UBC Vancouver Summer Program

July 14 – August 14, 2018

Course Package Offerings

Enhance your students' learning experiences with study in an international setting in Vancouver, BC Canada! We welcome each university to organize a group of students to study course packages in the beautiful campus of the University of British Columbia.

Many course packages have a minimum and maximum class size, so we encourage you to register your students early. Course packages that do not meet the minimum number of students will not be offered, but students may transfer to other packages.

For inquiries from Asia:
Ms. Winty Cheung
Executive Director
UBC Asia Pacific Regional Office
winty.cheung@apro.ubc.ca
852.2111.4401

South Asia and the Middle East:
Mr. Stephen Kumar
Executive Associate
UBC India Liaison Office
stephen.kumar@ubc.ca
91.11.4606.1905

For all other regions
Ms. Marg Toronchuk
Program Coordinator
University of British Columbia
marg.toronchuk@ubc.ca
1.604.822.0158

The most current information on course packages is on vancouversummerprogram.ubc.ca

UBC Vancouver Summer Program

July 14 –August 14, 2018 Course Package Offerings

a c e e a . bc.ca

Applied Science - Chemical Engineering

Package A - Introduction to Chemical and Biological Engineering

Harnessing Chemistry: an Introduction to Matter, Energy, and Chemical Engineering

Matter and energy are the building blocks of our universe. Using their understanding of these concepts, chemical engineers e- a e and a matter and energy to produce new substances and materials. From the pharmaceuticals we take when we are sick, to the fuel we put in our vehicles, to the plastics, alloys and polymers that we find in our homes, in our phones and virtually everywhere around us, chemical engineers are involved, always keeping economic and environmental sustainability in mind. This course provides an introduction to the chemical engineering discipline, first by providing an overview of the physical processes and laws involved in the conversion of raw materials into refined products, and secondly by applying these concepts into more practical applications and designs. Students will have the opportunity to perform laboratory experiments illustrating some key concepts, as well as establish connections with newly acquired theory by visiting operating industrial facilities. This is an introductory course, and no prior knowledge of chemical engineering is therefore required.

Harnessing Nature: an Introduction to Biological Engineering

Science has advanced to extent that humankind now asserts its dominion over the very building blocks of life, and engineers are at the forefront of the efforts to harness the power of biological systems to develop new technologies, materials, medical tools and treatments, foods, industrial products and environmental processes to improve the world around us. This course provides an introduction to biological engineering, covering subjects that include introductions to microbiology, cell biology, and genetic engineering, bioprocessing for the production of biofuels, foods and pharmaceuticals, biomaterials, and recent advances in tissue engineering. Given these astounding technological advances, human beings are, as a species, faced with new ethical quandaries, and the ethics and social aspects of bioengineering are therefore also discussed. Participants will have the opportunity to apply theory into practice through lab experiments, and to witness bioprocessing and sustainable design in action through a tour of a local biological waste treatment plant. This is an introductory course, and no prior knowledge of biochemistry or biological engineering is therefore required.

Package B - Engineer, Brew, Drink

Early Morning Engineering: The Science and Engineering of Coffee Production

For many of us, coffee magically appears every morning at the press of a button or served by a smiling barista at our favourite café. Chemical engineers, however, see coffee as the product of a series of physical and chemical processes through which fresh coffee beans, picked from a plant, are converted into the delicious (and often necessary) cup of coffee we all enjoy. This course presents coffee production from this perspective, detailing each process step and exploring the underlying physical and chemical phenomena involved, from the cultivation of the coffee plants, through the heat and mass transfer involved in roasting and percolation, and through the engineering considerations that go into the design of coffee machines and disposable cups, while taking economics, sustainability, and ethics into consideration. Participants will get hands-on experience in process engineering through relevant laboratory experiments, see the process in action by visiting a local coffee roaster, and, of course, sample delicious coffees from all over the world. This course takes a technical look at coffee production, and prior knowledge of calculus, chemistry, and physics is recommended.

Late Night Engineering: The Science and Engineering of Beer and Wine Production

We've come a long way since beer was first brewed in Mesopotamia 6000 years ago, and today we can easily purchase beer boasting a boundless diversity of flavours and styles from all over the world. Wine, beer's much younger cousin, brewed for the first time a mere 4000 years ago, continues to this day to evoke images of mystery and romance and serve as inspiration for songs and poems. Chemical engineers, however, though many remain romantic at heart, see beer and wine as the result of a series of physical, chemical and biological processes that convert the sugars in fruits and grains into the libations many of us enjoy. This course will study these processes in detail, exploring fermentation, filtration, distillation and carbonation from the perspective of chemical engineering. Underlying principles and disciplines, including cell culture, bioprocessing, heat and mass transfer, and phase separation will be studied in detail, both in the classroom and in hands-on laboratory experiments, along with discussions on economics and market analysis, and environmental sustainability. Participants will visit local breweries to establish links between theory and practice, and sample beers and wines from all around British Columbia, which is well-known for the quality and diversity of its products. This course takes a technical look at beer and wine production and a prior knowledge of calculus, chemistry, and physics is recommended. All participants must be 19 years old or over.

Applied Science - Civil Engineering

Package A – Structural Materials

Structural Materials

Structure & properties of construction materials: Concrete, Asphalt, Steel, & wood, with emphasis on relationship between structures, mechanical properties, & durability. Course includes field visits.

Laboratory Testing of Structural Materials

Students in groups carry out laboratory & field experiments to study the materials involved. It is a laboratory based course where site-visits and external consultations are an integral requirement.

Package B – Advanced Concrete Structures

Advanced topics in Concrete Technology

Introduction to Specialized Concretes such as Fiber Reinforced and High Performance Concrete, Shotcrete etc., Mineral & Chemical Admixtures, Mechanical Response of Advanced Concretes & Durability.

Experimental Studies of Structural Concrete Elements

Students in groups carry out experimental work on structural concrete elements: beams, girders, & columns with different reinforcements or repairs. It includes testing, analysis, & computer modeling.

Applied Science - Electrical and Computer Engineering

Package A – Introduction to Electrical and Computer Engineering

Introduction to Digital Technology and Smart Devices

Nowadays, new products (smart-home devices, portable electronics, cars, appliances) are getting more intelligent and more connected. Do you ever wonder what technology lies behind them? This course covers the fundamental ideas behind smart devices and modern electronics. We will study the building blocks of digital electronics systems, like small micro-computers, and how they interface with us. Our exploration will involve the design and implementation of machines that can read signals from the real world and make decisions digitally. This course will introduce the basics of microcontroller programming to perform smart tasks; additionally, it will cover the different peripherals and sensors used to communicate, and how the information they collect is stored. Regardless of your background, if you are interested in the world of modern electronics, this course is for you!

Introduction to Electric Circuits, Sensors, and Power

You need more than a digital system and basic programming to make your electronics work- you have to understand electricity, sensors, and what it takes to bring everything to life. In this course, the basics of electricity and electrical circuits will be covered. You will learn about circuit fundamentals, amplifiers, and filters, which allow us to recover signals from devices such as microphones. Our look into sensors will allow us to detect physical magnitudes (like light, sound, pressure, color, temperature, and speed) and turn them into electrical signals that our microcontroller can understand. Finally, we will explore the circuits that give power to our electronics and bring them to life. Along with an introduction to digital electronics, this course will allow you to build simple systems to develop and interface with electronics systems.

Package B - Renewable Energy and Power Conversion

Introduction to Renewable Energy

Do you want to save the planet with green power? This course covers the fundamentals of renewable energy systems and includes topics on energy storage, power generation, distribution, transportation, and consumption. We will start with an introduction to carbon emissions, climate change, and environmental pollution to emphasize the importance of sustainability. Students will learn about solar, wind and ocean power generation. Grid connection and micro grids will be explained, as well as battery storage and fuel cell systems. Modern loads such as LED lights and electric vehicles will be discussed around the concept of demand side management. Students will gain skills on these emerging and key areas of green power and will have the opportunity to consider several case studies/examples. The course includes some tutorials and demonstrations using simulation software and physical equipment. What could be more important? The global energy markets will be dominated by renewables in the future - the planet will depend on engineers with a strong background in green power.

Electricity and Conversion for Renewable Power

How do we make renewable power generation happen? Renewable energy sources such as wind, solar, and ocean are intermittent and fluctuating. Changes in sun irradiance during the day, in wind speed variation, and changing ocean tidal velocity produce fluctuations in power generation. This course covers the fundamental of electricity and power conversion to transform variable/fluctuating energy into high quality power required to supply loads. The principles of power conversion for AC and DC system will be covered. Application examples will include topics such as power converters for battery chargers, solar inverters, wind/ocean power conversion, and traction for electric vehicles. The course will provide a strong theoretical background and enable students to understand renewable power conversion at the system level. A practical/applied component will be included, providing the student with real-world problem solving scenarios, laboratory experiences and visits to UBC state of the art power facilities.

P e e : C e e a e UBC MATH 101

Package C - Communication and Digital Systems

Communication Systems: Technology Embedded in Daily Life

Tweets, blogs, emails, videos, texts … we rely on a myriad of communication systems but how do these systems really work? This course will start off by exploring the key historic technology breakthroughs that have led to modern communication systems. This will be followed by an introduction to how information is represented and why the digital revolution is the underpinning of modern communication. The remainder of the course will analyze current communication systems, technologies and standards selected to give the students a comprehensive overview of what is on the market. Examples include the LTE wireless standard which is common in most cell phone networks, Wi-Fi for local wireless communication, and modem technology which enables information to be transmitted and received over fiber optic cables, wires or air. Students will build their knowledge through case studies of current communication technologies and systems with an emphasis on understanding and relating performance specifications to the user experience.

Introduction to Digital Systems Design with FPGAs

Digital systems lie at the heart of almost any electronic system including wearable devices, cell-phones, signal processing systems, computers, biomedical devices, etc. In all of these systems, the "intelligence" of the system is implemented in digital logic. This course introduces digital systems, and how to design them. More specifically, you will learn about combinational and sequential logic, synchronous and asynchronous circuits, embedded processors, and other related topics. The course will have a significant laboratory component, where a digital hardware design language (VHDL) will be introduced and employed to bring to life your digital designs on an FPGA (field programmable gate-array) board.

P e e : C e e a e UBC MATH 101

Package D - Engineering the Sound of Music

Music: An introduction to Electrical & Computer Engineering

Music has become an integral part of our daily life, but so few understand the engineering behind it. This course will give you an overview of Electrical and Computer Engineering (ECE), revolving around music. Several aspects of ECE will be covered, including the basics of acoustics and waves, the technology behind microphones, the electronic circuits behind amplifiers, analog to digital converters (ADCs) and digital to analog converters (DACs), sampling theory, signal processing using analog and digital filters, operation of speakers, encoding and compression techniques used in mp3, etc.

Music Laboratory: Hands on Learning

Have you ever wondered how a DJ machine works? What are all those knobs used on a mixer? How does a noise cancellation headphone work? In this hands-on course, students will learn about the technical details of different equipment used by recording artists and DJs, such as mixers, distortion units, bass pedals, synthesizers, and MIDI. Students will design and test a guitar amplifier as a class project.

P e e : C e e a e UBC PHYS 157

Package E - Principles of the Modern Internet

Algorithms and the World Wide Web

The Internet and the World Wide Web have enabled new methods for communicating and working with data. What is the underlying infrastructure for the Internet? What are the algorithms used to move bits of data around? How is your credit card number kept secure when you buy a book from Amazon or Baidu? How is your location determined using GPS when you use Google Maps? How do some dating web sites match people? We will discuss some of the system building and algorithmics that power the World Wide Web.

Building Modern Web Applications

Do you want to develop your own web-based application? Have you dreamed of making quick and slick looking web applications that are also robust? We will discuss the central abstractions and principles that enable the development of robust web applications. These principles can be applied when building applications using technologies such as HTML, CSS, and JavaScript.

P e e : C e e a e UBC CPEN 221

Architecture and Landscape Architecture

Package A - Wood + Architecture

Wood - Building by Nature

British Columbia has been a global centre of innovation for the cultivation, processing, engineering and manufacture of wood building materials and wood building design for over 100 years. In this course, students will learn about the physical and mechanical properties of wood, one of nature's most abundant and versatile building materials. Focus will be on how wood can be used to inform creative processes of industrial design, engineering and architecture. Course format combines classroom-based lectures, machine laboratory demonstrations and exercises, with field visits to study contemporary places and techniques of wood production, processing and construction.

Designing with Wood

This field-based course connects the technical understandings of wood as a material from Course 1 to their application in the design of innovative wood buildings and structures. Students will learn to see, document, analyze and illustrate the integration of design and technical concepts within a contemporary wood building, and will ultimately be asked to design a small building that is technically sound, critically considered, and beautifully executed using wood as the primary medium. Course format combines classroom-based lectures, presentations, studio projects and lab demonstrations with field visits to innovative buildings and design and engineering firms.

Package B – Urban Landscape Architecture

Design in the Public Realm

Vancouver is known as a liveable and sustainable international city. An important aspect of the city's liveability is the design of its public realm — publicly owned parks, greenways, waterfronts, streets and squares. A well designed public realm provides places for people to gather, socialize and recreate, encourages active transportation, maintains spaces for the urban forest and vegetation to thrive and contributes other environmental services to the city. In this field-based course students will learn how a well-planned and designed public realm supports liveable neighbourhoods and provides important social and environmental services to the city. Students will learn how to document and assess public spaces in the city and through daily field trips and guest lectures will study the City's best examples of public realm design.

Green System Planning

Vancouver is a beautiful and sustainable city in a dramatic natural setting. What role do the natural areas in and around the city play in sustaining a metropolitan area such as Vancouver? This course will introduce how urban natural areas clean air and water, sustain wildlife, and provide psychological and other health benefits to people. Students will learn about the most important environmental services and human benefits provided by the large parks and natural areas in the Vancouver region; and will hike or bike on guided field trips to some of the region's most important and instructive landscapes, open spaces and parks.

Package C - Urban Design

Sustainability by Design

Using the city of Vancouver as a laboratory, this class introduces the basic principles of sustainable urban design through daily tours of internationally significant local examples. Relevance of these examples to global development is isolated and discussed. A typical day includes a lecture focusing on one principle of sustainable city design, followed by a tour of a place in the region where this principle is obvious. Students will see and experience examples of significant contemporary urban design practice in suburban, urban, and downtown contexts.

Perspectives on City Making

This class, taught by the former Mayor of Vancouver Sam Sullivan, uses the development of the City of Vancouver to illustrate how many social, political, economic, creative and natural forces combine and interact to make a city. Students learn and experience these forces through the eyes of those who were a part of it. There will be tours and guest lectures from those who played a role in specific development projects. Students will gain an insight into both the practical and theoretical considerations that have led to the city, as we know it.

Arts

Package A - Global Migration, Local Communities: Asian Canadian Histories

This package is offered by UBC's Asian Studies Department, widely acknowledged as one of the finest in North America, and the UBC Asian Canadian and Asian Migration Studies program, which specializes in interdisciplinary, community-based Asian-Canadian coursework. This package is a multidisciplinary examination of how global migrations have formed unique societies and cultures, with a special focus on Vancouver's Chinese, Japanese, and South Asian communities. This package draws on disciplines such as history, cultural studies, sociology, gender studies, and community studies to equip students with the background knowledge and skills to conduct community-based research in a sensitive and ethical manner. Instructors will combine academic readings and discussions with visits to local community organizations such as museums, advocacy organizations, galleries, as well as historical neighbourhoods. Students will work on original research projects that will blend skills such as writing, photography, filmmaking, interviewing, and web design.

Is Asia in Vancouver: Ac

Is Asia in Vancouver: Community-Based Research (Asian Canadian and Asian Migration Studies)

In this course, students will apply their classroom knowledge to undertake original research projects that engage with local Asian communities. Throughout, students will consider the ethical challenges with under-represented communities in a respectful manner. Students will visit historical neighborhoods in the Vancouver area and meet with community workers and elders. They will then be guided in the process of formulating, proposing, and carrying out a short research project. Course work will include workshops in interviewing and basic filmmaking. The course will culminate in a showcase to share research projects with community partners.

Package B - Global Journalism, Culture and Communications: Practice and Principles

This package examines the ways in which media shape, and are shaped by, society and technology. Students will learn about the social and cultural context of communications, become familiar with current debates in media and be introduced to journalistic principles and practices. The package brings together the Department of Anthropology and the award-winning UBC Graduate School of Journalism.

Culture and Communication (Anthropology)

Anthropology is the study of human societies and cultures and their development. A very important area of interest is human language. This course will examine the relationship between language and culture by covering key debates in the field including animal vs. human communication, cross-cultural differences, language policies and language change. Students will explore how language is involved in cultural constructions of race, gender, class and ethnicity. They will also analyze how language is understood in relation to power, political economy and language ideologies. Students will gain experience in meeting writing standards for UBC Arts/Anthropology courses and will receive individual feedback on writing assignments.

Global Journalism (Journalism)

This course will examine the development of media technologies, their applications, and their cultural, political and social impacts. Students will also gain hands-on experience in learning how to think and operate like a professional journalist in a simulated multimedia environment. It is designed to introduce students to the grammar and syntax of media across platforms, based on a core journalistic skill set of interviewing, reporting, news writing, and research methods in tandem with the most current technical tools.

Package C – The English Language in a Globalized World

Students will gain a deep perspective on the internal structure, origins, and many variations of the English language. These courses are modeled after university-level courses for native English-speaking students, and are jointly offered by UBC's globally recognized Departments of Linguistics and English.

The History and Future of the English Language (English)

In order to contextualize present-day changes in English, the course will begin with a brief history of the English language. It will then examine issues such as the national dialects of English (e.g. Canadian English, British English, Singapore English), regional and social dialects, the effects of gender on language forms and use, language in computer-mediated discourse (in texts, emails, social media), and ongoing changes in contemporary English. The course will provide students with a better understanding of how English is used in different contexts, and the directions in which the language is heading in the 21st century.

How Human Language Works (Linguistics)

An introduction to how human languages work, examining the structures that underlie all languages, with special focus on the deep structure of English. The course asks what universal properties are shared by all languages, and how languages as divergent as English and Chinese can be different (or similar!) in terms of their sound systems, word-building, grammar, meaning, written form, and acquisition by children and adult learners. By the end of the course, students from varied language backgrounds should understand how knowledge of the universal properties of languages can deepen their understanding of English, of their own language(s), and of the amazing capacity of the human mind.

Package D - International Finance, Trade, and Politics

This package combines the Vancouver School of Economics (VSE), a global centre for research and hands-on learning about pressing economic issues, ranked in the top 20 worldwide and number one in Canada, and UBC's highly regarded Political Science Department.

International Trade and Financial Markets (Economics)

The modern global economy is intricately tied together through networks of trade and financial interconnections. This course will give students an understanding of the structure and function of international trade and international financial markets. The course will give a basic introduction to the forces driving international trade in goods and financial assets among nations of the world. The major theories of international trade and financial markets will be reviewed. Topics covered will include the determinants of a country's trading pattern, recent trends in international trade such as offshoring and global supply chains, the role of financial markets in international development, the future of the Renminbi as an international currency, the understanding of international financial crises, and sovereign debt crises.

N e: T c e ac a e a a ab e e J e e a A Pac a e A.

Dynamics of Democracy and Global Uprisings (Political Science)

This course deals with some of the key concepts of political science, matching them with developments around the globe. We begin by considering some of the concepts and controversies in defining democratic and non-democratic systems. How do we tell democratic systems from non-democratic ones? Are all democracies the same, or at least similar? Is citizen satisfaction a distinctive quality of those regimes? We then link these discussions to the rising waves of global discontent around the globe. The seemingly-universal quality of these uprisings give a strong indication that the struggles we are witnessing are no longer over democracy versus other systems; instead, what seems to be at issue are the meanings and practices largely associated with democratic regimes, the expectations of people, and what regimes provide. Finally, we focus on specific uprisings, chosen by the students, in an attempt to contextualize our discussions and make sense of recent global developments in an informed, thoughtful manner.

Package E - Environmental Economics and Geographies of the Global Economy

This package pairs the Vancouver School of Economics (VSE), a global centre ranked in the top 20 of its peer departments worldwide, and number one in Canada, with the Geography Department, ranked as one of the ten best geography programs in the world and best in Canada, according to the 2016 QS University Rankings.

Geographies of the Global Economy (Geography)

This course will explore the fast-changing geographies of the global economy from the uniquely grounded perspective of economic geography. The course will examine a range of contemporary issues and debates in the field, including: the development of transnational production and logistics networks: changing patterns of migration and labour mobility; the growth and influence of world cities and financial centres; new models of economic growth and varieties of capitalism; and contrasting perspectives on economic and cultural globalization. Students will acquire an up-to-date understanding of the changing global economy and its principal challenges and opportunities, together with an understanding of their own place in the world.

Environmental Economics (Economics)

This course provides an introduction to economic aspects of environmental problems and sustainability. It will begin with an overview of selected environmental problems, such as the effects of air and water pollution on human health, threats to biodiversity from habitat destruction, and climate change. Trends and indicators of environmental sustainability, both within and across countries, will be reviewed. The course will focus on questions such as why environmental problems occur, whether or not globalization is increasing the severity of such problems, what types of policies have been successful in improving environmental quality, and whether or not current consumption levels are sustainable. Policies will be analyzed from the perspective of efficiency, effectiveness, political feasibility and fairness, and examples will be drawn from different countries.

Package F - Living on the Net: exploring information worlds and designing digital spaces

For over fifty years, the UBC School of Library, Archival and Information Studies (SLAIS) has been preparing professionals to exercise leadership in planning, implementing, and promoting the preservation, organization and effective use of society's recorded information and ideas. This package is ideal for students interested in an initial foray into information science, by examining the Internet as a social and technical environment: a space for human interaction, learning and communication. Students will draw upon their own experiences as Netizens, develop a deeper and more critical understanding of online information spaces, and gain a user-centred perspective on writing and designing content for the Web.

Networks, Crowds and Communities (Library, Archival and Information Studies)

This course introduces network concepts and analytical methods for exploring social and organizational connectivity for online work, socializing, and knowledge production. Students will critically examine the impact of social media on connections that span space and place; the phenomena of peer production and crowdsourcing; and the role of ubiquitous mobile connectivity on daily life.

Digital Information Interaction and Design (Library, Archival and Information Studies)

Students will have the opportunity to explore the Internet as a design space and to develop a user-centred perspective that can be used to frame the logical and physical design of online information systems and content. Students will gain experience applying "Design Thinking" methodologies, including ideation and prototyping, to design problems and producing clear, well-structured, and effective digital content.

Package G - Computational Linguistics: From Search Engines to Social Media

Language and computation are the very foundations of the new knowledge economy. In this package, students will explore these foundations through the dynamic field of Computational Linguistics. Students will examine how linguistics and computation combine to answer fundamental questions about language, and study the ways in which it is deployed by the tech industry to provide solutions to some of today's most pressing issues. A background in computing is not necessary.

Linguistics for Natural Language Processing (Linguistics)

An introduction to the general linguistic principles and concepts that are relevant for computational linguistics, including: (i) an introduction to phonetics and phonology, (ii) an understanding of syntactic and morphological structure, (ii) descriptive approaches to grammar, (iii) language typology and linguistic universals, including differences and commonalities between different languages, cultures and modes of communication. In each case, special reference will be made to computational applications, and by the end of the course students should understand how knowledge of the universal properties of languages both contributes to and benefits from computational research and applications.

Computation for Natural Language Processing (Linguistics)

This course will take students with little or no background in computing and teach them programming basics and the practical uses of computational linguistics and machine learning. Students will learn how to use a command line interface and create simple programs using Python and NLTK. The course will then take them step-by-step through how programs perform such tasks as tagging speech and analyzing sentence structure or meaning. They will see how these steps can be applied in such useful and ubiquitous applications as error correction, spam filters and author identification among others. Finally, they will see concrete examples of how computation is contributing back to traditional areas of linguistic enquiry.

Package H - From Stage to Screen: how Vancouver 'plays' to a Global Audience

This package examines the ways in which film and theatre are shaped by the city in which they are produced. Students will learn about the thriving theatrical city that is Vancouver and use simple film techniques to document how place can influence both live and digital work. The package brings together the most dynamic aspects of the Department of Theatre and Film, which produces exhilarating live theatre and films, while examining the academic endeavours of both.

From Drama to Theatre: How Does a Play Mean? (Theatre and Film Studies)

This course will explore the languages of theatre within Vancouver's rich and lively performance culture. How do individual artists—directors, actors, designers—transform a playwright's ideas into unique and original art? In what ways, for example, will a Shakespeare play produced in Vancouver become a Canadian play? These questions and more will be explored in relation to two plays a week in production in Vancouver during the term. We will examine and discuss the play scripts, attend the plays, and meet "backstage" with some of the artists themselves. Plays chosen will span a variety of genres, including Shakespeare (in production at Bard on the Beach Shakespeare Festival), musicals (in production at Theatre Under the Stars and the Arts Club Theatre Company), plus additional dramas and comedies in production.

Business

Package A - International Business Management and International Marketing

International Business Management

Development of general environmental framework for international business studies by drawing on international and development economics, research into government-business relations and studies in comparative socio-cultural systems and political systems. This course is taught from the perspective of a senior manager. It analyzes the decisions made by firms in an international context. To do so it combines material from strategy, international finance, marketing, human resource management, positive trade theory, institutional trade policy, and other areas. It will emphasize the use of analytical tools and the development of oral and written communication skills. By design, the course in integrative, implying that there is some overlap with material taught in international marketing and finance courses.

International Marketing

An analysis of the scope and significance of contemporary international business operations with particular reference to the marketing management problems encountered by firms with multinational branches and subsidiaries. Through lecture material and practical assignments, students will explore a broad range of international marketing issues and concepts. With a focus on strategic problem solving, you will learn the use primary and secondary research tools in objectively evaluating international market potential and risk. The marketing process is examined in detail, including strategic market planning, product, pricing and promotional decision-making, and marketing management. The course is taught with a hands-on approach and providing you with abundant time to employ knowledge learned to advance your term project.

Package B - Introduction to Marketing and Management and Organizational Behaviour

Introduction to Marketing

This course is designed to provide a broad introduction to the field of marketing and basic considerations affecting the domestic and international marketing of goods and services. Marketing is far more than just selling or advertising within a business setting; it is a major part of everyday life. This course will illustrate the importance of marketing and will help you develop fundamental marketing knowledge and skills applicable to all specializations within business.

Management and Organizational Behaviour

The primary objective of this course is to teach you about the effects of organizational structures and interpersonal processes on the behaviour of individuals in organizations and the wider implications for the effectiveness and success of organizations. This course will expose you to frameworks, approaches and behaviours that can help in effectively participating, leading and managing in organizations. Research has shown that effective people management is an important contributor to organizational success. The emphasis will be on creating effective leaders and team members through a better understanding of motivation, working in teams, power and influence, leadership and navigating organizational culture and change. All this will help participants contribute to the success of themselves and their organizations.

Package C - Strategic Management and New Enterprise Development

Strategic Management

Concepts and processes for the strategic management of private sector, single and multi-business unit enterprises are analyzed using the case method. Methodologies which draw on economic and organizational theory are integrated to form the foundations for strategic analyses. This course builds students' ability to analyze and develop business strategies by introducing frameworks and tools to understand the nature of competition in general and to analyze the specific competitive position and strategic options of a given firm. You will learn frameworks for analyzing industry structure, internal capabilities, and competitive interaction, as well as how to use those frameworks to critique a specific firm's competitive position and develop and evaluate strategic alternatives.

New Enterprise Development

This is an introductory course to the field of entrepreneurship. It is also useful to anyone who expects to be interacting with entrepreneurs in their business careers, be it as private investors, venture capitalists, consultants or customers. The course provides an experience-based exposure to the process of starting entrepreneurial ventures as well as examining the challenges facing any would-be entrepreneur in the real world. This includes developing business models and strategies for innovative products or services and strategies for acquiring resources, particularly financing.

Package D – Operations and Supply Chain Strategy and Business Analytics

Operations and Supply Chain Strategy

Operations is one of the fundamental functions of any organization. Operations and Supply Chain managers are primarily concerned with the efficient execution of an organization's strategy. In doing so, they also help shape a firm's future strategy. Operations is concerned with designing and managing processes that transform inputs to outputs in an organization. This includes important activities such as the production and delivery of goods and services. Operations is also responsible for the systematic planning, designing, operating, controlling and improving the various processes involved from the time a customer places an order to the time the product or service is delivered. The challenge for supply chain managers is to produce goods and deliver services in accordance with the business strategy of their company in most efficient manner. Typically, this involves balancing the needs for lower costs, higher quality, shorter production times and greater operational flexibility, while at the same time getting the customer orders (products or services) out on time. In this course you will learn the fundamentals ideas of good operational principles and Supply chain management. You will understand how an organization's strategy and operations are related to each other. You will also understand the impact of operational decisions on the various other business functions such as marketing, finance and human resources. This will help enhance your managerial insights and intuition and improve your business decisions. The course will feature practices from various companies such as Zara, Alipay, Tencent, Walmart, GE, Toyota and many others.

Business Analytics

Business professionals must have familiarity with and skills in each of descriptive, predictive and prescriptive analytics. Descriptive analytics includes data analysis and data visualization: understanding, manipulating, evaluating and presenting the many complex data and information streams that drive today's businesses and organizations. Predictive analytics includes forecasting, various statistical techniques, data mining, and machine learning. Prescriptive analytics involves the employment of a number of analytical models to aid decision-making. Topics covered in this course include: descriptive statistics, data visualization, descriptive data mining (cluster analysis), linear regression, predictive data mining (classification trees), spreadsheet models, linear optimization and Monte Carlo simulation. This course aims to provide essentials on these topics, equipping students with the literacy of business analytics. Each student must bring his/her own laptop computer with Excel.

Community and Regional Planning

Package A - Big Data and New Technologies in Cities

Urban Big Data Analysis

With the advent of open data movement, knowledge and skills for collecting and analyzing big data become increasingly important for urban planners. This course will teach you how to harness the power of big data by mastering the way they are collected, organized, and analyzed to support better decision making in urban planning context. You will learn the basic tools needed to manipulate large datasets derived from various open-data platforms, from data collection to storage and approaches to analysis. You will capture and build data structures, perform SQL and basic queries in order to extract key metrics and insights. In addition, you will learn how to use open-source programming tools, such as R and Python, to analyze and visualize the data. These statistical tools and methods will be complemented by machine learning and pattern detection techniques, in addition to new technologies for big data.

Spatial Analysis Using Geographic Information Systems

GIS technology sits at the intersection of the world around us and our incredible computing capabilities that allows us to investigate and visualize that world in new and exciting ways. This course will introduce you to key concepts, methods, and tools used to collect, analyze, map, and visualize geospatial data. You will explore what makes spatial data special, some of the ways it is collected, and how it can be used to answer questions about the world around us. You will use geospatial data to help with decision making and to inform policy-making. You will use computer-based geographical methods of data input and analysis to model the world around them, to explore real-world scenarios, and present their findings to others. Practical applications will be investigated in both the natural and human realms through lectures, discussions, group exercises, and a hands-on computer lab component. Upon completion of the course, you will:

- Advance your critical thinking skills;
- Understand what a GIS is, how it functions, and how it can be used to establish new information from raw data; and,
- Become adept at use spatial queries to help solve geospatial problems using a GIS.

Package B - Building Resilient Cities

Greening the City: Vancouver as a Case

Vancouver is one of a global collective of cities working towards urban sustainability, including its own ambition to be the world's greenest city. This course will explore how can city planning support and advance the effort towards reducing a city's ecological footprint and enhancing a city's environmental performance in balance with myriad other policy objectives. Using Vancouver and its Greenest City Plan as a primary case, we will examine the history, current trends, and future potentials of sustainable city building with an emphasis on building and neighbourhood performance, energy, transport, zero waste, food systems, and regenerative design. This class will include site tours as well as classroom-based presentation and discussion.

Citizen Engagement for Behaviour Change

City managers and planners are interested in understanding human behaviour, often with the aim of changing the choices people make. Should I bike to work? Should I drive less? How do we make it easier for people to make more sustainable decisions? Better individual choices can lead to collective gains and move us closer to an equitable and sustainable society. But which policies are successful at changing people's habits? What does it take to change human behaviour and how do we know if we are successful? This course will review how policy makers have aimed to induce behavioural change with a particular focus on environmental and experimental economics. We will cover core principles in environmental economics and use experimental games to understand individual preferences, reciprocity, trust, and social capital. Through active exercises in the classroom, we will learn about the opportunities and challenges for inducing behavioural change.

Dentistry

Dental Caries and Oral Cancer Package

Oral Cancer: Why Haven't the Clinical Outcomes Improved?

Cancer of the oral tissues is the 6th most common type in the world. In some developing countries oral cancer is much more common due to oral habits and exposure to chemicals that can cause cancer. The five- year survival rates for oral cancer remain low with nearly half of all the affected individuals dying from the disease. Early diagnosis of oral cancer is the most effective approach to decrease the mortality and morbidity. Pre-malignant lesions exist that have a much higher chance of becoming oral cancer and the recognition and management of these lesions can prevent cancer development. Oral cancer occurs in an anatomic location that is amenable to early diagnosis. Many techniques have been developed to aid in the recognition and diagnosis of both pre-malignant and malignant oral lesions. In this course the development of oral cancer, the clinical signs of the condition, the clinical and laboratory procedures for diagnosis and the long term consequences of an oral cancer diagnosis will be covered.

Dental Caries: The Most Common Infectious Disease in Humans

Dental caries affects more than 90% of all humans. The disease requires a combination of bacteria, a sugar and a susceptible mineralized tooth surface. The bacteria metabolize the sugar and a by-product is acid. The acid removes mineral from the surface of the tooth. Extensive destruction of the tooth mineral leads to the pathology, dental decay. Dental decay is a progressive process and if it is allowed to continue it can progress into the dental pulp and then into the supporting bones. If a bacterial abscess forms in the bone supporting the tooth it is often necessary to remove the tooth. Dental caries is the leading cause of tooth loss in the world. The loss of teeth affects the ability to eat, alters nutrition and has a dramatic impact on the quality of life. This course will take a comprehensive look at dental caries to understand how this disease impacts human populations.

Education

Package A - Teaching and Learning English

This package offers students a practical introduction to the theory and practice of teaching English. Both courses are designed for pre-service and in-service English teachers. Beginning with a close examination of English as a linguistic system, a means of communication, and a sociocultural practice, the package considers a variety of approaches to the teaching of English and provides a full range of teaching techniques and strategies.

Applied Linguistics for Teachers

Successful language teachers need to understand more than just the structure and nature of the language(s) they teach: they also need to develop an understanding of the social, cultural, and ideological implications of language and language education. Language classrooms are diverse, multilingual, multicultural and multimodal places, presenting students and teachers with unique challenges. This course serves as a general introduction to theory and research concerning these issues as they relate to learning and teaching, from the perspective of applied linguistics. Topics to be discussed include: theories of first- and second-language learning; the relationship of theoretical issues in applied linguistics to educational practice; language variation; language attitudes and ideologies; world Englishes; language and globalization; language policy; language and gender; language and race, and more.

Introduction to Teaching and Learning English

This course provides a general theoretical overview of and some practical preparation for English language teaching (ELT). Its scope is diverse as it considers approaches to language teaching, a range of teaching techniques and strategies, learner needs, instructional contexts, assessment, and sociocultural concerns, as they pertain to teaching English in a variety of contexts. The course examines ways to teach listening, speaking, reading, writing, grammar, and vocabulary but always with a view to integrating these skills. Students will have the opportunity to contribute to and learn from active engagement in discussions on contemporary ELT issues and topics.

Package B - Early Childhood Education and Development

Our early childhood courses focus on creating exceptional educational programs for children from infancy to eight years of age. The courses are carefully designed to introduce international students to research and theory pertaining to the education of young children. International students will be provided with opportunities to learn how theory is connected to practice by engaging in field study activities such as observing in early childhood classrooms and studying educational materials and resources that are used in Canadian and Western early childhood classrooms.

Designing High Quality Programs in Early Childhood Settings

This course addresses the notion that children are natural learners. Students will learn about, discuss, and clarify important concepts and theories relative to early childhood education, including child development theory and the holistic nature of learning in the early years. The course highlights the idea that young children's innate capacity to learn and teachers' responses to children's inquiries provide the foundation for the development of high-quality early learning experiences for young children and impacts the type of programming that is created. Students will learn about designing appropriate daily routines and implementing teaching strategies for integrating different areas of learning, such as literacy, math, science, and art through inquiry and project-based learning. The course will also include observations in local Early Childhood settings.

Creating Environments to Support Learning in Early Childhood Settings

This course introduces students to the significant role that designing stimulating and nurturing early childhood classroom environments plays in children's learning and in supporting all aspects of their development and growth. Students will learn about creating dynamic indoor and outdoor learning spaces for young children and the importance of providing children with original and natural educational materials and resources. The course will include visits to local state-of-the-art Early Childhood environments for young children.

Package C - Classroom Management and Behavioural Assessment

Classroom Management

The course is designed to empower educators to develop a positive classroom climate and an effective learning environment, in which teachers and their students engage in meaningful and successful learning experiences together. To achieve this goal, students will be introduced to current, evidence-based practices in school-wide, classroom and individual behaviour support. Classes will include lectures, discussions and small group activities that provide opportunities to develop skills in the application of these practices. Specific objectives of the course include developing student knowledge and skill in: (a) proactive approach to classroom management; (b) school-wide positive behaviour support; (c) design of a positive classroom environment; (d) development of positive, nurturing relationships with students; (e) use of positive reinforcement to strengthen prosocial behaviour; and (f) effective ways to respond to problem behaviour.

Assessment and Positive Behavioural Support in School and Community Settings

The course introduces students to the philosophy and methods of behavioural assessment and positive behaviour support with persons who engage in challenging behaviour in school and community contexts. Specific objectives of the course include developing student knowledge and/or skill in: (a) basic principles of behaviour change; (b) features and values of positive behaviour support; (c) ecological assessment of environments and functional assessment of persons with challenging behaviour; (d) completion of summary hypothesis statements and competing behaviour pathway diagrams; (e) design of multi-component behaviour support plans that are logically linked to assessment results; and (f) design of plans that are both technically sound and contextually appropriate.

Package D - Food and Wellbeing - Learning the Connection

The Department of Curriculum and Pedagogy is in a unique position to be able to offer studies in food education that reflects international experience. This complementary course package will provide students with both theoretical and practical learning about food sustainability and the influence of our decisions. The course will be delivered by university faculty, chefs and teachers who will offer hands on experiences linked to thinking about food in both local and global ways.

Eating food - an everyday experience

Deciding what to eat is an everyday event that is experienced in every culture and location. Learning about food requires knowing more than just how to be a consumer. This is an introductory course that provides a broad overview of different foods, food safety and preparation techniques and explores how food decisions can support wellbeing. Students will have an opportunity to reflect on their own food choices and develop critical thinking and collaborative work skills through class discussions and assignments. Topics to be discussed include: food supply in the Western context and how this compares to students' experiences; what influences our food choices; and everyday food practices and how these are linked to globalization. By the end of the course students will have participated in a range of activities including visits to farms and markets; experts who will talk about how they prepare and provide food; and teaching about foods from their culture.

Thoughtful eating in a Globalized World

Developing understanding about how food is produced from farms to production and final places for consumption from across a range of different cultural and geographic contexts is an important prerequisite for sustainability in an increasingly globalized world. The aims of this course are to help students develop understandings about sustainable food production and eating safe food. Topics of this course will introduce differences in food production as a cyclic process rather than one that is linear; food safety and eating for wellbeing. By the end of the course students will: be familiar with sustainability concepts; develop holistic strategies for eating that enhances wellbeing; and be able to apply the learning to their everyday experiences. They will have experienced a range of locations where food is purchased and consumed; maintained a journal that will allow students to think about how people make their food decisions, and considered the implications of different ways of eating that have an impact at local and global levels.

Package E - Culture, Creativity, and Learning Technologies

The Department of Curriculum and Pedagogy is on the cutting-edge of implementing digital learning technologies across the curriculum in 21st century K-12 and university classrooms. Our professors infuse new media across the curriculum in ways that engage and inspire learners, and they lead in research of these ideas. This complementary course package will provide students with both theoretical and project-based learning rooted in solo and collaborative contexts, as is fitting to exploring the uses and creation of digital learning tools, theories of digital learning, and international perspectives of the role of digital learners and curriculum.

Digital Media in Arts Education

This course is an introduction to teaching and learning with digital technologies through the creative arts. Beginning with an exploration of curriculum and pedagogy from an arts-based technological perspective, the course examines the multiple opportunities and challenges arising from using digital technologies to approach the creative arts in educational contexts. Using an up-to-date laboratory of computers, iPads and synthesizers, students will work together in exploring digital music, video, photography, and other creative arts apps and software used in educational settings. Participants will take an active role in their learning processes – including setting goals, researching creative digital tools, engaging in peer-evaluation, participating in discussions, doing presentations, writing reflections and seeking out relevant research readings and resources. This course will help students build a foundation for critical thinking about education, digital media and the creative arts.

Learning Technologies and Creativity in the Digital Age

This course offers students a space to create and a community to explore ideas about integrating learning technologies in primary and secondary classrooms. Students will engage in this course as instructional designers, content creators, and tinkerers working together on personally or pedagogically meaningful projects. Learning involves defining problems and generating solutions, questioning assumptions, exercising ingenuity, prototyping and experimenting with diverse ideas, materials and perspectives. The educational philosophy underlying this course emphasizes project-based learning with digital media and technology. Students will have diverse opportunities to design innovative learning environments and create digital learning artifacts and resources. No background knowledge or experience is required for this package. Students will benefit from creative instructional strategies and technology-supported learning activities.

Forestry

Package A - Forest Management and the Effects of Carbon

Both courses in the Forest Management and the Effects of Carbon package will be interactive and supplemented by a number of field trips and class activities. Students will be encouraged to participate in discussion on topics raised in class and share their ideas. Past field trips have included a tour of environmentally sustainable buildings at UBC, a walk through Pacific Spirit Park as well as a tour of the UBC Botanical Gardens.

An Introduction to the Ecology, Economics and Politics of Carbon

Humans use carbon-based molecules in almost all aspects of daily life – food, shelter, clothing, and power generation are but a few examples. Unfortunately, deforestation, land degradation, and fossil fuel emissions are responsible for the build-up of carbon in the atmosphere. This is causing the atmosphere to heat up which in turn is changing the global climate. To understand why this is a problem and what we can do about it, students will be provided with an introduction to the ecology of carbon (where it is, and how it cycles through the living and non-living world). We will then discuss the challenges of limiting carbon emissions by considering the interaction between economics and politics.

Sustainable Forest Management

This course represents an attempt to integrate knowledge and processes relating to forest management across a wide array of disciplines, but it is centrally concerned with bringing the underlying ecological and management science together. It involves a mix of lectures, group discussions and field visits to increase the understanding of students about problems involved with managing forest ecosystems for a variety of societal goals and objectives. The course is heavily geared towards ecological, economic and policy context of British Columbia; however, international implications and issues of forest management are also covered. The objective of the course is to familiarize the students with a variety of forest ecosystem values and their management issues and to enable meaningful analysis of the current issues in forest sustainability.

Package B - Urban Forestry

Both courses in the Urban Forestry package will be interactive and supplemented by a number of field trips and class activities. Past participants have been taken on fieldtrips to various locations around the Greater Vancouver area including Surrey, North Vancouver and Stanley Park. There is also a tour of the UBC Botanical Gardens as well as other guided walks through the UBC campus designed to demonstrate the many facets of urban forestry.

An Introduction to Urban Forestry

This course will provide a general introduction to the concept of Urban Forestry and why this is an important topic in today's rapidly urbanizing society. There is a growing need to adapt to multiple impacts of climate change; and increasing demand from the public for the recreational, psychological and health benefits that green-space networks provide. With increased urban populations, global warming, urban heat islands, flooding and pollution, cities may become unlivable or demand massive energy-use for cooling, unless we can establish large scale, healthy urban forest systems.

Urban Green Spaces and Well-being

Urban forestry is about planning and managing urban green--

Package B - Coaching Science

Students enrolled in this package will experience interactive learning from lectures followed by interactive practical sessions either outdoor or in the gymnasium. Past participants were taken on field trips to the UBC Doug Mitchell Thunderbird Sports Centre; the Richmond Oval, a World-Class recreation facility and one of the 2010 Winter Olympic venues; and the UBC Baseball Indoor Training Centre, a $3.5-million-dollar state-of-the-art indoor training facility.

Foundations of Coaching

This introductory course to coaching provides the foundation to become a successful coach. It will enable students to define who they are as coaches and will enhance their training and development skills with supplemental knowledge in strength and conditioning, nutrition, motor learning development, and performance planning. Practical outdoor sessions are offered in conjunction with the lectures to demonstrate core concepts in coaching. Upon completion of the course the student will be able to recognize the power inherent in coaching by creating their 'coaching philosophy' and apply process to achieve it. They will learn how to recognize common sport injuries and provide a safe training and competition environment, how to use games for learning skill and building physical condition, and how to apply basic prophylactic and supportive taping systems.

Sport Psychology for Coaching

This course provides a broad overview of major topics in Sport Psychology for Coaching. The student will develop an awareness of how sport and exercise psychology knowledge can be applied in coaching and understand the importance of the many mental aspects of coaching including group dynamics, motivation, leadership, coach-athlete relationships and mental skill training. Complementary activities including outdoor games, tours at sport training centers, sport facilities and research labs are designed to facilitate interactive learning.

Package C - Clinical Kinesiology

Exercise is now recognized as a fundamental lifestyle component of health promotion and is now an integral part of prescriptive approaches to the treatment of ~26 chronic diseases or conditions such as heart disease, lung disease, diabetes, cancer, dementia, and other degenerative diseases. Students enrolled in this package will be exposed to the theoretical basis for the mechanisms for exercise as a therapeutic approach to health promotion. Concepts learned in class will be supported by lab-based sessions covering testing and monitoring of exercise training programs. Participants will have the opportunity to visit the Physical Activity Research Centre (PARC), an 11,000-square-metre, state-of-the-art research facility that brings together one of the most interdisciplinary Spinal Cord Injury research programs in the world and the UBC Allan McGavin Sports Medicine Centre, one of only two FIFA Medical Centres of Excellence in Canada.

Clinical Exercise Physiology

This theoretical and lab-based course will provide an overview of clinical exercise physiology. Diverse class activities including problem-based case studies, group projects, hands-on labs to examine cardio respiratory function, muscle function, and metabolism. The course will include visits to labs such as the world-renowned research centre for rehabilitation (PARC) to facilitate an active learning environment. Upon completion of this course, students will develop an understanding of fundamental approaches to the assessment of physiological responses to exercise; altered responses in various clinical syndromes; and how exercise prescription and exercise monitoring is applied in the clinical settings for health promotion. Students will also gain an appreciation of the influence of exercise and lifestyle on the prevention and treatment of chronic diseases.

Health and Physical Activity Behaviour

This psychology-based course examines how engagement in health and physical activity behaviours affect health outcomes across the lifespan, and how individual engagement can be changed by intervention and health promotion strategies. Upon completion of the course, students will gain an understanding of models of behavioural change that promote health and physical activity behaviours, along with their application towards intervention design, development, and evaluation to encourage adoption and maintenance of physical activity amongst special populations.

Land and Food Systems

Package A - Food Science and Sensory Evaluation

Introduction to Food Science

An introduction to key concepts related to the science of food: the Canadian food system, chemical and physical properties of foods, government regulations, food additives, food preservation techniques, food safety, and trends in foods for nutrition and health. You will learn to arrive at an informed position about controversial issues relating to the food that you will encounter as consumers in the marketplace, and that you hear about in the media. Come and explore activities of entomophagy (eating insects), molecular gastronomy, and 3-D food printing.

The Science of Sensory Evaluation

The sensory characteristics of a food are critical in the development of new food products and determine their success in the marketplace. Sensory evaluation is a science measuring human responses to food sensory attributes of texture, flavor, smell, and color. There are special challenges in sensory evaluation because people are subject to various environmental, psychological and culture biases, and pose ethical considerations. In this hands-on course, you will explore techniques used to generate and analyze sensory data. You will apply the sensory evaluation theory that you learn, by participating in evaluations as both panelist and sensory analyst.

Package B - Agribusiness Management

Food and Agribusiness Enterprise Management

This course is designed to introduce the principles of financial and business management that are most relevant to agri-food and related firms. The content of the course will provide students with the insights and skills necessary to develop, evaluate and implement financial and management strategies. This will be accomplished through the presentation of management fundamentals, financial principles, decision and project planning frameworks, completion of cases and current article reviews, class discussions and final enterprise management presentation. Emphasis will be placed on the unique considerations of management within the agriculture, food and agribusiness sectors.

Food and Agribusiness Marketing Management

This course is designed to introduce the principles of marketing management and assessment that are most relevant to agri-food and related firms. The content of the course will focus on the macro and micro aspects of marketing management. Specific topics include basic principles and types of marketing such as production, selling and social marketing; marketing frameworks to assess industry and competitive landscape; identification of the ideal customer; market research survey development and assessment, use of excel for market survey and data analysis and secondary research methods and the sources.

Package C - Nutrition and Healthy Eating

Essentials of Nutrition

In this introduction to nutrition, students will learn about nutrients: what they are, why they are important to health, recommended intakes, and common Canadian food sources. Controversial topics in nutrition will be explored. Upon completion of the course, students will be able to sort out fact from fiction by applying their knowledge of nutrition to everyday scenarios and to their personal diets.

Healthy Cooking and Eating in Canada's Multicultural Context

This course will focus on applying the nutrition concepts learned from Essentials of Nutrition. You will be enriched with hands-on cooking experience, tasting and discussions about food choices. You will learn fundamental cooking skills and how to modify recipes for better health. Students will work in small groups to prepare a wide variety of foods from the many cultures making up Canada's cultural mosaic. The instructor, a Registered Dietitian and Chef, will guide students in their cooking, help them explore the nuances of tasty foods they have prepared and lead discussions on how to ensure food is both delicious and healthy. Upon completion of the course, students should be able to demonstrate an understanding of fundamental knowledge and skills of food safety, the practical outcomes of recipe modification, an understanding of the role and interactions of ingredients in food preparation, and a variety of preparation techniques and their nutritional attributes.

UBC Vancouver Summer Program

July 14 –August 14, 2018 Course Package Offerings

Primary Literature Analysis in Science and Medicine (Anesthesiology, Pharmacology & Therapeutics)

This course will empower you with an understanding of the scientific method and the important decisions that must be carefully considered in designing, conducting and communicating experimental studies, providing the foundation needed to adequately review and appraise primary literature in any clinical or basic science discipline. The resulting downstream consequences of poor experimental design and interpretation of results in informing (or formulating) evidence-based medicine will also be explored. You will learn about the different types of studies that can be conducted, the major elements of an experiment, and the overall publication process. Through lectures, small group exercises and discussions, you will develop the skills necessary to critically evaluate study research questions, strategies of subject selection and randomization, and proper use of controls. You will learn to identify confounding factors such as inadequate study design, bias, and poor statistical analysis – intentional or not – and describe how they may impact the quality of the underlying study conclusions, culminating in the opportunity to apply this knowledge through a group critical analysis of literature presentation at the end of the course.

Package C - Anatomy and Radiology: Interactive Learning to Enhance Understanding

Introduction to Medical Imaging: Understanding radiologic normal anatomy and disease using cutting-edge technology (Radiology)

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 of 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 don't miss cases in Radiology'.

Introduction to Anatomy using a Hands-on Approach (Cellular and Physiological Sciences)

In this course students will cover foundational functional anatomy and how this relates to 2D and 3D perspectives in diagnostic imaging. Students will learn how systems of the human body are functionally and structurally related to each other. Thoracic anatomy will focus on the cardiovascular and pulmonary systems, abdominal anatomy on the digestive and renal system and pelvic anatomy on the reproductive systems. The musculoskeletal system will put an emphasis on functional aspects such as gait and use of the hand. This course will give a basic foundation in functional anatomy as well as a spatial understanding that will correlate with approaches used in imaging.

Package D - Biochemistry and Molecular Biology in Human Health, Disease, and the Environment

Molecular Mechanisms of Disease (Biochemistry and Molecular Biology)

This course will provide an introduction to the molecular basis of disease and the concepts behind novel molecular therapies. Students will gain an understanding of fundamental human biochemical pathways and learn how molecular perturbations in these pathways can lead to disease. Several case-based topics will present research from world-renowned UBC faculty. The course will be taught through a combination of lectures, student presentations and problem-based learning all led by UBC experts. Course content will vary but may include topics such as the role of gut microbiota in health, cancer, diabetes, epigenetics, cardiovascular disease and significant global pathogens. Several novel therapeutic strategies will be discussed and may include genetically engineered gene/cell based therapies, stem cell cures, siRNA based expression control, and nanoparticle delivery systems.

Biochemistry and Society: Current Issues (Biochemistry and Molecular Biology)

This course will critically examine biochemical processes within the world at large and their impact on human health. The course 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. The course will be taught through a combination of lectures, student presentations and problem-based learning all led by UBC experts. Course content will vary but may include topics such as climate change, xenobiotics, endocrine disruptors, pollution by antibiotics and antibiotic resistance genes, and genetically modified organisms. Students will learn to appreciate the natural world from a molecular perspective and understand how biochemical perturbations within our environment impact human health.

P e e : Pa c a a e ec ed a ea bac d b a d c e e a e 1 ea N A e ca de ad a e c e . S de ac a ba c b c e bac d ca e ec a e ad.

Package E - The Science and Treatment of Psychiatric Disorders

The Science behind the Mind (Psychiatry)

This course will offer you an introduction to the mind and basic neuroanatomy emphasizing which brain structures play a role in the generation of normal and abnormal mental states. You will learn about the neurological basis of mental illness and the mental status examination. In addition to the main instructors, you will learn from guest lecturers who will share their knowledge and expertise in specialized fields of study. Past guest lecturers included experts in neuroimaging, neurostimulation and EEG, genetics and family history, and neuropsychology. Classes are lecture-based with a field trip and labs. The course will be at a level suitable for students who have completed Year 2 of undergraduate studies in Medicine.

Psychiatric Disorders and their Pharmacological Treatments (Psychiatry)

This course will cover the major psychiatric disorders that include schizophrenia, major depressive disorder and bipolar disorder. Over the duration of the course, you will learn the symptoms and neurobiology of these disorders, and how pharmacological therapies work to treat target symptoms. You will study the pharmacology of these drugs at the molecular level which will provide you with the foundation for understanding their clinical application. Finally, you will learn about treatment strategies using the most up-to-date evidence-based treatment guidelines. Classes are lecture-based with group discussions. The course will be at a level suitable for students who have completed Year 2 of undergraduate studies in Medicine.

P e e : M a e c ed ea 2 de ad a e d e Med c e e .

Package F - Major Mental Illnesses and Psychotherapy

Mood Disorders and Psychosis (Psychiatry)

This course will provide you with a broad overview of mood disorders (such as clinical depression and bipolar disorder) and psychosis (where reality testing is impaired, such as in schizophrenia). Mood disorders and psychosis are among the most disabling psychiatric conditions worldwide, due to significant symptoms and functional impairments that can lead to both personal distress and substantial economic burden on society. A major focus of this course will be identification and assessment, and accurate differential diagnosis. Additional topics will include epidemiology, neurobiology, psychosocial factors, and a variety of evidence-based interventions and therapies. Classes are lecture-based with group work and discussions. This course will be at a level suitable for students who have completed Year 1 of undergraduate studies in Medicine.

Introduction to Psychotherapy (Psychiatry)

This course will provide you with an introduction to the theory and practice of psychotherapy, focusing on core principles and skills that can be applied across a range of clinical and practice contexts. The course will orient you to the evolution of psychotherapy as an evidence-based intervention for common mental health disorders. You will learn about the common elements of major models of psychotherapy. The course will also cover practical skills such as interviewing, assessment, and building and maintaining therapeutic alliance – skills that can benefit all helping professionals. Lectures will include video demonstrations of psychotherapy, and role-playing exercises to develop practice skills.

P e e : M a e c ed ea 1 de ad a e d e Med c e e .

Package G - Introduction to Population and Public Health

Population and public health focus on the health of populations and communities, asking questions like 'why are some people healthy and others not?' and 'how can we proactively improve people's well-being?'. These topics are important to students interested in medicine or health sciences because they provide a broader prospective on the notion of health and what it means. The course also provides students the skills and knowledge to begin advocating for health equity and seeking ways to promote health on a large scale. Through presentations, problem-based learning, group assignments, class discussions and field trips, students will expand their understanding of health and consider how to apply these ideas in their home countries and elsewhere.

Social Determinants of Health (Population and Public Health)

In this course you will broaden your understanding of how social factors, such as skin colour and income, affect population and public health. We will explore the meaning of health and its measurement, and examine what influences the health, well-being and quality of life of individuals, families, communities and nations. You will gain an understanding of the complex pathways through which social circumstances affect health and well-being, and hands-on experience thinking through real world problems. Lectures in class are followed by interactive group activities and trips outside of the classroom to explore health promotion services in Vancouver. This class will bring a new light to your understanding of the factors that affect health, and challenge you to think differently about what we can do as a society to decrease health inequities.

Introduction to Population and Public Health Practice (Population and Public Health)

This course addresses the question of how we can respond to population and public health concerns. It introduces the student to key perspectives and frameworks that are used to inform activities that can improve the health of individuals, families, communities and nations. Potential approaches to preventing disease and improving health, such as a focus on the prevention of disease, screening for disease, the implementation of monitoring and surveillance systems, and the treatment of disease will be covered. Key frameworks such as types of prevention (i.e. primary, secondary, tertiary), and evaluating the cost and effectiveness of activities will also be considered.

Package H - Understanding the Recovery and Treatment from Injury and Chronic Disease

Exercise is Medicine (Physical Therapy)

This course will provide an exploration of exercise and physical activity in the treatment of chronic health conditions. Through an exploration of chronic conditions such as arthritis, cancer, cognitive impairment and cardiovascular disease, you will gain an appreciation of the effects of exercise on brain function, bone and muscle 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 have hands-on labs in a state-of-art fitness and exercise research facility designed to enable access for people with chronic disease and disability, interact with new mobile technology to motivate physical activity and measure the impact of exercise on physical function and cognition.

Recovery from Injury (Physical Therapy)

This course will introduce students to the science of rehabilitation and recovery from injury and disease. 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, arthritis, and chronic obstructive pulmonary disease 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 a visit to a world famous spinal cord injury research centre to view the latest treatments, including robotic suits to permit walking after spinal cord injury and e-Health applications (e.g., tele-medicine, video games, wearable sensors) to improve function. Students will use a variety of interactive methods to understand the content, including, small group tutorials, and problem-based learning.

Package I - Medical Laboratory Science

This course package is offered through the Department of Pathology and Laboratory Medicine, home to nationally and internationally recognized researchers and award-winning teachers. Together, we are active in all spheres of inquiry and education concerning the causes and mechanisms of disease.

Introduction to Medical Laboratory Science (Pathology and Laboratory Medicine)

You will explore the normal and abnormal biochemistry and physiology of blood and organ systems including the liver, gastrointestinal tract, and kidneys. You will solve medical case studies and diagnose diseases by interpreting patient history information, physical findings, and results of selected clinical laboratory tests.

You will participate in case-based learning, team presentations, interactive lectures, and a hands-on blood cell morphology laboratory session in which you prepare and stain blood smears, then distinguish different cells under the microscope. You will also take guided tours of clinical research lab facilities and of the David Hardwick Pathology Learning Centre which houses tissue specimens representing a wide range of pathological conditions. Past students stated they “learned a lot – not only knowledge, but the way to get knowledge ….and had lots of fun in this class”. They valued the team-work and interacting with instructors who were “very knowledgeable, approachable and kind”.

Fundamental Techniques for Clinical and Medical Research Laboratories (Pathology and Laboratory Medicine)

The focus of this course will be to perform methods that are commonly used in hospital and biomedical research laboratories. You will learn through hands-on laboratory sessions and will focus on the following disciplines: molecular biology, cell culture and histochemistry. Experiments you will conduct include DNA finger printing and culturing a mammalian cell line. You will also conduct a series of experiments using different staining techniques and microscopically determine the composition of unknown tissues. Your learning will be supported through demonstrations, discussions of experimental design, data analysis activities and interactive lecture sessions. Past students stated that they "enjoyed extracting and analyzing their own DNA" and that the cell culture labs were "very unique and interesting - something we cannot do in our home country." They were also "excited to analyze their slides and share with others during their histochemistry presentations".

Package J - Anatomical Sciences

Principles of Body Structure and Function (Cellular and Physiological Sciences)

This course will cover foundational functional anatomy including all major organ systems as well as the musculoskeletal system. Students will learn how the human body develops through the embryonic period to give rise to these systems and how they are functionally and structurally related to each other. Thoracic anatomy will focus on the cardiovascular and pulmonary systems, abdominal anatomy on the digestive and renal system and pelvic anatomy on the reproductive systems. The musculoskeletal system will be covered from a conceptual point of view focusing on the major functions of the upper and lower limbs and the importance of the musculoskeletal system for human form and structure. This course will give a basic foundation in functional anatomy that will help students as they prepare for life and health sciences programs.

Applied Neuroanatomy (Cellular and Physiological Sciences)

This course will take students through the fundamental principles of how our nervous system works. Students will learn about both the peripheral and central nervous systems and how they interact to allow us to experience and interact with the world around us. Higher order systems in the cerebral cortex will be explored and include both primary areas of the cortex and association areas that process information and put it into context. The control of cortical output through intricate systems will be discussed as well as the importance of areas involved in emotional processing. At the end of the course students will have gained a basic understanding of CNS pathways and functions that will give them a solid foundation for many life sciences programs, in particular health sciences or neuroscience.

Nursing

Health Research Methods

Introduction to Research Methods in the Health Sciences

In this course we introduce you to the different types of research that health researchers use to tackle problems relevant for health promotion. This course focuses specifically on quantitative and qualitative designs. Students enrolled in the course will have the opportunity to learn through simulated practice how to conduct surveys and qualitative interviews in face-to-face situations. We will also cover how to obtain consent for research participation. Students will learn introductory skills in data analysis methods and how to generate reports of their findings.

This course is highly relevant for anyone who is planning to do a research project in their undergraduate program, has plans for graduate studies or is seeking employment as a research assistant.

Introduction to Visual Methods in Health Research

In this course we introduce you to the use of photographs, arts, video, web and social media in qualitative approaches to health research. This course includes opportunities to discuss examples and thoughtfully consider how you might design a visual methods study. Students enrolled in the course will have the opportunity to learn from existing examples and hands on experience in face-to-face seminars. We will also cover ethics specific to visual methods. Students will learn introductory skills in interpreting and sharing visual data to share findings drawn from visual methods.

This course is highly relevant for anyone who is planning to do a research project in their undergraduate program, has plans for graduate studies or is seeking employment as a research assistant.

Pharmaceutical Sciences

Package A - Making Better Medicines

The Discovery of New Medicines

"What does it take to find a new drug?" The objective of the course will be to answer this question by introducing the participants to the drug discovery and development process. Specifically, the role of the Pharmaceutical Sciences in the discovery of new medicines will be described. Case studies will be presented by experienced scientists that illustrate challenges that interdisciplinary drug discovery teams must overcome. In addition, participants will have an opportunity to visit the laboratories of a local research organization involved in supporting drug discovery efforts. By taking this course, participants will gain an appreciation of the collaborative work that is required in the search for new therapies.

Personalizing Medicines with Genomics and Biotechnology

For millennia, we have sought to understand how to treat disease using potions, teas, pills and most recently, genetically engineered cells. Indeed, the use of cutting-edge technology in drug discovery is not new- for example, the most powerful anti-malaria drug was re-discovered in the writings of Ge Hong, a physician who practiced 1700 years ago. Today when one thinks of drug discovery and development, large multibillion dollar pharmaceutical companies come to mind, with their remarkable medications for infections, heart disease and cancer. Despite their effectiveness, these medicines tend to treat all patients as members of one homogeneous population. Recently, next generation DNA sequencing is making the possibility of medicine tailored to an individual a reality. Cancer treatments can now be designed to match your specific DNA, eliminating the trial-and-error approach to treatment. Similarly, DNA sequencing can match your prescriptions to your genome. The integration of DNA sequencing with drug therapy has been a disruptive innovation, bringing the science of "big data" to medicine and pharmacy. In this course we will explore how these and other innovations are revolutionizing healthcare and wellness.

Package B - Applied Clinical Pharmacy

Adverse Drug Related Events and Drug Interactions

In the era of increased attention to overall patient safety, several interventions have been implemented to attempt to reduce medication misadventure in both the community and hospital setting. However, patients continue to experience adverse drug-related events (ADREs) which are associated with significant morbidity and mortality and result in many hospital visits. Drug interactions may lead to an increase or decrease in either beneficial or adverse effects of a drug. Pharmacists must identify, treat, and prevent drug-related problems such as ADREs. Students will explore the mechanisms of drug interactions, and the impact of ADREs in Canada, and discuss the overall burden on the health-care system.

Principles of Medication Safety

Medication is one of the most common interventions used for treating or managing disease and for alleviating symptoms. When prescribed and used appropriately, drug therapy can markedly contribute to improved patient outcomes. However, despite the best of intentions, medication use can also pose risks to patient safety, increasing morbidity and mortality, and can dramatically increase healthcare costs. Through case studies and practical examples, students will gain an understanding of the medication safety principles and practices used by healthcare providers to reduce and prevent patient safety incidents. Current issues including substances of abuse and drug overdose will be explored.

Science - Earth Ocean and Atmospheric Sciences

Package A - The Dynamic Earth and its Beautiful Treasures

In this package we will examine the origin and formation of our planet and its economic resources. From its early beginnings our planet has evolved dramatically, with an ever changing surface subject to vast plate movements and billions of years of weathering and erosion. Students will discover how volcanoes, meteor impacts, earthquakes, moving water, glaciers during ice ages and the relentless grind and recycling of rocks by plate tectonics shape our planet, and explain our geological resources. Both courses emphasize experiential learning where concepts are discovered through active learning in the classroom, innovative laboratory experiments and field trips to collect and interpret observations in and around Vancouver.

Our emphasis is on active learning teaching methods where students are inspired to explore the subject matter through field trips, labs, discussions and in class activities.

No background knowledge of geology is required for Science Package A.

The Dynamic Planet

In this course you will discover how our active and evolving Earth system has created the planet we know today, one that supports diverse life and is rich in natural resources. Using international and Canadian examples, we will examine the Earth and its composition, structure and geological processes. 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 Earth. This course investigates the formation, exploration, mining and aspects of marketing of gemstones and precious metals. We touch on topics such as fundamental scientific concepts, natural and synthetic gems and explore the world of fine jewelry. The origin, valuation and exploration strategies for gems such as diamonds and precious metals such as gold and platinum will be investigated here and placed into a fascinating international and Canadian geological context.

Package B - The Earth's Oceans, Atmosphere and Climate

In this package we explore the dominant processes that control the atmosphere and the oceans, and investigate the diversity of life found in marine ecosystems. Students will discover how energy flows through these systems and how the energy flow controls winds and ocean currents. We will discover how the winds and currents influence the climate and movement of pollution, and the effect these fluid movements have on the ocean biosphere and make up of marine ecosystems. Both courses emphasize experiential learning where concepts are discovered through active learning in the classroom, innovative laboratory experiments and field trips to collect and interpret observations in the diverse ocean and atmospheric environments near Vancouver. Escape the classroom and discover with us!

Our emphasis is on active learning teaching methods where students are inspired to explore the subject matter through field trips, labs, discussions and in class activities.

No background knowledge of oceanography or biology is required for Science Package B.

Ocean and Atmosphere Systems

In this course you will assess and quantify the principal components of the global energy balance, how the energy balance affects the structure of the ocean and atmosphere and produces the winds and currents that control weather, air pollution and the biosphere. You will examine ocean productivity and the important geochemical cycles of carbon, nitrogen and phosphorous. You will also examine how, over geologic time, ocean and atmospheric processes coupled with the evolution of life regulate climate and climate change.

Marine Biodiversity

Students will explore the incredible diversity of marine ecosystems, and identify the factors that regulate ocean habitats and how marine ecosystems develop in response. Ecosystems' properties, including diversity, resilience (or lack of resilience) to environmental change and its impact on neighboring ecosystems will be considered. Many fascinating and important marine ecosystems and habitats will be studied including the following: rocky intertidal zones, soft bottom communities, coral reefs, estuaries, and epipelagic and mesopelagic ecosystems. A particular emphasis will be placed on the beautiful and diverse marine ecosystems of British Columbia. Students will be given the opportunity to study such diverse topics as the effect of ecosystems disturbances, the evolution of ocean plankton, the effects of invasive species and the changes that occur due to climate change.

Science - Integrated Sciences

Package A - Game Theory and Symmetry

Game Theory

Game theory is the study of mathematical models of conflict and cooperation between intelligent rational decision-makers. As such it is applicable to a wide range of behavioral relations, and is now an umbrella term for the science of logical decision making in computers and organisms. Game theory has been widely recognized as an important tool in many fields including computer science, biology, economics, political science and psychology. In this course we will consider representations of games (normal, extensive, and characteristic-function forms), game types (cooperative/non-cooperative, symmetric/asymmetric, zero-sum/non zero-sum, simultaneous/sequential, etc.), history, awards, and game theory in popular culture.

Symmetry

The mathematic definition of symmetry is that an object is invariant to various transformations; including reflection, rotation, or scaling.