



# 2015 Vancouver Summer Program

photo by Russ Heint



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# An Introduction to the VSP

The **Vancouver Summer Program (VSP)** is a four week academic program offered by various Faculties at the University of British Columbia, Canada for cohorts of students from partner universities

The program provides the opportunity to take two academic courses while learning about Canadian practices and culture



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# VSP Program Benefits

**Study** at a world-renowned university

**Meet** students from other universities and Canadian students through socio-cultural activities

**Improve** your English skills

**Learn** about Canadian culture and society



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# About Vancouver

Vancouver is located in the southwest corner of British Columbia – one of Canada's 10 provinces and 3 territories

40 minutes away from the United States border

Population 2.1 million



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# About Vancouver

Consistently rated as one of the best places to live in the world in terms of quality of life, opportunities, cultural diversity, political stability, and a healthy environment

Host to the 2010 Winter Olympics



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# University of British Columbia

Canada's education ranks amongst  
the best in the world

UBC is Canada's third largest  
university and a leader in research

18 faculties and 13 schools offer a  
wide range of study options



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# UBC at a Glance

**58,284** students (Vancouver: 49,896; Okanagan: 8,388)

**10,181** international students from 149 countries

**12,010** degrees granted in 2013

**300,000** alumni in 120 countries

**15,171** faculty and staff

**\$2 billion** annual operating budget

**\$564 million** per year in research funding for 8,442 projects

**158** companies spun off from UBC research

**\$12.7 billion** in economic impact

**7** Nobel prize winners among current or former faculty and alumni

**31<sup>st</sup>** in Times Higher Education world rankings (2013)

[www.ubc.ca/facts](http://www.ubc.ca/facts)



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# UBC Campus

The UBC campus is a 20-minute drive from downtown Vancouver

The 1000-acre campus is surrounded by the Pacific Ocean with snow-capped mountains in the distance



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# VSP Course Packages

There are two courses in each package

Each course is about 39 hours of class time

Classes are interactive and often include group work and discussions

Evaluation may include assignments, group projects, papers, exams, and participation marks

Courses do not receive UBC credit but credit may be granted by the student's home university (at its discretion)



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# VSP Program Packages

## *July 18 to August 18, 2015*

### Science

#### Package A – The Dynamic Earth and its Beautiful Treasures

##### ***Our Dynamic Planet***

Using international and Canadian examples, we will examine the origin of our planet, its composition and structure. From mountains to glaciers, earthquakes to volcanoes, ancient rocks and mighty dinosaurs, Canada is a wonderful natural laboratory that we will use to investigate our active and dynamic planet.

##### ***Earth Treasures***

Canada is also known for its spectacular precious metals and gems, some of them housed in our departmental museum, The Pacific Museum of the Earth. The origin, valuation and exploration strategies for gems such as diamonds and jade, precious metals such as gold and platinum will be investigated in the second half of this package and placed into a fascinating international and Canadian geological context.

No background knowledge of geology is required for package A.

#### Package B – Fossils, Fuels and Mineral Resources

##### ***The Active Earth and its Resources***

This course considers how an active and evolving Earth system has created a planet rich in natural resources. Resources such as metals, fossil fuels and the processes that create them will be investigated with a reference to international and Canadian examples.

##### ***Earth and Life Through Time***

Earth's biosphere has been evolving for over 4 billion years. This package will introduce some of the basic techniques paleontologists use such as stratigraphy, biostratigraphy and paleobiology that help them read the story of life hidden in the rocks. Topics will cover many of the fascinating developments of Earth's biosphere including life's origins, major developments and the five mass extinctions that threatened to wipe out all living things.

No background knowledge of geology or paleontology is required for package B.



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## 11 Package C – The Geometry of Nature

### ***The Size of Things***

This multi-disciplinary course on scaling will use the unifying theme of size to examine a wide range of physical and biological systems. In each case we will see that "size matters". This will be shown true in the most basic sense, that of spatial size, shape, area and volume. In a more general sense this truism holds in that the geometry, kinematics, and dynamics of phenomena are largely determined by the relative size of underlying factors and processes. We will identify a set of general scaling laws that reflect these facts, and learn a set of conceptual, graphical, and mathematical tools for working with them. Both the laws and the tools transcend traditional disciplinary boundaries within science and beyond science.

### ***Symmetry***

Symmetry touches all areas of science. In geometry, symmetry is the property by which the sides of a figure or object reflect each other across a line or surface. In biology, symmetry is the orderly repetition of parts of an animal or plant. Symmetry is important to chemistry because it explains observations in spectroscopy, quantum chemistry and crystallography. In physics symmetry is a concept of balance illustrated by such fundamental laws as the third of Newton's laws of motion. In this course we will explore many aspects of symmetry.

First year university science and math would be recommended for these courses.

## **Medicine**

### **Package A – Clinical Research and Clinical Medicine**

#### ***Introduction to Clinical Research in the Sciences***

This course provides a window into how clinical research is conducted in the medical sciences. Research methodologies, research process, ethical considerations and practical tips for conducting high-yield, evidence-driven research with patients will all be presented and discussed. The course includes lectures, workshops and a hands-on mentored individual research project by students that will be presented at the end of the course. A wide variety of health care providers and medical educators will participate in the course and provide examples of research conducted at UBC and other academic institutions. Engaging speakers, visits to clinical research facilities, and effective mentorship techniques will provide students with a once-in-a-lifetime opportunity to take part in the most advanced learning in basic clinical research.

#### ***Introduction to Clinical Medicine at the Bedside***

This course will bring medical and science students close to the real life of medicine in the 21st century. Students will be able to meet up close with practicing clinicians who manage complex patients every day as part of their work in the hospital and clinic setting.

Using advanced teaching tools such as medical simulation, and together with experienced physicians from multiple disciplines of medicine, students will learn how to approach patients with medical history taking, physical examination, development of a medical differential diagnosis, and will gain knowledge in determining the need for investigations in order to reach a diagnosis and develop a treatment plan.

A combination of lectures, simulation labs, case-based workshops and visits to laboratory and clinical areas, will enhance the hands-on experience and understanding of the medical and other sciences.



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## Package B – Pharmacology

### ***Pharmacology of Everyday Life***

Students will gain insight into how drugs produce both desired and adverse effects through exploration of their underlying mechanisms of action on the body. Through historical and present-day analysis of selected prescription, over-the-counter, and social drugs, students will gain an understanding and appreciation of pharmacology directly applicable to their everyday lives. Course objectives will be met through a combination of lectures and small group discussion/tutorial/laboratory sessions designed to introduce students to the challenges of pharmacological research.

### ***Systems Pharmacology***

Students will explore the basic science and clinical applications of drugs in many of the different physiological systems of the body. Lectures and small group sessions will allow students to learn drug mechanisms and effects throughout the body, from both the basic science and clinical perspectives. Among the many topics discussed in this course, students will gain a detailed appreciation of the important drugs and drug classes of the cardiovascular, respiratory, gastrointestinal, reproductive and endocrine systems, as well as the fields of neuropharmacology and autonomic pharmacology. Please note: A basic background in biology and human anatomy/physiology is recommended but not required for this package.

## Package C – Medical Imaging and Medications for Controlling Pain

### ***Introduction to Medical Imaging***

This course will provide an introductory understanding of the imaging modalities (plain radiographs, ultrasound, CT and MRI, plus some limited discussion of interventional radiology) used to solve common clinical problems in all body systems. Considerable time will be spent reviewing imaging normal anatomy, using gross anatomy-cross sectional imaging correlation, and this will be followed by demonstration of the critical role that modern imaging plays in Cardiac, Pulmonary, GI, Neurologic and Musculoskeletal disorders. Students will gain an understanding of the indications and contra-indications for specific imaging tests, and the advantages and disadvantages of each modality in common clinical scenarios. Case-based learning, interactive sessions, and possible hands-on ultrasound will augment didactic lectures, which will be given by subspecialty Radiologists, Fellows, and Residents. A tour of a modern tertiary care hospital imaging department will form part of the course. The course will conclude with a presentation entitled: 'Top ten not to miss cases in Radiology'.

### ***Medications for Controlling Pain in Everyday Life and in Surgery***

This course will explore the treatment of pain at the pharmacological level. Students will gain an appreciation of the role of analgesia and anesthesia throughout history and in present-day society. Classes will be a mix of academic and clinical instructors, providing two different but complementary perspectives on pain management, as well as regional and general anesthesia. Course objectives will be met through a combination of lectures, small group discussions and tutorial sessions, as well as utilization of high fidelity computer-simulation demonstrating how anesthesia is provided and how emergencies in the operating room are practiced.



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## Package D – Biochemistry & Molecular Biology in Human Health, Disease, and the Environment

### ***Molecular Mechanisms of Disease***

This course will provide an introduction to key principles of biochemistry and molecular biology in the context of human health and disease. Students will gain an appreciation of basic human biochemical pathways and learn how perturbations in these pathways can lead to disease. Through studies of selected examples, students will gain an understanding of the molecular basis of common diseases such as diabetes, cardiovascular disease, vision loss and cancer. Several case-based topics will be presented featuring work from world-renowned UBC faculty. Specific topics may include the roles of the gut microbiome, antimicrobial peptides, personalized medicine, gene therapy, protein structure-function as a guide to drug design and stem cell cures. Course objectives will be met through a combination of lectures, small group discussion and tutorial sessions, as well as student led presentations.

### ***Environmental Biochemistry***

This course will critically examine biochemical and chemical processes in the world at large and the impact on human health. Environmental biochemistry will provide students with the scientific principles and concepts required to understand key interrelationships of the natural world and tackle the most daunting challenges of the 21st century. We will explore and debate key processes central for human and environmental sustainability. In a case-based manner, topics are structured as follows: a) a natural biochemical process is examined (system in-balance), b) a specific perturbation is introduced, c) the consequence is analysed (system out of balance), and d) predicative effects and possible corrective measures considered. Possible topics discussed will have a biochemical focus and include water and its dependency to life (quantity and quality), pH and ocean acidification, energy flow, cycles of carbon & nitrogen, human introduced chemicals in the environment (e.g. glyphosate, neonicotinoids, heavy metals, crude oil, SO<sub>2</sub>, etc.), food security (synthetic fertilizers, genetically modified organisms, pesticides, herbicides,). The course material is oriented toward issues of contemporary and future relevance. Students will incorporate current issues into their work featuring small group discussions, learn to evaluate the relative risks of many present-day problems and gain the tools to further explore these topics.



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## Package E – Neuropsychopharmacology and Neuropsychiatry

### ***Introductory Neuropsychopharmacology***

This course will cover the understanding of neurochemical alterations in the major mental illnesses, and the actions of major classes of drugs on these neurochemical systems. Practical approaches to the pharmacological treatment of the major mental illnesses including psychosis, mood disorders, anxiety disorders and sleep will be included. These course objectives will be met through a combination of lectures and student participation in case-based exercises led by an experienced clinician. The *Clinical Handbook of Psychotropic Drugs* (Bezchilbnyk, Jeffries and Procyshyn, Hogrefe Publishing, 2013) will be one of the texts used. Dr. Ric Procyshyn from the Department of Psychiatry will be a lecturer along with Dr. Alasdair Barr from the Department of Anesthesia, Pharmacology and Therapeutics.

### ***Introductory Neuropsychiatry***

This course will cover the anatomical and physiological basis of major mental disorders, both functional and organic. A neuropsychiatric perspective will include the key features of the history, physical examination, and mental status examination related to the diagnosis of mental disorders. The course objectives will be met through a combination of lectures and student participation in case-based exercises led by an experienced psychiatrist or neurologist. The *Casebook of Neuropsychiatry* (Hurwitz and Lee, American Psychiatric Publishing, 2013) will be one of the texts used. Prof. Trevor Hurwitz, a psychiatrist and neurologist, from the Department of Psychiatry will be the central lecturer.

## Package F – Understanding the Recovery and Treatment from Injury and Chronic Disease

### ***Exercise is Medicine***

This course will provide an exploration of exercise and physical activity in the treatment of chronic disease and aging. Through an exploration of chronic diseases such as stroke, arthritis and cardiopulmonary disease, students will gain an appreciation of the effects of exercise on brain function, bone health, and cardiovascular function. Topics will also include the epidemiology of physical inactivity across the world, measurement of physical activity in chronic disease, strategies to get a nation more active, role of health professionals in physical activity prevention and treatment, and mobile technology to motivate physical activity in chronic disease. Students will use a variety of interactive methods to understand the content, including case studies, small group tutorials, and problem-based learning. Students will also complete hands-on labs in a state-of-art fitness and exercise research facility designed to enable access for people with chronic disease and disability.

### ***Introduction to Rehabilitation Sciences: A case-based approach to understanding the recovery from injury and disease***

This course will introduce students to the science of rehabilitation within the World Health Organization framework. Through this approach, students will understand how severe injuries and chronic diseases can impact the patient and family, both physically and emotionally. Conditions such as spinal cord injury, concussion, stroke, cerebral palsy, arthritis, chronic obstructive lung disease and amputation will be used to illustrate the journey through rehabilitation, the road to recovery and adjustment to disability. Along this journey, students will be introduced to concepts about the musculoskeletal, cardiovascular, pulmonary and neurological systems, as well as coping mechanisms and quality of life. In addition, cutting-edge research on novel rehabilitation treatments will be introduced, including mirror therapy for reducing phantom pain after amputation, robotic suits to permit walking after spinal cord injury and e-Health (e.g., tele-medicine, video games, wearable sensors) to improve function. Students will use a variety of interactive methods to understand the content, including multimedia virtual patient cases, small group tutorials, and problem-based learning.



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## Package G – Population and Public Health

### ***The Social Determinants of Health***

It is now generally accepted that a variety of personal, social and economic factors influence health status. There is, however, still a great deal of debate about what the specific or most important influences are, and the mechanisms or pathways by which health is either damaged or promoted, and whether and how these factors can be influenced by public policy.

This course focuses on the meaning of health, its measurement, and examination of the factors that influence the health, well-being and quality of life of individuals, families, communities and nations. The course uses two core, interrelated notions of health promotion and population health to examine social, cultural, genetic, environmental, economic, gender and health-system influences on health.

### ***Biological Concepts of Public Health Practice***

This is an introductory course in human biology /physiology and pathophysiology in relation to public health. It explores biological principles of diseases in relation to public health. Topics include a variety of diseases and conditions that are most frequently discussed in current public health settings. It begins with an introduction to common medical terminology, basic cell biology and general anatomy.

Subsequent classes discuss common and relevant illnesses using an organ system approach, and explore how these diseases influence individuals' lives and public health initiatives. Class discussions include evolving issues of lifestyle, interventions, screening and diagnosis for these diseases, and explore biology and illness from an individual's perspective.

Examples of possible topics: Communicable Diseases; Mental Health & Addiction; Chronic Pain; Diabetes & Obesity; Cardiovascular Disease; Reproductive Disease; Cancer.

*For groups of 24 or more participants, a special package of two courses can be organized. Please contact us about a custom package in any of these or other areas. Customized two course packages can be scheduled for any four week period between mid-May and mid-July*



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# Sample VSP Schedule

Sample 2015 VSP Class and Social Schedule							
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
						Jul-18	Jul-19
						Airport Pickup* Check-in	City Tour
	Jul-20	Jul-21	Jul-22	Jul-23	Jul-24	Jul-25	Jul-26
9:00 - 12:00	UBC Welcome, Faculty Orientation and Campus Tour	Class A	Class A	Class A	Intercultural Communication Class	Whistler or Victoria Day Trip (optional)	
13:30 - 16:30		Class B	Class B	Class B			
Evening					*Granville Island + Market		
	Jul-27	Jul-28	Jul-29	Jul-30	Jul-31	Aug-01	Aug-02
9:00 - 12:00	Class A	Class A	Class A	Class A		Grouse Mountain (optional)	
13:30 - 16:30	Class B	Class B	Class B	Class B			
Evening		*Vancouver Art Gallery			*Richmond Night Market		
	Aug-03	Aug-04	Aug-05	Aug-06	Aug-07	Aug-08	Aug-09
9:00 - 12:00	BC Day Statutory Holiday	Class A	Class A	Class A		Whistler or Victoria Day Trip (optional)	
13:30 - 16:30		Class B	Class B	Class B			
Evening		*Museum of Anthropology	Mini Grad Fair (17:00-19:00)				
	Aug-10	Aug-11	Aug-12	Aug-13	Aug-14	Aug-15	Aug-16
9:00 - 12:00	Class A	Class A	Class A FINAL EXAM	Class B FINAL EXAM			
13:30 - 16:30	Class B	Class B		Farewell Luncheon (12:00-14:00)			
Evening							
						Aug-17	Aug-18
							Check-out 11:00 Airport Drop Off*

Legend
Free
Under \$10
\$50+

Note: Schedules for each of the individual packages will be finalized closer to the program dates.

\*Activities listed are examples only. Actual activities will vary by package.

\*Individuals arriving outside of group flights and regular hours will be expected to make their own way to UBC campus.



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# VSP Accommodation

- Accommodation on campus
- Easy access to classrooms, recreation and campus amenities
- Free Wifi in lobby; wired high speed Internet in guest rooms
- Laundry on site



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# VSP Accommodation

## Shared apartments (4 to 6 bedrooms)

- Private bedrooms with single bed
- In-suite bathroom
- Shared living space with TV
- Equipped kitchen

If maximum occupancy is reached in apartment style accommodation, students may be placed in dormitory style accommodation



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# VSP Program Fee

The packaged fee per student for the 2015 program is \$4200 CAD and it includes:

- Medical insurance
  - Group airport transfer and city tour
  - Shared accommodation for 31 nights
  - Orientation and farewell events
  - Course materials
  - Social activities
- (optional trips may require an additional fee)





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# Your VSP Contacts

## **Ms. Winty Cheung**

Executive Director

UBC Asia Pacific Regional Office, Hong Kong

[winty.cheung@apro.ubc.ca](mailto:winty.cheung@apro.ubc.ca)

852.2111.4401

## **Ms. Teresa Sham**

International Short Study Programs Manager

Office of the Provost and Vice President Academic

University of British Columbia, Vancouver

[teresa.sham@ubc.ca](mailto:teresa.sham@ubc.ca)

1.604.822.0563

<http://vancouversummerprogram.ubc.ca>



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