; and (3) intuitions that help generate opinions about themselves, others, and the state of the world around them. Students will acquire critical vocabularies for reflecting upon their own social and political conditions.

USE2304

#### [Singapore: The Making of a Nation](#)

The course serves as an introduction to history in general and the history of modern Singapore in particular. It adopts a wide-angled approach to an understanding of national heritage, history and identity, with due attention to both international and internal developments which have together shaped present-day Singapore. These developments include the formation of a

colonial plural society under British rule, the impact of the Japanese Occupation, the rise of nationalism and political contestation, statehood, merger with and separation from Malaysia, the politics and economics of survival, and the governance of an independent city-state.

USE2305

#### [Southeast Asia: The Making of a Region](#)

In the aftermath of colonialism, a host of decolonising experiences produced different successor regimes—from democratic to semi-authoritarian to communist. This module focuses on the geographical basis, historical background, and contemporary birthing of regionalism, amidst such diversity. It aims to introduce students to the political, strategic and economic aspects of regional cooperation, particularly through ASEAN. It also encourages them to consider the cumulative impact of such cooperation on the formation of a Southeast Asian regional identity, and the prospect of an indigenous collective political imagination bridging the diverse communities.

USE2206

#### [Emerging Global Politics](#)

For a long time, the discipline of international relations (IR) has dominated the way people thought about world political events. This module introduces students to critical ways of thinking about traditional IR, and how such critiques pave the way for the study of global politics, which is usually on the wider array of transnational actors most of which are marginalised like refugees, sweatshop workers and child soldiers. The course examines the way marginalised transnational actors give rise to cultures of resistance through refugee poetry, activism, art, music, and film, in order to demonstrate how global politics can be mutually reconstructed from both "top-down" and "bottom-up" processes.

USE2207

### Entrepreneurship and Society

The goal of this course is to provide students with an overarching view of intellectual thought on the subject of entrepreneurship. This course examines the social, economic, cultural, ethnic, political, technological, organisational, and geographical conditions that give rise to new enterprises, and the societal consequences of the entrepreneurial activities. This course reviews entrepreneurship from various levels of analysis: the individual, organisational, industrial, organisation field, and global levels. We first explore how, when, and where new businesses are likely to form, and what affects their relative chance of success. Then we investigate the societal consequences of entrepreneurial activities, and how diverse organisations affect social change in communities. The course encourages analytical integration of theory and its application to understanding real world events.

USE2208

### Modern Cities: Problems and Perspectives

This module will take students through a critical review of modern planning models/theories. Major topics: urbanisation; institutional analysis of planning models; development of urban settlements; market and sociological perspectives of urban settlements; plan-making and planning implementation; property rights approach in the issue of state versus market.

### Sciences & Technologies Domain Modules

UIT2201

### Computer Science & the I.T. Revolution

We live in a world where technological advances and technology related decisions constantly impact society in many different ways. Being able to critically assess

technological claims helps one make better judgments that could significantly affect our world. This module looks at central ideas and major technological advances in the field of computer science, and how these developments have shaped modern society through the I.T. revolution. Although the specific subject matter deals with computer science and information technology, the module objectives are more general in nature. We aim to develop in students, a balanced perspective of science, technology and their impact on modern society.

UIT2203

### Digital Information Systems & Society

This course will teach students about digital information systems. Students taking this course will be able to appreciate some thought processes underpinning the art of engineering. The importance of engineering estimates and parameters will be illustrated through many simple calculations. Engineers often accept accurate approximations, while pure scientists often do not. Students will gain basic literacy skills in the art of information engineering, will be better prepared to assess technological claims, and therefore have the potential to make informed decisions in an increasingly technocratic and knowledge-based society.

UIT2204

### Foundations of Engineering

The course will enable participants to better understand the world of engineering, to gain a better perspective of engineering, a perspective from which participants may deduce that the technology of engineering brings the disciplines of science, mathematics, social sciences and humanities and medicine together. No knowledge of engineering is required to understand and benefit from the course. The course will interest and benefit students of all disciplines. It is hoped that this course will enable students

to understand and appreciate the thought processes behind the practice of engineering—engineers use science, mathematics, computers, realistic estimates and common sense to achieve good results.

UIT2205

### Quantum Computing & Information

One of the most recent advances in the area of computer science and information theory is the emergence of a new notion, the concept of quantum information. The module aims to provide an introduction to the field of quantum computing. While very much a technology of the future, the module will examine some of the possibilities that the quantum world offers in advancing the capabilities of computers and how our notion of information has evolved. Essentially the module showcases, two major paradigm shifts; one from classical physics to quantum physics and the other from the standard Turing principle in computer science to its modern quantum counterpart.

ULS2201

### The Biomolecular Revolution

Modern life science is an exciting, expanding arena due to the rapid advent in genetics, cell and molecular biology. This module is designed to provide an opportunity for students to gain insights into new frontiers of the biomolecular revolution, e.g. human genome project and therapeutic cloning. The principle of genetic engineering and its applications in biomedicine will be discussed, with the emphasis of their impacts on the issues of interest to the public. Particularly, the module aims to help students develop a fact-based understanding of potential benefits and risks associated with the biomolecular revolution and increase the awareness of the ethical, legal, and social issues that may arise from the revolution.

ULS2202

#### Evolution

For a full description, including students' and professor's comments, see page 22–23.

ULS2203

#### The Brain & Cognition

The human brain is a fascinating biophysical and biochemical machinery comprising the molecular constituents of nerve cells and other biological blocks. Amazingly, such quantifiable entities assembly has the power to generate a multitude array of traits that characterise the human behaviour and the mind. This module aims to showcase and highlight the intellectual challenges and excitement, together with the complexity and uncertainties involved in brain functions and the cognition and to stimulate the student's thinking process along the journey of brain exploration. The main goal is to understand the interplay of information processes of the brain and how they can affect awareness and perception of the world.

ULS2204

#### Biodiversity and Conservation Biology

Biodiversity conservation became one of the important environmental themes of global concern after the UN Conference on Environment and Development at Rio de Janeiro in 1992. The realisation that human development has to complement and not to compete with biological conservation ultimately developed into the famous Agenda 21. This protocol bounds all the nations into accepting various responsibilities towards conservation of nature and natural resources. This module is aimed at imparting knowledge to students to help them understand and appreciate various concepts and issues concerning biodiversity and conservation at local, regional and global levels.

ULS2205

#### Biosemiotics: Signs in Nature

Sign processes permeate the lives of all creatures in the natural world. Sign use makes possible not only such higher-order human abilities as spoken language and written texts, but also underlies such communicative animal behaviour as the calls and songs of birds and cetaceans; the pheromone trails of insect colony organisation and interaction; the mating, territorial, and hierarchical display behaviour in mammals; as well as the deceptive scents, textures, movements and coloration of a wide variety of symbiotically interacting insects, animals and plants. This course will introduce you to the recently developed field of biosemiotics—the interdisciplinary study of sign processes as they occur variously across the biological spectrum. Looking at the close relation between living systems and their sign systems (hence the term: bio-semiotics), this still-emerging discipline seeks to trace the evolutionary development of sign-mediated ways of being in the world from its beginnings in the transmission of information across single cells to its most complicated realisation in the abstract forms of human thought.

UNL2201

#### Space, Time and Matter

In this module, students examine the concepts of space and time, mass and energy, in relation to the description of physical reality. It discusses the evolution of our understanding of these fundamental concepts from Aristotle to Einstein, and begins with commonsensical, intuitive ideas of space, time and gravity, and demonstrates how these had to be radically revised over a period of centuries in order to correctly describe nature. The module gradually leads the student to the modern viewpoint of Einsteinian relativity in which space, time and matter are not only intimately

related, but in a sense actually unified. We hope to impart a critical appreciation of the concepts discussed as well as the ability to perform simple calculations that quantitatively explore the implications of these profound ideas.

UNL2203

#### The Physical Universe: Clues & Evidence

This module examines the coherent “world-view” provided by modern physics of the Universe itself. It explores the origin and early evolution of the physical Universe in the light of available experimental evidence from astronomy as well as from ultra-microscopic or fundamental particle physics. It seeks to enable the student to engage critically with the relevant concepts, theories and interpretation of experimental data. A significant theme of this course will be a study of the “modes of inquiry” within physics, and in particular, the subtle interplay between theory and experiment.

UNL2204

#### The Birth, Life and Death of Stars

This module seeks to explore some of the layers through which man has viewed and sought to explain the physical universe and is primarily concerned with the observational and scientific study of stars: how they are formed, categorised, and their subsequent evolution according to the laws of modern physics. The module is geared towards a quantitative approach to data arising out of observational astronomy as well as organising this data in the context of known theoretical physics. Designed to interest those with an inquiring turn of mind about the physical world around them, students will have the opportunity of some hands-on experience of practical observational astronomy with reflecting telescopes.

## UNL2205

### [The Ubiquitous Wave](#)

Although diverse in scale and nature, the dynamics of tsunamis, the formation and breaking of chemical bonds, the development of stripes on a zebra, the transmission of nerve impulses, and the precession of binary pulsars are natural phenomena that can be described and understood in terms of waves. We will discuss the nature of waves by starting with the idea that a wave is simply a disturbance that propagates in a medium via the interaction of its parts. Using the above and other phenomena, we examine what we can learn about matter from the various kinds of waves. We will also trace the important steps in scientific thinking that have taken the idea of a wave from a mere description of empirical observations to the abstract but powerfully predictive concept of a quantum wave. (This module is subject to the approval of the Board of Undergraduate Studies at the time of print.)

## UPC2201

### [Chemicals and Us](#)

The main goal of course is to describe chemical technology as one of the foundations of our global economy. In this course, a variety of chemical technologies (i.e., products, processes and reactors) will be presented. The trans-disciplinary aspects of chemical technology will be stressed, especially since chemical technology is based on fundamental laws and approaches taken from math and physical sciences. The responsibility of the chemical engineer for the global and regional environment will be explained.

## UPC2203

### [How Technologies Work](#)

For a full description, including Students' and Professor's comments, see page 36–37.

## UPC2206

### [Nanoscale Science and Technology](#)

Nanotechnology is a relatively new field, and there is still controversy over its future potential. This module aims to acquaint students with the current topics in nanoscience, while engaging them in a dialogue on future possibilities, as well as the social and environmental implications of nanotechnology. Students will first be introduced to fundamentals of the nanoscale and learn to appreciate what the world is like when things are shrunk to this scale. They will then explore the special tools and fabrication methods required and have some hands-on experience with nano-instrumentation in a group project.

## UQR2202

### [Uncertainty](#)

The element of uncertainty permeates many facets of nature and life. For instance, we may not be certain about the amount of rainfall in the next twelve months or the level of a stock index on the next day or when a radioactive compound may disintegrate. The module aims to motivate the concepts of quantitative analysis through examples gleaned from encounters in daily life, scientific endeavours, public policies and economic planning. Besides acquiring the proficiency to use quantitative data in making cogent and logical arguments and inference, it is hoped that the students would gain an appreciation of the probabilistic underpinnings that provide a window to the fascinating microcosm of nature's laws.

## UQR2203

### [Mathematical Ideas: Their Formation & Evolution](#)

In this module, the students will study some of the major developments in the history of mathematics, with the aim of achieving a better understanding and appreciation of

the nature of mathematics and mathematical thinking. The emphasis will be on the development and evolution of ideas rather than technicalities. The module centres on three of the “defining” characteristics of mathematics, namely, the axiomatic-deductive methodology, the logical rigor, and the use of symbols. These will be examined critically via the study of topics such as Euclidean and non-Euclidean geometry, the nature of mathematical proofs, the concepts of algorithm, iteration and approximation, and the rudiments of abstract algebra.

## UQR2205

### [Why Calculus?](#)

The goal of the course is to show why calculus has served as the principal quantitative language of science for more than three hundred years. How did Newton and Leibniz transform a bag of tricks into a powerful tool for both mathematics and science? Why is calculus so useful in geometry, physics, probability and economics? Why are mathematicians so concerned with rigor in calculus? Since calculus is about calculating, what is the relationship between calculus and computers? What is the relationship between calculus and new topics like chaos and non linearity?

## UQR2206

### [Simplicity](#)

In this course the student will explore the world through the eyes of a physicist: Relatively simple and understandable underlying causes are believed to be responsible for even the most complex situations. The complexity usually comes not from the basic rules but from the size of the system (degrees of freedom). Students will see how simple rules, principles, concepts and methodologies can be applied to study successively more sophisticated and interesting problems ranging from physics to other fields such as chemistry, biology, ecology

and sociology.

#### UQR2207

##### Decision Making

The Decision Making module will focus on data-analytic and microeconomic approaches to decision-making, with as little use of formulas as practicable. Rather, grasping of broad concepts, and where appropriate, use of information technology to arrive at decisions, will be emphasised. Extensive use will be made of Microsoft Excel in illustrating how to distil intelligence for decisions making. A very quick introduction to Excel will be conducted during the first two tutorials. It will sometimes be desirable to bring a fully-charged notebook computer to lecture or tutorial. The module emphasises the assimilation of decision-making concepts, their applications in management as well as their limitations. Students will gain exposure to decision and risk analyses, financial modelling, linear and nonlinear optimisation tools, effective extraction and communication of information from data, deductive inference, margins of error, hypotheses testing, comparison of group averages, multi-linear regression, and forecast modelling. Pre-configured Microsoft Excel spreadsheets will be promoted as practical analytical tools. A major component will be the persuasive and captivating presentation of analytical results by students.

#### UQR2208

##### Genesis of the Computing Machine

This module introduces the underlying concepts of the mathematical works and ideas on which the modern computer is based. It traces the evolution of these concepts during the past centuries. The module gives an outline of the most important philosophical and mathematical ideas, works of Leibnitz, Boole, Cantor, Hilbert, Frege, Godel, Turing and Von Neumann, that laid the foundations of computer science.

#### UQR2209

##### Game Theory

This module is an introduction to game theory and its many applications. It aims to provide an overview of non-cooperative and cooperative games through the analysis of strategic interactions in conflict situations such as market competition, pricing policy, international trade, cartel enforcement, auctions, law, bargaining, evolutionary game theory, rendezvous search to name a few. Throughout the module, limitations of the models will also be discussed. Finally, attempts will be made to close the gap between theory and practice. This module will be exploratory in nature and no rigorous mathematics will be required.

#### UQR2310

##### Transportation Planning in Singapore

Transportation has always played an important role in the growth of Singapore. This module uses the practice of transportation planning as an example of the interplay between technology and development in a society. Students learn to appreciate the interaction between transportation and national development, generate generic and specific solutions to local transportation problems, and evaluate the performance of transportation schemes. Topics covered are: Development of transportation in Singapore, transportation system planning and evaluation of transportation schemes.

##### University Scholars Seminar Module

#### USS2105

##### University Scholars Seminar

This module requires students to reflect on and further develop the intellectual dimension of their academic, professional or social interests. It revolves around a series of talks given by invited speakers, organised into three strands: (i) the academic strand, which introduces various

areas and modes of academic inquiry; (ii) the professional strand, which introduces various professions and looks into the nature of the knowledge society; (iii) the social strand, which examines an individual's intellectual and social engagement with the increasingly interdependent world. Facilitated by the instructors, students will engage in discussions in small groups. The focus of these discussions need not be on the content of the talks per se, but on the process of intellectual inquiry; and the aim is not to find answers per se, but to ask (good and feasible) questions. The module reinforces skills learnt in Writing and Critical Thinking, and allows students to apply them to a diverse range of issues. Assessed on a(n) Satisfactory/Unsatisfactory basis, the 4 MC module is completed in two semesters (student's Sem 2 & 3). Students are required to attend at least ten talks (at least five per semester), participate actively in discussion, and submit three short response papers and two longer papers. Students will have to perform satisfactory in each of these assessment modes. No partial MC will be given. Registration for this one-year long module will be opened for a new intake of first-year students only in Semester 2 of each academic year.

##### ADVANCED COURSE-BASED MODULES

#### USP3501

##### The Problematic Concept of "Gender"

What is "gender"? What kinds of definitions have been advanced or implied for this perplexing word? How have thinkers—in fields as diverse as anthropology, history, literature, philosophy, psychology, science studies, and sociology—helped to define and even invent this category that we call "gender"? How have these definitions changed the way we think? What kinds of problems have these definitions created? In this module, we will analyse various mo-

ments in intellectual history when there has been a struggle over the meaning of “gender” (and seemingly related terms like “sex” and “sexuality”) in order to understand the term’s function as a category of analysis.

USP3502

#### Time

The disciplines of Physics, Literature and History formulate accounts of “time” that both compete and converge. Hence, this module involves multidisciplinary and interdisciplinary study of the different languages to codify time, and the debate between the beliefs that physics provides some absolute, universal theory of time—or that time is a culturally specific and linguistic construct. Major topics: - Concepts of physical time since antiquity; Newtonian time; relativity and the Einsteinian revolutions; spacetime; time travel - Southeast Asian time. Time as language, construct, category of ethno-historical analysis; mediator of colonialism – Science fiction; historical novels; narratology; literary memory and prophecy.

UAS3005

#### Civil Society: Theory and Practice

This module explores the familiar concept of civil society through theoretical concerns and approaches that arise out of disciplines such as history, politics, law, sociology, anthropology, and cultural and literary studies. The module also focuses on concrete issues including women, the environment, and the arts. Students also go on a ten-week project attachment to a civil society organisation, to critically reflect on the interconnections between practical experiences and the theoretical exposure gained in class.

UAS3006

#### Evolutionary Psychology

The aim of this course is to give students an understanding of evolutionary theory and its

implications for psychological theory. The idea that behaviour, like physical structure, is evolved in response to selection pressures carries implications for understanding phenomena in a range of diverse fields such as logical reasoning, altruism, competition, mate selection, aggressive behaviour, attachment and child maltreatment. Pitfalls and limitations in the speculative use of evolutionary explanations will be considered, and the implications of evolutionary psychology for wider social issues explored.

UBZ3001

#### Conflict Resolution: Negotiation and Mediation

Conflict resolution is a life skill that enables learning and collaboration. The course is based on the experiential workshops on Negotiation conducted at the Programme on Negotiation at Harvard Law School and Mediation programmes by LEADR in Australia. Theories will be introduced through experiential exercises followed by short debriefs and discussions, and journal writing. Participants are then expected to apply and demonstrate the acquired knowledge through practice and exercises. The course enhances (1) negotiation and conflict resolution, (2) interpersonal, (3) independent learning, and (4) team skills. Participants learn to value the diverse talents (and weaknesses) of team mates and learn to capitalise on each other’s unique strength to achieve more than any one individual can. The course is open to all who genuinely seek self-development.

UBZ4001

#### Management of Intellectual Property

The main objective of this course is to equip students with the knowledge of the intellectual property rights (IPRs) protection system, its significance as a tool for wealth and value creation in a knowledge-based economy and the legal, economic and

management challenges presented to the IPRs protection system as a result of advancement in science and technology. The uniqueness of this course lies in the exposition of multi-faceted issues in the study of intellectual property rights: legal, economic & management, ethical and public policies issues. The case method will be adopted as the mode of instruction.

USC2001

#### Discovering Science 1—Energy

Energy is a physical concept that provides a measure of a system’s ability or capacity to do work on another system. More importantly, the notion of energy conversion is an important preoccupation of many disciplines in the sciences. Topics include the discussion of what energy is; energy in the fields, the quantum view of energy; heat thermodynamics; statistical view of thermodynamics; applications of thermodynamic concepts to chemical systems, chemical cycles and evolution; technological aspects; applications in chemistry, Biology and Material Science. The module aims to introduce participants to some of the broad areas of contemporary scientific concerns through an interdisciplinary approach.

USC3001

#### Complexity

The field of study called “Complexity” concerns itself with obtaining common global perspectives of systems, consisting of very many interacting constituents, which cannot be easily described by a few effective degrees of freedom. This course allows the student to obtain a global perspective of diverse interesting complex systems in the biological, physical and social sciences by introducing some of the common concepts (e.g. emergent laws, entropy), principles (e.g. universality, criticality) and tools (e.g. statistical mechanics and computer simulations) used for their study. That is,

the emphasis will be more on studying and characterising generic features of different systems rather than a detailed study and solution of any particular system.

USC3002

#### [Picturing the World through Mathematics](#)

This course examines mathematical models for understanding physical and social phenomena. Each year it has covered a different topic: convex optimisation, dynamical systems, combinatorial topology, and oscillations and waves. In an attempt to reach out to students in the life and social sciences, as well as to students in the physical sciences and engineering, the topic for AY2007/08 will be: The Logic of Evolution—Mathematical Models of Adaptation from Darwin to Dawkins. Although students are not required to have specific mathematics expertise, significant mathematical maturity will be required to analyse the dynamics of population genetics, the game theoretic basis for evolutionarily stable strategies, kin versus group selection, and information-based theories for the origin of life, sexual reproduction, and the emergence of consciousness. Students are required to read a large amount of original source materials (books and research articles), conduct computer simulations, and write and present a report.

USC3004

#### [New Paradigms in Information Theory](#)

The module aims to provide students with a pedagogical introduction to the concept of information and how it has evolved. In spite of its cross-disciplinary nature, the rate of progress in various fields has brought on concepts that superficially appear unrelated. With an emphasis on the fundamental principles, the course will provide a broad overview on how the main ideas have been used in various disciplines and how the underlying principles are universally similar.

UEG4001

#### [Broadband Internetworking](#)

We are in the midst of an information revolution, one that depends critically on three technologies: (i) internet, (ii) wireless communications, and (iii) optical networking. In this module, you will learn the skills to understand these three technologies, analyse the performance of different algorithms and protocols and recognise their application to real world problems. The course covers three important areas in the roll out of a broadband content delivery network. It includes technologies for terabit optical networking, third generation wireless systems (3G) and provision of Quality of Service (QoS) in the Internet.

#### [ADVANCED MULTIDISCIPLINARY SEMINAR MODULES](#)

UMS3205A

#### [USP Advanced Multidisciplinary Seminar: Virtual Reality and Immersive Technology](#)

When we talk about Virtual Reality (VR), we mostly refer to a digital world inside the computer which mimics or extends the real audio-visual world. Immersive Visualisation projection technology now “wraps” this digital world around us making us believe that we have “entered” the world rather than watching it from the outside. This effect is used in applications across many disciplines for instance in virtual museums, surgery theatres, games or car manufacturing labs where users can explore different designs or interact and collaborate with each other in a new way. But what constitutes this “new way” and what changes does it bring to various disciplines? Is it technology or user driven? What is and what should rather be developed? How is it done, which hard/and software is involved? These are some questions that we address to develop a theoretical and practical expertise, necessary to contribute to Singapore’s

effort to become an international hub for Interactive Digital Media.

UMS3205B

#### [USP Advanced Multidisciplinary Seminar: Vertical Cities and Skyscrapers](#)

Skyscraper is a topical issue of international importance especially post-Sep 11 2001. This module aims to offer students insight into the theory and issues concerning planning, development and liveability of vertical cities and skyscrapers. Through interdisciplinary seminars, case studies and site visits, students will explore the multi-dimensionality of this urban form and experience. Topics discussed include concepts and models of super high-rise and vertical cities; changing images and discourses of high-rise; current rethinking and advocacy for high-rise in sustainable development; relationship and impact of high-rise [technology] on the city and urban population.

The listing of USP modules in this section is intended to showcase USP’s interdisciplinarity and the range of USP modules. Please note that not every USP module is available in every semester. Further details such as number of credits, pre-requisites and workload may be obtained from [nus.edu.sg/registrar/nusbuletin/modulesearch.html](http://nus.edu.sg/registrar/nusbuletin/modulesearch.html).



# Independent Study Modules

USP students enjoy the freedom to undertake more than two Independent Study Modules (ISMs), and the freedom to undertake ISMs outside one's home faculty, in line with USP's ethos to foster critical thinking and interdisciplinary inquiry.

In this section, four USP students showcase what they have achieved with the additional latitude provided by USP for their ISMs.

# Independent Study Modules

With Independent Study Modules (ISMs), USP students are free to determine a personal course of study at a higher level and in greater depth than standard course requirements under the guidance of a faculty member. Compared to non-USP students, USP students enjoy the following additional latitude:

- Freedom to embark on an ISM outside one's major;
- Freedom to embark on ISMs that cross disciplinary and/or faculty boundaries;
- Freedom to undertake more than two ISMs; and
- Freedom to undertake an ISM in years other than the final year.

Here are some examples of what USP students have accomplished with these extra freedoms with USP.

## Farhan B Ali ('08)

PSYCHOLOGY + USP

*Was your ISM made possible because you were a USP student?*

Farhan: Yes. Being in USP gave me access to faculty members who shared the same interests as I did. Being a USP student also gave me greater flexibility in my home faculty to pursue my interests, especially pursuing cross-faculty and interdisciplinary research (here I am, a Psychology major researching primate molecular evolution and comparative primate studies), something which might have been difficult had I not been a USP student.

However, with such flexibility and independence came the challenging task of fashioning a coherent research program. In this aspect, I owe much to my ISM supervisor Professor Rudolf Meier in NUS Department of Biological Sciences who supported and guided me. USP's unique Advanced Modules planning system also helped me by challenging me to think through my research objectives, to articulate them in writing, to identify potential supervisors, and to be clear about other important aspects of planning for a research.

*Did any USP module inspire or motivate you in this ISM?*

Farhan: All of the USP modules were inspirational in the wider intellectual sense. They trained me to look at interesting phenomena from multiple angles. It is as if a USP class is a room full of mirrors where things bounce off each other and you see views within views within views.

It was also particularly exciting being able to present both my ISMs on primates to my USP peers at the USP Academic Festivals in 2005 and 2006. It was one of the

highlights of my time in USP. Nothing beats being able to share your passion with your peers and learning from them. I see that aspect of communicating my research an integral part of the ISM experience.

*Did any USP module give you specific knowledge or experience that made your work in the ISM possible?*

Farhan: The module, Evolution, in particular exposed me to the basis for evolution as well as the wide-ranging implications it has. I was also introduced very early to the more technical aspects of evolutionary biology through lab sessions in this USP module then taught by Professor Rudolf Meier. But the value of the USP First-Tier modules, including Evolution, was not so much the technical skills gained as the exposure to a scheme of things necessary for intellectual development.

Discovering my interests in the evolution of brain and behaviour early in freshman year and being able to pursue such multidisciplinary interests across faculties while in USP has made my education in NUS more exciting. People just sit up when I tell them what I do in USP and NUS. I am continuing the ISM for my honours thesis and hope to present some of my findings overseas with the help of USP's student research funding.

My ISM work would not have been possible without the support of Professor Rudolf Meier, NUS's Evolutionary Biology Laboratory, USP, The Singapore Zoological Gardens and other collaborators, and I hope to pursue graduate studies in the area of brain and behavioural evolution in humans and other animals.

### Farhan's ISM

#### Unpacking the Big Brains of Homo sapiens: A Multidisciplinary Research ISM

Anyone who has ever come close to a baby would immediately notice three interesting things: babies are universally cute, they have huge heads perched atop a rather emasculate body, and they rather quickly attain wondrous abilities in socio-cognitive domains such as language and emotions. These observations were the starting points in this multidisciplinary research ISM I undertook.

Using tools and techniques from molecular biology and bioinformatics, and combining them with data from primatology and comparative psychology, I investigated why and how it was that humans have such big brains encased in such big heads. A large brain is widely believed to be partially responsible for why humans have superior cognitive abilities to our evolutionary relatives such as apes and monkeys. The evolution of large brains is even more intriguing given that our nearest relatives—the chimpanzees—are 99% genetically identical to humans.

The ISM first addressed a major weakness of current studies in genetic basis of brain size and cognition. Most studies focused too narrowly on humans and chimpanzees, hence I collected genetic and evolutionary data on those primate species that had so far been ignored, and then used various statistical and molecular evolutionary models to understand how brain size and genes evolved and how the evolution of both may correlate.

One of my findings is that brain size is an evolutionarily rather plastic trait with many primate species showing both increases and decreases in size. I also found some

tentative evidence that a gene previously characterised only in humans might have played a role in the control of the evolution of brain size in primates in general.

Says Professor Rudolf Meier of NUS Department of Biological Sciences, Farhan's supervisor for this multidisciplinary project: "Farhan's work is exceptional in that he is able to draw on his knowledge from the psychological and biological literature to ask novel questions."

#### What Farhan achieved with his ISM

Farhan went on to present this ISM and other related papers at international conferences such as the U21 Undergraduate Research Conference (USA), Biology in Asia Conference (Singapore), and the Willi Hennig Society XXIV Meeting (Norway) where he won the Don Rosen Award. Together with his supervisor Professor Rudolf Meier, they jointly published an evolutionary biology article The newest kid in the parsimony block: TNT in the journal *Systematic Entomology*, 30, 179-182.

For his multidisciplinary research, Farhan was one of the winners of the inaugural NUS Outstanding Undergraduate Researcher Prize 2007. He also received a highly competitive research grant from the prestigious Sigma Xi Grant-in-Aid of Research programme in the United States for his primate project.

## Ng Nianlong ('08)

SOCIOLOGY + USP

Was your ISM made possible because you were a USP student?

Nianlong: Yes, being a USP student made doing this ISM possible. Only in USP are students able to do ISMs prior to their Honours year. This is because as a USP student pursuing the "Academic Inquiry" option, I was expected to complete (as a minimum) two ISMs and two Course-Based Modules to fulfill the USP Advanced Modules requirements. For example, the Faculty of Arts and Social Sciences which I hail from provides the option for its students to do ISMs, usually only as an alternative to writing an Honours Thesis in the final year of study. On the other hand, USP students like me may begin working on ISMs as early as their first year.

By doing this ISM, I could exercise my own initiative in:

1. formulating a credible research topic;
2. expanding on academic strengths that I possess—namely, ethnographic interviews and participant observation; and
3. putting into practice the knowledge I had gained from junior courses taken in the USP such as the essential USP Writing and Critical Thinking module and the USP module Unraveling Riddles of Culture.

Did any USP module inspire or motivate you in this ISM?

Nianlong: Certainly! My interest in the academic study of anthropology was fuelled after taking the USP First-Tier module Unraveling Riddles of Culture: Thinking like an Anthropologist offered by Dr Stephanie Rupp in 2005. Having done the module in my first year in the USP, I was able to gain a perspective into investigative anthropology. I was provoked to consider whether

religions in Singapore merely appear to be in a state of harmonious tolerance with one another, or if they genuinely were undergoing mixing of practices and even beliefs due to cultural amalgamation. Hence, in the semester that followed, I decided to embark on my ISM, *Religious Syncretism: Manipulating the Supernatural in Singapore*.

[Did any USP module give you specific knowledge or experience that made your work in the ISM possible?](#)

Nianlong: After doing Dr Rupp's module, I took a greater interest toward anthropology and the study of diverse cultures, religions, and social patterns, all of which can (and do) manifest themselves in a single society such as Singapore. In particular, I learnt that Clifford Geertz's concept of "participant observation" was very applicable to such a study on comparative religion. Rather than simply relying on theoretical discussions of the possible mixing of religion found in journals in the library, I chose to embark on substantive participatory field research in order to obtain first-hand information and in-depth understanding about the phenomenon that I was studying.

What I found was that religious syncretism (or the "mixed practice" of religion) abounds in Singapore, with many well-known sites of worship being dedicated to more than one deity of a certain faith. For instance, during my fieldwork at a festival celebrating the birthday of an Indian goddess in Jurong, I observed that popular Chinese gods like the Monkey God and Guan Yin were being propitiated alongside their Hindu counterparts like Shiva and Brahma.

### [Nianlong's ISM](#)

#### [Religious Syncretism: Manipulating the Supernatural in Singapore](#)

Singapore is a place where many religions and cultures co-exist. Given this, one wonders how common religious syncretism (or the "mixed practice" of religion) is in Singapore. I was also intrigued to find out how the various religious groups practised syncretism and how religious syncretism manifested in well-known sites of worship. My ISM thus investigated this using anthropological lens to study this interesting phenomenon of religious syncretism and spiritual renewal in contemporary Singapore. Being keenly interested in the anthropological aspects of the practice of religion (especially the continued survival and existence of "folk religions") in Singapore, I used ethnography and "participant-observation" (as detailed by Clifford Geertz) to obtain first-hand experience and understanding of the ways the religions I was investigating were being practised. These included several ethnographic fieldwork trips and visits (mostly during the long vacation period) to shrines on Pulau Ubin and reformist Buddhist services; I even witnessed a major procession held in honour of an Indian deity—a unique case of Singaporean religious syncretism—whereby the deity's birthday was being celebrated alongside Taoist festivities.

I argued that individuals in contemporary Singapore practised acts of immortalising their predecessors, in either material form or in the metaphysical domain of the mind, in order that they might be assured that the tangible things attained in their lives were not lost upon death.

Particular attention was paid to the syncretic practices of religious groups which were deemed as minorities in the dominant dis-

course about religion. These would include festivals where a variety of Chinese and Indian gods were propitiated in the same venue for a common purpose, as well as areas in Singapore where religious mixing takes place in the form of various religious traditions setting up their places of worship adjacent to one another.

## Chan Wai Kit ('07)

LIFE SCIENCES + USP

Was your ISM made possible because you were a USP student?

Wai Kit: Although the option of doing ISMs is open to all Faculty of Science undergraduates, many non-USP students do not explore this option as ISMs are perceived as very time-consuming and challenging. As a USP student, I had four USP Advanced modules to take as part of my USP requirements, and I saw ISMs as one of the options to pursue advanced level studies. In doing so, I had to think and work outside my comfort zone, chart my own learning and pursue my own topic and research area. Now, looking back, I realised I was fortunate to have benefited from being able to explore my interests and to have had the opportunities to work closely with professors outside an otherwise comparatively structured curriculum.

Indeed, one of the main things I enjoyed about USP was the chance to take an active role in shaping my development. While undertaking ISMs was intimidating at first, I quickly realised this was a unique opportunity to challenge myself outside the confines of the curriculum. I ended up doing four ISMs!

In these ISMs, I studied two topics in depth: neuroscience and biodiversity. For the ISMs in neuroscience, I had the privilege to work closely with Associate Professor Sheu Fwu-Shan on a project involving learning and memory. I was free to choose my specific area of interest, and challenged to take ownership of my own unique project. Of course, I benefited from working closely with my supervisor who provided invaluable guidance and advice.

I was also surprised that I was given opportunities and responsibilities which would not have been entrusted to other undergraduates. Performing surgery on animals for intracranial drug delivery was just one of the many memorable experiences I had. Eventually, my project was deemed substantial enough to be published in a leading scientific journal, and subsequently I went on to present my findings at the Taiwan-Hong Kong-Singapore Meeting of Pharmacologists to leading researchers in the field. Although the commitment was taxing, I benefited immeasurably from my time as a USP student.

Did any USP module inspire or motivate you in this ISM?

Wai Kit: I was very fortunate to have the privilege to take the USP module Biodiversity and Conservation conducted by Professor M.K. Pandit, a visiting Professor at USP who is also the Director of University of Delhi's Centre for Interdisciplinary Studies of Mountain and Hill Environment. It was during the module that I became interested in scientific issues pertaining to biodiversity conservation, an area which is often less focused on, compared to more "glamorous" pursuits like cancer research. I hence approached Professor Pandit to be my supervisor for an ISM on plant extinction, and I benefited much from his mentorship.

Did any USP module give you specific knowledge or experience that made your work in the ISM possible?

Wai Kit: Yes, the module Biodiversity and Conservation gave me insights into conservation efforts.

Wai Kit's ISM

Diploid Plants are More Likely to be Rare: Evidence from a Global Study of Rare and Endangered Plants

About twenty years ago, scientists highlighted the need for concerted wildlife conservation, asserting that the world was at risk of another mass extinction episode. Today, plant and animal conservation efforts are still largely inadequate, owing to a lack of resources and the general reluctance of governments to allocate sufficient funding. In order to have a viable management plan for species conservation, it is essential to prioritise different species according to their susceptibility to extinction. Previous studies have focused on taxonomic and ecological correlates in endangered species. However, these have been small in scale, often confined to a particular geographic region.

In this investigation, chromosome characteristics were studied as a possible measure of rarity in 629 rare and endangered plant species found globally. It was found that the majority of endangered plants had two sets of chromosomes (diploids). Conversely, it was also found that the majority of invasive plants had more than two sets of chromosomes (polyploids). ("Ploidy level" refers to the number of sets of chromosomes an organism has. For example, humans have 2 sets of chromosomes, so humans are diploids.)

These findings highlight the prospect of using ploidy level and chromosome number as a viable predictor of vulnerability to rarity in plant species, and will have repercussions on the way we select plants for conservation efforts in the future.

### What Wai Kit achieved with his ISM

Together with his supervisor Associate Professor Sheu Fwu-Shan, Wai Kit went on to publish his ISM on learning and memory in a leading scientific journal—Neuropharmacology 52(8), Frontal Cortical alpha7 and alpha4beta2 nicotinic acetylcholine receptors in working and reference memory, 1641-9, Chan WK, Tsun-Hon Wong P and Sheu FS (2007). His findings were also presented at the Taiwan-Hong Kong-Singapore Meeting of Pharmacologists to leading Neuropharmacology researchers, in June 2007.

## Harman Dev Singh Johl ('06)

CHEMISTR Y + USP

### Was your ISM made possible because you were a USP student?

Harman: Yes, it was at USP that I learnt about ISMs. USP offered me the space to pursue a field of study that is of particular interest to me as an individual and to do it on an independent basis, something that is absolutely invaluable.

I did three ISMs under the USP Advanced Modules' Academic Inquiry option. My first ISM on Computational Chemistry was an introduction to the broad field of computational chemistry and physics; my second ISM Simulations of silicon/germanium (Si/Ge) surfaces focused on experimental work that continued and built upon that which was learnt in my first ISM—to code a molecular dynamics and Monte Carlo program from scratch and to study the properties of a Si/Ge (100) surface as a function of the Ge concentration and the lattice strain, and my third ISM Foundations of Modern Quantum Chemical Methods, was a theoretical study specifically on quantum theory and its application in understanding chemical systems.

The three ISMs have put me in good stead in the context of my chosen field, computational science. Learning the foundations of the underlying chemical, physical, mathematical and computational aspects of this field in these ISMs was very useful as it gave me a solid grounding.

### Did any USP module inspire or motivate you in this ISM?

Harman: Being interested in how matter behaves at the atomic/sub-atomic scale,

I had always sought an understanding of the fundamental laws that govern nature. Not surprisingly, Atoms to Entropy was amongst the first USP modules I did. In that module, my interest grew not just from the material taught, but the manner in which it was taught as I realised the true beauty of nature. The question of "why" things happen more so than just wondering "what" happens took to the fore from then on.

### Did any USP module give you specific knowledge or experience that made your work in the ISM possible?

Harman: I guess the very rudimentary and basic knowledge of classical as well as modern physics (e.g. thermodynamics and quantum mechanics) that I had learnt in the module Atoms to Entropy put me in good stead not just in context of raw knowledge but more importantly it sparked my interest in the field of physical chemistry as well. To me, the latter is the more important factor that has made my work (in the ISM, final year project and graduate studies) extremely enjoyable.

Upon completion of my first ISM, I was prepared to write up my own code for carrying out molecular dynamics and Monte Carlo calculations. Coupled with the mathematical and physical knowledge gained, I was sufficiently prepared for more advanced work in the field of computational chemistry and physics. Since that ISM, I have used myriad theoretical methods from Kinetic Monte Carlo to Density Functional Theory to work on a range of interesting problems such as the formation of pits on Si/Ge (100) surfaces, diffusion models, stepped Si/Ge surfaces, and as a graduate student today, I am working on small metal clusters on graphene. The ISM programme has definitely been a great boon to me.

### Harman's ISM

#### Computational Chemistry

As a primer to the broad field of computational chemistry/physics, the ISM was focused on getting a hold on the theoretical workings of matter at the atomic scale. Specifically, I sought an understanding of some basic quantum mechanics and the method of classical molecular dynamics and Monte Carlo simulations. For practical purposes, the learning of a programming language, specifically FORTRAN, was necessary. The knowledge learnt from the above was used to understand in detail how molecular dynamics and Monte Carlo simulations are carried out. A short study of the effects of introducing Ge at various positions in a Si(100) surface was done as a practical exercise to complement the theory covered.

By developing a thorough understanding of the mathematical, physical and chemical principles behind fundamental quantum mechanics and molecular dynamics, the basic knowledge required for computational science was established in this ISM. This body of theoretical knowledge and understanding of matter at the atomic scale is absolutely essential since one can figure out the properties of almost anything from the band gaps of semiconductor materials to the activity of yet-to-be designed drugs to materials beyond even our wildest imagination, given sufficient computer time.

In particular, a molecular dynamics study was done to understand the influence Ge has within the first few atomic layers of a Si(100) surface. This is of particular importance because of the difficult manufacture of defect-free Si/Ge semiconductor devices. It was found that the Ge atom prefers to reside in odd numbered atomic layers, with the effect waning as the Ge atom moves

farther away from the surface.

### What Harman achieved with his ISM

Harman won the Faculty of Science Class of 2006 Lijen Industrial Medal, an award to recognise outstanding work in the final year honours project, which is in his case, in the field of computational chemistry. His poster on the data and analyses of his work in this area won him a best poster award at the recent International Conference of Materials and Advanced Technologies conference held in Singapore in July 2007.



# USP Overseas Experiences

USP students initiate and participate in a wide range of overseas experiences.

Four of these are highlighted in this section:

- Project Himalaya;
- NUS-in-Yale;
- Lee Shiu Summer Programme;
- Venture Kampuchea.

A selection of USP overseas experiences within a typical academic year is listed at the end of this section.



# Project Himalaya

Project Himalaya was an ecological and cultural field trip to the heart of the Indian state of Uttaranchal, located in the foothills of the North Indian Himalaya. Inspired by the USP module Biodiversity and Conservation Biology (taught by USP Professor Maharaj K Pandit), 24 USP students formed an expedition team and took on the task of planning and shaping the field trip, which took place for two weeks in May to June 2006.

Project Himalaya sought to:

- Explore the biodiversity of the Himalayan ecological systems, sustainability issues of modern development, and the life-sustaining interdependency between communities and ecology;
- Enable a beyond-the-classroom experience in a different social, cultural, economic and political setting, providing a lateral vision of critical thinking, leadership skills and experiential service-learning;
- Adopt an interdisciplinary approach to learn about conservation issues in North India and Singapore;
- Ignite the passion for social concerns in an inter-connected world.

The expedition was hosted by the Himalayan Action Research Centre (HARC), situated 5,000 ft above sea level in the Indian state of Uttaranchal. During the field trip, USP students learnt from eminent academics and environmental conservation leaders, interacted closely with local people and farmers, and visited various biodiversity-rich areas in and around the Yamuna Valley in Uttaranchal. In the evenings, students engaged in group learning and reflective evaluation to make sense of their experiences. Post field trip, the students showcased their experiences and shared their lessons learnt and aspirations, photos taken and a video of the field trip via a discussion forum and an exhibition.

## STUDENTS' NOTES

The experience of treading through forested lands and mountainous terrains, terraced hills and swift rivers, revealed to us an entirely different reality. The exposure to the rural life and the natural environment led us to be more acutely aware of our own lifestyles in urban living. It set us into thinking about reconciling the opposing forces of development versus environmental preservation, and of learning to live simply. Our fervent discussions often unearthed innumerable questions, for which we continue to search for answers. We began to realise how we, in our developed nations so far away and dislocated from nature, could be responsible for the devastating environmental changes which those living in a close relationship with nature have to suffer for. Many of us left feeling committed to do our bid to help stop environmental degradation for humanity's sake.

—Tan Li Ling

I found the opportunity to meet the very people who were involved in the NGO work particularly engaging and valuable. To hear about their ethos and practical experience was insightful learning for me. Being able to commune with nature for two weeks, as well as to immerse in an entirely different environment, was itself a big learning experience about the world for an urban kid like me.

—Ma Yong Zheng, John

We learnt from the field how things were run in a different region. Being attached to HARC enabled us to have a greater understanding of location-specific problems and the actions taken to address them. We also interacted with the community and this allowed us to contribute to the people living in the area.

—Vinod Krishnan

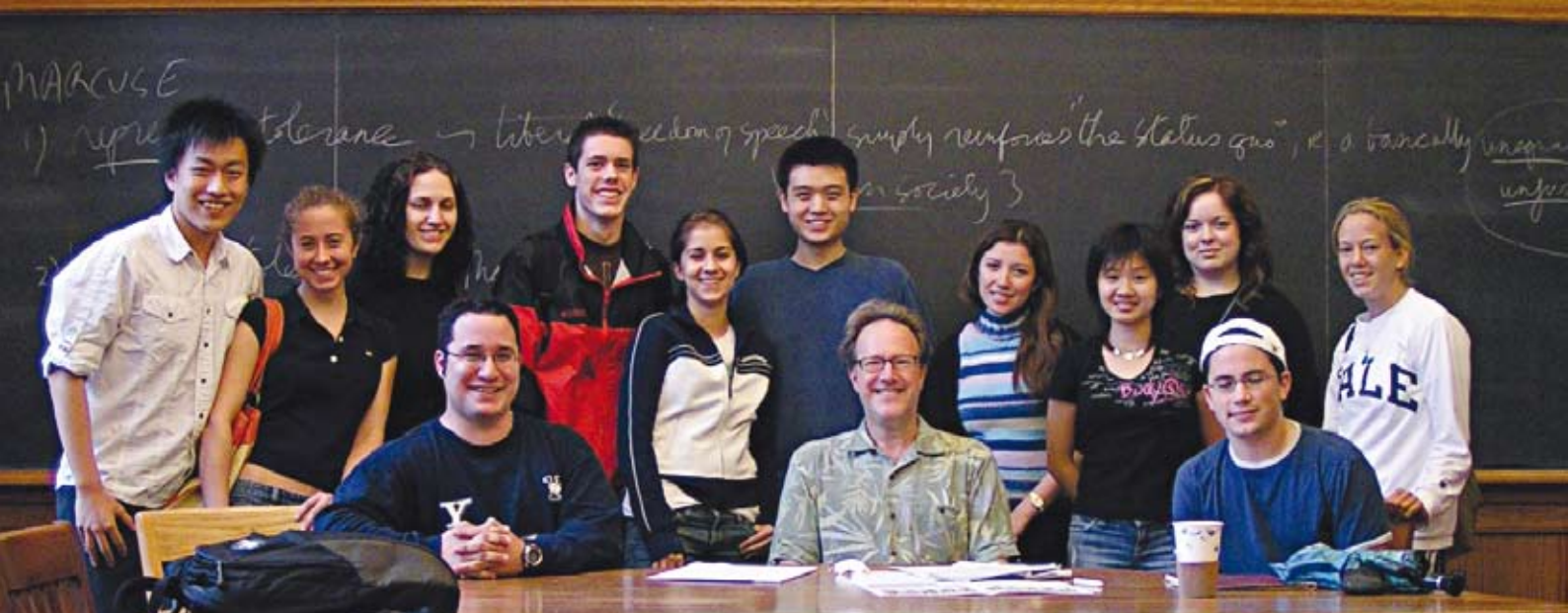


Interviewing a local seer.



The biodiversity collection at the Forest Research Institute.

Opposite:  
Daily group discussion at the Himalayan Action Research Centre.



MARCUSE

1) representation → liberal 'freedom of speech' simply reinforces 'the status quo', i.e. a basically unjust society

unjust

## NUS-in-Yale

The NUS-in-Yale Summer Programme was launched in 2006. Administered by USP, NUS undergraduates (mostly from USP) are recruited annually for this five-week academic study stint to Yale University. They study and interact with Yale students, reside in Yale residential colleges, and experience many aspects of undergraduate life there.

The first batch of ten NUS students, comprising eight USP students, set off for Yale in June 2006, chaperoned by USP Faculty Dr Yew Kong Leong. The second batch of ten NUS students, also comprising eight USP students, set off for Yale in June 2007.

### STUDENTS' NOTES

Classes were always delightful—for two to three hours, fifteen or so people annexed one large wooden table and engaged in intense exploration on various topics. The American zest for “hand-raising” was temporarily intimidating, but as I joined in, the openness of class debates was infectious. My classmates had a keener sensitivity to the flaws in their system and the tensions in their society than I'd expected, allowing discussions to reach fulfilling depths. In my philosophy class on Tolerance, there were just eleven of us, but what an incredible range of characters—six Yalies and five others, comprising Irish-American, Mexican, Chinese, Canadian, Catholic, Jew, Mormon, Protestant, Atheist, Adopted child and Gay. The American foundation as an immigrant society encourages a broad acceptance of differences, which is celebrated as diversity. Liberty breeds respect, quirkiness is valued, stereotypes are consistently questioned. The Yalies are talented, engaging, opinionated, diverse and approachable, providing stimulating conversation and inspiring company in and out of class. This stint is really a dip into American education at its finest.  
—Wong Pao En, Chelsea

I particularly looked forward to mealtimes in the residential college dining hall as I would get to meet many friendly and fascinating people. Conversations were long and there was a collective reluctance to end them. For me, the highlight was when friends gathered at BAR, a trendy restaurant that served excellent pizza and beer, to celebrate my twenty-first birthday. My five weeks at Yale were busy, intellectually-stimulating, eye-opening, fun—undoubtedly the best summer I've ever had.  
—Ong Sin Yee

We were exposed to an Ivy League college life and a bewildering range of courses to choose from. The environment was competitive while at the same time liberating. I left with the conviction that it is pride that drives the Yale students to excel. The pride to uphold the Yale culture and tradition... I'm impressed.  
—Alvin Koh

My classes really blew me away. The course on Economic Intelligence and Espionage treated me to an extensive insider look at the various clandestine operations carried out by intelligence agencies around the world. Now, I can conduct some mini-counterintelligence operations of my own back home... Yale has a supremely cosmopolitan pool of talent. I made friends with people from all over the world and garnered a great deal of alternative perspectives from my fellow summer school attendees, which really broadened my intellectual dimensions.  
—Low Hui Ping

I got to experience diversity at its best. It makes me realise that there's always something out there to explore, and that it really is just an arm's length away.  
—Chin Hui Lin



Living and studying at Yale University.



Interacting with Yale University professors.

Opposite:  
Attending the Tolerance, Intolerance and the Intolerable philosophy class.



# Lee Shiu Summer Programme

Funded by Dr and Mrs Lee Shiu, the Lee Shiu Summer Programme brings together undergraduates with strong leadership potential from China, Hong Kong, Singapore and the United States to discuss issues related to the development of China.

In 2006, USP partnered with Chung Chi College, the Chinese University of Hong Kong, and Tsinghua University to organise this Summer Programme, in line with NUS's effort to facilitate its academic, enterprise and outreach activities in China.

For one month from 13 July to 12 August 2006, 12 USP students joined 67 other specially selected students from more than ten universities to discuss the theme China Tomorrow—Perspectives from Three Cities: Hong Kong, Singapore and Beijing. Through seminars, workshops, visits, field trips and high table dinners held at the three cities, the student delegates studied the phenomenon of China's rise and examined the challenges that China would face tomorrow in her pursuit of power and peace in the world. After the month-long period of intensive study and exploration, the student delegates shared their findings at the Lee Shiu Young Leaders Forum held in Beijing.

## STUDENTS' NOTES

A unique feature of this programme was the opportunity to visit three cities all in a month. By actually going to these cities and interacting with many different people, we were better able to grasp, compare and contrast policies, ideologies and perspectives.

—Kang Kay Wee, Clement

In Beijing, 79 of us student delegates lived in Tsinghua University. In two weeks, we attended talks on the cultural, social, economical and political nature of "China Tomorrow". Visits to the Beijing 2008 Olympic

Committee and the Lenovo Headquarters gave us a glimpse to how China is shaping up to influence the world economically through the organisation of a major sporting event in the former, and the acquisition of IBM's PC Manufacturing in the latter.  
—Wang Zhenghao, David

Early morning breakfast at the cafeteria, malted soy milk from the 7-Eleven store, then hitting the enriching seminars. Climbing the hill to go to the school library, staying up later to do research, culminating in furious typing of our paper at the laptop. Avid discussions, much disagreement, and then eventual consensus about our research topic. Museum trips, shopping at Mong Kok and Sha Tin, trips to Kowloon on the boat, near-death rides at Ocean Park for all the fun you could possibly have. Work and fun combined sums up the Hong Kong leg of the Lee Shiu programme.  
—Shamima Banu

As with all other USP programmes, the Lee Shiu Summer Programme included a rigorous research component with the end goal being that the participants learn more about an emerging China and role of the Chinese diaspora. Towards the end of the Beijing leg, my group was selected to present our research paper at the Lee Shiu Young Leaders Forum. Many nights of hard work paid off when our thesis—A Workable Framework to combat Institutional Corruption in Mainland China using the lessons learnt from Hong Kong, Singapore and Macau—was ultimately well-received by the many academics and students who graced the abovementioned event.  
—Vikram Parsani



Living and interacting with fellow programme participants at Peking University.



Attending a seminar with students from the Chinese University of Hong Kong, Peking University, and Tsinghua University.

Opposite:  
Visit to Tiananmen Square and the Imperial Palace in Beijing with students from Princeton University and the Chinese University of Hong Kong.



# Venture Kampuchea

Venture Kampuchea was an overseas service-learning youth expedition project initiated and led by USP students. The expedition took place from 11 to 30 December 2006, and involved a team of 24 USP students traveling to the rural village of Phangna, Kampong Speu province, on the outskirts of Phnom Penh, Cambodia.

The expedition provided an opportunity for USP students to study first-hand the relationships between development, economics and education. USP students reached out to help the children in the village of Phangna through:

- An infrastructure project to upgrade an elementary school. In the process, the team introduced activities like tree planting and a sports day for the school.
- An education project to teach the elementary students the English language as well as to share with them knowledge of personal hygiene.
- A community outreach project to distribute toys, clothes and picture books which were collected in Singapore to the community in Kampong Speu through school and home visits.

In addition, USP students visited historical sites in Cambodia and interacted with the local community to understand and appreciate their culture. Detailed cultural documentation of the expedition was undertaken to enhance the learning experience.

## STUDENTS' NOTES

Though we have learnt the skills of living on a budget and subsisting on the basics, the more valuable thing which we have taken home is empathy for the less privileged and having a mindset of being mentally prepared for difficulties. We also realised that notions of poverty and happiness differ among individuals; people whom we perceive as poor may not see themselves

as such, and may be happy and contented with their simple lifestyle. The interactions with the local children, the villagers and many other Cambodians helped us to better understand their history, culture, and lifestyle. We are amazed at their perseverance and optimism, even after experiencing one of the most brutal regimes in history—the Khmer Rouge Regime.

—Tay Jingmin and Koh Xin Tian

Though our language barrier posed difficulty in teaching the children English, the whole experience was fun and fulfilling as several of them could read and write at least a few more words or letters by our last day there, and their conversational English had also improved. For me, the entire experience of teaching these children was very inspirational. I realised that having a chance to be educated was actually a privilege.

—Yip Shu Fen, Mabel

We decided to plant flowers and trees to beautify the school, and to do that, we had to build the brick borders of the flower beds. As simple as it seemed, building the brick borders was no easy feat! From making measurements to removing weeds to laying bricks and applying cement over them, the hope to give the school children the best brought out the perfectionist side of all of us. It was really heart-warming to see the team taking turns to lay bricks, apply cement, act as quality control, treating one another to sugar cane juice. After a day of hard work, the completed brick borders with "VK06" (Venture Kampuchea 2006) carved on them brought a smile to my face.

—Lim Zhining, Valentia



Laying the foundations for more greenery.



Teaching school children how to read and write basic English.

Opposite:  
Introducing sports day to the school.

# USP Overseas Experiences

A selection of USP-organised or supported trips taken by USP students within a typical academic year is shown here.

## USA

George Washington University  
19–28 Feb 2006  
Dialogue programme  
9 students

## USA

Harvard University  
19–25 Feb 2006  
Exchange conference  
3 students

## China

Yunnan University, Beijing Foreign Studies University, Jilin University, Northeast University  
16–31 May 2006  
Summer programme  
18 students

## Switzerland

University of St. Gallen  
16–21 May 2006  
International academic conference  
2 students

## Greece

European Cultural Centre of Delphi  
23–27 May 2007  
European Cognitive Science Conference  
1 student

## China, Hong Kong

Tsinghua University, Chinese University of Hong Kong  
12 Jul–12 Aug 2006  
Summer programme  
12 students

## India

Colaba, South Mumbai  
2–25 Jul 2006  
Youth expedition  
6 students

## China

Peking University  
Mid 2007–Mid 2008  
Cultural immersion programme  
1 student

## USA

University of Oregon Clark Honors College  
Sep 2005–Jun 2006  
Exclusive exchange programme  
7 students

## Australia

The Australian National University  
Feb 2007–Jun 2008  
Joint degree programme  
1 student

## China

Peking University  
21 May–3 Jun 2006  
USP module study trip  
28 students

## USA

Brigham Young University Conference Centre  
20–21 Oct 2006  
Biotechnology and Bioinformatics Symposium  
1 student

## Turkey, Malaysia

Fatih University, University of Malaya  
8–23 Dec 2006  
Study trip  
19 students

## Vietnam

Quang Nam, Danang  
9–30 Dec 2006  
Youth expedition  
21 students

## USA

Northwestern University  
22–25 Feb 2007  
International Youth Volunteerism Summit  
1 student

## Cambodia

Kampong Speu, Phnom Penh  
11–30 Dec 2006  
Youth expedition  
24 students

## USA

Harvard University  
1 Jun–1 Aug 2006  
Laboratory research programme  
1 student

## India

Himalayas  
20 May–5 Jun 2006  
Field trip on biodiversity  
24 students

## Canada

University of Alberta  
9 Jul–17 Aug 2007  
Summer programme  
1 student

## Japan

Fukuoka, Dipterology Congress Centre  
23–28 Sep 2006  
International life sciences congress  
2 students

#### South Korea

Gwangju, Kimdaejung Convention Centre  
26–29 Oct 2006  
Asia youth culture camp and forum  
3 students

#### Greece

Kos Island, Athens  
10–21 Jul 2006  
International psychology convention and  
award presentation  
1 student

#### USA

Yale University  
Jun–Jul 2006  
Academic summer programme  
8 students

#### USA

Stanford University  
7–20 May 2007  
Summer programme  
15 students

#### USA, Canada, Europe, Japan

6 Jan–10 Jun 2007  
Global leadership programme  
1 student

#### China, Hong Kong, Malaysia

Guangzhou, Hong Kong, Kuala Lumpur,  
Malacca  
6–25 May 2007  
Field trip on Chinese Migration in  
Southeast Asia  
9 students

#### USA

San Francisco  
14–19 Aug 2006  
RealAcad Venture Management Camp  
1 student

#### Norway

Trondheim  
16–25 Feb 2007  
International Student Festival  
6 students

#### USA

Boston  
15–18 Feb 2007  
Harvard National Model United Nations  
Conference  
1 student

#### USA

New York  
30 Mar–2 Apr 2007  
Harvard College China-India Development  
and Relations Symposium  
5 students

#### Greece

Island of Spetses  
20–24 May 2007  
Congress of the International Association of  
Biomedical Gerontology  
1 student

#### Japan

Kyushu University  
2 Jul–10 Aug 2007  
Summer programme: Asia in Today's World  
1 student

#### Australia

James Cook University, College of Music,  
Visual Arts and Theatre  
3–17 Jul 2007  
World Interplay Festival  
2 students

#### China

Beijing  
17–20 Aug 2007  
Academic conference, Harvard Project for  
Asian and International Relations  
2 students

#### Hong Kong

University of Hong Kong  
23–24 Aug 2007  
Business conference, Harvard Project for  
Asian and International Relations  
7 students



# Further Information

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## Our History, Vision, and Objectives

The University Scholars Programme (USP) is an interdisciplinary academic programme for National University of Singapore (NUS) undergraduates. USP admits 180 students each year, and offers the freedom to explore across disciplines, a wide range of extracurricular and overseas opportunities, and a community of exceptionally motivated and talented students.

USP provides an environment for exploration, collaboration, and creative discovery. Its unique modules are designed to develop interdisciplinary thinking. Learning extends beyond the classroom through a wide range of research, internship, community involvement, and study abroad opportunities. USP aims to produce graduates with the intellectual rigour, initiative, and innovational spirit to make significant contributions to society.

### Brief History

Created to provide intellectual, leadership, and personal development for highly motivated and talented students at NUS, USP evolved from the university's two predecessor programmes, the Talent Development Programme (TDP) and the Core Curriculum Programme (CCP).

Aimed to train future leaders who sought breadth and excellence in undergraduate studies, TDP had its first intake in 1996. TDP students were given opportunities to pursue enhanced or specialised courses through independent study and research in chosen fields of study, within their own faculties. In 1999, CCP was launched. Modelled on Harvard's Core Curriculum Programme, it aimed to provide a broad-based education with an emphasis on writing and

critical thinking, and an appreciation of the connections between different disciplines. In July 2001, USP was incepted as a fusion of these two programmes with the first intake of USP students.

### Our Vision

To be a talent programme that produces graduates who lead in forging new insights and mindsets across disciplines and cultures.

### Our Objectives

1. To attract and develop a diverse range of talented individuals who demonstrate the potential to be leaders in intellectual, economic, cultural or social spheres in Singapore and the world.
2. To build and nurture a close-knit and vibrant community of scholars (comprising faculty, students and alumni) that is committed to excellence in their diverse interests.
3. To enable this community of scholars to be connected to the global network of scholars, through dialogues and strategic collaborations.
4. To continuously innovate to provide an enriching and globally-oriented educational programme, aimed at stretching the students' intellectual, leadership, and personal capacities.
5. To provide students with the best of the world through tie-ups with world-leading innovative educational programmes.

## USP Global Programme

The USP Global Programme provides resources, supports and plans for activities that help USP students gain a global outlook, apply their interdisciplinary learning, and develop leadership capabilities.

USP's administrative and academic staff provide students with guidance on student-initiated or -organised activities in line with USP's objective to forge leadership in the intellectual, economic, cultural and social spheres in Singapore and the world.

The USP Global Programme is a unique platform provided for USP students to initiate and customise their own learning experience in a global context. USP Global Programme activities are generously subsidised by USP. Activities which have been sponsored by the USP Global Programme include:

### Seminars and Symposia

- ASEAN University Network Educational Forum & Young Speakers Contest
- Forum on "World Religions and the Search for Peaceful Co-Existence"
- Singapore Institute of International Affairs University Seminar
- USP-World Bank Symposium

### Overseas Study Programmes

- Harvard College in Asia Project
- Lee Shiu Centre for Intercultural Learning Summer Programme
- NUS-in-Yale Summer Programme
- Project Himalaya
- Sino-Singapore Undergraduate Exchange Programme
- Study Programme on Contemporary Muslim Societies

- USP-George Washington University Two-City Dialogue Series
- USP-Singapore Institute of International Affairs Summer Programme on Southeast Asia
- USP-Stanford University Summer Programme

#### Overseas Youth Expeditions

- Action Africa (South Africa)
- Big Hands, Bigger Hearts (Philippines)
- Destination Danang (Vietnam)
- Play to Aid(s) (Thailand)
- Project Maitri (India)
- Venture Kampuchea (Cambodia)
- Venture Relief (Sri Lanka)
- Venture Vietnam (Vietnam)

For more information, visit [usp.nus.edu.sg/global\\_programme](http://usp.nus.edu.sg/global_programme).

## USP Student Grants

USP is committed to providing wide-ranging opportunities for its students to stretch their creative and critical faculties, to hone their intellectual and leadership qualities, and to cultivate a global outlook.

To enable students to take advantage of overseas research and learning opportunities, USP Student Grants provide additional resources available specifically to USP students other than those from their home faculties or the university.

USP students are free to utilise USP Student Grants for either USP Global Programme activities, or other activities. The two categories of funding are:

#### USP Overseas Study and Research Grants

USP Overseas Study and Research Grants are meant for USP students to:

- Present a paper in an academic conference;
- Attend a conference, course or workshop;
- Participate in an internship or attachment;
- Pursue research opportunities.

#### USP Student Activity Grants

USP Student Activity Grants are meant for USP students to initiate and organise activities in line with USP's objectives and enhance community building amongst USP students.

USP Student Grants have supported USP students in the following:

- Harvard Project for Asian and International Relations
- 6th International Congress of Dipterology
- Apple World Wide Developers Conference
- China-India Development and Relations Symposium

- Exhibition "Bodies and Relationship: Selected Works of Lee Sik Khoo"
- Global Village for Future Leaders of Business and Industry
- International Council of Psychologists' 64th Annual Convention, and 26th International Congress of Applied Psychology
- International Student Competition Symposium (St Gallen)
- International Student Festival (Trondheim)
- WorldSmart Leadership Program

For more information and grant application, visit [usp.nus.edu.sg/studn\\_grants\\_prog](http://usp.nus.edu.sg/studn_grants_prog).

## USP Student Opportunities

As a holistic educational programme, USP encourages students to think about their career paths even as they are enrolled as undergraduates. USP students are invited to explore and participate in the many career and post-graduate opportunities sourced and created by USP through its industry and alumni networks.

Opportunities include the following, conducted both locally and overseas:

- Internships and research/work attachments;
- Career and personal development talks and workshops;
- Recruitment and networking sessions;
- Scholarships sharing sessions.

In addition to the above, USP helps students leverage on other career development resources and opportunities available on campus.

For more information, visit [usp.nus.edu.sg/studn\\_oppt](http://usp.nus.edu.sg/studn_oppt).

## USP Facilities

### USP General Office

Block ADM, Level 6

USP administrative staff are available at the USP General Office to assist USP students on a wide range of student needs. Students approach staff on matters such as academic advisory, student grants, internships, career and post-graduate opportunities. Staff members help students access opportunities which are available at the university level, as well as those exclusive to USP students.

### USP Classrooms

Block ADM, Levels 5, 6, and 7

Most USP classes are conducted in classrooms located at Block ADM, levels 5, 6 and 7.

### USP Faculty Offices

Block ADM, Levels 3, 5, and 6

The offices of USP faculty are located at Block ADM, levels 3, 5 and 6. This is where USP students meet USP faculty for academic advisory and one-to-one tutorials and discussions.

### USP Writing Centre

Block ADM, #03-13/14

USP Writing Centre offers USP students assistance with academic writing through one-to-one sessions with trained student writing assistants. It is modelled on established centres at leading universities such as Harvard and Cornell. These sessions help students negotiate the writing and thinking process from brainstorming, to drafting, to revising.

### Reading Room

Block ADM, Level 6

The Reading Room on level 6 is open for USP students to embark on self-study in-

between classes. It is equipped with a wide range of reference books, magazines, and videos for loan.

### Multimedia Lab

Block ADM, #06-19

Equipped with 15 personal computers, the lab allows for USP students to do general computer work, internet surfing, picture scanning, and CD/DVD authoring. The lab also houses a pay-per-use printer for students to do printing. It is also equipped with Photoshop software for graphics editing.

### Cyberart Studio

Block ADM, #05-01

The Cyberart Studio trains USP students in areas such as Cyberart, digital media production, cyberculture, game design, information society, and scientific visualization through intensive studio-based workshops, seminars, and guest lectures. It houses 20 Macintosh G5 MacPros capable of switching between Windows or Macintosh platforms. They are equipped to do digital painting, multimedia content creation, video editing, animation, and music composition.

### Cyberart Project Room

Block ADM, #05-08

The Cyberart Project Room is a multimedia project room designed for students taking Cyberart and new media modules. In here are 6 Macintosh G5 MacPros for doing content creation and video editing.

### Explorations Lab

Block ADM, #03-05/6

The Explorations Lab is a science demonstration room, where USP classes and experiments in the science and technologies domain are conducted. An adjoining project room is available to USP students to embark on and complete their group projects.

### The Chatterbox

Block ADM, Level 3

The Chatterbox is a student lounge area for USP students, where students interact with one another, study and discuss projects, or relax. The Chatterbox is also home to USP's student club, the University Scholars Club (USC).

For a virtual tour of USP facilities, visit [usp.nus.edu.sg/resources/facilities](http://usp.nus.edu.sg/resources/facilities).

## USP Advisors

In addition to the guidance and support offered by USP administrative staff, each USP student is assigned a USP faculty member as advisor. USP students are welcome to make a connection with their advisors as early as possible, and keep their advisors updated on their developments throughout their USP journey. This will enable their advisors to render the most appropriate form of assistance when needed. USP students may look forward to a fruitful mentorship with their USP advisors.

USP advisors are empowered to provide the following specific forms of assistance:

- Guide students in their choice of USP modules;
- Guide students in planning a personalised course of study for USP modules;
- Interact with students on the subject of their career and personal goals;
- Suggest areas and activities for achieving the student's goals;
- Help students with any problems that they may experience while at USP;
- Connect students with resources and resource persons on matters outside USP.

For an updated list of USP Advisors and their contact information, visit [usp.nus.edu.sg/staff/faculty\\_staff/faculty](http://usp.nus.edu.sg/staff/faculty_staff/faculty).

## USP Student and Alumni Networks

Two important networks contribute to USP's close-knit community. They are the University Scholars Club and the Scholars Programme Alumni Network.

### University Scholars Club

All USP students are represented by University Scholars Club (USC), USP's student representative body. The club is entirely run by USP students for USP students. Besides contributing to a vibrant USP student life, USC serves as an additional out-of-classroom platform for USP students to develop their leadership, intellectual and personal capabilities through the many events and activities that USC organises and implements. USC also serves as an important bridge between the USP student and USP administrative and academic staff. For more information, visit [usc.usp.nus.edu.sg](http://usc.usp.nus.edu.sg).

### Scholars Programme Alumni Network

USP students benefit greatly from the USP alumni network, Scholars Programme Alumni Network (SPAN). Not only do USP alumni provide industry links for career opportunities, they return to USP on a regular basis for sharing sessions and workshops. USP students obtain first-hand accounts of what life is like after university and the many options available, from the perspective of the USP graduate. Visit [usp.nus.edu.sg/alumni](http://usp.nus.edu.sg/alumni) for the latest updates.

## USP Awards, Certificate, and Testimonial

### USP Awards

In recognition of the diverse talents and achievements of USP students, the following medal, awards and prize are awarded to outstanding USP students or graduates on an annual basis.

### Joanna Wong Gold Medal

This award is presented to the graduating student from USP who best embodies the ethos of the programme. The student has been evaluated for academic excellence and for commitment to co-curricular activities. Academic excellence is assessed by Cumulative Average Point. Co-curricular involvement is evaluated based on participation and leadership in activities that foster learning beyond the classroom such as USP Global Programme and University Scholars Club activities.

### Vice-Chancellor's List

The Vice-Chancellor's List recognises excellence in intellectual and leadership qualities among students who graduate from USP according to these criteria: outstanding academic accomplishment (first-class honours degree awarded by the student's home faculty); and outstanding contributions to student-led activities through USP Global Programme and/or University Scholars Club.

### Sung Kah Kay Memorial Prize

The Sung Kah Kay Memorial Prize is presented to the graduating student in USP who best exemplifies scholarship and academic excellence. The Sung Kah Kay Memorial Prize identifies the graduate as a leader in independent and interdisciplinary scholarship.

### USP Recognition Awards

USP Recognition Awards are presented to two students from non-graduating cohorts in recognition of their contributions to USP through both academic accomplishment and/or co-curricular activities. Criteria for excellence may include exceptional academic talent, exceptional leadership in co-curricular activities, or a combination of both.

### USP Certificate and Testimonial

The USP Certificate is awarded at the USP student's commencement upon:

- completing all USP academic requirements;
- completing the honours requirement of the home faculty/school; and
- receiving at least a second lower honours degree.

USP students are expected to maintain a Cumulative Average Point (CAP) of 3.5 and above throughout their course of studies. This USP CAP requirement of 3.5 is a stepping stone for USP students to achieve the fundamental academic goal of honours in their home faculty.

The USP Testimonial documents the USP student's accomplishments—both academic and co-curricular—while at USP. It is a valuable addition to his/her curriculum vitae as the student moves on to pursue further professional and academic endeavours.

## Applying to USP and the Selection Process

### Applying to USP

USP admissions open every year with NUS's general admissions exercise. In addition to their NUS application, applicants are required to submit a separate USP application, together with a short essay. The USP application form is available at [usp.sg](http://usp.sg). Applications may be submitted online or via post before the closing date of 2 April each year.

Students applying after the closing date of 2 Apr will be considered on a case-by-case basis, subject to the availability of places. National Service (NS) men who are successful in the admissions exercise to join USP, will have a place reserved for them in USP in the year that they matriculate into NUS.

There is no monetary scholarship associated with admission to USP.

### Selection Process

Shortlisted candidates are contacted to attend an interview. Applicants are assessed on the basis of the essay and the interview, in addition to academic and co-curricular achievements.

USP seeks applicants with the following:

- Academic aptitude;
- Leadership potential;
- Passion to learn beyond a narrow field of specialization;
- Passion to forge interdisciplinary understanding and possibilities;
- Motivation to pursue active and independent learning;
- Interest to make a positive contribution to society, in Singapore and beyond.

## Frequently Asked Questions

### How much does USP cost?

NUS fees are based on the home faculty you join. There is no extra fee to enrol in USP.

### Is USP a scholarship?

USP is not a scholarship. USP students can apply for scholarships at NUS or other scholarship providers. For details on NUS scholarships, please visit [nus.edu.sg/oam/scholarship](https://nus.edu.sg/oam/scholarship).

### Can any NUS applicant apply to USP?

Applicants who are applying for admission to any one of our partner NUS faculties or schools (Faculty of Arts and Social Sciences, Faculty of Science, Faculty of Engineering, NUS Business School, School of Computing, School of Design and Environment), may apply for USP.

You may apply to USP even if one of the above is not your first or second choice of faculties or schools (e.g. 1st choice Medicine, 2nd choice Dentistry, 3rd choice Science). However, your place in USP (if selected) is contingent upon your accepting an offer to study at one of the above six partner faculties and schools.

### What is interdisciplinarity?

An interdisciplinary approach examines a subject using knowledge and methods from multiple disciplines.

### Why is interdisciplinarity important?

Many significant problems are believed to be solvable only by interdisciplinary approaches. For example, a solution to global warming is likely to involve science, economics, and international relations. Ap-

ple attributes the success of the iPod to the way it integrates design, engineering, and marketing.

### What is a writing module?

All USP students choose one of USP's renowned writing modules in their first year. The writing module provides the tools to craft compelling arguments and expositions, and forms a foundation for pursuits both in university and beyond. Writing modules are taught seminar-style with a maximum of 12 students per class, and include ample one-on-one tutorials with USP professors.

### Can I switch major?

USP students may apply to switch major and/or faculty up until the end of their second year. (Non-USP students may apply to switch faculty up until the end of their first year.) For advice on switching criteria and process, simply consult your USP academic advisor.

### What other for-credit options can I pursue in USP?

Apart from USP's interdisciplinary modules, students also earn academic credit in the following three ways:

#### 1. Academic Inquiry

USP students with an interest in research may embark on independent study under the mentorship of a professor. This gives a head start in a research or research-based career. Other academic options open to USP students include double-degree and double-major programmes, such as:

- ANU-NUS PhB/BSc(Hons) Joint Degree Programme

This is a four-year Joint Degree Programme between Bachelor of Philosophy (Honours) of Australian National University (ANU) and Bachelor of Science (Honours) of NUS,

which can be taken in three fields of study: Chemistry, Physics and Mathematics. This is offered exclusively to USP students in the Faculty of Science.

- ANU-NUS PhB/BA(Hons) Joint Degree Programme

This is a four-year Joint Degree Programme between Bachelor of Philosophy (Honours) of ANU and Bachelor of Arts (Honours) of NUS, which can be taken in four fields of study: English Literature, History, Philosophy and Theatre Studies. This is offered exclusively to USP students in the Faculty of Arts and Social Sciences.

#### 2. Cultural Immersion

USP students who are keen to develop cultural capabilities and networks in a foreign country have the option to pursue cultural immersion at an overseas partner university.

#### 3. Entrepreneurial Development

USP students who want to experience an entrepreneurial culture have the option of spending a year in one of NUS's Overseas Colleges in leading entrepreneurial and academic hubs of the world: Silicon Valley and Philadelphia (USA), Stockholm (Sweden), Shanghai (China), and Bangalore (India).

### How do I embark on Independent Study Modules (ISMs) as part of USP's curriculum?

You may embark on ISMs through the following ways:

- Individual or Small Group Study: A student or a group of students designs and completes a project under the guidance of a faculty member.
- Masters or higher level course-based modules: A student completes a Masters or higher level course-based module.
- Enhanced Year 3 or 4 modules: A student signs up for and enhances a Year 3 or 4 module into an ISM. In addition to the

standard course requirements, the student undertakes additional research at greater depth. Compared to non-USP students, USP students taking this route may have the weightage on examinations lessened, with greater weightage placed on continual assessment on their project work and term papers.

#### Can I apply to join USP if I am doing a double degree programme?

Yes, you can apply to join USP provided your home faculty is one of our six partner faculties, namely, Faculty of Arts and Social Sciences, Faculty of Science, Faculty of Engineering, NUS Business School, School of Computing, School of Design and Environment. For example, if you matriculate in Faculty of Arts and Social Sciences (FASS) and are doing the double degree programme in Economics and Law, then you can enrol in USP since FASS is one of our partner faculties.

#### Can a student apply to USP if his/her first choice of faculty is Law or Medicine or Dentistry?

Prospective students who are applying for a place in Law, Medicine or Dentistry can still submit their application to USP, even though Law, Medicine, and Dentistry are currently not USP partner faculties. In the event that the applicant is not offered a place in his/her first choice faculty, it is possible for him/her to join USP if he/she is offered a place in a subsequent choice faculty that is a USP partner faculty.

#### What facilities does USP offer?

In addition to other campus facilities, USP students have access to:

- USP Writing Centre
- USP Reading Room
- The Chatterbox
- USP Multimedia Lab
- USP Cyberart Studio

- USP Cyberart Project Room

#### What is the USP community like?

USP students, professors, staff, and alumni have diverse backgrounds and talents, yet are united by their passion and motivation to pursue their interests and create significant outcomes. The USP community bonds over intellectual and social activities and events, many of which are organised by the University Scholars Club, its students club, and Scholars Programme Alumni Network, its alumni society.

#### What are the academic expectations of USP students?

USP students are expected to maintain a Cumulative Average Point (CAP) of 3.5 and above throughout their course of studies. This USP CAP requirement of 3.5 is a stepping stone for USP students to achieve the fundamental academic goal of honours in their home faculty. USP students are also expected to participate in USP activities and contribute to USP.

#### What degree does the USP student graduate with?

The USP student graduates with the honours degree of his/her home faculty. In addition, he/she also receives the USP Certificate and the USP Testimonial. Outstanding USP students graduate with a range of USP awards bearing testimonies to their academic and non-academic achievements.

## USP Open Days

For a chance to interact with USP faculty, students and staff, drop by at the NUS Open House and the USP Open House.

#### NUS Open House

The NUS Open House is held annually on the weekend following the release of the GCE "A" Level examination results. USP faculty, students and staff are present at the USP booth to share their experience and answer any questions you may have.

#### USP Open House

The USP Open House is held one week after the NUS Open House. In addition to interacting with USP faculty, students and staff, prospective students are welcome to tour USP premises and facilities. Simply register your interest in the USP Open House at the USP booth at the NUS Open House, or register online at USP's admissions portal [usp.sg](http://usp.sg).

## Contact Us

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