

C O U R S E  
C A T A L O G U E  
2 0 1 6 - 2 0 1 7

**QUEST**  
UNIVERSITY  
CANADA



# TABLE OF CONTENTS

2017–2018 ACADEMIC TERM SCHEDULE	5
REQUIREMENTS	6
ARTS & HUMANITIES	8
<b>FOUNDATION: ARTS &amp; HUMANITIES</b>	<b>8</b>
<b>TEXTS</b>	<b>8</b>
<b>SCHOLARSHIP</b>	<b>11</b>
<b>CULTURE</b>	<b>14</b>
<b>CONCENTRATION: ARTS &amp; HUMANITIES</b>	<b>17</b>
<b>FOUNDATION LANGUAGES</b>	<b>29</b>
LIFE SCIENCES	36
<b>FOUNDATION LIFE SCIENCES</b>	<b>36</b>
<b>CONCENTRATION LIFE SCIENCES</b>	<b>37</b>
MATHEMATICS	50
<b>FOUNDATION MATHEMATICS</b>	<b>54</b>
<b>CONCENTRATION MATHEMATICS</b>	<b>56</b>
PHYSICAL SCIENCES	60
<b>FOUNDATION PHYSICAL SCIENCES</b>	<b>60</b>
<b>ENERGY AND MATTER</b>	<b>60</b>
<b>EARTH, OCEANS &amp; SPACE</b>	<b>61</b>
<b>CONCENTRATION PHYSICAL SCIENCES</b>	<b>61</b>
SOCIAL SCIENCES	70
<b>FOUNDATION SOCIAL SCIENCES</b>	<b>70</b>
<b>CONCENTRATION SOCIAL SCIENCES</b>	<b>72</b>
INTERDISCIPLINARY	86
<b>MILESTONES</b>	<b>86</b>
<b>CONCENTRATION INTERDISCIPLINARY</b>	<b>88</b>

Quest University Canada was created from scratch to be a new educational model for today's student entering tomorrow's world. We have no lecture halls, majors, or departments; instead, we have small classes, student questions, and an interdisciplinary curriculum. Quest has been designed to put students at the active cores of their learning experiences, and has produced the most engaging undergraduate education in North America.

Our curriculum is designed to optimize active and organic learning experiences across the liberal arts and sciences, and to have students own their educational experiences. To this end, our curriculum consists of two parts. Starting with our signature Cornerstone course, the two-year Foundation program has students explore a broad range of subjects across the liberal arts and sciences. These courses guide students through significant classical and modern questions, and develop in them important thinking habits, skills, and knowledge. Students then transition to the Concentration program, where they create their own educational path via a self-constructed question. Under the guidance of an individual faculty mentor, students in their Concentration program take a set of six to eight interdisciplinary personal focus courses based on their question, undertake an experiential learning opportunity off campus, select an additional set of elective courses, and ultimately complete a final "Keystone project" akin to an undergraduate thesis. At the end of this intellectual adventure, every Quest student earns the same degree: a Bachelor of Arts and Sciences.

This journey is not for the faint of heart, but promises deeply valuable outcomes. The Quest curriculum ensures that students will develop understanding and skills in critical thinking, communication, integration/breadth, international perspectives, research, and ethics. Students achieve this through commitment, passion, resilience and hard work. We ask that our students begin to take ownership of their learning right from the start, for example requiring students to demonstrate a basic set of quantitative reasoning skills ("Q skills") before taking many of our Foundation courses, so that the educational experiences of those courses can be rich and deep. (We advise that new students begin preparing for this in advance of arriving at Quest.) From there, students grow in the kinds of questions they can ask, discussions they can have, perspectives they can take, and ideas they can form, at Quest and beyond.

It is my hope that your Quest journey is a fruitful one, and that this document will provide you with a basic map to help you plan your route. Best of luck in your intellectual adventures at Quest University Canada.

Sincerely,

Ryan Derby-Talbot PhD  
Vice President, Chief Academic Officer, and Mathematics Tutor

# 2016-2018 TERM CALENDAR

BLOCK 1 

BLOCK 2 

BLOCK 3 

BLOCK 4 

COMMENCEMENT 

ORIENTATION 

STATUTORY HOLIDAYS

- Scheduled classes will run on grey shaded days 

- Classes will not run on green shaded days 

## 2016-2017 ACADEMIC YEAR

	S	M	T	W	T	F	S
2016 FALL TERM	SEP				1	2	3
		4	5	6	7	8	9
		11	12	13	14	15	16
		18	19	20	21	22	23
		25	26	27	28	29	30
	OCT	2	3	4	5	6	7
		9	10	11	12	13	14
		16	17	18	19	20	21
		23	24	25	26	27	28
	NOV	30	31	1	2	3	4
		6	7	8	9	10	11
		13	14	15	16	17	18
	20	21	22	23	24	25	
DEC	27	28	29	30	1	2	
	4	5	6	7	8	9	
	11	12	13	14	15	16	
	18	19	20	21	22	23	
	25	26	27	28	29	30	
	31						
2017 SPRING TERM	JAN	1	2	3	4	5	6
		8	9	10	11	12	13
		15	16	17	18	19	20
		22	23	24	25	26	27
	FEB	29	30	31	1	2	3
		5	6	7	8	9	10
		12	13	14	15	16	17
		19	20	21	22	23	24
	MAR	26	27	28	1	2	3
		5	6	7	8	9	10
		12	13	14	15	16	17
		19	20	21	22	23	24
APR	26	27	28	29	30	31	
	2	3	4	5	6	7	
	9	10	11	12	13	14	
	16	17	18	19	20	21	
	23	24	25	26	27	28	
	29						
2017 SUMMER TERM	MAY	30	1	2	3	4	5
		7	8	9	10	11	12
		14	15	16	17	18	19
		21	22	23	24	25	26
	JUN	28	29	30	31	1	2
		4	5	6	7	8	9
		11	12	13	14	15	16
		18	19	20	21	22	23
		25	26	27	28	29	30
	JUL	2	3	4	5	6	7
		9	10	11	12	13	14
		16	17	18	19	20	21
	23	24	25	26	27	28	
AUG	30	31	1	2	3	4	
	6	7	8	9	10	11	
	13	14	15	16	17	18	
	20	21	22	23	24	25	
	27	28	29	30	31	1	

## 2017-2018 ACADEMIC YEAR

	S	M	T	W	T	F	S
2017 FALL TERM	SEP					1	2
		3	4	5	6	7	8
		10	11	12	13	14	15
		17	18	19	20	21	22
		24	25	26	27	28	29
	OCT	1	2	3	4	5	6
		8	9	10	11	12	13
		15	16	17	18	19	20
		22	23	24	25	26	27
	NOV	29	30	31	1	2	3
		5	6	7	8	9	10
		12	13	14	15	16	17
	19	20	21	22	23	24	
DEC	26	27	28	29	30	1	
	3	4	5	6	7	8	
	10	11	12	13	14	15	
	17	18	19	20	21	22	
	24	25	26	27	28	29	
	30						
2018 SPRING TERM	JAN	31	1	2	3	4	5
		7	8	9	10	11	12
		14	15	16	17	18	19
		21	22	23	24	25	26
	FEB	28	29	30	31	1	2
		4	5	6	7	8	9
		11	12	13	14	15	16
		18	19	20	21	22	23
	MAR	25	26	27	28	1	2
		4	5	6	7	8	9
		11	12	13	14	15	16
		18	19	20	21	22	23
APR	25	26	27	28	29	30	
	1	2	3	4	5	6	
	8	9	10	11	12	13	
	15	16	17	18	19	20	
	22	23	24	25	26	27	
	28						
2018 SUMMER TERM	MAY	29	30	1	2	3	4
		6	7	8	9	10	11
		13	14	15	16	17	18
		20	21	22	23	24	25
	JUN	27	28	29	30	31	1
		3	4	5	6	7	8
		10	11	12	13	14	15
		17	18	19	20	21	22
		24	25	26	27	28	29
	JUL	1	2	3	4	5	6
		8	9	10	11	12	13
		15	16	17	18	19	20
	22	23	24	25	26	27	
AUG	29	30	31	1	2	3	
	5	6	7	8	9	10	
	12	13	14	15	16	17	
	19	20	21	22	23	24	
	26	27	28	29	30	31	

# REQUIREMENTS

## COURSE OPTIONS

Any course listed with an X in the course code (e.g., MAT 20XX) indicates that students may choose one of several offerings. Appropriate courses that meet the Foundation requirement must follow the course formula provided in the above table (e.g. MAT 2003 or MAT 2004 would meet the Mathematics requirement, but MAT 2200 or MAT 3000 would not).

## PRE-REQUISITES

Quantitative Skills Strands which are pre-requisites for Foundation courses are indicated with circles. The three strands are **INFORMATION** **I**, **ALGEBRA** **A**, and **MEASUREMENT** **M**. Students who have not demonstrated proficiency in the pre-requisite strand(s) prior to the start of the course will be denied entry into the course.

Please note that for **HUM 21XX, 22XX, 23XX** and **MAT 20XX**, some options may have a Q Skills pre-requisite, but most options do not.

Please consult individual course descriptions in this Catalogue for details.

## FOUNDATION PROGRAM POLICIES

Please note the following policies regarding the Foundation Program:

- During their first year, students may take at most one Concentration-level course (course starting with a 3 or 4 number).
- Students may take no more than four Concentration-level courses before completing the Foundation program.
- All Foundation courses must be completed by the end of the third year of full-time study.

## DISCIPLINES

-  ARTS & HUMANITIES
-  LIFE SCIENCES
-  MATHEMATICS
-  PHYSICAL SCIENCES
-  SOCIAL SCIENCES
-  INTERDISCIPLINARY STUDIES

## 1. FOUNDATION PROGRAM REQUIREMENTS

This mandatory program is comprised of 16 BLOCKS from across the disciplines, meant to introduce students to the breadth of human knowledge.

<b>CORNERSTONE</b> IND 2100	<b>EVOLUTION</b> LIF 2110 I A M	<b>TEXTS</b> HUM 21XX	<b>SOCIAL SCIENCES</b> Select 3 of the 4:  SOC 2100: Political Economy I A  SOC 2200 Democracy & Justice  SOC 2300 Global Perspectives I  SOC 2400 Self, Culture, Society I
<b>RHETORIC</b> IND 2200	<b>BIODIVERSITY OF BRITISH COLUMBIA</b> LIF 2210 I A M	<b>SCHOLARSHIP</b> HUM 22XX	
<b>ENERGY &amp; MATTER</b> PHY 21XX Exemptions: Completing Physics I (PHY 3101) or Chemistry II (PHY 3202)  Exempts students from Energy & Matter I A M	<b>WHAT IS LIFE?</b> LIF 2310 I A M	<b>CULTURE</b> HUM 23XX	
<b>EARTH, OCEANS, SPACE</b> PHY 22XX I A M	<b>MATHEMATICS</b> MAT 20XX Exemptions: Completing Calculus I (MAT 3101) and Calculus II (MAT 3102) or completing Multivariable Calculus (MAT 3103)  Exempts students from Mathematics	<b>LANGUAGE</b> Select one: <ul style="list-style-type: none"> <li>• Any level 2 or above in e.g. French, Spanish, or Chinese offered at Quest</li> <li>• Ancient Greek 1 and Classical Latin 1</li> <li>• Any approved language at level 2 or above at another institution</li> </ul>	
			<b>QUESTION</b> IND 2300

## 2. CONCENTRATION PROGRAM REQUIREMENTS

The Concentration Program investigates one theme related to a student's individual Question, either in a single discipline or across multiple disciplines.

### A. FOCUS COURSES

The main emphasis of the Focus Courses is depth of understanding, sustained attention, and reflection on a Question of personal importance to the student. **MIN 6 BLOCKS**



### B. EXPERIENTIAL LEARNING

Experiential learning allows a student to formulate and pursue a question, the answer to which is not available in a classroom setting. This mode of learning emphasizes hands-on experience in a variety of forms. The goal is for students to link knowledge with practical application, both by enriching practice with knowledge, and by generalizing from practice so what is experienced becomes relevant to other contexts. **MIN 1 BLOCK / MAX 4 BLOCKS**



### C. ELECTIVES

Electives are courses chosen by students to complement their area of concentration or to enable them to pursue other academic and post-graduate interests. **MIN 3 BLOCKS**



### D. KEYSTONE

The final block at Quest where students prepare, then report their conclusions regarding the Question. **1 BLOCK**



**DEGREE REQUIREMENTS = (FOUNDATION + CONCENTRATION REQUIREMENTS) 32 BLOCKS**

# ARTS & HUMANITIES

## FOUNDATION: ARTS & HUMANITIES

To fulfill the requirements of the Foundation program in the Arts and Humanities, students must complete the following courses:

- Texts (HUM 21XX)
- Scholarship (HUM 22XX)
- Culture (HUM 23XX)

In **TEXTS** courses, students learn strategies for close-reading, and examine the rules that particular kinds of texts follow. **SCHOLARSHIP** courses take as their focus debates that are of interest in the humanities, and developing skills to take part in these debates. **CULTURE** courses are about how works of literature, films, music, photography, et cetera, are embedded in and reflective of “webs of significance that [we ourselves] have spun” (Weber).

For each of these, students may choose one of several options. Please note that additional offerings may be available at the time of registration. Consult Self-Serve for a list of current offerings.

While students may take these courses in any order, the Division of Arts and Humanities recommends that students take a Texts or Culture course before taking a course in Scholarship.

### TEXTS

#### **Texts: The Divine Comedy (HUM 2101)**

This course uses Dante’s masterpiece, “The Divine Comedy” (composed of the Inferno, Purgatorio, and Paradiso) to introduce students to fundamental techniques in literary analysis. We begin the course with a close reading of the Inferno, seeking to understand the ways in which texts, and especially poetry, create meaning and beauty. We then turn to the Purgatorio, aiming to place the text within a historical context, specifically the invention of the idea of purgatory in the High Middle Ages. We then read Paradiso through the lens of textual influence, investigating Dante’s relationship to his sources. The course ends with a brief look at ways in which “The Divine Comedy” has affected modern understandings of the afterlife.

<p><b>Texts: Poets and Philosophers (HUM 2103)</b></p>	<p>This course takes as its subject the greatest poem ever composed (Homer's Iliad), and the greatest philosophical dialogue ever written (Plato's Republic). We will come to understand why John Keats, upon first discovering the Iliad, felt that he had discovered "a new planet." And we will learn why Plato's Republic continues to exert tremendous influence on philosophers, literary critics, and political theorists, two thousand years after it was written. The questions that guide this course are: How does Plato (and perhaps Socrates) make space for new ideas through the genre of philosophical dialogue? Why have the Republic and the Iliad exhibited such lasting power? How do Homer and Plato recommend that we guide our lives, and why should we listen?</p>
<p><b>Texts: Introduction to Shakespeare (HUM 2105)</b></p>	<p>Nearly four centuries after William Shakespeare's death, his plays remain among of the foundations of world theatre; productions, adaptations, and commentaries continue to pour forth in uncountable quantities. We shall explore some of the reasons for Shakespeare's pre-eminence among writers through detailed examinations of three of his plays: a history, a comedy, and a tragedy. In each case, we shall read and discuss the play, perform selected scenes, consider the nature and value of particular critical analyses, and watch and discuss a cinematic adaptation (Shakespeare's plays have, unsurprisingly, been filmed far more often than the works of any other writer; the choices made by directors can offer unexpected insights into central aspects of the play being filmed). The course goals are to help students develop both an extended sense of the complexity of Shakespeare's dramatic vision, and an enhanced understanding of his techniques as a writer.</p>
<p><b>Texts: The Symphony (HUM 2106)</b></p>	<p>How did the symphony rise from its humble origins as incidental music to achieve paramount status in the Western art music tradition? This course tracks the development of this most significant of orchestral genres over the past three centuries, from the lighter fare of the Mannheim school to the epic structures of symphonies of the nineteenth and twentieth centuries. Students will read articles and book chapters that contextualize and analyze these works; perform their own analyses; write essays demonstrating their critical understanding of these texts; and research and present on a symphony of their choosing. While no prior musical background is required, students requiring a grounding in music fundamentals will be expected to attend basic musicianship workshops the first week of class. Major composers whose works we will study include: Mozart, Haydn, Beethoven, Brahms, Bruckner, Mahler, Shostakovich, and Messiaen. The course will include a trip to the Vancouver Symphony Orchestra.</p>

<p><b>Texts: Romantic Poetry (HUM 2109)</b></p>	<p>William Blake’s illuminated works are fundamentally multifaceted: they are at once literature and visual art, part fiction and part prophecy. They also present us with a view of the Imagination as a generative, divine capacity, one whose present day relevance the class will seek to determine. This course will consider William Blake’s illuminated books as poetry, as visual art, and as revelation, necessarily through a diverse set of lenses. In doing so, we will attempt to describe what these works are, how they convey meaning, how they converse with other texts, and what they might have to teach us. Throughout, the class will negotiate the (very Blakean) tension that exists between rational analysis and imaginative creation; class projects will involve a good deal of both.</p>
<p><b>Texts: Great Writers Of Classical China (HUM 2110)</b></p>	<p>This course focuses on close reading of representative great writers and writings of pre-modern China and East Asian region and discussion of important philosophical, cultural, and aesthetic traditions that stem from these key texts and their continuous social, cultural, and political impact in the region. We look at key texts such as The Book of Change (Yi Jing), The Analects (Lun Yu), Dao De Jing and other significant historical and literary texts to think through some important critical questions: How do these classical texts contribute to the formulation of Chinese identity at large? How are these literary and philosophical traditions different from those of the West? How do literature and culture of contemporary world cope with these foundational traditions? And most importantly, how do we deepen our understanding of contemporary world and ourselves through reading Eastern masterpieces as early as 5th century BCE?</p>
<p><b>Texts: Manifestos (HUM 2111)</b></p>	<p>One crucial feature of a manifesto is that it tends to ask us to join in, overtly seeking our assent with forceful (even inflammatory) rhetoric. The writers of manifestos have used this imperative mode to prod thought and action in many arenas, among them the political, artistic, literary, technological, and ecological. But what does a manifesto actually make manifest? Does it result in anything meaningful? How are we to value its claims? Does its author or reader bear ethical responsibility for possible outcomes? (Is there a point at which a manifesto can be dangerous?) This class will devote time to understanding the formal characteristics of manifestos, developing a distanced critical approach that enables us to assess arguments and appeals rigorously. In addition, no less rigorously, we will collapse this distance and join in, producing manifestos of our own, and perhaps, on occasion, we will allow ourselves to be swayed.</p>

SCHOLARSHIP	
<p><b>Scholarship: Death of the Author (HUM 2201)</b></p>	<p>Roland Barthes wrote that “the birth of the reader must be at the cost of the death of the author.” This provocative statement expresses one possible approach to the interpretation of texts. How do we construct meaning from a literary text? Who decides what constitutes a correct interpretation? Is the author the authority? Must we know anything about an author (and, by extension, the context of the author’s production) in order to understand and appreciate a literary text? While structuralist and deconstructionist literary critics might revel in the freedom of the text from its author, other equally compelling approaches depend on a continued attention to the author and his or her circumstances of production. In this course we will study the work of several theorists, including Barthes, Foucault, Derrida, Jakobson, Irigaray, and Spivak. We will also explore and practice interpretive approaches through short stories and novels that themselves call into question the role of the author.</p>
<p><b>Scholarship: Chinese Film and Transnationalism (HUM 2202)</b></p>	<p>What is film? What is Chinese film? What is the relationship between national film and transnational cultural flows in Chinese and global contexts? This humanities foundation course center around these 3 questions to guide students through the interdisciplinary field of film studies, film theory and film scholarship.</p> <p>You will learn to become a film scholar in this class by examining the texture of films (form, style, narrative, and genre); tracing important political and aesthetic movements in 20th century Chinese history and Chinese film history; discussing most influential critical writings and philosophies about film; and engaging in depth with critical discourses of nationalism and transnationalism about Chinese film.</p>
<p><b>Scholarship: Phenomenon Of Music (HUM 2203)</b></p>	<p>Antirequisite: Dimensions of Music</p> <p>The main question for this course is: ‘What is the phenomenon of music, and what can examining it tell us about music, ourselves, and society?’ In this course, students engage contested ideas of what music and musical experience is through examining and participating in different approaches to the scholarship of musical experience. Issues examined include: the roles of historical ideas such as genius in our experience of music today, the role of culture in musical experience, linkages between music and the emotions, biological investigations of musical experience, musical performance, the relationship of musical analysis and experience, how music in commodity form affects experience, and the phenomenology of music.</p>

<p><b>Scholarship: Rethinking “Conquest” (HUM 2204)</b></p>	<p>The theme of the “conquest” of the Americas continues to stir controversy in the humanities. “Conquest” can be understood as a multifaceted process that encompasses colonial practices, religious approaches, and cultural encounters in distinct contexts and scopes. This class introduces students to the voluminous literature on the “conquest” of the Americas. While our study cannot possibly be comprehensive, it will introduce students to topics that reflect old as well as current trends in the literature. The course’s bibliographies include several classics as well as new and well-regarded works either translated into or published in English. Paying special attention to the historiographical aspect of “la conquista” (“the conquest”) in Latin America, students will analyze, compare, and contrast contemporary concerns, theoretical and conceptual frameworks, and archival sources that have shaped the historical conversation about early Latin America.</p>
<p><b>Scholarship: The Scientific Revolution (HUM 2206)</b></p>	<p>There was no such thing as the Scientific Revolution, and this is a course about it. This claim, borrowed from the opening of Steven Shapin’s <i>The Scientific Revolution</i>, highlights a central tension in the history of science. Historians of science often reject the view that there was an abrupt shift in the practice of science, or even that anything like a unified science existed to be revolutionized in the first place. On the other hand, the modern sciences seem distinctive enough as to require their own history, and the period from about 1500-1700 is still seen as crucial to that history. In this course, we explore the question of whether or not there was a Scientific Revolution, and, if so, what it was by using historical methodologies. Students trace the origins of foundational theories, analyze the rhetoric of scientific debates, and even recreate crucial experiments in order to understand better contemporary debates about the Scientific Revolution.</p>
<p><b>Scholarship: Ethics (HUM 2208)</b></p>	<p>About morality, Socrates said: “We are discussing no small matter, but how we ought to live.” In this course we will examine historical and current readings centered around three major debates in ethics: consequentialist vs deontological approaches to deciding whether an action is right or wrong (do you decide by examining the consequences of your action or by relying on a set of moral principles?); the meta-ethical debate on whether moral value is relative (are morals “just” a product of culture, or is there some way that morals might be universal and/or objective?); and the question of how to best set up a just society (are morals on the societal level best understood in terms of rights or in terms of fair distribution of resources?) Students will have the chance to think about larger philosophical questions, but also to think about current ethical issues. We will tie the moral theories we read to current-day events, for example, ethical issues arising in the context of politics, medicine, education, civic responsibility, the environment, war, and technology. Throughout, we will work to sharpen reasoning and argumentation skills and more generally to develop an understanding of what it means to inquire philosophically.</p>

<p><b>Scholarship: Arts And Ethics (HUM 2209)</b></p>	<p>History is filled with debates about how the arts – including music, visual art, film, and theatre – relate to morals and ethics. In this course, students examine and participate in significant debates in the arts and ethics, from Plato’s views on visual art to film ratings to copyright to fluorescent bunnies. Students examine debates about arts and ethics through the examination of specific moral and ethical theories and the relationships of the arts and society.</p>
<p><b>Scholarship: Ecocriticism (HUM 2210)</b></p>	<p>In this course, we will focus on how, over the last few decades, scholars have conceptualized the relationship between literature or film and the environment. We will examine both the beginning theoretical frameworks for this discipline (William Rueckert’s coining of the term in 1978), and more contemporary developments in the field (postcolonial ecocriticism; feminist and queer ecocriticism; Aboriginal studies and ecocriticism; urbanatural theory; the anthropocene), paying attention to Canadian contributions to the discipline. While we will be reading literary texts and analyzing films, our main focus will be on the academic frameworks used to understand the representation of the relationship between humanity and its environments. In doing so, we will see how literary criticism can offer an ethical critique of environmental practices, but might also suggest ways of coming to grips with our current ecological crises.</p>
<p><b>Scholarship: Cultural Studies (HUM 2211)</b></p>	<p>A preeminent scholar in Cultural Studies, Stuart Hall, stated that the field lies at “the dirty crossroads where popular culture intersects with the high arts, that place where power cuts across knowledge, of where cultural processes anticipate social change” (2006). An interdisciplinary field from its founding, Cultural Studies examines forces that shape peoples’ lived realities. This course will trace several works in Cultural Studies that span continents and times, in order to consider the field’s methodologies and theoretical frames. We will read several monographs and make ourselves familiar with grounding theories that span studies of jazz music to contemporary practices of incarceration. Authors that we will examine include Raymond Williams, Paul Gilroy, Homi Bhabha, Frantz Fanon, Mimi Thi Nguyen, Lisa Cacho, and Glen Coulter.</p>

CULTURE	
<p><b>Culture: Cities, Makers of Modernity (HUM 2301)</b></p>	<p>In the eighteenth and nineteenth centuries, a curious thing happened: an age-old balance between large agrarian populations and small urban centers began to shift dramatically in favor of urban centers. Cities grew rapidly; this growth transformed the cultures of the cities— places like Paris, London, and Vienna – but it also helped create modernity. In this course, using the methods of cultural and social history, we examine the complex cultures of these modern cities. We look at the hopes that cities engendered in their populations – and examine the deep fears that the growth of cities provoked. What new pleasures did they provide? What new dangers did they create? And, throughout the course, we seek to understand how the city helped make modernity.</p>
<p><b>Culture: The Fabric of Reality (HUM 2302)</b></p>	<p><b>Antirequisite: Fate and Virtue</b>  In this course, we will study a work of the first and greatest poet (Homer), two of the greatest philosophers ever to put pen to paper (Plato and Aristotle), and other texts from the ancient world. We will examine the question “How should we live our lives?” with a particular focus on the themes of fate and virtue. And we will discover why every generation before ours has struggled with these authors, and develop our own relationship to their ideas.</p>
<p><b>Culture: Passing (Gender, Race, Class, Religion) (HUM 2303)</b></p>	<p>“Passing” typically refers to a social strategy through which members of a subculture or a minority assume the guise, habits, or traits of members of a dominant social group. In this course, we will consider literary and non-literary examples of sexual, ethnic, and class-related passing. After studying several famous examples of passing in the early modern period (e.g., transvestitism in Shakespearian drama; the case of the “Lieutenant Nun”), we will consider more modern manifestations of the phenomenon, not only in documentary works (Paris Is Burning; Black Like Me), but also in fiction and theater (Passing; The Great Gatsby; Six Degrees of Separation). “Passing” is not, however, a course about strategies for getting ahead; it’s about the (in)stability of our identity categories. Part of the course will involve reflection on what it means to pass for who you are.</p>

<p><b>Culture: Feminism (HUM 2304)</b></p>	<p>In this course we look at the “F-word”—Feminism. What is the meaning and practice of feminism? What has feminism produced and do we still need feminism or are we in a post-feminist era? Drawing on the interdisciplinary approaches in Cultural Studies, this course will examine feminism as theory and practice. We begin the course by looking at the debates that framed feminism as a social movement from the early 20th century. We continue the ways in which feminist movement critically intervenes in analyses of institutions, policy and every-day culture. We will conclude the course with considerations of contemporary debates concerning feminism’s relevance through recent transnational feminist theory and practice. This course will introduce students to analyses of identity (gender, race, class, sexuality, ability and nation) that are situated in cultural theory and offer practice in employing theoretical approaches to examining our identities, lives and the ways in which we shape our community and world.</p>
<p><b>Culture: The Piano in Society (HUM 2305)</b></p>	<p><b>Antirequisite: Dimensions of Music</b>  This course examines the central importance of the piano in public and private life over the past several hundred years. Topics to include: the piano and salon life; women and pianos; the rise of the virtuoso; the piano in the jazz age; and the rise of the piano in China. Our inquiry will draw upon the music of Beethoven, Chopin, and Liszt; the literary works of Austen, Eliot, and Thackeray; and such films as Five Easy Pieces, The Piano, and The Piano Teacher. No prior musical experience necessary.</p>
<p><b>Culture: Peasant Cultures (HUM 2309)</b></p>	<p>How can historians recover the mental worlds of those who neither read nor wrote? Is it possible to give voice to those who are truly oppressed? What outlets for expression or resistance do the oppressed have available to them? What social and cultural hierarchies exist within such groups? This project-based course addresses these questions from a historical perspective through the examination of peasants in two very different times and places: medieval England and nineteenth- and twentieth-century India. We begin the course by exploring the methodological challenges of recovering peasant cultures and the techniques historians have developed in order to meet them. We continue with attempts to reconstruct the practices and beliefs of medieval English peasants using fragmentary, mediated evidence. The course concludes with an investigation of the culture of modern, Indian peasants and their encounters with the globalizing, homogenizing forces of colonialism and capitalism.</p>

<p><b>Culture: Death &amp; the Religious Impulse (HUM 2310)</b></p>	<p>Freud considered the fear of death to be the primary motivator of religious sentiment: attachment to self and terror at its loss leads us to seek what he calls an ‘oceanic feeling’ of completeness and permanence. In this course we will explore the ways different genres, media and traditions make death meaningful by attending to and representing the boundary between self and non-self, being and non-being. The profound questions raised by death test both individual worldviews and cultural codes in ways that shed light on the processes by which collective values are created. We will engage with a series of primary and secondary sources that link the fact of death and the experience of dying to critiques of tradition, politics, and religion. The resulting cultural production reintegrates, or ‘displaces,’ in Freud’s terms, the original fear with a different kind of wholeness, though it may come at the cost of innocence.</p>
<p><b>Culture: Photography And Camera (HUM 2311)</b></p>	<p>We take more photos in two days’ time than were ever taken in the 1800s; our appetite for images seems unlikely to decrease. But we have not always been so enamored of the instantaneous image. This course will chart how our love for and contempt of the photograph has played itself out since the time of Louis Daguerre. Students will comment on photographic images from the 1820s to the present, and will examine how such images are used, manipulated, and discussed in treatises, the popular press, and in literary works. While students will be learning something about photographic technique, the main goal of the course is to understand how we can talk about photographs, and how photography functions within society.</p>
<p><b>Culture: Romanticism (HUM 2312)</b></p>	<p>This course is about romanticism, a nineteenth-century movement that continues to shape Western culture in profound ways. Many of our current views on the role of art, the sanctity of the natural world, the importance of the individual, and even the merit of competing political systems have their roots in romanticism. We will begin by examining romanticism both as a reaction against, and an outgrowth from, the Enlightenment of the eighteenth century. Our subsequent inquiry will embrace an array of texts—philosophical, literary, musical, and visual—from some of the most important figures of the nineteenth century—Goethe, Hugo, Beethoven, and Turner, among others. As the variety of these texts demonstrates, our challenge will be to identify trends in what remains an imperfectly understood, and unusually rich, cultural phenomenon.</p>

## CONCENTRATION: ARTS & HUMANITIES

Humankind has long sought to make sense of its place in the Universe. The arts and humanities address the undying question of our species, “What does it mean to be human?” The humanities—including philosophy, history, languages, literature, music, art, and theatre—help us understand that this query can take many different forms: “Where is truth to be found, and how can we be certain of what we know about the world?” “How does our experience shape us?” “How can we understand beauty—in nature, or in the arts?” “What is the best life for us as individuals, and how does it differ from the common good?” “What is love?” “What do the products of our imagination mean?”

Reflective men and women have also wondered about God, free will, destiny, and immortality. Human curiosity has further sought to determine how other individuals and cultures from past times and foreign places have answered these same questions. As oversized as these questions may appear, the humanities can offer profound, life-enriching answers to them. Moreover, men and women who take their education seriously have an obligation to accept the challenge of examining life. Study in the liberal arts makes available, as the English poet Matthew Arnold put it, “the best that has been thought and said in the world.” At Quest, the Arts and Humanities bring together the methods and insights of world literature, philosophy, history, religious studies, visual culture, and music.

### **African Self-Perceptions (HUM 3001)**

Explorers, novelists, and journalists have tried to understand Africa and Africans from a Western point of view, an approach that typically reinforces Western preconceptions. Native African fiction tells us in a visceral way about the deep conflicts, profound beauty, and humanity of Africa through a clearer lens. This course analyzes stories of the colonists and the colonized, the Europeans and the native peoples, the Christians and the pagans, the civilized and uncivilized bringing to light many debates about the “meaning” of Africa and “authentic” African identity. Authors may include Chinua Achebe, Chimamanda Adichie, Mariama Ba, Mongo Beti, Leopold Senghor, and Ngugi wa Thiongo.

### **East Asian Literature and Culture (HUM 3006)**

Introduction to representative masterpieces of East Asia with readings from classical period to the contemporary world. A close comparison of representative Chinese, Japanese and Western texts and images, ranging from ancient sacred myth and philosophy to contemporary art animation and film, will put in your hands the keys to understanding a hidden world of cultural meanings across linguistic and national borders. We will focus on some key questions to guide us through this course. How are these literary and philosophical traditions different from those of the West? What is the relationship between modernity and tradition in the East Asian context? How do we deepen our understanding of contemporary global world and ourselves through reading and discussing these texts?

<p><b>Don Quixote, Literary Theory, and the Practice of Literature (HUM 3009)</b></p>	<p><b>Prerequisite: Any Foundation Humanities course or tutor permission.</b>  This course consists of a close reading in translation of the Quixote, in conjunction with a variety of critical responses to Cervantes’s masterpiece. While our main goal will be an appreciation of the historical and social context in which the Quixote first appeared, we will also examine different critical approaches to the novel as a whole (by critics such as Lukás, Auerbach, Bahktin, and Foucault), and to Cervantes’s work in particular. Finally, we will see how other authors (e.g., Jorge Luis Borges) have used the literary tools that Cervantes has provided them.  All readings and discussions will be in English. Students who already advanced speakers of Spanish and who would like to fulfill the Foundation language requirement may do so by taking this course and completing written assignments in Spanish.</p>
<p><b>Women’s Voices (HUM 3010)</b></p>	<p>Through selections from medieval through contemporary literature written by women, we will consider the question of whether there is a distinctly female authorial voice and how women’s literature might differently consider or express the human condition. Historical and theoretical readings will provide additional context for understanding women’s roles across time and cultures. Readings may include works by Aphra Behn, Madame de Lafayette, Jane Austen, Simone de Beauvoir, Virginia Woolf, Mariama Ba, Isabelle Allende, and Margaret Atwood.</p>
<p><b>Do-Nothings: Losers In Literature (HUM 3011)</b></p>	<p><b>Prerequisite: Any Foundation Humanities course or tutor permission.</b>  This course examines the lazy, the exhausted, the enervated, as well as those who, like Melville’s scrivener Bartleby, “prefer not to.” Working under the assumption that laziness is a particularly modern phenomenon, we begin our study with works like Keats’ “Ode to Indolence,” as well as descriptions of the indolence of the Spanish (Larra’s “Come Back Tomorrow”). We then move on to do-nothing clerks and government officials (such as Bartleby, or the nameless protagonist of Dostoyevsky’s Notes from the Underground), before considering the idle heroes of Huysman or Goncharov (Against Nature; Oblomov), as well as James’s scared bachelor (“The Beast in the Jungle”). After a detour through Walter Mitty’s brain and a visit to Vladimir and Estragon (Waiting for Godot), we look at some contemporary representatives of the do-nothing, by the likes of Ben Lerner, Adam Wilson, and Upamanyu Chatterjee. Unlike the protagonists of the texts we will be reading, students in this seminar do a considerable amount of work.</p>
<p><b>Short Latin American Fiction (HUM 3012)</b></p>	<p><b>Prerequisite: Any Foundation Humanities course or tutor permission.</b>  In this course, we will study Latin American short fiction, considering both condensed (the microstory of Augusto Monterroso) and more expansive (novellas by figures such as Isabel Allende) fiction. Along the way, we will also discuss how Latin American narrative plays with time and space (in works by Jorge Luis Borges and Julio Cortázar), constructs identities and imagines politics (Rosario Castellanos, Juan Rulfo, and Roberto Bolaño), and dabbles in the fantastic (Horacio Quiroga and Gabriel García Márquez).  All fiction will be read in English. Students whose Spanish is advanced enough can take this course for language credit; please speak with the tutor.</p>

<p><b>Poetry (HUM 3013)</b></p>	<p>English-language poetry is one of the glories of our common heritage. In this course students learn about the essential building blocks of poetic language—such as the types of metaphor, the uses of imagery, English accentuation and meter, and stanza form. We read, recite, memorize, and compose poems in order to comprehend and interpret them. Each student picks one poet of his/her choice to concentrate on for a class presentation and paper. Although this class assumes no prior knowledge, it moves quickly with the objective of giving students the tools to become self-assured readers.</p>
<p><b>Shakespeare:Theatre and Performance (HUM 3015)</b></p>	<p>This field course takes up the problem of literary interpretation as it applies to theatrical performance. For live theatre, directors, actors, and designers must ensure that every line, every gesture, every costume, every set, every light—in short, everything the audience will see and hear—conforms to a consistent interpretation. We spend two weeks on campus in intensive preparation of five Shakespeare plays; for the third week, we then travel to the Shakespeare Festival Theater in Ashland, Oregon to see them live: Richard II, Hamlet, The Winter’s Tale, Twelfth Night, and Timon of Athens. These plays cover the entire range of Shakespearean drama: comedy, tragedy, romance, and history. We go backstage and talk to designers and actors. Students learn how to read Shakespearean drama with an eye to developing their own interpretations: What are the most important themes of a play? If you were a director, how would you stage it? How do you evaluate a performance? For fun, we will also attend a few contemporary dramas. Approx. \$600 field trip fee applies for food and lodging. You will not be considered fully registered until you have paid the non-refundable deposit; you will be dropped from the class one week from the time you register on self-serve if you fail to deposit.</p>
<p><b>Novels: Realism (HUM 3016)</b></p>	<p>The novel is the modern genre par excellence, taking up the question of how we should live and breathing life into it with rich imagination. This course pairs Flaubert’s Madame Bovary with Tolstoy’s Anna Karenina, two of the greatest novels ever written. Flaubert’s stylistic masterpiece changed forever the way writers think of prose composition and still inspires admiration today. Tolstoy’s ability to craft a compelling story and to bring characters to life has never been matched. We explore how these authors create gripping moral tales and realistic imitations of life, developing our own critical approaches. Reading these books is an adventure that students never forget.</p>
<p><b>Novels: Modernism (HUM 3019)</b></p>	<p>Hailed as one of the most important contemporary novelists and the first Nobel The course pairs Rainer Maria Rilke’s only novel, The Notebooks of Malte Laurids Brigge, with Proust’s masterpiece, Remembrance of Things Past. In the early 20th century these authors turned away from traditional novelistic techniques as they tried to render the modernist shift in human consciousness toward intense, individual, poetic inner states. The result was both groundbreaking and enduring, changing our expectations for the genre of the novel, and opening up questions of time, memory, childhood, selfhood, and the relation of art to life.</p>

<p><b>Toni Morrison: Gender Race Storytelling (HUM 3020)</b></p>	<p>Hailed as one of the most important contemporary novelists and the first Nobel laureate as an African American Women, Toni Morrison writes with elegance, persuasion, compassion, and love that grip our heart. The themes and visions in her work are epic, yet her sentences and words are gritty and fragile. To encounter her storytelling is to ultimately embrace the listener’s own identity in the human world.</p> <p>This Humanities concentration course centers on close-reading of Morrison’s major novels such as <i>The Bluese Eye</i>, <i>Sula</i>, <i>Song of Solomon</i>, <i>Jazz</i>, <i>Beloved</i> and etc, and explores 3 important theoretical questions: What is women’s writing? Why do we care about race? How does storytelling relate to narratology? There will be research projects of literary and cultural criticism as well as creative projects to reflect on our own relationship to gender, race, and storytelling. This course especially welcomes avid readers and thinkers who cherish words in beautiful yet difficult novels that enchant us in challenging ways.</p>
<p><b>Introduction to French Literature: Laughter (HUM 3022)</b></p>	<p><b>Prerequisite: Sufficient language skills, as demonstrated in placement exam or in discussion with tutor.</b></p> <p>This course provides a historical perspective on French literature through the study of a particular trait: laughter. While not every text studied in the course will be easily classified as comedic, each work will inform our understanding of laughter and its cultural functioning. Although this course is not a comprehensive survey of French literature, the chronological structure will help students to appreciate the evolution of the French language and of writing styles, the importance of historical and social context in reading literature, and the influence of classic French works on modern literary production. As an introductory-level literature course conducted in French, the course will also include lessons on the advanced vocabulary and grammar necessary for the comprehension and discussion of each work.</p>
<p><b>History, Historians, and Historiography (HUM 3101)</b></p>	<p>What is history? What do historians do? In this course, we critically examine history itself: what it is and why historians do it. We seek to understand the assumptions historians make about the limits of our knowledge of the past. Topics include analyzing the questions historians ask, investigating the sources they use, and examining the ways in which historians borrow from, and contribute to, other disciplines. Students also consider a broad range of historical schools, beginning with Herodotus and working through Rankean empiricism, Marxism, the Annalists, microhistory, cultural history, and others.</p>
<p><b>Colonialism, Race, and Identity (HUM 3102)</b></p>	<p>In 1500, European states controlled roughly seven percent of the world’s land; by 1914, the figure was closer to 85 percent. In this history course, we investigate this staggering transformation and examine its consequences for colonizer and colonized alike. We investigate the interaction between colonizer and colonized, study the collision between the lofty principles espoused by colonizers and the actual practice of colonialism, and examine the ways in which the historical experience of colonialism transformed the lives of people in both the colonies and in the metropolises. Along the way, we delve into topics including scientific racism, the development of the concept of the “civilizing mission,” and the rise of self-conscious nationalisms in the colonized world.</p>

<p><b>Revolutions (HUM 3103)</b></p>	<p>“Revolution” is a curious word: it is a contronym, a word that simultaneously means its opposite. (Other examples include “cleave,” which means to separate or split apart and to cling faithfully to someone; and “sanction,” to punish and to approve.) A revolution is a rotation, a return to a point of origin: a wheel goes through a revolution. Revolution, however, also means a sweeping transformation. The Revolutions course examines the tension between these two aspects of modern revolutions, and seeks to understand the causes, possibilities, failures, and consequences of revolutions in the modern world. While the revolutions covered in this course vary, the approach is comparative.</p>
<p><b>French and Francophone History (HUM 3104)</b></p>	<p>French political, social, economic, intellectual, religious, and military conflicts helped shape the modern world. French is spoken not just in France, but also in other European countries, Africa, Asia, the Americas, and Oceania; the legacy of French rule survives in legal codes throughout the world; French art, architecture, and music continues to enrich culture the world over; and the vocabulary of French political struggles still shapes the way we think about ourselves and our relations to one another. While topics vary, this course uses primary and secondary source to encourage students to think historically and rigorously about France and the Francophone world.</p>
<p><b>Topics in Modern European History (HUM 3105)</b></p>	<p>In this course, students examine decisive moments in modern European history. The course provides students with the opportunity to use primary and secondary sources to come to a deeper understanding of the important themes of the modern world. Topics will vary, but may include the Scientific Revolution and the Enlightenment, the Industrial Revolution and development of capitalist and industrial economies, the rise of powerful states, and the development of liberalism, nationalism, romanticism, and socialism.</p>
<p><b>Chivalry and Feudalism (HUM 3107)</b></p>	<p><b>Prerequisite: Foundation Humanities Texts course or Culture course.</b>  In popular culture, medieval Europe is understood in two almost diametrically opposed ways. On the one hand, it is imagined as a time in which courtly knights risked their lives on behalf of noble ladies; on the other hand, “medieval” is used a shorthand for cruelty, brutality, and the abuse of the weak by the strong. Both views are simplistic, but both are also rooted in aspects of genuine medieval life. In this course, we consider both the chivalric society imagined by courtly literature and the feudal society desired by medieval lords, along with the relationship between the two. We investigate topics such as the relationship between fictional portrayals of knighthood and the self-images of genuine knights, clerical and monastic attempts to use ideology to curb feudal violence, and the influence of such elite discourses on the peasantry . We read both medieval texts such as Chrètien de Troyes’ Cliges and Geoffroi de Charny’s Book of Chivalry and modern scholarship such as Stephen Jaeger’s “Courtliness and Social Change.”</p>

<p><b>The Great War (HUM 3110)</b></p>	<p>A century ago, a war that contemporaries almost immediately dubbed the “Great War” roared across Europe and the world. The war—arguable the first total war—marked the defining moment of the twentieth century. Tens of millions of men were mobilized to fight in the bloodiest conflict the world had seen; millions of those died, were wounded, or taken prisoners; untold numbers suffered the lasting physical and psychic traumas of a brutal and brutalizing experience. Great swathes of land in France and Belgium were laid waste. Images of the conflict—the lunar landscape of No Man’s Land, seemingly endless tangled coils of rusting barbed wire, spectral figures of goggle-eyed soldiers in gasmasks, and muddy, rat-infested trenches—haunted the memories of those who had lived through it. But the war affected not just those who engaged in battle, but also those who stayed at home: women, children, the old and the infirm. In this history course, we will examine the Great War, not just through a study of military operations, but also through an examination of the social, artistic, literary and political responses to the conflict.</p>
<p><b>War, Film, and History (HUM 3111)</b></p>	<p>Film has a powerful effect on the way we understand history, and particularly the history of war. In this course, we study a selection of films that deal directly or indirectly with war: we explore the relationship between the past and its representation in film. Our goal is to set these films in their contemporaneous context, examine them as (problematic) historical works in their own right and compare them to conventional historical approaches. Films we study may include Sergei Eisenstein’s <i>Alexander Nevsky</i>; Jean Renoir’s <i>Grande Illusion</i>; John Cromwell’s <i>Since You Went Away</i>; Louis Malle’s <i>Au Revoir les Enfants</i>; Terrence Malick’s <i>The Thin Red Line</i>; Gilles Pontecorvo’s <i>The Battle of Algiers</i>; and Francis Ford Coppola’s <i>Apocalypse Now</i>.</p>
<p><b>Sites of History: Modern France (HUM 3112)</b></p>	<p>This course, taught in France, explores the trials, tribulations, and triumphs of modern France from 1870 (the outbreak of the Franco-Prussian War) to the end of the twentieth century. What better way to understand the bohemian life of the Belle Époque than to walk up to the top of the Butte Montmartre? What better way to understand the impact of urban transit than to experience the Paris Métropolitain in all its crowded glory? What better way to understand the crisis of the Great War than to journey to the fortress city and ossuary of Verdun? What better way to understand the centrality of art and culture to the French than to take in the museums of Paris? Participants in this course will learn about—and experience—the history and culture of modern France.</p>

<p><b>Racial Democracy: Brazil In Focus (HUM 3113)</b></p>	<p>This class focuses on intersectional narratives derived from religious missions, colonial practices of slavery, and religious traditions of indigenous communities in shaping colonial Brazil's history. Paying special attention to the indigenous communities as well as the African slaves, students will explore scholars' discourses on the Portuguese imperial apparatus. Students will become familiar with the main debates on slavery, Indian labor systems, and race relations in colonial Brazil, in order to grasp a better understanding of current Brazilian social and racial inequalities. Furthermore, the analysis of key ideas such as the concepts of negotiation, resistance, and redemption in colonial Brazil will allow for careful examination of colonial justifications and social tensions used by the Portuguese through the principles of "spiritual conquest." Students will critically engage historical evidence on how while Portuguese imperial politics operated through the principles of "spiritual conquest," they also built and expanded practices of slavery, Indian labor systems, and deeply reshaped racial identities and social inequalities. Moreover, students will also analyze how African slaves and indigenous communities contested the imperial regime of power in colonial Brazil through, for example, hidden or secret societies called "quilombos," and other acts of resistance such as the ones offered by the world-famous martial arts called "capoeira." This course ultimately emphasizes the Brazilian borderland of intercultural violence and a diversity of religious practices that allowed for negotiation, resistance, and redemption.</p>
<p><b>Science, Exploration, and Empire (HUM 3114)</b></p>	<p><b>Prerequisite: Any Foundation Scholarship course.</b>  European science grew up alongside European empires. This course investigates European exploration and expansion from the sixteenth through the early nineteenth centuries from the perspective of the history of science. In it, students investigate the entanglement of scientific discovery with imperial projects. We consider topics such as confrontations between ancient traditions and new discoveries, European attempts to assimilate non-European natural knowledge, and the recruitment of science as a tool of the imperial state. Case studies of the writing and experiences of the Spanish missionary José de Acosta, the German painter Maria Sibylla Merian, and the English gentleman Joseph Banks provide a lens for discussion of the broad themes of the class. Students will also choose their own case study to research throughout the course.</p>
<p><b>Slavery, Democracy, and Capitalism (HUM 3115)</b></p>	<p><b>Prerequisite: Any Foundation Culture course.</b>  The origins of modern democracy and global capitalism are deeply tied to the institution of slavery. Slave-produced sugar and cotton provided crucial raw material for the mills of early industrial economies, and it was quite possible to champion universal freedoms while profiting from the labor of slaves, or owning slaves oneself. This course examines the connections among slavery, democracy, capitalism in the Atlantic world from the early seventeenth through the mid-nineteenth century. Students will engage in a series of projects that take expanding perspectives on the slave system. We begin with the experiences of slaves themselves and the structure of slaveholding societies. We continue by examining the relationship between slavery and the emergence of democracy through the lens of developing notions of rights and citizenship. Finally, we conclude by investigating the importance of slavery to the emerging system of global capitalism.</p>

<p><b>Saints, Sinners, Mystics, and Mendicants (HUM 3116)</b></p>	<p><b>Prerequisite: Any Foundation Culture course and any Foundation Scholarship course.</b></p> <p>We often imagine medieval Christianity as rigidly controlled by the Catholic hierarchy. However, the period from 1100 to 1500 also witnessed the flowering of many new forms of religious expression originating from lay Christians. In this course, students research medieval religious life from the perspective of ordinary people, including women claiming religious authority vis-à-vis male clergy; urban artisans and merchants reconciling commercial life with pious expression; and Christians, Jews, and Muslims negotiating shared spaces. The course begins with an overview of common themes in medieval popular religion interspersed with an introduction to researching medieval popular religion. The second rest of the course is student-driven. Students will form research groups, choose and research topics, lead classroom discussions on them, and stage a conference presenting the results of their research.</p>
<p><b>Ethnography Of Squamish Culture (HUM 3117)</b></p>	<p>Ethnography of Squamish will consider dilemmas, practices and implications of ethnographies of the unceded Coast Salish territories both historically and in the contemporary moment. Reading several works by scholars that have shaped—negatively and less so—the perceptions and experiences of the people and their land, we will contemplate the roles of ethnography and the academic in struggles and studies. As such, the goal of the course is to provide space for students to be cognizant of the their inheritance from past academic work, reflect on the impacts of academic research and to shape ethical practices in contemporary research.</p>
<p><b>Ethics (HUM 3201)</b></p>	<p>What ought we to do? Philosophers have offered many different ways of looking at the moral problems that confront us in everyday life, and have produced many different accounts of what constitutes a good life and a good person. This course provides, first, a general introduction to ethics, with readings from Aristotle, Kant, the utilitarians, and feminist ethicists. The course then proceeds to examine ethical reasoning and theories as applied to problems arising in medical contexts. Students examine real-life case studies where human actions and social values lead to life-and-death consequences.</p>
<p><b>Ancient Philosophy (HUM 3206)</b></p>	<p><b>Prerequisite: Any Foundation Humanities course.</b></p> <p>Ancient philosophy is framed by three principal questions: how do we know (analytics); what is there (metaphysics); and how should we act (ethics). In this course, we learn how three great figures of the classical period, who are also acknowledged as the greatest philosophers of all time, addressed these questions: Socrates (469-399 BCE), Plato (427-347 BCE), and Aristotle (384-322 BCE). These thinkers decisively influenced our intellectual tradition, and it is impossible to speak of Western civilization or Western thought without reference to them. They asked all of the important questions and they each gave us arguments and answers that have stood the test of time. They shaped the fundamental categories and conceptual language that we use to understand the world around us. We investigate a range of topics including the nature of the soul and its relation to the body, the acquisition of knowledge and wisdom, causal explanation in natural science, and what it means to live the good life.</p>

<p><b>Logic &amp; Metalogic (HUM 3207)</b></p>	<p><b>Prerequisite: Any Mathematics course.</b></p> <p>This is not a typical class in formal logic or informal argumentation. It is more like a cross between Spherical Trigonometry (high-powered mathematics) and Phenomenology (high-powered philosophy). The paper we are going to study is one of the most important and influential that has ever been written: 'On Computable Numbers, with an Application to the Entscheidungsproblem,' by Alan Turing (1936).</p> <p>This 36-page paper proves something very interesting and important. We usually think we have made progress in solving mathematical or logical problems when we come up with a method (or algorithm). When you were young, you learnt a method to subtract one number from another. Later, you learnt a method to solve for the unknown in a quadratic equation. But what Turing shows is that there is a large class of mathematical and logical problems that cannot be solved algorithmically. By this, we mean not merely that we do not know what the method is, but that no method will ever be found!</p> <p>This result has profoundly changed our understanding of logic, mathematics, and computation. It means there is no universal method for classifying a theorem of first-order logic as being either true or false (though there is always an answer). It also means that a computer cannot write down the vast majority of numbers, even given infinite resources and infinite time.</p>
<p><b>Modern Philosophy (HUM 3208)</b></p>	<p>Modern Philosophy is not a common set of views or interests, but an approach to philosophical questions characterised by the development of powerful logical techniques to achieve definite answers. It emphasises precision and thoroughness about narrow topics as opposed to vague discussions about broad topics, and in the last century has become the dominant force within Western philosophy. In this course, we will explore select problems in metaphysics, epistemology, philosophy of mind, philosophy of language, or philosophy of science, in the analytic tradition.</p>
<p><b>Paris Art and Architecture (HUM 3306)</b></p>	<p>The purpose of this class in Art History is to teach students how to respond intelligently to a work of visual art or architecture. We will first meet for 9 days on campus in an intensive study of theory, and in preparation of particular paintings, sculptures, and buildings. We will then reconvene in Paris for the last two weeks. By walking out the door in the French capital, we have access on foot to a Roman arena, a Gothic cathedral, and the newest Frank Gehry museum. The Louvre—the world's largest art museum—is around the corner. By preparing the background ahead of time, we will arrive in Paris knowing what works we want to see, and generally what we are looking for when we see them.</p> <p>Field trip fees apply. Deposit: \$1500 CAD. Rough estimated total field trip cost (food, lodging, museum admissions, local transportation, and incidentals) is \$2400, plus your airfare.</p>

<p><b>Art And Architecture (HUM 3307)</b></p>	<p>The purpose of this field class in Art History is to teach students how to respond intelligently to a work of visual art or architecture, and ultimately how to make a cogent interpretation of it. The course takes place in two parts. We first meet for 9 days on campus in an intensive study of theory, and in preparation of particular works that we will then go see in situ. After a travel break, we reconvene in Paris for the last two weeks. The rationale for a field excursion is simple: by walking out the door, we have access on foot to a gothic cathedral in five minutes, and the newest Frank Gehry building in a 20-minute metro trip. The Louvre—the world’s largest art museum—is likewise only a 15 minute walk away. By preparing the background ahead of time on campus, we will arrive in Paris knowing what works we want to see, and what we are looking for.</p>
<p><b>Film: Theory and Practice (HUM 3320)</b></p>	<p>In Film: Theory and Practice students develop the knowledge and skills to critically analyze the inner workings of a film. Together as a production team, students examine the texture of films (form, style, narrative, and genre), trace important aesthetic movements in film history, and produce their own films. Film: Theory and Practice also includes a philosophical component; students read some of the most important philosophers and film theorists in the 20th and 21st century. Students are required to produce their own films for the annual Quest Student Film Festival.</p>
<p><b>Latin America Through Film (HUM 3321)</b></p>	<p><b>Pre-requisite: Any Foundation Humanities course.</b>  What do the films “Cidade de Deus,” “Amores Perros,” “Motorcycle Diaries,” and “Even the Rain” have in common? What do they tell us about the Latin American societies in which they were produced? Why did Latin American filmmakers of the 1980s and 1990s begin to move away from magical realism towards social realism? How did they change their film making techniques to advance these new approaches, and what is the enduring appeal of stories that portray grim realities, but never without the possibility of redemption at the end? These and other questions will be addressed in this concentration seminar, which focuses on the comparative study of cultural production. Our explorations will look at the diverse populations of Latin America through films. Students will complete readings and conduct discussion of these masterpieces to unpack their impact on broader cultural studies. In this course we will watch and analyze films made in Latin America, by Latin Americans and about Latin America. Students will learn about history, cultural production, and social representations of five to seven Latin American countries. Paying special attention to the coup d’états that shaped twentieth-century South American nations, students will learn about the intersections of transnational state practices of authority and censorship, as well as responses with the formation of social movements and cultural manifestations. Additionally, students will analyze the social traumas and the fragile democracies that followed these dictatorships and shaped filmmaking in the region.</p>
<p><b>Theatre: Acting and Directing (HUM 3340)</b></p>	<p>In Theatre: Acting and Directing, students explore the director’s creative approach to the play and its staging. Other topics include the fundamentals of movement, speech, theatre games, and improvisation as an actor. As an extremely demanding course, Theatre: Acting and Directing involves intense physical practice, script study, and hands-on rehearsal to ensure group bonding and personal expression. The ultimate goal of the course is to produce a play.</p>

<p><b>Music and Ethics (HUM 3364)</b></p>	<p>As a socially embedded practice, many ethical questions arise in musical experience and use. Drawing from disciplines including musicology, ethnomusicology, and philosophy, this course explores themes that may include: music and individual and cultural identity, music and politics, music and capital, music and torture, music and ethical responsibility, improvisation, and copyright.</p>
<p><b>Popular Music in North America (HUM 3365)</b></p>	<p>This course explores the stylistic and cultural evolution of popular music in the last century. From blues to country, jazz to rock 'n' roll, metal to hip hop, popular music has reflected and shaped culture. Themes explored in the course may include: popular music and identity, popular music and mass culture, technological developments, globalization, and the means by which the development and cultural importance of popular music might be evaluated.</p>
<p><b>Songwriting and Recording (HUM 3366)</b></p>	<p><b>Prerequisite: Any Foundation Humanities course.</b>  This course explores the role of song in societies past and present, the techniques and creative process of songwriting, and the process of recording in a digital studio. The practice of songwriting - setting text to music - spans human history and cultures. This course examines song throughout history from plainchant to 19th century art song to Bob Dylan to Jay Z from historical, textual, and analytical perspectives in order to learn about the creative process and develop compositional approaches to songwriting. Through working in the digital studio, students extend the compositional process from the composition of a melody and chordal accompaniment to the creation of completed recordings. Rudimentary background in music theory highly recommended.</p>
<p><b>Songwriting And Recording II (HUM 3368)</b></p>	<p><b>Prerequisites: Songwriting and Recording I, Musical Improvisation, or tutor permission.</b>  This course focuses on the techniques and creative processes of songwriting and recording, building upon experience developed in other music courses. Compositional skills are advanced through: developing and applying skills in music theory and analysis, analyzing the compositions of others, developing aural skills, practicing composing, and receiving feedback. Digital audio recording skills are advanced through: gaining and applying new knowledge about audio recording, analytical listening to recordings, and practice working in a digital audio environment. Musical compositions will be considered in relationship to social musical usage, genre conventions, and historical practice.</p>
<p><b>Musical Improvisation (HUM 3369)</b></p>	<p>In this course, students develop musical improvisational abilities through the application of music theory to specific musical genres. The primary musical genre explored in this course is jazz, but there will be opportunities to examine and undertake improvisation in genres ranging from the baroque era to jam bands. In addition to applied improvisation, students examine larger questions about improvisation, including: what is improvisation? Is improvisation different from compositions? How does improvisation relate to other social practices? It is highly recommended that students have some background in music theory rudiments and some ability to play an instrument.</p>

<p><b>Is Seeing Believing? A Studio Course in Photography (HUM 3381)</b></p>	<p>IS SEEING BELIEVING? is a hands-on studio course in Photography, which will engage students in a range of issues and practices that investigate ways of seeing and interpreting the world through the ubiquitous lens of the camera. The technical practice of photography, as well as its rich history, will be covered in the course. In the modern era the visual image holds incredible power as the primary means through which most people know our world. Through the creation of original photographic portfolios each student will find creative ways of seeing and interpreting the world around them. This process will deepen their appreciation for the metaphor of meaning inherent in the photographic image, a phenomenon that is frequently overlooked in a world that often forces us to confront the question “is seeing believing?”. The culmination of the course will include the creation of a photographic portfolio, an individual Artist’s Statement, and a class exhibition for the Quest community. Readings will include issues in visual thinking, the cultural, political and philosophical implications of photography, and the history of photography.</p>
<p><b>Feminist Arts Practices (HUM 3382)</b></p>	<p>This course analyzes the relation between politics and performance to uncover the ways arts-practices respond, embed and evoke issues of power and bring attention to varied notions of justice. We will challenge ourselves to move, make, talk and write, and as we do, we will explore some central concerns in feminist movement, examining theories and practices of feminist art making over the last century in multiple disciplines and methods, including dance, photography, sculpture, film/video, performance, and other media. We will explore experimental and interventionist productions, including institutional critique, through which feminist arts practices comment and challenge art world structures of education, circulation, and collection, and in the world at large. Through rigour and commitment to play and practice, we will bring our imagined and creative works into material and embodied reality and consider new ways of knowing. Be prepared to read, write and move in this class.</p>
<p><b>Violence, Trauma, and Representation (HUM 3383)</b></p>	<p>This course is an examination of violence and trauma, and their relation to, incorporation in, and treatment within modes of academic study, performance and visual arts. We will read prolific and contemporary texts that address treatments of violence, trauma, and memory. Simultaneously, we will also consider the relationship between trauma and modernity. Themes of discipline, subjectivity, migration, and exile will be considered as we engage with artists and scholars who consider the complexity of understanding and conveying the trauma of violence.</p>
<p><b>Cultural Approaches to Dance Studies (HUM 3385)</b></p>	<p>This course will focus on the study of dance practices in and across cultures, including cross-cultural studies of dance; multicultural approaches to dance history; ethnological, ethnographic and cultural studies approaches to dance analysis; and analysis of the different roles and functions dance plays in cultural systems. This analysis will guide our examinations of dance; aid in honing our skills for viewing, understanding, verbalizing and writing about performance; and help situate our own work (choreography/written discourse) within broad analyses of culture. We will locate dance-making and history-writing within larger political and cultural discussions.</p>



<p><b>French 1 (LAN 1001)</b></p>	<p><b>Prerequisite: Tutor permission.</b>          Designed for students with no previous experience with French, French 1 introduces foundational concepts of French grammar and builds competency in all four areas of communication: listening, speaking, reading, and writing. French 1 provides in-class immersion and requires significant extracurricular engagement with the language. Students explore francophone cultures through short readings, music, and film. Topics covered: regular and irregular verbs in present tenses, structures for interrogation and negation, gender and number agreement with nouns and adjectives, vocabulary and expressions for discussing agreement, hesitation, certainty, family, hobbies, professions, school, personality, and appearance.</p>
<p><b>Chinese 1 (LAN 1101)</b></p>	<p><b>Prerequisite: Tutor permission.</b>          Welcome to the study of Chinese, the most commonly spoken language in the world. In Chinese 1, students develop elementary-level skills of listening, speaking, reading, and writing in Mandarin Chinese in everyday communication settings. Fundamentals of pronunciation, grammar, and Chinese characters are introduced, since Chinese is an ideographic language. Students also venture into the exciting world of Chinese culture. Chinese 1 is for students who have had no prior exposure to the Chinese language.</p>
<p><b>Spanish 1 (LAN 1201)</b></p>	<p><b>Prerequisite: Tutor permission.</b>          Spanish 1 is an intensive, integrated-skills approach language course designed for students with no formal training in Spanish. Instruction is entirely in Spanish, and is focused on developing proficiency in listening, speaking, reading, writing and culture. Success in this course requires a significant time commitment outside of the classroom. Success in this course also requires open-mindedness because learning a language is an invitation to a new way of thinking. Topics covered include: greetings and self-description, vocabulary related to everyday life, elementary cultural topics, adjective-noun agreement, present tense conjugation, cardinal numbers, and elementary pronunciation. By the end of this course, successful students will be able to communicate in rudimentary ways and understand simple, adapted speech and texts. A minimum grade of C in this course is required in order to take Spanish 2.</p>
<p><b>Latin Language (LAN 1301)</b></p>	<p>The study of Latin unlocks the literary, philosophical, scientific, and religious texts that continue to have an incalculable influence on our civilization. The aim of this course is to teach you how to read Latin as quickly and enjoyably as possible, within the context of Roman culture. The dialect of Latin we shall learn was spoken and written in Rome from the Late Republic to Early Empire (around 75 BCE to 300 CE).</p> <p>In addition to learning Latin, you will gain a more complete and deeper understanding of your own language, and of the importance of language as a tool, not only for expressing complex ideas, but also for creating them. You will also gain insight into the origins of the Romance languages (French, Italian, Spanish, Portuguese, and others). And you will learn that you use Latin every day, without even thinking about it. Perhaps most importantly, you will be following the educational ideals of Winston Churchill: "I would make them all learn English, and then I would let the clever ones learn Latin."</p>

<p><b>Ancient Greek Language (LAN 1401)</b></p>	<p>The study of Ancient Greek unlocks the literary, philosophical, scientific and religious texts that continue to have an incalculable influence on our civilization. The aim of this course is to teach you how to read Greek as quickly and enjoyably as possible, within the context of Greek culture. You will gain a more complete and deeper understanding not only of some of the greatest thinkers in history, but also of your own speech, and of the importance of language as a tool not only for expressing the complex ideas, but for creating them. As a bonus, you will also gain insight into scientific and medical terminology, be able to get around the subway in Athens, and participate in Greek soccer chants! And you will learn that each of you uses Greek every day, without even thinking about it. Perhaps most importantly, you will be following the advice of George Bernard Shaw: “Learn Greek; it is the language of wisdom.”</p>
<p><b>German 1 (LAN 1501)</b></p>	<p>This course is an intensive introduction to elementary German language and culture intended for students with no previous experience. Instruction will be entirely in German and will focus on developing competency in listening, speaking, reading, writing, and culture. Students will engage with various cultural topics, readings, music, and videos both in and outside of the classroom. There will be a strong emphasis on the functional use of German to communicate in an immersion setting, such as short-term study abroad or travel in Germany, Austria, and Switzerland. Students will learn to communicate about themselves and interact with German speakers in rudimentary ways. Course competencies will include counting, present tense conjugation, vocabulary and noun genders for food and accommodations, using objects and cases, as well as an awareness of basic cultural differences among German-speaking countries.</p>
<p><b>Accelerated French 1 and 2 (LAN 2001)</b></p>	<p><b>Prerequisite: Instructor permission.</b>  Accelerated French 1 and 2 is intended for students who have had previous, but perhaps not recent, exposure to French or who have had little practice with oral communication. The Course offers a fast-paced review of foundational concepts in French grammar, including regular and irregular verbs in present, past, and future tenses, structures for interrogation and negation, noun and adjective agreement, and pronoun usage. Students review and expand vocabulary used for self-description, families, professions, school, and daily activities. Conducted entirely in French, Accelerated French 1 and 2 helps students build competency in listening, speaking, reading, and writing French and requires significant extra-curricular engagement with the language, including group practice sessions before class each morning. A minimum grade of C in this course is required in order to take French 3.</p>

<p><b>French 2 (LAN 2002)</b></p>	<p><b>Prerequisite: French 1 (LAN 1001) or tutor permission.</b>          Designed for students with some previous French, but little experience understanding and using spoken French, the course reviews foundational concepts of French grammar and builds competency in all four areas of communication: listening, speaking, reading, and writing. French 2 provides in-class immersion and requires significant extracurricular engagement with the language. Content about francophone cultures is included in the form of short readings, music, and film. Topics covered: present, past, and future verb tenses, the use of pronouns for avoiding repetition and constructing more complex sentences, and structures for expressing hypotheses and conditions. Students review and expand vocabulary for family, hobbies, professions, school, personality, and appearance, and are encouraged to develop vocabulary related to individual interests.</p>
<p><b>Chinese 2 (LAN 2102)</b></p>	<p><b>Prerequisite: Chinese 1 or tutor permission.</b>          Chinese 2 is a continuation of Chinese 1 and provides further instruction in higher levels of grammar and Chinese characters. In Chinese 2, students continue to develop the four areas of communication: listening, speaking, reading, and writing.</p>
<p><b>Spanish 2 (LAN 2202)</b></p>	<p><b>Prerequisite: Spanish 1 or tutor permission.</b>          Spanish 2 is an intensive, integrated-skills approach language course designed for students with the equivalent of one block/semester of college Spanish. Instruction is entirely in Spanish, and is focused on developing proficiency in listening, speaking, reading, writing and culture. Success in this course requires a significant time commitment outside of the classroom. Success in this course also requires open-mindedness because learning a language is an invitation to a new way of thinking. Major topics covered include: vocabulary related to daily life in Spanish-speaking cultures, the past tense, commands, and the subjunctive. This course fulfills one block of the Quest University language requirement. A minimum grade of C in this course is required in order to take more advanced Spanish courses at Quest University.</p>
<p><b>German 2 (LAN 2502)</b></p>	<p><b>Prerequisite: German 1 or instructor permission.</b>          This course is an intensive exploration of elementary German language and culture intended for students with some previous high school German, basic heritage speaking ability, or the equivalent of one block/semester of college German. Instruction will be entirely in German and will focus on developing more extensive competency in listening, speaking, reading, writing, and culture. Students will engage with various cultural topics, readings, music, and videos both in and outside of the classroom. There will be a strong emphasis on interacting within a German-speaking immersion setting such as extended travel or study abroad. Students will learn to communicate about their actions, their environment, and their intentions with German speakers in elementary ways. Course competencies will include questioning and replying, sentence structure and complex verbs, the past tense for speaking, and cultural conventions appropriate for living and studying in a German-speaking country.</p>

<p><b>Portuguese Language and Culture I (LAN 2601)</b></p>	<p>The goal of the first and second levels of Portuguese Language and Culture program is to develop elementary proficiency in Portuguese. Students will learn how to use Portuguese for communication in real and meaningful situations. It is also intended that students develop an understanding of basic grammatical concepts and an appreciation of the various cultures of the Portuguese-speaking world. To achieve these goals, the course follows a communicative approach. Thus, the course is taught entirely in Portuguese while the textbook contains explanations and instructions in English. Grammar is not taught explicitly, but students are expected to study the material before coming to class. Class time is to be used primarily for communication practice: Portuguese will be spoken in class 99% of the time. Classroom time will be devoted almost solely to activities that will allow you to practice your skills of understanding and interacting in Portuguese. Classroom time will not be spent doing grammar drills, translating, or listening to lengthy explanations of grammar. Students are expected to read all assigned grammar explanations and complete all assigned exercises and homework tasks. If students feel that they need additional help with grammar, the tutor expects to see them during office hours.</p>
<p><b>Portuguese Language and Culture II (LAN 2602)</b></p>	<p>The goal of the first and second levels of Portuguese Language and Culture program is to develop elementary proficiency in Portuguese. Students will learn how to use Portuguese for communication in real and meaningful situations. It is also intended that students develop an understanding of basic grammatical concepts and an appreciation of the various cultures of the Portuguese-speaking world. To achieve these goals, the course follows a communicative approach. Thus, the course is taught entirely in Portuguese while the textbook contains explanations and instructions in English. Grammar is not taught explicitly, but students are expected to study the material before coming to class. Class time is to be used primarily for communication practice: Portuguese will be spoken in class 99% of the time. Classroom time will be devoted almost solely to activities that will allow you to practice your skills of understanding and interacting in Portuguese. Classroom time will not be spent doing grammar drills, translating, or listening to lengthy explanations of grammar. Students are expected to read all assigned grammar explanations and complete all assigned exercises and homework tasks. If students feel that they need additional help with grammar, the tutor expects to see them during office hours.</p>
<p><b>French 3 (LAN 3101)</b></p>	<p><b>Prerequisite: French 2 (LAN 2002) or tutor permission.</b>  Designed for students who have previously studied French and who can understand and use basic spoken French, the course reviews foundational concepts of French grammar in a communicative and immersive setting and builds competency in all four areas of communication (listening, speaking, reading, and writing). In French 3 students develop comfort and accuracy in the use of basic grammar and study more advanced structures (e.g., compound tenses, subjunctive). Short readings, music, and film help students to expand their vocabulary and knowledge of francophone culture and to become more comfortable with authentic, rather than textbook, use of the language.</p>

**Spanish 3: Spanish  
Through Hispanic  
Cultures (LAN 3200)**

**Prerequisite: Spanish 2 or tutor permission**

In this course, we will explore the diversity of Hispanic cultures in the Americas, Spain, and Africa. Students will discuss current events, literature, art, music, history, and film, in order to increase their proficiency in the Spanish language. Themes covered in the course will vary, but a goal of the seminar will be to familiarize students with some of the features of, and issues within, Hispanic cultures.



# LIFE SCIENCES

## FOUNDATION LIFE SCIENCES

The Foundation program includes three life sciences courses that encompass the study of life, ground students in the place in which they are learning, and fit this local environment into a broader evolutionary context.

### **Evolution (LIF 2110)**

#### **Prerequisites: Information, Measurement and Algebra Q Skills Strands**

How does evolution happen and how do we know? What and how can we learn about events that happened millions of years ago? How is evolution relevant to climate change, disease transfer, and antibiotic resistance? Students will answer these questions and many others by studying the major lines of evidence for evolution, including the fossil record, natural selection, DNA replication and cell division, gene expression, mutation, heredity, and the formation of new species. Emphasis will be split between learning core concepts and applying those concepts to real-world examples. Students will practice the scientific method, write and communicate science, read and critique scientific literature, and conduct laboratory studies.

### **Biodiversity of British Columbia (LIF 2210)**

#### **Prerequisites: Information, Measurement and Algebra Q Skills Strands**

The natural world is a complex and captivating place. From the ocean to the alpine, the forest to the field, this course will introduce students to the organisms and ecosystems that surround us. While accessing the wide variety of habitats found near Squamish, we will explore the causes and consequences of biological diversity, by documenting patterns in the field and linking them to underlying processes. We will immerse ourselves in the empirical and theoretical science that strives to make sense of this ecological complexity. Students are challenged to collect and analyze data, and to engage their curiosity and creativity to test hypotheses about natural phenomena across organismal, population, community, and ecosystem scales. We will practice the scientific method, write and communicate science, read and critique scientific literature, and conduct field studies.

### **What is Life? (LIF 2310)**

#### **Prerequisites: Information, Measurement and Algebra Q Skills Strands**

Biology is the study of life, but what is life? What are its origins? How does life persist and perpetuate itself, and what is the future of life? These deceptively simple questions underpin the Life Sciences, and provide us with an opportunity to investigate both historic milestones and cutting edge innovations across all scales of inquiry, from molecules to biomes. To examine how living things work, we will consider the key processes of birth, metabolism, reproduction, and death, and the physiological and behavioral mechanisms by which they are achieved. Students will practice the scientific method, write and communicate science, read and critique scientific literature, and conduct field and laboratory studies.

## CONCENTRATION LIFE SCIENCES

Life has been found in every environment on Earth, from deep sea hydrothermal vents to Antarctic ice. It makes our planet unique in the solar system and perhaps in the whole Universe. Life sciences are concerned with the study of living organisms including bacteria, fungi, plants and animals (including humans). How did they come into existence, how are they characterized, and how do they interact with each other and their environments? The explosion of information in the life sciences makes it incredibly exciting to study a wide variety of biological fields. Squamish, with its rich diversity of ecosystems, serves as an ideal and stimulating setting for the study of the life sciences. Most courses combine theoretical and applied knowledge, and many include field or laboratory activities, and often both. Problem-solving, the generation of hypotheses and research and communication skills are honed throughout the curriculum at many different levels of study, from the molecular to the population. Students have the opportunity to further develop their life sciences skills and knowledge through experiential learning blocks, including working or volunteering in research laboratories, non-government organizations, or the community. Offerings in the life sciences at Quest cover a broad range of disciplines, including: ecology, molecular biology, neuroscience, physiology, biochemistry, botany, marine biology, zoology, and health sciences.

Students interested in pursuing careers in the medical field (for example, in medicine, nursing, pharmacy, physiotherapy, or veterinary science) should consult the pre-med student club and their academic advisor to plan their coursework.

### **Marine Biodiversity (LIF 3002)**

**Prerequisite: Biodiversity of BC or tutor permission**  
**Additional fees may apply**

Patterns of biodiversity vary across large latitudinal, elevational, and area gradients, with regional and local patterns driven by microhabitat variation and interspecific interactions. How do light, temperature, and circulation establish these large-scale patterns? How they interact with competition, predation, and parasitism in establishing local patterns? What are the consequences of biodiversity for ecosystem productivity and resilience in the face of disturbance, invasion, and climate change? In this course we test the predominantly terrestrial theories of biodiversity in the marine environment, where the phyletic diversity is oddly higher but the species-level diversity is oddly lower.

This course includes a week-long field trip to a marine research station to quantify local diversity and test theoretical hypotheses. Students should be prepared for physical exertion under variable weather conditions. Marine Biodiversity complements Marine Ecology (population and community dynamics), Marine Zoology (animal adaptations to the sea), and Coastal Field Ecology (cross-boundary coastal ecosystem subsidies).

<p><b>Coastal Field Ecology (LIF 3005)</b></p>	<p><b>Prerequisite:</b> What is Life? or Biodiversity of British Columbia or tutor permission.</p> <p><b>Additional fees may apply</b></p> <p>Coastal environments are characterized by stark physical boundaries between land and sea. In this advanced ecology course, students will examine recent scientific literature exploring the tremendous degree to which energy and biomass move across these boundaries, with consequences for ecosystem function, and implications for ecosystem serves and conservation planning. This course develops skills in formulating hypotheses, collecting and analyzing data, and synthesizing empirical observations with the primary literature.</p> <p>This course includes a week-long backpacking trip along the Juan de Fuca Trail on the outer coast of Vancouver Island, where we develop skills in planning and conducting field expeditions. Students should be comfortable with wilderness camping, and be prepared for substantial physical and mental exertion in challenging terrain under variable weather conditions: a pre-course selection process may be applied to maximize individual and group safety for this course.</p> <p>Coastal Field Ecology complements Marine Zoology (animal adaptations to the sea), Marine Biodiversity (causes and consequences of diversity patterns in the world's oceans), and Marine Ecology (population and community dynamics).</p>
<p><b>Topics in Sustainability (LIF 3006)</b></p>	<p><b>Prerequisite:</b> Foundation Ecology or Biodiversity of BC.</p> <p>Humans are the only species on earth with the capacity to use up the finite resources of the planet, and to be aware of it. What choices are we making in our use of water, air, and soil? Of animals, plants, and minerals? What does it mean to live sustainably? When is it worth it to live beyond our ecological means? Will technology or simplicity provide more solutions? In Topics in Sustainability, we study examine a specific question concerning the sustainability of human life on earth - from the perspective of ecology. Focal topics include permaculture (re-examining its scientific foundations, a half-century later), poo (an essential ecosystem resource, and something of a management challenge), and harvesting and hunting (considering how invasion and predation - by humans and other species - affect ecosystem function in coastal systems). Field trip costs will be incurred.</p>
<p><b>Quantitative Research Methods For Life Sciences (LIF 3007)</b></p>	<p><b>Recommended:</b> The Practice of Statistics.</p> <p>The pursuit of knowledge across the sciences requires key skills in research methods and presentation. In this course, students will develop these skills by critically reading and analyzing scientific literature, proposing interesting research questions and hypotheses, transforming these into appropriate and rigorous surveys and experiments, and collecting (or simulating), visualizing, and analyzing pilot data. These skills are applied to writing and presenting and critiquing research proposals in standard professional scientific format. From this course, students learn the basic survival skills necessary to be an introductory researcher in their chosen fields. The skills developed in this course can be applied to quantitative research in any discipline, but the focal case studies and methods will be based in the life sciences.</p> <p>Recommended prerequisite: Statistics 1</p>

<p><b>Behavioural Ecology (LIF 3009)</b></p>	<p><b>Prerequisite: Biodiversity of BC or Foundation Ecology.</b> Behavioural Ecology lies at the interface between ecology, evolution, and animal behaviour. In this course, students will learn the theoretical and practical skills required to examine the evolutionary costs and benefits associated with different behaviours. Students will also apply this framework to better understand how humans interact with wildlife in urban and non-urban settings.</p>
<p><b>Plant Biodiversity (LIF 3010)</b></p>	<p><b>Prerequisite: Biodiversity of BC or tutor permission.</b> Plant Biodiversity addresses our understanding of the causes and consequences of botanical diversity. An initial review of basic plant biology underpins questions such as: What determines plant biodiversity at local, regional, and global scales? How are plants adapted to cope with environmental stressors? Are diverse plant communities more resilient to climate change than species-poor communities? What are the consequences of changes in plant biodiversity for the functioning of ecosystems? Students emerge with a foundation in plant biology, taxonomy, and floristics across many of British Columbia's ecosystems. This course relies heavily on field and lab studies, including a multi-day off-campus excursion.</p>
<p><b>Quest for Antarctica (LIF 3011)</b></p>	<p>Antarctica is the most extreme and isolated continent on Earth. It is also a hotbed for scientific discovery and biodiversity, a model for global geopolitical cooperation, a beacon for intrepid explorers, and an important regulator of global climate. Quest students will experience this environment first-hand and, using a multidisciplinary approach, be immersed in the lore, science, and politics of this vast and important continent. Our platform for 21 days is the ice-strengthened R/V Akademik Sergey Vavilov, upon which students will cross the Southern Ocean from Port Stanley in the Falkland Islands to the western Antarctic Peninsula and Weddell Sea regions.. Once in Antarctic waters, we will study the local environment via ship, shore, and Zodiac excursions. This is a rare opportunity to experience a world so far removed from our own, it is like a different planet.</p>
<p><b>Island Biogeography (LIF 3012)</b></p>	<p><b>Prerequisite: Biodiversity of BC. Recommended: Statistics 1.</b> The Theory of Island Biogeography was one of the most influential biological ideas of the 20th century. At the interface between community ecology and evolution, island biogeography was originally conceived to explain the number of species found on oceanic islands, but has since been used to estimate how many species should be present on any fragmented landscape, and has been applied to everything from biological reserve design to forestry practices. Students will read the original book by Robert MacArthur and E. O. Wilson that spawned a whole field, and will explore the application of this theory to current-day conservation problems on islands and mainland alike.</p>

<p><b>Marine Zoology (LIF 3013)</b></p>	<p><b>Prerequisite: What is Life? or Biodiversity of British Columbia or tutor permission</b>  <b>Additional fees may apply</b>  Life arose in the ocean, and almost every one of the ~32 known animal phyla live there today. Yes the liquid sea is a foreign environment: its homogeneously dark and cold depths are punctuated by blistering sulfuric vents, while nearshore habitats experience rapid and extreme fluctuations in temperature, salinity, pH, nutrients, and toxins. How have organisms adapted to this seemingly alien and hostile environment? What unique structural and physiological solutions have emerged to the challenges of locomotion, foraging, and reproduction? How have certain terrestrial organisms managed a return to the sea? To study these extraordinary animals, we will integrate across the zoological sciences to explore anatomy, physiology, biomechanics, behaviour, evolution, ecology, and conservation.  This course includes a week-long field trip to a marine research station to hone natural history and quantitative skills in studying animals up close in their natural environment and in the lab. Students should be prepared for physical exertion under variable weather conditions. Marine Zoology complements Marine Ecology (population and community dynamics), Marine Biodiversity (causes and consequences of diversity patterns in the world's oceans), and Coastal Field Ecology (cross-boundary coastal ecosystem subsidies).</p>
<p><b>Introduction to Ethnobotany (LIF 3014)</b></p>	<p><b>Prerequisite: Biodiversity of BC</b>  Indigenous Peoples around the world have built and maintained cultural relationships with plants for millennia. Ethnobotany is more than simply the study of plant use; it is the study of the interrelationships between people and plants. In this course, students will learn about plants as foods and medicines and will explore the cultural and the spiritual significance of ethnobotanical knowledge in different Indigenous cultures. Students will experience a combination of classroom activities, guest speakers, and field trips; and together, we will draw on local knowledge and global topics of interest. Major themes will include the roots of ethnobotany as a discipline (both academically and culturally), local Squamish Nation ethnobotanical knowledge, ethnobotanical case studies from other First Nations across British Columbia, ethnobotanical restoration and cultural knowledge renewal.</p>
<p><b>Biology of Tropical Ecosystems (LIF 3015)</b></p>	<p><b>Prerequisite: Biodiversity of BC, Foundation Ecology or tutor permission</b>  Tropical ecosystems are the most biologically diverse on the planet. In this course students will study the processes that shape tropical ecosystems and their extraordinary biodiversity, as well as develop a better understanding of the complex challenges facing conservationists in dealing with regional social pressures such as population growth and poverty. We'll focus on topics related to rain forest ecology and conditions unique to specialized habitats such as cloud forests, tropical savannahs, mangroves, coral reefs, and agro-ecosystems. Throughout the course we'll compare Old and New World ecosystems to look at biogeographical patterns and convergence within shared ecological niches. Coursework will include a combination of seminars, discussion sessions, student-led presentations and individual research proposals, as well as a day trip to tropical exhibits at the Bloedel Conservatory and Vancouver Aquarium. This course will be an immersive experience in tropical biology without ever leaving BC!</p>

<p><b>Avian Ecology (LIF 3016)</b></p>	<p><b>Prerequisite: Biodiversity of BC, Foundation Ecology or tutor permission</b>          Found on every continent and in every habitat, birds are among the most familiar animals in our day to day lives, yet they are also among the most remarkable; their incredible migrations, complex breeding strategies and amazing adaptations are fascinating in their own right, and also offer limitless possibilities to study broader questions in ecology. This course will introduce students to the theory and practice of avian ecology with an emphasis on field-based research. Topics will include bird diversity, distribution, foraging ecology, breeding behaviour, and migration, as well as practical techniques used to study birds in the field. Classwork will combine seminars with discussions of published research in avian ecology. Frequent excursions into the various habitats around Squamish and a self-directed field study will familiarize students with the identification, behaviour, and ecology of birds. Students will need a pair of binoculars.</p>
<p><b>Introduction to Ethnoecology (LIF 3017)</b></p>	<p>Ethnoecology is the study of how Indigenous Peoples interact with the ecosystems in which they live. These interactions include the ways in which different ecosystems are utilized and managed as well as the cultural perceptions, knowledge and spirituality that inform these practices. In this course, we will explore the discipline of ethnoecology through a combination of lectures, guest speakers, field trips and films. Major themes will include sacred connections to place, managed ecosystems, the interplay between science and traditional knowledge and how sacred ecology informs Indigenous land and resource management. We will draw on examples from local and international Indigenous peoples.</p>
<p><b>Historical Ecology of the Salish Sea (LIF 3018)</b></p>	<p>Students will sail on the historic 70' schooner Passing Cloud– designed by W.J. Roué famous for designing the iconic Canadian fishing schooner Bluenose–as part of a two-week field trip exploring the many connections between the geology, history, ecology, and conservation biology of the Salish Sea, a region that has experienced many dramatic changes in its geology, its history of human occupation, and its ecology. The Salish Sea encompasses the Strait of Georgia, the Strait of Juan de Fuca, Puget Sound, and the outlet of the Fraser River and is the traditional territory of the Coast Salish peoples. To assemble a portrait of the history and possible future of this region and its inhabitants, students will: i) collect anthropological, geological, and ecological data in the field, in museums, and in libraries, ii) read and discuss relevant peer-reviewed scientific papers about the region, iii) learn historic and modern sailing and marine navigation skills, and iv) apply this collective knowledge when back on campus to create a final presentation and research paper. Although this is an interdisciplinary course, students with interest in a particular discipline may choose to tailor some assignments to have a more specific focus (e.g. geology, conservation biology, community ecology).</p>

<p><b>Primateology: Behaviour, Ecology, and Evolution (LIF 3019)</b></p>	<p><b>Prerequisite: Foundation Evolution.</b> Primateology is the scientific study of our closest living relatives and the intricate interaction between environment, behaviour, and evolution in shaping the primate order. Through an ecological lens, this course investigates the environmental link to primate behavioural patterns, foraging habits, mating preferences, social relationships, and cognition. What factors differentiate lemurs, monkeys, and apes? Why did some species abandon the trees? What gives rise to female dominance? What are the chimpanzee and bonobo perspectives on love and war? Students will also be challenged to critically examine past and present field methods for studying primates in the wild, the value of primates in human-impacted ecosystems, and the current conservation status of primates worldwide.</p>
<p><b>Conservation of Amphibians &amp; Reptiles (LIF 3020)</b></p>	<p><b>Prerequisite: Biodiversity of BC.</b> The study of amphibians and reptiles is called herpetology, from the Greek word “herpes” meaning “creeping thing”. This name aptly reflects that amphibians were the first vertebrates to “creep” out of the water onto land, a highly significant evolutionary step. Over the past 350 million years, amphibians have evolved a remarkable diversity of adaptations to life on land, but currently one third of the 7000 amphibian species worldwide are threatened with extinction. This course will explore why amphibians are at risk and the conservation efforts underway to recover them. Field exercises will focus on developing the skills to inventory species, identify important habitats and improve our understanding of amphibian behaviour and ecology. We expect the course will contribute valuable information and educational material to aid in the conservation of local species. The course may include a multi-day field trip.</p>
<p><b>The Hive and the Honeybee (LIF 3022)</b></p>	<p><b>Additional Course Fee: \$100 CDN</b> This course starts with the art of beekeeping. By engaging with this age-old practice, we will gain an intimate insight into the honeybee and her habits. While she may at first appear to be just a typical invertebrate, our investigations will reveal her as a complex organism with sophisticated biology, behaviour, and social interactions; with other bees, with nature, and with humans. Honeybees are one of the most successful and broadly introduced species in the world; yet they are facing devastating declines, with potentially catastrophic implications for humanity and our food systems. Honeybees can teach us a great deal about decision-making, communication, crisis, and survival. By wrestling with the problems of the hive, perhaps we can catch a glimpse of the answers to some of life’s other pressing questions.</p>
<p><b>Marine Ecology (LIF 3023)</b></p>	<p><b>Prerequisites: Biodiversity of British Columbia and Evolution; all Foundation Life Science are recommended.</b> Marine ecosystems cover some 70% of the Earth’s surface (and more of its biosphere volume), and have curiously different environments and ecologies from the ones we are familiar with on land. We will engage with some of the major debates and emerging concepts about the dynamics of marine ecology. At the population scale, we will ask how reproduction differs, and why Allee effects and metapopulations are so common in the sea. At the community scale, we will ask why food webs are larger and more complex, why there is negligible pollination or vector-borne disease transmission, how competition and mutualism operate between plants and animals, and how chemosynthetic communities compare to photosynthetic ones. We will compare the relative importance of top-down vs. bottom-up factors regulating marine communities, and examine how individual species affect the carbon and nitrogen cycles. Along the way, we will take virtual trips to polar, temperate, and tropical ecosystems to assess their similarities and differences.</p>

<p><b>Biological Invasions (LIF 3024)</b></p>	<p><b>Prerequisites: Biodiversity of British Columbia and Evolution; all Foundation Life Science are recommended.</b></p> <p>Biological invasions are one of the major agents of anthropogenic global change, affecting ecosystem function, goods, and services in all habitats around the world. They also manifest ecology and evolution on steroids: although most potential invasions fail, the successful ones can be dramatic, with faster and more intense interactions than we typically see in a native ecosystem. To explore this phenomenon, we will ask four key questions: What are the causes of invasions, What makes some species better invaders, What makes some communities more invadable, and Why do most invasions fail... but some are so so high impact? In pursuing these questions, we will critically examine the evidence for current hypotheses in invasion biology, such as biotic resistance, invasional meltdown, enemy release, and homogenization. Finally, we will consider the vexing problems of how to prevent and control invasions, logistics of re-introductions, and ethics of assisted migration.</p>
<p><b>Biology of Coastal Patagonia (LIF 3025)</b></p>	<p><b>NEED DESCRIPTION</b></p>
<p><b>Spatial Ecology (LIF 3026)</b></p>	<p><b>Prerequisites: Biodiversity of British Columbia &amp; Statistics 1 are required.</b> Quantitative Research Methods for Life Sciences and/or Statistics 2 are recommended. Geographic Information Systems in Multidisciplinary Studies would be beneficial.</p> <p>Spatial ecology encompasses the fields of landscape, population, and community ecology, as well as biogeography, and seeks to understand the relationships between ecological processes and patterns across space. In this course, we will explore how and why space matters in an ecological context. Students will engage with concepts of scale, spatial autocorrelation, pattern and process as they relate to metapopulation dynamics, dispersal, competition, and predation. New understanding of these topics will allow for discussions on disease spread, habitat loss and fragmentation, and climate change. Students will conduct a spatial statistical analysis, in R and/or GIS (geographic information systems), to answer a question in spatial ecology.</p>
<p><b>Landscape Ecology: Habitat Fragmentation (LIF 3027)</b></p>	<p><b>Prerequisite: Biodiversity of British Columbia</b> <b>Recommended: Statistics I</b></p> <p>Habitat fragmentation is a complex topic in landscape ecology, as its impacts on individual wildlife species vary markedly and the causal properties are diverse. Yet habitat fragmentation, in its many forms, remains the most significant cause of species loss globally. This course will dissect the intricacies of habitat fragmentation at an ecological level, examining the synergy between species and their physical environment and the cascading effects of disrupting this equilibrium. It will also address the role that various anthropogenic (human-derived) activities play in global habitat transformation and the objectives of conservation science in an attempt to mitigate these effects. Students will have an opportunity to understand the physical and biological impacts of habitat fragmentation, investigate its effects both in the field and through ecological modeling, and consider its consequences to biodiversity on a global scale.</p>

<p><b>Techniques in Cellular and Molecular Biology I: Basic Laboratory Methods (LIF 3102)</b></p>	<p><b>Prerequisites:</b> Foundation Evolution and What is Life?  <b>Recommended:</b> A course in cellular or molecular biology</p> <p>A true understanding of data from a given discipline requires a deep understanding of the tools used in that particular field. This laboratory course serves as an introduction to the experimental approaches used in cellular and molecular biological research. As an introductory course, the emphasis is placed on the development of basic laboratory skills through a number of experiments involving DNA isolation, basic bioinformatics, DNA and protein gel electrophoresis, basic prokaryotic cell culture and manipulation, gene cloning and the polymerase chain reaction. As this is a practical course, it is assumed that students are already familiar with basic cell and molecular biology from previous courses.</p>
<p><b>Techniques in Cellular and Molecular Biology II: Advanced Laboratory Methods (LIF 3103)</b></p>	<p><b>Prerequisites:</b> Techniques in Cellular and Molecular Biology 1</p> <p>This laboratory course focuses on more sophisticated molecular methods, including various gene cloning techniques, cDNA library production, the construction of novel plasmid vectors, advanced bioinformatics, constitutive and inducible protein expression systems, and proteomic analyses using immunoprecipitation, and western blotting. This course focuses primarily on block-long projects that are both assigned and designed by students in small research groups.</p>
<p><b>Cellular and Molecular Biology (LIF 3104)</b></p>	<p><b>Prerequisite:</b> Foundation Evolution</p> <p>This course serves as an introduction to cellular and molecular biology, emphasizing the central dogma of gene expression. Topics of coverage include basic cell structure, macromolecules, transcription, translation, cell signaling, genomics, proteomics, bioinformatics, as well as several techniques central to the field. This course will include a laboratory component. Prerequisite: Evolution</p>
<p><b>Developmental Biology (LIF 3105)</b></p>	<p><b>Prerequisite:</b> What is Life?.  <b>Recommended:</b> A course in cellular or molecular biology.</p> <p>The proper functioning of an organism is critically dependent on its initial development. This course focuses on the basic developmental principles common to all animals, including pattern formation during embryogenesis, cell fate specification, cell migration, and organogenesis. The emphasis will be placed on the cellular, molecular, genetic, and morphological aspects of animal development using a variety of model organisms. This course may include a laboratory component.</p>

<p><b>It's Not Science Fiction Anymore: A Guide To The Era of Genomic Medicine (LIF 3106)</b></p>	<p><b>Prerequisites: Foundation Evolution OR Foundation What is Life? (both are strongly recommended)</b></p> <p>This course is recommended for students with an interest in genetics and medicine. It endeavours to give a rigorous scientific background of the latest techniques coming out of the genomic revolution for the treatment of diseases, primarily inherited disorders and cancer. The course will build on a basic knowledge of the human genome project and molecular genetics to explore the latest techniques in deciphering the human genome and how these techniques are being exploited to ostensibly generate improved therapies for disease. Topics covered will include gene therapy, small molecule therapy, antibody therapy, and a critical review of the increased emphasis on individualized medicine. The course will not just focus on the scientific nitty-gritty of these topics but also on the historical context and the myriad of ethical issues and challenges to policy development that these therapies invoke. Particular emphasis will be placed on discussing the challenges of informed consent, incidental findings and privacy as a result of the push for genetic information and open access. This course will include a laboratory component.</p>
<p><b>Synthetic Biology (LIF 3107)</b></p>	<p><b>Prerequisites: What is Life and Evolution</b></p> <p>Synthetic biology involves the design and/or modification of biological systems to solve technological problems. This field has grown dramatically in recent years and has been applied to many problems of prime importance to human society, such as renewable energy production, design and production of therapeutic agents, detection of environmental contaminants, bioremediation, and the design and fabrication of new materials. The rapid growth in this area has been spurred by increased availability and decreased cost of genetic engineering tools. This course will focus on the methodology of synthetic biology, including the redesign of genomes and proteins, metabolic engineering, and cell programming. We will also explore the applications of synthetic biology in the biotechnology, pharmaceutical, and chemical industries. We will address the ethical implications of this custom design of living organisms and will consider the promise and perils of DIYBio, a movement in which a growing community of amateur hobbyists is carrying out sophisticated genetic modifications in home laboratories.</p>

<p><b>Plant Development and Biotechnology (LIF 3108)</b></p>	<p><b>Prerequisites: Two of the three foundation Life-Science course.</b></p> <p>This course will equip students with an understanding of plant development and genetics along with classical and current experimental techniques to allow them to ask topical questions surrounding the safety and utility of genetically modified organisms. The course will be divided into two units, plant development and plant genetics &amp; biotechnology, with a concurrent block long student-directed research project on a specific application of genetically modified plants.</p> <p>This course will undertake a rigorous study of the scientific literature to inform key ethical questions surrounding the use of plant biotechnology. As such, this course will lend itself naturally to an interdisciplinary approach and demand students to challenge themselves to consider varying and polarizing opinions under the dispassionate lens of scientific evidence. This course will thus illustrate how literacy in science can equip individuals to better ask and answer questions about their values and their planet.</p>
<p><b>Forest Ecology And Conservation (LIF 3109)</b></p>	<p><b>Prerequisites: Biodiversity of BC and Evolution</b></p> <p>Forests are dynamic and complex ecosystems that offer a multitude of benefits to human societies. This course will explore how key structural and functional aspects of British Columbia's coastal forests change over time and space, and how an understanding of these ecological patterns has influenced forest practices and land use planning. In the field, we will measure stand structure and examine the adaptations of plants, fungi and animals across a range of forest types, ages and disturbance regimes. Students will work together to design a research project, collect and analyze data, and write a scientific report that describes the implications of their findings to forest conservation. Classroom sessions will include small group discussions, debates, and role-playing. Students will experience the challenge of integrating forest ecology and its uncertainties into land use plans that have social, economic and environmental objectives.</p>
<p><b>Fungi (LIF 3110)</b></p>	<p>NEED DESCRIPTION</p>
<p><b>Medicinal Chemistry: Drugs, Vitamins, and Antibiotics (LIF 3210)</b></p>	<p><b>Prerequisites: Organic Chemistry 1</b></p> <p>Our increasing mastery of chemistry over the past two centuries has led to the design and discovery of thousands of molecules that can impact human health. From the vitamin C deficiencies that plagued sailors during the Age of Exploration, to the discovery of antibiotics that revolutionized medicine, to the manufacture of addictive drugs such as heroin and methamphetamine, our ability to control our biochemistry through the actions of these compounds has profoundly changed us as a species. In this course, we will examine the chemistry behind the small molecules that affect human health. Questions to be addressed in this course include: How are new drugs designed, tested and approved? How are drugs metabolized in the body? How can we combat antibiotic resistance? How do vitamins work? How are natural products used in conventional and traditional medicines?</p>

<b>Cancer Biology (LIF 3211)</b>	<p><b>Prerequisites: What is Life and Evolution</b></p> <p>Cancer is a leading cause of death in North America, and despite almost a century of modern medical research and billions of dollars spent, there is still no “cure” for cancer. Through the primary scientific literature, this course will explore the cell and molecular biology, genetics, and physiology of cancer to understand how cancer arises, why it is so deadly, and why it is so difficult to treat. Through Siddhartha Mukherjee’s <i>The Emperor of All Maladies</i>, we will examine the medical, scientific, political, and economic impacts that the modern “War on Cancer” has had in North America. This course will include a laboratory component.</p>
<b>Neuropsychology (LIF 3301)</b>	<p>This course takes a top-down approach to understanding brain function. Though the primary level of emphasis in this course is behaviour, students will learn the basic structural and functional aspects of brain cell function to provide a necessary foundation. In addition, students will learn the basic approaches used to understand brain function, along with their limitations.</p>
<b>The Neurobiology of Learning and Memory (LIF 3305)</b>	<p><b>Prerequisite: Concentration Level Neuropsychology or Neurobiology.</b></p> <p>How does the brain store and retrieve memories? What can studies of the brain reveal about the learning process? The course focuses on learning and memory from a neurobiological perspective. Students cover the variety of experimental approaches and model systems that have shaped our current understanding of these critical processes. Specific topics include a detailed study of synaptic plasticity from cellular, molecular, and physiological levels. Other topics of coverage include the study of memory disorders associated with ageing and disease, their social implications, as well as current controversies in the field.</p>
<b>Brain Disorders (LIF 3306)</b>	<p><b>Prerequisite: Concentration Level Neuropsychology or Neurobiology.</b></p> <p>Behaviour is the product of the brain and is influenced by both biological and environmental factors. It follows that disorders of behaviour are ultimately alterations of brain function at some level. This course examines a wide variety of neurological and psychiatric diseases, taking a systems- and molecular-level approach to understanding the mechanisms that underlie disorders of behaviour.</p>
<b>Drugs and Behaviour (LIF 3307)</b>	<p><b>Prerequisite: Concentration Level Neuropsychology or Neurobiology.</b></p> <p>Many recreational and prescription drugs act directly on the brain. Since the final output of the brain is behaviour, several drugs also change behaviour in specific ways that can largely be explained by their underlying neurochemical effects. This course examines the mechanisms of drug action in the nervous system, and how some drugs lead to dependence and the subsequent development of addiction.</p>
<b>Neurobiology (LIF 3309)</b>	<p><b>Prerequisite: What is Life and Foundation Evolution or any course in cellular and molecular biology.</b></p> <p>This course examines brain structure and function, with an emphasis on understanding the biological mechanisms that ultimately underlie behaviour. Specifically, the focus is on the cellular, molecular, and systems levels of analysis, using animal models to discuss experimental approaches that are ultimately aimed at explaining human behaviour.</p>

<p><b>Sports and Exercise Psychology (LIF 3310)</b></p>	<p>What distinguishes top athletes from their skill-matched opponents? Being an athlete requires more than physical ability and coordination. In this course we will explore how psychological factors influence sport and exercise behaviours. These factors include personality, motivation, anxiety, stress, and coping strategies. We will discuss the latest research findings and will evaluate interventions adopted by athletes and their effects on performance. Sport and exercise influence physical health, but can also influence mental health. We will explore the relationship (costs and benefits) between physical activity and mental health.</p>
<p><b>Epidemiology (LIF 3402)</b></p>	<p>Epidemiology is the study of health and disease across populations. It looks at when and where diseases occur in order to prevent illness. It is the main scientific method used in public health to identify disease risk factors, study outbreaks, to inform evidence-based medicine, and to inform public health policies. Using a variety of examples, students learn how to measure health, design health studies (descriptive, observational, and experimental), and interpret data. Upon completion, students will be disease detectives and able to critically examine health literature and design their own health study.</p>
<p><b>Nutrition (LIF 3403)</b></p>	<p><b>Prerequisites: Foundation Evolution and What is Life?</b>  Food and nutrition underpin social, economic, environmental and institutional successes of human society. Students begin with a foundation in the basic scientific principles of human nutrition, then later apply these concepts to current nutrition issues. Some of the questions addressed include: If we are what we eat, what should we eat? Which nutrients are required for health, which foods are rich sources of these nutrients, and how does your body extract the energy and nutrients it needs from the food it consumes? What are the physiological consequences of different diets? Of different lifestyles? What are the ecological, political, and economic consequences of the food choices we make?</p>
<p><b>Health, Environment and Risk (LIF 3404)</b></p>	<p><b>Prerequisite: Foundation Molecular Biology or What is Life? or tutor approval.</b>  What are the biggest environmental issues facing society today? What are the consequences of global and environmental change on human health? Topics covered include: global climate change, infectious diseases, population growth and urbanization, human ecology, pollution (noise, air and water), pesticide use, waste generation and management and other current environmental health problems. Students evaluate and communicate the risks of environmental health problems through a variety of tools such as risk assessment, exposure assessment, toxicology and epidemiology.</p>
<p><b>Infectious Diseases: Introduction to Microbiology and Immunology (LIF 3405)</b></p>	<p><b>Prerequisite: Foundation Evolution.</b>  The immune system is a highly complex and continually evolving mechanism for fighting foreign organisms such as viruses and bacteria. Introduction to Microbiology and Immunology explores different types of micro-organisms, how they are transmitted, their interaction with the human body, the challenges they pose, and how infectious diseases can be prevented. Students are also given an overview of the ways in which the immune system works to recognize foreign bodies, fights off invaders, and remembers the lessons learned to expedite future defenses.</p>

<p><b>Human Anatomy and Physiology A (LIF 3407)</b></p>	<p><b>Prerequisites: Foundation Evolution and What is Life?</b>  This course is an introduction to the study of human anatomy and physiology. We examine how structure and function are inextricably linked in the skeletal, muscular, cardiovascular, and respiratory systems. How do these systems work together to keep a human alive and healthy? We primarily study the human body in the “normal” healthy state but consider how anatomy and physiology are altered by a number of clinical conditions. This course involves a large component of hands-on learning using models and cadavers as well as observations and experimentation with live humans. Human Anatomy &amp; Physiology A, B and C can be taken in any order.</p>
<p><b>Introduction to Genetics (LIF 3408)</b></p>	<p><b>Prerequisite: Foundation Evolution.</b>  What physics was to the 20th century, biology will be to the 21st. The identification of DNA as the molecule of heredity in 1953 opened the door to an explosion of knowledge about the functioning of all living things. Genetics will likely play a role in solving many of the world’s problems, offering strategies for improving global health, nutrition, energy sources, and global climate and environmental change. A basic understanding of Mendelian, molecular, and population genetics is required to make sense of many of the recent and exciting developments in the field of biology, and is necessary to pursue health sciences in any depth at a more advanced level. Mendelian genetics investigates the laws of inheritance and transmission of genetic material; molecular genetics uncovers the structure of the gene and its regulation (as well as ways to engineer it to our purposes); and population genetics studies the distribution of alleles in a grouping of interbreeding individuals. This course will survey all three types of genetic analysis, giving students a foundation to pursue further biological explorations. If time permits, current topics such as the Human Genome Project and personal genomics will be discussed.</p>
<p><b>Public Health Policy (LIF 3409)</b></p>	<p>How are public health policies created and implemented? What do good public health policies entail? This course begins by learning about the Canadian health care system. We then examine public health policies in Canada and elsewhere with a focus on key concepts, strategies, challenges and their outcomes. Examples include historic achievements (e.g. vaccine-preventable diseases, tobacco control, maternal and infant health) as well as new and cutting edge policies.</p>
<p><b>Social Determinants of Health (LIF 3410)</b></p>	<p>What are the determinants of health in a given population? What is the role of social, environmental, economic and political factors in health and health care? Do these factors contribute to health disparities across regions and socioeconomic groups? This course provides an introduction to the determinants of health. An emphasis is placed on the social determinants of health, including: socioeconomic status, education, race, gender, access to health and social services, neighbourhood environments, social relationships, and political economy.</p>

<p><b>Exercise Testing &amp; Prescription (LIF 3411)</b></p>	<p>Students will assume the role of exercise professionals and learn to perform comprehensive fitness assessments and interpret results in the context of both health outcomes and athletic performance. Several methodologies for assessing each element of fitness (body composition, flexibility, muscular strength/power/endurance, aerobic and anaerobic capacity, and balance/agility) will be critiqued in terms of accuracy, precision, and practical utility. Students will also apply principles of exercise prescription and design training programs to improve health- and performance-related fitness.</p>
<p><b>Human Anatomy and Physiology B (LIF 3412)</b></p>	<p><b>Prerequisites: Foundation Evolution and What is Life?.</b> This course is an introduction to the study of human anatomy and physiology. We examine how structure and function are inextricably linked in the urinary, digestive and reproductive systems. How do these systems work together to keep a human alive and healthy? We primarily study the human body in the “normal” healthy state but consider how anatomy and physiology are altered by a number of clinical conditions. This course involves a large component of hands-on learning using models and cadavers as well as observations and experimentation with live humans. Human Anatomy &amp; Physiology A, B and C can be taken in any order.</p>
<p><b>Exercise Physiology (LIF 3413)</b></p>	<p><b>Prerequisites: Human Anatomy and Physiology A.</b> In this course, students will design and conduct laboratory and field experiments to address important questions in human exercise physiology. How do we fuel exercise of different intensities and durations? What limits maximal exercise? How do the respiratory, cardiovascular and neuromuscular systems respond to an acute bout of exercise? What are the effects of chronic exercise (training) on these systems? What happens during recovery from acute exercise and during detraining? We will also explore the physiology of ergogenic aids and of exercise in altered environments and special populations.</p>
<p><b>Physical Activity &amp; Health (LIF 3414)</b></p>	<p>We know that daily physical activity is good for us, but do we understand why? How does regular exercise contribute to physical and mental health and increased quantity and quality of life? How can exercise be used to treat and even prevent disease? How much physical activity do we need? Is it possible to have too much of a good thing? Throughout this course we will focus on assessing the available evidence to find answers to these questions and more. Topics of interest will include obesity, diabetes, cardiovascular disease and depression.</p>
<p><b>High Altitude Physiology (LIF 3415)</b></p>	<p><b>Prerequisites: Human Anatomy and Physiology A.</b> In this field course we will study (and experience) the effects of high altitude exposure on the human body. Students will design and conduct research projects to investigate the responses of the cardiovascular, respiratory and urinary systems to the low oxygen environment. The effects of various exposure paradigms (intermittent versus continuous) and durations (from seconds to many generations) will be considered. We will discuss high altitude medicine and compare the pathophysiology of altitude illness with cardiorespiratory diseases that occur at sea level.</p>

<p><b>Health Behaviour and Promotion (LIF 3416)</b></p>	<p>Understanding why people choose to engage in certain behaviours and activities underpins public health practice and policy. In this class, we explore methods used to promote and evaluate behaviour change across scales and organizations. We will apply our knowledge to identify real-life problems in order to design appropriate health promotion programs and the criteria for evaluating their outcomes. Behaviour change theory goes beyond public health and has been applied to many other fields. Most recently, it has been used to address environmental issues, sustainability, and our changing technological landscape.</p>
<p><b>Human Anatomy &amp; Physiology C (LIF 3417)</b></p>	<p><b>Prerequisites: Foundation Evolution and What is Life?.</b>  This course is an introduction to the study of human anatomy and physiology. We examine how structure and function are inextricably linked in the integumentary, lymphatic, nervous and endocrine systems. How do these systems work together to keep a human alive and healthy? We primarily study the human body in the “normal” healthy state but consider how anatomy and physiology are altered by a number of clinical conditions. This course involves a large component of hands-on learning using models and cadavers as well as observations and experimentation with live humans. Human Anatomy &amp; Physiology A, B and C can be taken in any order.</p>
<p><b>Immunology (LIF 3418)</b></p>	<p><b>Prerequisites: Foundation Evolution and What is Life?.</b>  Every day, our body is invaded by bacteria, viruses, and other would-be pathogens that, unchecked, would use our body’s resources, weaken, and kill us. The immune system is an impressive collaboration of specialized cells that continually evolve mechanisms to recognize and defend our body from invaders. In this course, we will meet these sentinels and soldiers of our body that keep us healthy and disease-free. Focusing on the molecular and cellular mechanisms of immunity, we will investigate how the body fends off an infection, how vaccines work and how to develop new ones, how organ transplants were made possible, and what happens when the immune system is deregulated, leading to such chronic diseases such as diabetes, arthritis, multiple sclerosis, and cancer.</p>
<p><b>Evidence-based Health Practices (LIF 3419)</b></p>	<p>How do we evaluate the effectiveness of health practices? Which foods are healthy? What forms of exercise best improve overall health? Advising individuals on health practices can be a challenging task given the ever-changing landscape of health and wellness trends. Indeed, bold statements on the putative benefits of specific practices can make it difficult to discern fact from fiction. This course will be aimed at discussing the merits of various health practices by critically evaluating the available evidence surrounding their use. By employing an evidence-based approach, students will engage in discussions on a wide range of topics from nutrition, treatment and prevention of disease, and exercise. The overarching goal of the course will be to engage in critical thinking as a means of evaluating available evidence relating to health practices in the context of health promotion.</p>

<p><b>Aging (LIF 3420)</b></p>	<p><b>Prerequisites: Foundation Evolution and What is Life?.</b></p> <p>Why do we age? This course will build on a basic knowledge of genetics and molecular biology to explore aging. We will start with the molecular mechanisms that underpin aging, considering the role these processes play in normal development and hence why aging is programmed into the genome. We will investigate diseases characterised by early-aging (progeria syndromes) as well as those that carry age as the primary risk factor (dementia, cancer) and ask how understanding these diseases can help us understand how and why we age. We will also discuss our relationship with aging and death, the socioeconomic impacts of an aging population as well as the current hot topic of doctor-assisted suicide. Finally, we will debate and discuss the recent surge in immortality research initiatives by companies such as Google. Students will present a major written research project on an aspect of aging-related research of their choosing in a public symposium for the Squamish community. This course will include a laboratory component.</p>



# MATHEMATICS

## FOUNDATION MATHEMATICS

Students must complete one block of mathematics, selected from any of the following choices. Alternatively, completing the Concentration course Multivariable Calculus (MAT 3103) exempts students from this Foundation requirement. To receive the exemption, students must submit a completed Foundation Requirement Substitution Form to the Registrar's Office.

<b>Mathematics: A Historical Tour of the Great Civilizations (MAT 2001)</b>	Mathematics is the oldest of the liberal arts, yet few are aware of its vast and subtle influences on our lives. It is a practical tool, to be sure, but also it has played a major role in shaping who we are and how we think. Historically, mathematics has helped end old regimes and modes of thought, and constructed new ones. This course takes a grand tour through the dominant mathematical cultures: ancient Babylon and Egypt, ancient Greece, medieval Islam, pre-modern China, and Europe today. We discover how mathematics shaped, and was shaped by, the people who practiced it, how it interacts with worldviews and alters ideas.
<b>Spherical Trigonometry (MAT 2004)</b>	Born from the study of celestial motions in ancient Greece, spherical trigonometry became a standard part of the repertoire of mathematicians, astronomers, and navigators until it was almost forgotten in the late 20th century. This course will take a primarily mathematical view of this beautiful subject, bringing in astronomical history to provide context. Topics include the properties of a spherical triangle, both right and oblique; Menelaus's Theorem; the Rule of Four Quantities; the Law of Sines; Delambre's and Napier's analogies; duality; areas and the spherical excess; relations to plane trigonometry; applications to polyhedra; and the role of stereographic projection.
<b>Visual Mathematics (MAT 2005)</b>	A true and meaningful mathematical experience leads one to the profound crossroads of beauty and pattern. This relationship can best be explored with the aid of visually elegant pictures and ideas, revealing remarkable levels of order and connection that underlie our simple notions of shape and quantity. In this course we use our senses of sight to tour a variety of mathematical vistas, including the surprising nature of number patterns, the aesthetic role of mathematics in art, the rich complexity of fractals, and the mystery of the shape of the universe.

<p><b>Money Matters: Mathematical Ideas in Finance (MAT 2006)</b></p>	<p>“Be you in what line of life you may, it will be amongst your misfortunes if you have not time properly to attend to pecuniary matters. Want of attention to these matters has impeded the progress of science and of genius itself.” William Cobbett</p> <p>In this course we will look at mathematics such as linear and exponential functions, logarithms, geometric series, ratios, systems of inequalities and their graphs and explore their application to personal and business finances. We will visit topics such as debt and investments, the effect of inflation and exchange rates, the balance of supply and demand, and the optimization of profit under constraints.</p>
<p><b>Mathematical Problem-Solving (MAT 2008)</b></p>	<p>This course is about the heart of mathematics, a collection of beautiful problems connected together in unexpected ways. The problems are chosen from a wide spectrum, ranging from recreational puzzles and brain teasers to contest problems. Students will also read a math novel, in which the main character learns the art of problem-solving and through that process, develops insight, imagination, confidence, creativity, and critical thinking. Students will use this novel as a springboard to reflect upon their own mathematical journey and explore how problem-solving principles and techniques can be applied to address some of society’s toughest challenges.</p>
<p><b>The Mathematical Experience (MAT 2011)</b></p>	<p>This course will blend an exploration of important mathematical ideas with an examination of the place of math within the intellectual landscape. We will make conjectures and construct proofs, working with problems from fields such as topology and group theory. As we do mathematics, we will study works of both non-fiction and fiction and discuss issues such as the portrayal of math and its practitioners in the media, the nature of mathematical truth, women and members of underrepresented minorities in math, and the relationship between genetics and mathematical achievement.</p>
<p><b>Mathematics through Interesting Problems (MAT 2012)</b></p>	<p>The purpose of this course is to explore advanced mathematical thinking through basic mathematics. I hope to convince you that mathematics exists simultaneously as both a formal system (truths, objects, relationships, procedures) and as a mental activity (questioning, reasoning, creating structure, justifying). Problems are at the heart of mathematics but the Great Secret among mathematicians is that we love to make up new, interesting problems as much as we love to solve them. A great amount of intuition and creativity goes into posing and solving problems, and these qualities are as important as formal techniques. In this course we will approach interesting problems in geometry, origami, puzzles, number theory, algebra, and more, with the purpose of learning and critically examining thinking mathematically.</p>

**Cryptology: The Mathematics of Security and Secrecy (MAT 2014)**

How do we send our own confidential information through secure channels, and how can we break codes to uncover the secret information of our adversaries? Answering these questions requires innovative techniques that define the field of mathematics called cryptology. In this course, we will study breakthroughs in cryptology that have changed the course of history, from the Enigma cipher decryption that allowed the Allies to intercept German communication in World War II, to modern cryptosystems that facilitate internet commerce. Along the way, we will develop a sophisticated understanding of how numbers interact and work to improve our ability to communicate messages secretly and mathematics clearly.

**Euclid: The Creation Of Mathematics (MAT 2015)**

One of the greatest books ever written, Euclid's Elements systematized the contributions of the most brilliant mathematics of ancient Greece. Ever since, it has been the model for rigorous reasoning in Western and Islamic cultures. Its identification of definitions and axioms as the starting points of thought, and its use of formal deductive proofs, set the standard for demonstrations not just in mathematics, but also in legal codes, political debates, and other aspects of our culture. We shall deal intensively with the chapters on plane and solid geometry, and sample the sections relating to number theory. We shall also explore how the Elements has affected the way we think (mathematically and otherwise) in other Greek, Muslim and European texts, especially conic sections, Descartes' Discourse on Method, and the invention of non-Euclidean geometries and levels of infinity in the 19th century.

## CONCENTRATION MATHEMATICS

Everyone counts. Thinking about the world using numbers is a universal experience; whether or not we embrace them, we recognize that numbers facilitate our ability to reach conclusions. We also respect the importance of geometrical thinking—after all, geometry represents the space in which we live. But mathematics extends far beyond these basic concepts. We expand numbers to include the infinitely large and infinitely small. We shrink them to represent more compact realities like the hours of the day. We alter the structure of space to include non-Euclidean realities that cannot exist in our universe—or perhaps these represent the state of our universe. On the basis of phenomena from our experience, we abstract mathematical ideas and systems -- and then find these ideas suggest entirely new worlds.

These creations, explored with logic, intuition, and calculation, give us new opportunities to construct our perspectives differently. They are more than flights of fancy. Often, these abstractions uncannily model apparently unrelated other phenomena, an effect that has been referred to as the “unreasonable effectiveness of mathematics in the natural sciences.”

Mathematics courses at Quest explore the interconnections between mathematics and its surprisingly diverse manifestations across the natural and social sciences, humanities, and fine arts. We are also interested in questions of the power and limitations of the extension and abstraction of mathematical intuitions. Ultimately, we hope to understand something of the power of reason and its ability to shed light on the structure of both the mental and the physical universe.

<p><b>Advanced Data Set Analysis (MAT 3004)</b></p>	<p><b>Prerequisite: Statistics 1</b> Perhaps the most important and most difficult task in statistics to take a complex real-world data set and use it to “tell a story”, that is, to discover the hidden relationships and underlying facts the data suggest. In this class, students will work with real data collected by researchers – often data that has never been fully analyzed. We will perform analysis and report back to the stakeholder who collected the data. Statistical topics covered include multiple regression, logistic regression, ANOVA, and non-parametric methods, including modern bootstrapping and permutation procedures.</p>
<p><b>Calculus 1: The Spirit of Calculus (MAT 3101)</b></p>	<p><b>Prerequisite: Completion of Algebra, Information and Measurement Q-Skills.</b> The Spirit of Calculus is an introduction to the tool that made mathematics the foundation of our scientific view of the universe. A culmination of efforts to grasp continuously changing quantities, the calculus provides us with the capacity to capture and analyze intuitions of motion and change. The key to the problem, the ability to describe and use the infinitely small, has far-reaching effects and applications in the physical and social sciences, engineering and economics. The course culminates with an unexpected grand synthesis of the mathematics of speed and areas in the Fundamental Theorem of Calculus. Students will be required to demonstrate proficiency in working with algebra and multiple representations of functions to be admitted to the course. Information about the assessment will be emailed to enrolled students.</p>
<p><b>Calculus 2: The Practice of Calculus (MAT 3102)</b></p>	<p><b>Prerequisite: Calculus 1: The Spirit of Calculus.</b> The Practice of Calculus emphasizes how the central ideas of the calculus work themselves out in various disciplinary contexts. Students begin by extending our ability to integrate functions, then apply their new powers to explorations of applications in physics, biology, chemistry, economics, and several other fields. When standard techniques fail, students explore the use of infinite series to manipulate functions otherwise beyond our reach. Finally, students examine the fundamental tool of modeling in the sciences, differential equations.</p>
<p><b>Multivariable Calculus (MAT 3103)</b></p>	<p><b>Prerequisite: Calculus 2: The Practice of Calculus.</b> Handling several variables at once, a situation common in the physical sciences, requires extending the notions of differentiation and integration to multiple dimensions. These extensions greatly enhance the ability of calculus to serve as a modeling tool, and are the foundation of such subjects as electrical flow, fluid dynamics, and mass/density/gravitation. In addition to partial differentiation and multiple integration, students explore changes of coordinates, parametrically-defined functions, and some vector calculus.</p>
<p><b>Differential Equations and Dynamical Systems (MAT 3104)</b></p>	<p><b>Prerequisite: Calculus 2: The Practice of Calculus.</b> A key to discovery in science is often the transition from describing how things change to how they behave. Focusing the calculus on this problem in celestial mechanics led to the field of differential equations, the language of the mathematical physical sciences. Recently, technology has expanded our modeling tool set in various ways, opening up the study of chaos theory. Emphasizing the core concept of modeling, students explore the analytic, computational, and visual aspects of differential equations and their discrete analogues.</p>

<p><b>Real Analysis (MAT 3105)</b></p>	<p><b>Prerequisite: Calculus 2: The Practice of Calculus.</b>          In Real Analysis we explore several of the deep subtleties lurking hidden in the basic mathematical constructs of number, sets, size, logic, and functions. We articulate working definitions of infinity, distance, continuity and smoothness, and use them to build, via axioms, theorems and proofs, a clear and stand-alone foundation for modern mathematics, in particular for calculus.</p>
<p><b>Linear Algebra (MAT 3201)</b></p>	<p><b>Prerequisites: Completion of Algebra, Information and Measurement Q-Skills.</b>          Mathematical applications in the sciences often require the manipulation of many variables at once. Information concerning these variables, coded in matrices and vectors, can be manipulated to produce powerful results in disciplines as diverse as medicine, population dynamics, and meteorology. Students explore some of these applications as motivations for topics such as solving systems of linear equations, matrix and vector operations, linear independence and vector spaces, eigenvalues, and other topics.</p>
<p><b>Abstract Algebra: The Mathematics of Symmetry (MAT 3202)</b></p>	<p><b>Prerequisite: Linear Algebra.</b>          The solution of the cubic equation in the 16th century enabled algebraists to reach unprecedented heights. However, the cost of progress was admitting into mathematics strangely behaving objects such as negative and complex numbers, and eventually quaternions and more. Students analyze the properties of these objects (categorized as groups, rings, and fields), and study applications to symmetries, crystal structures, calendars, etc. Finally, students apply Galois theory to explain why the three classical Greek construction problems (squaring the circle, trisecting the angle, and doubling the cube) are unsolvable.</p>
<p><b>Discrete Mathematics (MAT 3401)</b></p>	<p><b>Prerequisite: Any Foundation Math Course and completion of Algebra, Information and Measurement Q-Skills.</b> How can mathematics improve society and empower us to live more effectively and equitably? We tackle this Question from the perspective of Discrete Mathematics, applying mathematical structures such as graphs and block designs to solve real-world problems, and communicate solutions with rigour and concision. Specific topics include: graph theory, combinatorics, coding theory, scheduling theory, classical game theory, and combinatorial game theory. Students will complete a personal project, where they will select a societal issue or injustice that lights a fire in their heart, and apply mathematical techniques to propose a solution.</p>



# PHYSICAL SCIENCES

## FOUNDATION PHYSICAL SCIENCES

Understanding how we can make sense of the way that aspects of the physical world move and are shaped (from atoms to planets) is the goal of the Foundation physical science courses. To this end, students take an Energy and Matter course as well as an Earth, Oceans, Space course from the choices below.

## ENERGY AND MATTER

Students have the option of the below courses to meet the Energy And Matter requirement. Alternatively, completing Physics 1 (PHY 3101) or Chemistry 2 (PHY 3202) exempts students from Energy & Matter. To receive this exemption, students must submit a completed Foundation Requirement Substitution Form to the Registrar's Office.

### Experimental Physical Science (PHY 2101)

**Prerequisites: Information, Measurement and Algebra Q Skills Strands.**  
At its cutting edge, science uses experiments to both guide and test its evolving description of reality. Experimentation can also be a means by which one can become familiar with the vocabulary and concepts of science. In this course, students use experimentation as a means to directly access a description of the physical world. Nearly all of the class hours of this course are spent executing experiments designed in various degrees by small groups of students. Some of the questions that experiments address are: How big are molecules? How is energy transformed? How can you measure the speed of light? How can you trace energy through a phase change? Experiential exposure to these kinds of concepts forms a useful foundation for hands-on learners that can be applied to their future science education and/or daily life.

### Introduction to Physical Theory (PHY 2105)

**Prerequisites: Information, Measurement and Algebra Q Skills Strands.**  
How do scientists develop theories about microscopic systems? Introduction to Physical Theory explores how scientists are able to describe and predict behaviours of different states of energy and matter. This course will examine seminal physics and chemistry experiments and discuss their importance in today's society. This course will also give Foundation students an appreciation for how scientific theories evolve and improve over time.

**Solar Power (PHY 2108)****Prerequisites: Information, Measurement and Algebra Q Skills Strands.**

An algebra-based course covering the scientific practices pertinent to the theme of solar energy. Quantitative analyses will address the thermal kinetics and nuclear-fusion processes in the Sun, the electromagnetic foundations of the electrostatic and chemical potential energies in semiconductors and other photovoltaics, and the physical chemistry and efficiency of heat engines. Emphasis will also be placed on the communication of the data and results from laboratory exercises.

## EARTH, OCEANS AND SPACE

Students must take the course to meet the Earth, Oceans And Space requirement.

**Earth Systems and Human Impacts (PHY 2207)****Prerequisites: Information, Measurement and Algebra Q Skills Strands.**

Students begin by focusing on the practices of geological inquiry while exploring content related to rock composition, mountain building, erosion, and long-term Earth cycles. They continue briefly into the methods of extracting economically valuable resources (e.g., petroleum or minerals) from rock formations. Environmental problems related to resource extraction are then considered, and methods of environmental science are presented. The course then moves to a substantive treatment of climate science and ends with special topics that may vary between different instructors. Core points of emphasis throughout the course are quantitative analysis of geological and environmental data and the creation of cogent arguments that use technical information. This course fulfills the Earth-Oceans-Space Foundation requirement.

## CONCENTRATION PHYSICAL SCIENCES

We understand a much larger fraction of Nature than that comprehended by Cro Magnon man, by classical Greeks, or by Renaissance polymaths, not because we are smarter (brain size has not changed much in the last 30,000 years), but because of the enterprise we call science. This enterprise has built tools that extend the reach of our senses to realms far too small and far too large to be viscerally experienced. It has collected far more data than one individual could ever amass. It has systematized these data into models and synthesized the models into theories. It has created a body of knowledge (the facts, models, and theories) and has refined a methodology for increasing that knowledge. We call this system science.

At Quest, offerings in the physical sciences emphasize science as a way of knowing - a set of intellectual techniques - rather than as an accumulation of "facts." The physical science blocks introduce students to both the foundations and the frontiers of science. More significantly, students learn science by doing science. Our block program and our setting in the midst of the Coast Mountains allow students to conduct their own experiments and carry out field investigations, gathering and interpreting raw data and engaging in the process of discovery. Moreover, we ask our students to explore the links between scientific knowledge and the implications this knowledge poses for human society.

<p><b>Exploring the Hydrological Cycle (PHY 3001)</b></p>	<p><b>Prerequisites: Foundation Energy &amp; Matter and Earth, Oceans, Space.</b>  This course follows the path of a molecule of water on its journey through a Coast Mountain drainage system. The focus is on the three major processes involved in the hydrological cycle: precipitation/accumulation, runoff/drainage, and storage/evaporation. Students experience these processes first-hand in 4-5 day expeditions; visiting an alpine glacier in week one, a river basin in week two, and the ocean in week three. We investigate the physical, chemical, and ecological role of water in each of these locations as well as learn outdoor leadership rescue and survival skills. In addition, each student leads in-depth discussions on two books focusing on the human relationship with water.</p>
<p><b>Earth Materials (PHY 3002)</b></p>	<p><b>Prerequisite: Foundation Earth, Oceans, Space.</b>  This course explores the fundamentals (chemistry, physics and thermodynamics) of mineral and rock formation through investigation of primary literature, field excursions, lab projects (including petrographic microscope analysis), and class presentations and discussions. Other topics include: physical properties of rocks, minerals, soils and freshwater. The formation, extraction and uses of crustal resources commonly found in and on the Earth (precious metals, oil and gas, groundwater, nuclear materials) are also investigated. (Prereq: Foundation Earth/Oceans/Space)</p>
<p><b>Tectonics of Western North America (PHY 3003)</b></p>	<p>A field-based course designed to investigate deformation of the North American continent over the last 150 Million years. Geologic mapping is a major theme in the course. In doing so, students hone specific observational skills (rock and mineral identification, geologic structure identification, stratigraphic relationships, etc.) in the context of plate tectonic theory.</p>
<p><b>Volcanology (PHY 3004)</b></p>	<p><b>Prerequisite: Our Earth's Resources.</b>  An exploration of the processes leading up to, the events during, and the products created by volcanic eruptions. Volcanic phenomena are placed in a human and plate tectonic context culminating in a field excursion to an active or recently active volcanic area. Proposed areas are Hawaii, Yellowstone National Park and Mt. St. Helen's as well as Mt. Meager and the Garibaldi Volcanic Belt.</p>
<p><b>Forensic Geology (PHY 3005)</b></p>	<p><b>Prerequisite: Foundation Earth, Oceans, Space.</b>  Since the time of Arthur Conan Doyle's famed Sherlock Holmes character, solving mysteries using clues from the natural world has intrigued scientists and the public alike. Now, Forensic Geology has become a widely used technique in criminal investigations. Forensic geologists use our knowledge of earth materials to ask questions like: Was this precious jewel harvested from the earth or fabricated in a laboratory? Does the soil on the victim's boots lead us to where she was abducted? Can we tell if this painting is a forgery from analyzing the material used to make the pigment? This interdisciplinary course will investigate the evidence collection and analysis techniques used by modern and ancient forensic geologists through a series of criminal investigations. We will collect evidence from our own local "crime scenes" and apply our knowledge of the geology of the Sea to Sky region to solve the mysteries.</p>

<p><b>Oceanography (PHY 3006)</b></p>	<p>An introduction to the oceans and the processes that have shaped them, their composition and movement, waves, tides, beaches, interactions with the atmosphere and human exploitation of the non-living resources.</p>
<p><b>Research in Earth and Environmental Sciences (PHY 3007)</b></p>	<p><b>Prerequisite: Foundation Earth, Oceans, Space.</b>  This course explores current and state of the art research in the broad and diverse fields of earth and environmental sciences culminating with attendance at the Geological Society of America National Meeting. Attendance at the four day conference allows students to interact directly in formal and informal sessions with presenters and panelists on topics such as: Environmental Geoscience, Engineering Geology, Archeological Geology, Economic Geology, Geology and Public Policy, Marine and Coastal Science, Geoscience Information and Communication as well as specific subfields like Volcanology, Limnogeology, Paleoclimatology, Hydrogeology, Planetary Geology and Petroleum Geology. Throughout the block, students will investigate, in-depth, several topics of their choosing from the conference's diverse technical program, allowing them to explore different modes of research [e.g., field, experimental, empirical, theoretical] and preparing them to engage in questions at the forefront of today's cutting edge earth and environmental science and policy research. This is truly an unparalleled chance to see how real-world science works.</p>
<p><b>Remote Sensing of the Environment (PHY 3008)</b></p>	<p><b>Prerequisite: Foundation Energy &amp; Matter and Earth, Oceans, Space.</b>  Environmental Science is built upon the foundation that we can collect data to better inform ourselves about the natural world. Unfortunately, the information these studies are based on is commonly limited to a few field samples taken only when we can get access to the sites. Field work is fun, but what if we could supplement that with a way to monitor large areas with much greater frequency? Well, there is! Using satellite technology, we have access to datasets that can cover much larger areas with much greater frequency, giving us a powerful tool to assess changing environmental conditions with much greater temporal and spatial sophistication. In this course we will figure out how remotely sensed data can be used in two hot areas of environmental science: groundwater resources and ocean temperature change. These areas are relevant in a larger global context of freshwater management and global climate change respectively. The class will consist of two large projects that we will work on together as a team. We'll focus a lot of attention on how to critically read technical scientific papers and then we'll work with actual datasets from NASA and the European Space agency in order to evaluate and predict trends in these important and changing environmental conditions.</p>

<p><b>Computation in the Physical Sciences (PHY 3009)</b></p>	<p><b>Prerequisites: Information, Measurement and Algebra Q Skills Strands.</b>          Take your Question to the next level with a high level computational software: MATLAB! Students begin with the basics of coding in the first few days: variables, loops and functions. Ultimately, students will use MATLAB to analyze their own datasets in a term project. For preparation, students will do a number of examples together as a class. We will investigate a range of different physical phenomena by analyzing datasets -- think geophysical data, remote sensing data, and data from engineering material tests. The mathematics behind each example will be introduced during individual study time, and in class we will review that material and tackle each dataset together. Think of it as a two hour hackathon each day of the block. An additional benefit of this block is that the pace will ultimately be set by the students -- the more problems we get through as a group, the more of the wonderful world of MATLAB you will see."</p>
<p><b>Field Geology (PHY 3010)</b></p>	<p><b>Prerequisites: Earth, Oceans, Space and Earth Materials</b>          The intent of this course is to introduce students to the skills, techniques, conventions, applications and beauty of doing Geology in the field. Students will apply basic rock identification skills and knowledge of geologic systems to real world geologic problems by mapping relatively simple through unfathomably complex geologic formations through a series of short field trips. The course will start with basic mapping and analysis of structurally deformed sedimentary packages. In doing so, students will learn standard techniques used in the field including GPS location and navigation, use of Brunton compass for structural measurements and field drafting of a map. These basic skills will then be applied to mapping and analysis of more complex metamorphic assemblages. Finally, the course will end with mapping and analysis of mind-boggling, seemingly unsolvable, igneous sequences. Throughout, students will be making original maps of selected areas and telling intricate and fascinating geologic stories about select parts of our earth system.</p>
<p><b>Physics 1: Introductory Mechanics (PHY 3101)</b></p>	<p><b>Prerequisite: The Practice of Calculus (Calculus 2)</b>          A calculus-based study of motion and mass from the perspective of force, momentum, and energy. Angular motion, universal gravitation, orbits, and solid-body rotations are also covered. Data collection and other laboratory exercises are an important aspect of the course. Offered every year.</p>
<p><b>Physics 2: Introductory Electromagnetism (PHY 3102)</b></p>	<p><b>Prerequisites: Physics 1</b>          A calculus-based study of static and moving electric charges using the concepts of fields and the integral form of Maxwell's Equations. Data collection and other laboratory exercises concerning analog circuitry are an important aspect of the course. Offered every year.</p>
<p><b>Physics 3: Thermodynamics and Heat (PHY 3103)</b></p>	<p><b>Prerequisites: Physics 2</b>          A calculus-based study of heat in systems. Examples of ideal gases and physical chemistry will be studied in terms of the relationships among macroscopic state variables and microscopic explanations including relativistic binding energy, chemical potential, and information entropy. Data collection and other laboratory exercises are an important aspect of the course. Offered every other year.</p>

<p><b>Quantum Mechanics (PHY 3104)</b></p>	<p><b>Prerequisites: Advanced Energy &amp; Matter, Linear Algebra</b>          Studies of time-dependent one-dimensional systems and time-independent one- and three-dimensional systems using vector--operator algebraic formalism. Examples include atomic orbitals and molecular rotations. Offered every other year.</p>
<p><b>Advanced Energy &amp; Matter (Modern Physics) (PHY 3105)</b></p>	<p><b>Prerequisite: Physics 2</b>          A calculus-based course covering modern physics. The wave nature of light is studied in theory and in laboratory exercises and applied to the wave nature of matter. The quantization of angular momentum is studied in nuclear, electronic, and molecular systems. Offered every other year.</p>
<p><b>Lagrangian Mechanics (PHY 3106)</b></p>	<p><b>Prerequisites: Physics 2 or Multivariable Calculus</b>          An introduction to classical mechanics as described using vector calculus, the calculus of variations, and numerical methods. Topics include coordinate transformations, non-inertial frames, damped &amp; driven oscillators, and the normal modes of coupled oscillators. Offered every other year.</p>
<p><b>Signal Processing (PHY 3107)</b></p>	<p><b>Prerequisite: any two Physical Science courses</b>          One-dimensional Fourier and sampling theory will be introduced in order to recognize aliasing in spectra of acoustical signals. Other examples will include pulsed-laser chirping and radar ring-down fingerprinting. Using existing software, the harmonic content of various signals will be explored and exploited in the context of compression and information. Laboratory exercises in spatial filtering and Fourier optics will serve as an introduction to higher-dimensional problems such as interferometric imaging.</p>
<p><b>Chemistry 1: Atomic Structures and Chemical Bonding (PHY 3201)</b></p>	<p><b>Prerequisite: High School chemistry or approval from instructor.</b>          What does quantum mechanics have to say about the electron? How does this view of the atom help us understand the periodic table of elements, chemical bonding and the world? Can the atom be divided into parts smaller than the protons, neutron and electron? Chemistry 1 is a course in the composition of matter, chemical bonding and simple reactions.</p>
<p><b>Chemistry 2: Chemical Thermodynamics and Kinetics (PHY 3202)</b></p>	<p><b>Prerequisite: Chemistry 1.</b>          The study of thermochemistry is the exploration of the heat exchanges that take place during chemical reactions. This course reviews concept of chemical kinetics (the mechanism by which chemical reactions take place, including calculation of the factors that affect their rate), chemical equilibrium, phase diagrams and the properties of solids, gases and liquids.</p>
<p><b>Organic Chemistry 1 (PHY 3203)</b></p>	<p><b>Prerequisite: Chemistry 1.</b>          Organic Chemistry 1 is an introduction to the chemistry of hydrocarbon compounds. The course begins with the nomenclature of organic chemistry, and a review of the structures, properties and reactivity of the common functional groups (alkanes, alkenes, alkynes, arenes, alcohols, ethers, esters, thiols and sulfides). Aromaticity, chirality and stereoisomers, and spectroscopy are studied.</p>

<p><b>Organic Chemistry 2 (PHY 3204)</b></p>	<p><b>Prerequisite: Organic Chemistry 1.</b> This second part of the introduction to the chemistry of hydrocarbon compounds reviews the nomenclature, structures, properties and reactivity of additional common functional groups (benzenes, amines, aldehydes and ketones, enols, phenols, carboxylic acids, carbohydrates, amino acids, nucleic acids).</p>
<p><b>Biochemistry A: Macromolecules and Gene Expression (PHY 3205)</b></p>	<p><b>Prerequisites: Chemistry 1 and Organic Chemistry 1.</b> This course focuses on the structure and function of the macromolecules that make up biological systems (proteins, nucleic acids, carbohydrates, and membranes). By investigating the fundamental chemical properties of these macromolecules, we develop an understanding of how they are synthesized and broken down, how they interact with each other, and how they contribute to the workings of a cell. Topics will include: molecular mechanisms of DNA replication, transcription, and translation; gene expression; protein structure; membrane properties; biochemical signaling; experimental techniques for the study of macromolecular structure and function.</p>
<p><b>Biochemistry B: Bioenergetics and Metabolism (PHY 3206)</b></p>	<p><b>Prerequisite: Chemistry 2 and Organic Chemistry 2.</b> This course focuses on the chemical processes by which cells derive energy from their surroundings and use this energy to make the building blocks of life. The major metabolic pathways involved in the synthesis and breakdown of high-energy molecules are investigated, along with the mechanisms of regulating these pathways in the body. In addition, we examine the inner workings of enzymes, the remarkably proficient catalysts that carry out the chemical reactions of life. Links between errors in metabolism and human disease are also explored.</p>
<p><b>Experiments in the Physical Sciences 1 (PHY 3207)</b></p>	<p><b>Prerequisite: Chemistry 1 or Physics 1.</b> The scientific curiosity of students is used to promote the experimental exploration of chemistry and physics concepts at a level that is appropriate to the student's background. Students are in direct control of how they use their time in the lab. Every hour spent in the lab requires about two hours of writing and reviewing background information. Also, a substantial quantity of time is required for planning the next day's activities. Assessment for the course is based upon a portfolio that serves to describe in detail the student's experience of the course.</p>
<p><b>Experiments in the Physical Sciences 2 (PHY 3208)</b></p>	<p><b>Prerequisites: Experiments in Physical Sciences 1 and Calculus 1.</b> Student-motivated experimentation is the driver for this course. Experiments involve a greater depth of understanding than Experiments in Chemistry 1 and draw from a greater vocabulary of chemical and physical concepts. Most experiments require many days to execute in the lab and students are encouraged to undertake investigations that are more comprehensive than in the pre-requisite course. Assessment for the course is based upon a portfolio that serves to describe in detail the student's experience of the course.</p>

<p><b>Techniques in Biochemistry and Molecular Biology (PHY 3209)</b></p>	<p><b>Prerequisite: Foundation Molecular Biology. Strongly recommended: Biochemistry 1.</b></p> <p>What are the biochemical methods available to researchers in the laboratory? Techniques covered include breaking apart a cell, separating the chemicals found within it, and identifying and characterizing them. The goal is to understand the advantages and disadvantages offered by each method and be able to devise a purification protocol, given a specific cell type and molecule to purify. Half of this course is based on theoretical considerations, and half is spent in the laboratory. In the laboratory, students work from published articles and learn to convert the highly summarized information into a step-by-step protocol that can be carried out.</p>
<p><b>Exoplanets (PHY 3302)</b></p>	<p><b>Prerequisites: Any one course in the Physical Sciences.</b></p> <p>This is an introductory astronomy survey course. The topic of extrasolar planets is covered through studying the astrophysics of stars, star formation in the interstellar medium, and comparative planetology. A quantitative appreciation will be developed of contemporary exoplanet studies and the potential for habitable worlds. Weather permitting, basic observational astronomy skills will also be developed.</p>
<p><b>Environmental Engineering (PHY 3501)</b></p>	<p><b>Prerequisites: Foundation Mathematics and Energy &amp; Matter and Earth, Oceans, Space, and Ecology. One or more of these can be waived with the tutor's permission.</b></p> <p>This course introduces students to the problems created by the intersection of the built environment with the natural environment. After a review of basic physics, chemistry, and biology principles, a variety of environmental problems in water, air, and land pollution will be addressed with a focus on conceptual approaches such as mass balance, reactive transport phenomena, and risk assessment. The two ideas of pollution prevention and contamination remediation are central to this course, with some policy responses to these concepts addressed lightly.</p>
<p><b>The Study of Inland Waters (PHY 3502)</b></p>	<p>Inland waters are lakes, rivers, reservoirs, and wetlands. This course explores each of these while both paying homage to Canada's rich tradition of freshwater research as well as the stunning water resources of British Columbia. The physical basis for the existence of lakes and rivers is presented. Then, major focus is given to the physical processes that impart structure to the water of lakes and rivers, the biogeochemical processes that lead to the cycling of contaminants and nutrients, and the ecology of freshwater organisms. Additional foci will be wetland processes, case studies of whole lakes, impacts of human management and pollution, groundwater, and topics of student interest. This course can easily be considered the theoretical complement to the field-intensive "Exploring the Hydrological Cycle", which can either precede or succeed "Inland Waters". Depending on the nature and number of students enrolled, this course may or may not have a substantial field and laboratory component.</p>

<p><b>Carbon Accounting (PHY 3504)</b></p>	<p><b>Prerequisites: Foundation Energy &amp; Matter and Earth, Oceans, Space.</b>  As British Columbia develops its revolutionary carbon emissions taxation scheme, “carbon accounting” or the process of estimating the carbon footprint of goods, services and technologies has never been more important. Furthermore, since there is often significant variability in ‘expert’ carbon footprint estimates, informed decision makers and consumers will need to understand the quantitative methods underlying the process. After investigation into the complexity of the Earth’s carbon cycle including details regarding natural and engineered carbon sources and sinks, students will calculate and analyze their own carbon footprint, as well as that of several consumable products and fossil fuel replacement technologies. The final project will combine carbon accounting with quantitative estimates of costs, externalities and other metrics, to develop an “ideal” energy portfolio for British Columbia or a jurisdiction of choice. Students should be prepared for a rigorous, quantitative class involving a few novel mathematical techniques.</p>
<p><b>Water Resources (PHY 3505)</b></p>	<p><b>Prerequisites: Earth-Oceans-Space and Political Economy; one or more of these can be waived with the permission of the instructor.</b>  This course focuses on the technical and quantitative aspects of water flow and water quality in rivers and river basins. With scientific principles established, it then moves into policy responses to water resources problems, invoking political, economic, and other social factors to understand why political jurisdictions exploit or preserve their water resources in specific ways.</p>
<p><b>Energy Technologies (PHY 3506)</b></p>	<p><b>Prerequisites: Energy and Matter, Earth-Oceans-Space, Political Economy; one or more of these may be waived with the instructor’s permission</b>  This course surveys the historic and modern energy technologies that power the developed worlds. Topics covered include the fossil-fuel-based, hydroelectric, wind, and solar power plants; others are discussed according to student interest. These are explored from both technical and social standpoints. Students will leave the course understanding the physics and chemistry of power generation as well as having considered difficult questions like the plausibility of natural gas as a bridge fuel, the regulatory environments of various political jurisdictions, the viability of a society powered by renewable energy technologies, and the implications of the drive by the developing world to deploy new power generation capacity at a remarkable rate. Students who have taken Energy and Matter: Fundamentals of Energy Sustainability, which will not be offered in 2015-2016 or 2016-2017, are welcome in this course and will be accommodated by a series of alternate assignments designed to take advantage of their prior experience in these topics.</p>
<p><b>Environmental Climate Science: the physical &amp; ecological dimensions of climate change (PHY 3507)</b></p>	<p>This advanced climate sciences course focuses on environmental (i.e., non-human) aspects of climate change and climate sciences. A range of disciplines will be covered including (but not limited to) geology, hydrology, physics and ecology. Students will engage in project based learning with a particular focus on biophysical data modelling and analysis. We will build toward performing a detailed vulnerability assessment for the Squamish region. Potential topics of focus in this assessment include changing forest fires regimes, snow-pack alterations, hydrological shifts and impacts to coastal systems.</p>



# SOCIAL SCIENCES

## FOUNDATION SOCIAL SCIENCES

Students are permitted to choose any three out of these four blocks to fulfill their Foundation requirement in the Social Sciences. Please note that all Concentration economics courses require Political Economy (SOC 2100) as a pre-requisite. Students planning to register in these courses later on are therefore advised to include Political Economy as one of their Foundation choices.

### **Political Economy (SOC 2100)**

#### **Prerequisites: Information and Algebra Q Skills Strands**

When resources are scarce, individuals and societies must choose how to use them – and who gets them. Economics is the study of such choices, and Political Economy grounds that study in historical, political, and philosophical context. In this course, we will ask many questions about the distribution of a society's resources, as well as the role that markets and money play in that distribution. We will study the creation of money, what can and cannot be done with money, and how monetary policy can affect a country's economy. We will also examine what markets are, how they work, and when they fail, as well as address the successes and failures of market systems, in theory and in practice. As we do so, we will consider the effects that government can have on an economy, when government can limit failure, and when government is limited itself. We will conduct our studies by drawing upon relevant theory, as well as examples from numerous countries at various points in time – including examples from the most recent economic crises – as we study the choices societies have made about how to best manage their resources, the political and philosophical influences behind those choices, as well as their consequences.

### **Democracy and Justice (SOC 2200)**

Democracy and Justice examines the theory and practice of politics from a variety of perspectives and disciplines. It considers the ways in which leading thinkers have responded to the particular political problems of their day, and how they have contributed to a broader conversation about human goods and needs, distributive justice, democracy, and the relationship of the individual to the state. It also helps students learn about current issues and structures in politics.

<p><b>Global Perspectives (SOC 2300)</b></p>	<p><b>Prerequisite: Information Q Skills Strand.</b>          The aim of Global Perspectives is to orient the student toward contemporary problems around the world. Themes may include intercultural communications, globalization and development, international relations, and global social issues such as AIDS, poverty, and environmental degradation. The course helps the student become more conscious of how people can converse across cultures and ethnicities, step outside of their own experiences, and appreciate the positions of citizens from a variety of origins. Please note that different classes have different subtitles that indicate the topic of the course.</p>
<p><b>Self, Culture, and Society (SOC 2400)</b></p>	<p><b>Prerequisite: Information Q Skills Strand.</b>          Self, Culture, and Society will explore how our sense of self is affected by social and cultural forces. In this course, we will learn theoretical and experimental approaches to understanding the question of who we are. We will draw from the fields of psychology, sociology, anthropology, and geography to investigate how we shape and are shaped by culture and society. Through examination of the interrelations between the individual, group, systems, and institutions, we can better understand the behaviours and actions of our everyday lives. Students interested in Questions within Social Sciences are encouraged to find out which block of SCS will best prepare them for future Concentration courses in their areas of interest.</p>

## CONCENTRATION SOCIAL SCIENCES

The Social Sciences offer interdisciplinary ways of studying human behaviour and human interactions with others, within families, between friends, within communities and within other social institutions. Social scientists study people—as individuals, in groups, and in relationship with the world around us—using a variety of quantitative and qualitative methods, and techniques of interpretation.

Social scientists ask questions about the choices people make, about human behaviour and relationships, and about how we interact with each other. For instance:

- Why do people make the choices they do and how might those choices change when incentives change?
- How do people choose to allocate scarce resources to meet competing wants and needs?
- How do we understand interactions between the mind, brain and behaviour?
- How do abilities like language and theory of mind that might be uniquely human arise and affect our cognitive development and decision making?
- What does it mean to be “mindful?”
- What does it mean to see ourselves as embodying particular ethical values or belonging to a certain ethnic, racial, national, or religious group?
- How do our gender and sexual identities intersect with our cultural and social selves?
- How do we identify ourselves as citizens, and what are our roles within national and international political organizations?
- How do states exercise power over individuals?
- How do we think about our social and environmental responsibilities?

The Social Sciences introduce students to a variety of perspectives as they prepare for global citizenship. Students are also encouraged to combine these ideas with opportunities for experiential education, such as service-learning, internships, and study abroad.

Courses in the Social Sciences are recommended for students who (1) are interested in understanding more about the world humans have created, (2) are interested in understanding it by using a variety of approaches, both scientific and humanistic, and (3) want to develop practical and civic skills in the process.

<p><b>Microeconomics: Experiments &amp; Modeling (SOC 3001)</b></p>	<p><b>Prerequisite: Foundation Political Economy.</b>  Microeconomics is the study of the ways in which individuals and small groups of individuals make choices about their needs and wants. In Microeconomics - Experiments and Modeling, we will examine key economic theories that underlie commonly utilized mathematical models of individual behavior, engage with the mathematical models themselves, and compare theoretical predictions with empirical data. As we do so, we will study experiment design and implementation, allowing us to better understand one means of testing our models of behavior. Building on the concepts and techniques introduced in Political Economy, topics will include supply and demand in more depth, consumer theory (a mainstream economic model of utility (happiness) maximization by an individual), game theory (the study of strategic behavior between individuals), and a crash course in experimental economics (a field of economics with a goal of scientifically testing theory). The course also examines policy issues from a microeconomic perspective.</p>
<p><b>Macroeconomics (SOC 3002)</b></p>	<p><b>Prerequisite: Foundation Political Economy.</b>  Macroeconomics is the study of aggregate behaviours of economies. Drawing on the concepts and ideas introduced in Political Economy, topics include: the measurement of national income; economic growth; cycles of boom and recession; unemployment; inflation; budget deficits and surpluses; the role and structure of the banking system; interest rates; and the use of monetary and fiscal policy to stabilize the economy. Macroeconomics is an essential tool for informed citizenship and active public engagement. Macroeconomics involves a considerable amount of class participation and discussion on central issues facing the economies of North America and beyond.</p>
<p><b>Behavioral Economics (SOC 3004)</b></p>	<p><b>Prerequisite: Foundation Political Economy.</b>  Economics as a discipline often assumes people are rational and self-interested. Yet, when we look at the world around us, we see these assumptions violated, or at least they appear to be violated. In a course on Behavioral Economics, common economic assumptions are relaxed to allow for some behaviors that consistently appear in reality, such as over-optimism, procrastination, altruism, spite, ..., that standard economic theory has difficulty explaining. In this course we will identify common irrationalities in the lives of well-loved literary characters, analyze our own behavior and that of the world around us, propose experiments to test for anomalous behaviors and their causes, design models to capture empirical findings, as well as discuss policies that encourage or discourage irrational behavior. We will also consider ways in which individuals, businesses, nonprofits, and governments can utilize the findings of Behavioral Economics, for better or for worse.</p>
<p><b>Heterodox Approaches to Economics (SOC 3005)</b></p>	<p><b>Prerequisite: Foundation Political Economy.</b>  Mainstream economics is often accused of using unrealistic models of human behaviour, and of answering questions no one is asking. The course looks at alternative approaches to economics. Perspectives examined include: Marxist, feminist, Neo-Keynesian and religious approaches. Students look at alternative analyses of the monetary system and the role of government. Some knowledge of mainstream economics is advised.</p>

<p><b>Building Canada: Canadian Economic Development and History (SOC 3006)</b></p>	<p>This course examines Canadian history with a particular focus on the construction of the Canadian economy and how it influenced wider political and social developments. Themes studied will include the fur trade and its influence on early First Nation-settler relations; changing staples and the decline or advancement of colonies; the railway, industrialization and Confederation; agriculture and the expansion of the West; manufacturing and the power of the East; the great depression; and the centralization of decision-making in World War II. It will end with an examination of the new staples and regional power shifts since 1945. A focus on primary source material (and analysis), in addition to field trips and documentary films, will help bring these themes to life.</p>
<p><b>Development: Capability, Freedom, and Agency (SOC 3050)</b></p>	<p><b>Prerequisite: Foundation Political Economy.</b>          What do we mean by “development”? Is it all just about increasing Gross Domestic Product (GDP)? In this course, students look at what the goals of economic development might be, drawing on insights from alternative measures of welfare and the Capabilities Approach. Students examine the experiences of the poorer countries of the world, looking at the challenges they face and the possible types of solutions to their problems. Both top-down and bottom-up approaches are analyzed.</p>
<p><b>Poverty, Inequality, and Development (SOC 3051)</b></p>	<p><b>Prerequisite: Foundation Political Economy.</b>          Why are some countries rich and some poor? What has been done about it? What can be done about it? What should be done about it? In this course, we draw from the fields of Economic History, Experimental &amp; Behavioral Economics, International Finance, Growth Theory, and Development Economics in an attempt to answer the questions posed. Students examine the theories behind and the implementation of official and unofficial policy, as well as grassroots efforts, directed towards decreasing poverty, lessening inequality, and encouraging development.</p>
<p><b>Culture and Development in Latin America (SOC 3052)</b></p>	<p>This course serves as a general introduction to the lands and peoples of Latin America (Mexico, Central, and South America). Key themes address the historical, social, and cultural realities that have shaped the region. Topics may include the varying nature of colonial experiences, problems of post-colonial development, indigenous resistance and survival, violence and revolution, gender inequalities, and development strategies. A range of resources including scholarly and creative writings, documentary and feature films are utilized in order to bring the region to life.</p>
<p><b>Development and Community in Belize (SOC 3053)</b></p>	<p><b>Prerequisite: Foundation Political Economy.</b>          This course is set in Central America’s only English-speaking country that is intentionally pursuing a development strategy based on sustainable tourism. The course aims to introduce students to the history and culture of Belize, and the ways in which these have shaped the economic and social development of the country. Students visit various parts of the country, including the barrier reef (the second-biggest in the world), and look at the threats and opportunities that the country faces.</p>

<p><b>African Development: Problems, Nuances, Solutions (SOC 3054)</b></p>	<p>This course will examine the development of Sub-Saharan Africa since the independence movements of the 1960s. Although the course will focus on economic development, the social, political, cultural, and human development aspects of Sub-Saharan African development will be integral parts of the course. Special emphasis will be given to how African development experts think about and approach development issues in Sub-Saharan Africa. By the third week of the block, students will be prepared to read, think, and write critically about present day development trends in Sub-Saharan Africa and prospects for going forward. Students will also explore the often complex relationships between Africa and key development institutions (e.g. UN, World Bank, IMF, international NGOs) and emerging development partners (e.g. China, Brazil, and India). Students will also be asked to examine Africa's institutional development (e.g. the New Partnership for African Development, the African Development Bank, regional economic communities, and the African Union). Authors may include Benno Ndulu, Dambiso Moyo, Charles Soludo, and Thandika Mkandawire.</p>
<p><b>The Politics Of Health In South Africa (SOC 3058)</b></p>	<p>How do we make sense of the context-dependent peculiarities of and disparities in the distribution of health and illness in a particular place? This class endeavours to unpack this question by situating health and health care in South Africa within economic, political, demographic, historical, and sociocultural dynamics. We will examine the historical roots and contemporary realities of health and health care, paying particular attention to rural dynamics, histories of Apartheid and power, South Africa's integration within contemporary global economic systems, internal inequalities and economic disparities, and political and ideological dimensions of health care delivery. In this course, students will familiarize themselves with various theoretical and categorical lenses surrounding health, health care delivery, the political economic of health, and the spatial dynamics of health, illness, and health care. These lenses will the serve as a basis through which to explore the situated, place-specific dynamics of health, illness, and health care delivery in South Africa.</p>

<p><b>Experiencing the Politics of South Africa (SOC 3059)</b></p>	<p>Prerequisite: Minimum B- mark in the affiliated course, "The Politics of Health in South Africa,"</p> <p>This travel class "Experiencing the Politics of Health in South Africa" will spend the block in South Africa, providing students with experiential learning opportunities to examine the multiple political, economic, sociocultural, structural, and spatial forces which differentially shape health, morbidity, and mortality for different bodies in South Africa. The course will highlight the successes and challenges of rural health care delivery in north-eastern South Africa, the variegated histories of health and illness in the country, the delivery of vaccines and related immunological health delivery issues, and the nation's HIV/AIDS epidemic. Visiting urban, peri-urban, and rural settings, students will learn from and with leading South African and international scholars, health practitioners, and academic researchers. Earning a minimum of a B mark in the affiliated October course, "The Politics of Health in South Africa," is a prerequisite for participation.</p> <p>Due to in-country vehicle logistics and safety concerns, this class is capped at 10 students and will be subject to a significant course fee. In addition to the course fee, you will be responsible for your round-trip airfare to Johannesburg. The course fee covers all lodging, food, travel, and activities. A \$250 non-refundable good faith deposit is due by the final day of the April block, April 23, 2015. The remainder of the course fee (TBD) will be due September 1, 2015. Failure to meet either deadline will result in being dropped from the class.</p>
<p><b>Who is the African? (SOC 3061)</b></p>	<p>Who is the African? Do you know? Do Africans know? Let us attempt to tackle these questions through a vigorous interdisciplinary exploration of African-authored primary and secondary texts on how Africans perceive themselves. We shall read texts from the following fields: psychology, sociology, anthropology, politics, literature, history, and religion. At the end of the course, we will come closer to knowing the African.</p>
<p><b>Comparative Political Institutions (SOC 3101)</b></p>	<p>We cannot really understand our own government without understanding the governments of other countries. What are the different ways individuals and groups participate in politics? Why are some states stable democratic systems while others are not? What relationship does a country's political organization have with its economic performance and social stability? Can we really say that one government is "better" than another? This course provides students with the necessary tools to make informed judgments about "the government."</p>
<p><b>Contemporary Political Ideologies (SOC 3103)</b></p>	<p>What are the differences between liberals and conservatives? What is a fascist or a socialist? What does it mean to be an environmentalist or a feminist? The course examines the meaning of these terms in light of their historical development. It focuses on the political theory behind each ideology and it also touches upon the relevance of political ideology to contemporary (largely Western) politics.</p>

<p><b>Media and Politics (SOC 3104)</b></p>	<p>What role has media played in politics and how has this changed? In the last forty years, the mass media has been transformed by new technology and by the corporations and governmental agencies that own and control it. Media and Politics examines the influence of corporate control on print and broadcast journalism, the role of advertising on the political process, and the significance of government regulation on the media. Students also briefly consider the rise of the Internet, the Web, the blogosphere, and alternative media on democratic politics. Throughout, students discuss how media shapes public opinion. Most examples and readings come from North American media.</p>
<p><b>Canadian Studies (SOC 3105)</b></p>	<p>Students delve into what makes Canada Canadian through the investigation of a variety of perspectives, theories, and academic disciplines. Rather than defining Canada as “not American”, this course seeks to look at what principles lie at the core of Canadian history, anthropology, politics, and economics and to link these to our culture, art, and geography.</p>
<p><b>Peacebuilding (SOC 3106)</b></p>	<p>How do societies transition from war to peace? How does the international community help or hinder this process through a wide array of ‘interventions’? This course examines current practices in conflict resolution and peacebuilding around the world, and situates these practices in the larger historical context of the past three decades. It explores the relationships between peacebuilding, democratic reform, justice, and development, and invites students to engage with the moral and political complexities that come at war’s end.</p>
<p><b>Political Psychology (SOC 3107)</b></p>	<p>How does psychology play a role in political events such as elections, responses to natural disasters, or same-sex marriage? Political psychology is an interdisciplinary field that employs social and cognitive psychological theories to examine such issues in the world of politics. In this course, we explore how psychology can be used to understand and explain political leadership, movements, and behavior. Topics are discussed with political issues in context of framing, decision-making, values, stereotyping, nationalism, and voting behaviour. The goals of this course are to introduce students to theoretical and empirical research in political psychology and to better understand the world of politics through psychological lenses.</p>
<p><b>Political Identity &amp; Conflict (SOC 3108)</b></p>	<p>Individuals identify themselves politically in a variety of ways for instance, through gender, class, race, and generation. In this course, however, we examine three specific means by which individuals believe themselves to be political actors ethnicity, religion, and nationalism. We ask a variety of questions here: What are the foundations of political identity? How do people forge identities? What is the relationship between political identity and the state? How do culturally powerful minorities assimilate or resist assimilation in a nation? Are there economic and religious factors that cause identities to form? Can differences in identity lead to political conflict? When do they lead to political conflict, what kinds of conflict occur, and how are they negotiated peacefully? In answering these questions we will examine cases from many different areas of the world. Students will also have the opportunity to choose projects consonant with their questions and representative of particular global issues.</p>

<p><b>Political Ecology (SOC 3111)</b></p>	<p>Political ecology is an interdisciplinary framework that examines the complex intersections of political, economic, and socio-cultural dynamics of environmental phenomena. This course will blend foundational insights from human geography, cultural anthropology, sociology, and cultural ecology to problematize human-environment interactions through a consideration of Marxian political economy and critical engagements with history, multi-scalar power relationships, socio-cultural dynamics, and human agency. Employing this multi-disciplinary lens, we will examine a diverse set of phenomena, including the discursive (re)presentations of nature and science, struggles over land rights, vulnerability, conservation, the neoliberal governance of nature, environmental NGO movements, and land-based development.</p>
<p><b>Canadian Political Strategy (SOC 3112)</b></p>	<p>Prerequisites: Democracy and Justice OR Comparative Political Institutions OR Canadian Studies OR Course Tutor permission.</p> <p>How do you win elections in Canada? What are candidates, or their parties, trying to accomplish through signs, door-to-door visits, advertising, and debates, and how do they decide what to do with these tools of the trade? How do political parties play the ground game on election day, and how do politicians – and the public – try to shape political outcomes outside of elections? Drawing on scholarly research into the paradoxes of political campaigns, the effects of voter mobilization techniques, and the institutional parameters of Canadian politics, this course immerses students in a real Canadian electoral campaign to experience first-hand how such campaigns are fought: one vote at a time.</p>
<p><b>Topics In Security Studies (SOC 3113)</b></p>	<p>“Security”: Be it of nations, humans, or states, security is a concept that gives rise to an expanding range of government activities across the world. Almost two trillion US dollars are spent on military forces annually, nuclear arsenals are built and maintained, infrastructures of espionage and surveillance are constructed, and rights are curtailed or ignored in the name of ‘security’ – and there are demonstrable threats to security, however defined: Terrorism, war, pandemic disease, and even climate change. There is also ample room to be critical of ‘security’ as a rhetorical device to close down political debate, however, and of the power structures that are created and perpetuated by doing so. This course explores selected topics in security studies in depth; topics may include terrorism and counterterrorism; intelligence and surveillance; the paradox of Weapons of Mass Destruction; or the study of classic works in strategic thought.</p>
<p><b>Government in Canada (SOC 3114)</b></p>	<p>This course examines the many facets of government in Canada. Themes discussed include Responsible Government and its conventions, the constitution and the Charter, cabinet government and the power of the Prime Minister, political parties, the electoral system, the senate, provincial and municipal jurisdiction, and civil society actors. Students will draw on material from both textbook readings and the broader scholarly literature on Canadian politics to engage with topics through discussion, simulations and small group activities.</p>

<p><b>Human Rights Law (SOC 3115)</b></p>	<p>How can we best protect human rights? How do we define what is a human right and what is not? We will examine these questions at the domestic and international level, and from the perspective of constitutional law, politics and legal philosophy. First, we will compare how different countries and communities grapple with the trade-offs between community identity and the protection of minorities. We will look at the courts-based approach (e.g. in Canada and the US) and countries which give politicians the final say (e.g. the UK). We will also assess critiques of the Western human rights paradigm (e.g. the Asian Values movement and Aboriginal conceptions of rights). We will then move this debate to the international level: examining the impact of treaties such as the Universal Declaration of Human Rights and courts such as the International Criminal Court. Throughout this course you will look at the big picture: is “human rights” a useful concept, and if so, which systems best protect rights? You will also examine the content of human right law, giving you skills in interpreting legal texts and applying legal principles to individual cases.</p>
<p><b>President X’s First 100 Days (SOC 3116)</b></p>	<p>In January 2017, the U.S. will inaugurate its 45th President. This course will consider which pressing issues she or he will be dealing with: within the US itself, in its relationship with Canada and on the global stage. We will focus on the advice that the new President will receive from a range of experts: environmentalists, economists, lawyers, diplomats with knowledge of particular countries, the security services, etc. What policy options are open to the President? What trade-offs does s/he have to make? What constraints does s/he face?</p>
<p><b>Communities and Conservation (SOC 3201)</b></p>	<p>Using case studies from around the world, this course examines the assumptions and implications of community-based natural resource management. We consider questions such as: What is a community? In what ecological, economic, political or social contexts will communities better manage natural resources compared to centralized governments? Do democratic, multi-stakeholder approaches lead to better resource management? What are the interactions between gender and conservation? Topics include environmental justice, ownership rights, integrated conservation and development projects, equality and power, ecotourism, and multi-stakeholder management.</p>

<p><b>Understanding Food Systems: the ecology, economics, politics and culture of food (SOC 3202)</b></p>	<p>This course is a concentration course that provides an introduction and overview of food systems, with a focus on global and international issues and on public policy. The course is inter-disciplinary. We will consider the geography, ecology, biology and technology of production; the economics and politics of distribution and access to food; the growing health concerns linked to modern eating habits; and the culture that surrounds food, from production to consumption.</p> <p>Students will look at the globalization of food systems, and some of the responses and reactions to globalization. They will be encouraged to challenge their assumptions and thinking, and to look at food from a number of perspectives – from the perspective of gender; of different kinds of producers; of food processors and food retailers; as government trade negotiators; as government officials concerned to create jobs and protect food security. We will also look at the system as consumers—as parents and children, as the elderly, as people living in poverty and as the food secure, as people who grow their own food and people who rely on a distribution system to bring food to us. The implications of the universal human right to food will be explored.</p>
<p><b>The Food System and its Discontents (SOC 3203)</b></p>	<p><b>Prerequisites: Must have completed three Social Science Foundation courses</b></p> <p>For Canadians, our contemporary food system is a marvel of efficiency, safety, sustainability, accessibility, and standardization. Or is it? And at what cost? This course takes a multidisciplinary approach to food studies, using critical, historical, and geographical lenses to explore nuanced perspectives in four stages: 1) appreciating the development of the modern food system, its advancements and achievements; 2) surveying the many criticisms of this system; 3) identifying food initiatives and movements that are embraced as alternatives to the conventional system; and 4) critiquing these alternatives, with particular attention to class, gender, and race.</p> <p>*NB: Student will need to spend up to \$20 on food supplies for this course.</p>
<p><b>The Cultural Politics of Energy (SOC 3204)</b></p>	<p>In this course, students will unpack and interrogate many representations that have come to signify modern “realities” of energy and energy use within various sociocultural settings. While taking a global perspective and utilizing literatures of sociology, media studies, cultural studies, geography, postcolonialism, and political ecology, students will study cultural representations of energy in such contexts as fossil fuel use, access to and use of energy around the world, climate change, and renewable energy. While understanding culture as a multifaceted political space, students will describe the various forms of inequality embodied in these representations, and, in so doing, will uncover alternatives to the dominant narratives of energy that define public debates.</p>

<p><b>Food In/Security (SOC 3206)</b></p>	<p><b>Prerequisites: Must have completed three Social Science Foundation courses</b>  This course offers students with interests in food, poverty, inequality, and/or social injustice an in-depth survey of food insecurity in a North American context. The course is built to facilitate a review of several profound questions of our time: Why are people poor? What is like to be poor in North America? How do people cope with poverty and food insecurity? And what are the physical and mental health consequences of food insecurity? Additionally students will read seminal texts in order to critically evaluate proposed solutions to food insecurity, including food banks, school meal programs, nutrition education for the poor, and government policies. Students will research write a review paper that examines food insecurity for a specific population or demographic, and they will design and execute a personalized food insecurity challenge, the results of which they will present to the Quest community.  *NB: Students will need to spend \$50 on food supplies for this course.</p>
<p><b>Doing It For Free: The Voluntary Sector (SOC 3207)</b></p>	<p><b>Prerequisites: Successful completion of chosen foundation-level social science courses.</b>  North Americans alone donate millions of hours of their time and millions of dollars to charitable endeavors each year in the pursuit of a more just society and an improved human condition. Quest University students are no exception in their enthusiastic engagement in voluntary activities in order to create positive change, contribute to their community, and undertake learning. But is everything rosy in this domain of human organization and activity? This course gives students a concentrated opportunity to analyze key questions and contradictions inherent to the voluntary sector. Drawing on theories and insights from policy studies, political philosophy, and human geography, we will investigate the possibility that the voluntary sector is simultaneously a tool of neoliberalization and a sphere of resistance to it. We will ask investigative questions such as: What is the ideal function of the voluntary sector in society? Why do people volunteer, and what are some important trends in this sector in North America? What are the implications of the growing trend of ‘voluntourism’?</p>
<p><b>Comparative Cognition (SOC 3303)</b></p>	<p>One of the best means by which we understand how human minds work is by looking at the minds of other species. In this class, we’ll investigate the cognition of animals other than ourselves. Such animals include non-human primates like chimpanzees and capuchin monkeys, dogs and wolves, elephants, and rodents. Specifically, our class will try to understand to what degree other animals use social knowledge, communication, theory of mind, numerosity, and spatial understanding to solve problems in their environments. This course provides students with knowledge about how other minds are similar and different from their own.</p>

<p><b>Cognitive Development (SOC 3304)</b></p>	<p>This is the study of systemic psychological changes that occur over developmental time. The study of developmental psychology is based on six recurring themes of change. These are: 1) the relative contributions of nature and nurture, 2) the relative activity or passivity with which individuals engage in development, 3) whether development is continuous or in stages, 4) the mechanisms of change – what drives development, 5) the social context in which development occurs, and 6) the differences among individual developmental trajectories. These themes recur during the course as students investigate physical development, conceptual development, language development, intelligence and academic changes, social and emotional development, and moral and gender development. Through students’ investigation of how children change over time, they are better able to make decisions as parents and teachers, and society as a whole, to benefit children and raise them more effectively.</p>
<p><b>Evolutionary Psychology (SOC 3307)</b></p>	<p>This field potentially provides a unifying theory of psychology. To do so, students must confront one of the areas that humans most dislike to investigate--the beastly side to our natures. Students look at our most intimate moments through a lens of selfish genes. The course begins with a brief introduction to the important theories in psychology and evolutionary biology. The course then considers substantive topics that can be addressed through the lens of evolutionary psychology, namely: mating strategies (long and short term), sexual jealousy, cheater detection, sexuality, kinship, cooperation, pregnancy, sickness, parenting, spatial memory, landscape preferences, and aggression and violence. As an emerging field, evolutionary psychology addresses new ways to study areas typically found in cognitive psychology, social psychology, developmental psychology, and linguistics.</p>
<p><b>Judgment and Decision Making (SOC 3309)</b></p>	<p>By the time you leave your house in the morning, you have made dozens of decisions. Is deciding what to wear for the day subject to the same decision making process as what career to pursue? The science of judgment and decision making examines this question and attempts to understand the fallacies we fall into and how we deviate from the “optimal” decision making process. In this course, we will integrate research from social psychology, cognitive science, and neuroscience to investigate what factors influence a decision.</p>
<p><b>Happiness, Gratitude, and Resilience (SOC 3310)</b></p>	<p>Instead of examining the pathological problems that plague individuals, positive psychology focuses on building and promoting the resources in people that will allow us to thrive. In this course, we will explore the science of positivity through psychological studies of happiness, gratitude, and resilience. We aim to develop an understanding of the core concepts of positive psychology and to implement many of the practices in our own lives. Through investigating positive emotions and strength-building skills, we will better understand how to cultivate what is best within ourselves to enhance meaning in our lives.</p>
<p><b>Emotional Intelligence Embodied (SOC 3312)</b></p>	<p>Emotional Intelligence is the ability to effectively blend thoughts and feelings in order to make better decisions and create and maintain healthy, mutually respectful relationships. Emotional Intelligence (EI) is a set of skills, able to be taught and learned. This interactive, participatory course will expand and deepen the existing models of EI and explore applications of EI skills and concepts in diverse settings. Student research will examine additional aspects and components of EI. Exercises and experiments will deepen and further develop students’ skills in EI.</p>

<p><b>Visual Anthropology (SOC 3403)</b></p>	<p>The Visual Anthropology course takes place in Ladakh and Zanskar, northern India, during the final week of July, and the first few weeks of August. The visual aspect of this course is not about travel photography per se, but rather, exploring another culture with photographic and video tools. With this in mind, we will investigate three major areas -- Leh, Padum, and Pischu -- exploring Tibetan traditions, village life, and the changes of life presently experienced by these northern inhabitants of the Himalaya. During this course, you will learn how to use contemporary tools such as cameras, and video recorders to understand culture. The use of these visual tools will be taught, and practiced with the end project being an actual visual anthropological monograph created in a smaller group.</p> <p>While this course has a wide range of educationally “pragmatic” outcomes there is one meta goal of the course: to explore the enormously difficult dialog with respect to the question of “explanation” in social science. In anthropology, the efforts to understand human cultural evolution have undergone, throughout the history of the discipline, vast changes as well as challenges - from the structuralism of Claude Levi-Strauss to strategies of statistical quantification, not to mention all the work that has taken place in genetics and human evolution. Underlying all of this discourse, and all of the years of academic research and intellectual meanderings, is the penultimate question: Is anthropology (and for that matter, any of the social sciences) actually “science”.</p>
<p><b>Comparative Race &amp; Ethnicity in a Global Context (SOC 3404)</b></p>	<p>This course serves as a critical introduction to the understandings (both theoretical and embodied), manifestations, and consequences of race and ethnicity in diverse international settings. What is race? What is ethnicity? How do these ideas function in material and discursive contexts? What are the (dis) similarities of the phenomena of race and ethnicity across the globe? How do race and ethnicity impact our own identities and experiences? By critically examining the social constructions of race and ethnicity in countries including Canada, South Africa, the United States, Brazil, and parts of western Europe, students will gain a deeper insight into the intrapersonal, interpersonal, and institutional dimensions of one of the most profoundly consequential ideological social constructions of modernity.</p>
<p><b>Gender and Politics (SOC 3405)</b></p>	<p>The personal is (still) political. This course critically examines politics at many levels - from deep power relations to highly visible institutions - through the lens of gender. At the same time, it explores the political implications of social constructions of gender. Feminist and queer perspectives in political theory, comparative politics, and international relations will be brought to bear in an effort to understand and undermine structures of gender discrimination in society.</p>
<p><b>Psychology Of Gender (SOC 3407)</b></p>	<p>In this course we will explore the psychology of gender beginning with asking: What is gender? How does our gender identity develop and how does it contribute to our sense of self? What are the psychological differences among genders (e.g, in cognitive abilities, emotional expression, sexual and romantic preferences, career choices, health)? How do they arise (developmentally and evolutionarily; culturally and biologically)? And, Do any differences matter? While there are many interesting and valid approaches to the study of Gender this course will focus, but not exclusively so, on the psychological similarities and differences between men and women as evidenced by the scientific literature.</p>

<p><b>Ethnography: Living and Writing the Distant and Near (SOC 3408)</b></p>	<p>“When words gather together with energy, other places, other people, and other voices stir in a parallel life.” So anthropologist and novelist, Kirin Narayan, begins her superb book, <i>Alive in the Writing: Crafting Ethnography in the Company of Chekov</i> (2012), that will serve as an entrée into this course’s objectives to get us thinking AND writing about how anthropologists and other social scientists struggle (sometimes with great success) to represent the human condition in all its myriad manifestations. Pivoting around Narayan’s book, this course will not only explore key genres and eras (and errors) in ethnographic writing – from those well-known in the canon such as Clifford Geertz, to those on the horizon like Yarimar Bonilla – it will also challenge students to engage in the craft itself through writing experiments (both as laid out by Narayan and what we come up together in class) and reflections upon those experiments. The end goal is to come away with a profound grasp on the complexities involved in writing about the distant and near - those “other places, other people” Narayan evokes - and to see how our voices, “gathered together with energy...stir in a parallel life” with them.</p>
<p><b>Urban Form, Urban Life (SOC 3409)</b></p>	<p><b>Prerequisites: Must have completed three Social Science Foundation courses</b>  This course is an advanced survey of contemporary urban studies with a focus on Canadian and American cities. Important areas of focus consist of “I”s: urban innovation, urban identity, and urban inequality. We will read extensively from sub-fields such as urban-economic geography, urban planning, urban sociology and political studies. Using a political economy framework that understands urban change (for better or worse) as a function of prevailing economic conditions, this course will help students to work through important questions such as: How is globalization changing the economic dynamic of North American cities? Why do cities founded in different eras look the way they do? Why does gentrification happen? How do people interact in cities? How do university graduates and other talented workers make decisions about where to live? What is a ‘good city’? Students will also build their practical skills in delivering oral presentations, researching and writing, working in teams, and critical evaluation.</p>
<p><b>Research Methods in the Social Sciences: Quantitative (SOC 3501)</b></p>	<p>Social sciences are set apart from the humanities and the life sciences by our ability to tackle human issues using scientific methods. Whereas a biologist might study bacteria using scientific methods, and a philosopher might use introspection to investigate the human condition, social scientists use scientific methods to understand the human world. In this class, students learn how to think like a social scientist. Students learn quantitative research methods, how to design elegant experiments, carry them out through data collection, analyse this data, and present their results.</p>
<p><b>Research Methods in the Social Sciences: Qualitative (SOC 3503)</b></p>	<p>Social sciences are set apart from the humanities and the life sciences by our ability to tackle human issues using scientific methods. Whereas a biologist might study bacteria using scientific methods, and a philosopher might use introspection to investigate the human condition, social scientists use scientific methods to understand the human world. In this class, students learn how to think like a social scientist. Students learn qualitative research methods, like ethnography, focus groups, interviews, and surveys.</p>

<p><b>Politics of Cyberspace (SOC 3602)</b></p>	<p>More and more of our lives take place in the virtual world of cyberspace - but what is “cyberspace”? What does power look like in cyberspace, and who wields it? How are governments, corporations, and individuals vying to shape the future of cyberspace, and how is the emergence of cyberspace transforming traditional politics? From hacktivism and slacktivism, to debates over censorship and regulation, to concerns about privacy and surveillance, to the strange worlds of cyber security and cyberwarfare, this course will give students the tools to explore, debate, and analyze this rapidly-evolving landscape. (NOTE: No technical knowledge of computers or networking is required for this course.)</p>
<p><b>Language, Culture, and Thinking (SOC 3701)</b></p>	<p>Is language unique to humans? How is gesturing different from sign language? What does it mean to be multilingual? Language is fundamental to human behaviour and underpins all forms of knowledge transmission. With roughly 6500 languages in the world, humans continually shape and are shaped by language. This course examines how humans use language from telling lies to inventing Netspeak, from translations to language disorders. Through investigating the relationship between language and thinking, we can develop a better understanding of how we behave, interact with others, and relate to the world around us.</p>
<p><b>Child Language (SOC 3702)</b></p>	<p>How do children learn language? Is language innate or learned? How does language development change when a child encounters more than one language? In this course, we will examine the linguistic path of a child from babbling to inventing imaginary worlds. In addition to first language acquisition, we will investigate the issues particular to children from homes where the language differs from that of the school. Approaches from psychology, linguistics, &amp; education will be used to understand the roles that families, peers, and schools play in children’s development of language.</p>
<p><b>Adolescence And Early Adulthood (SOC 3703)</b></p>	<p>In this course we will examine psychological development during the adolescent period, up to young adulthood. We will explore the characteristics of this period and the biological, psychological and cultural contributions to them. What are the issues we face during this period of our lives? How has that varied historically? How does it currently vary culturally? How have theorists described this part time in our development? How does “the teenaged brain” contribute to behavioral characteristics of this stage of life? While there are many interesting and valid approaches to the study of Adolescence this course will focus, but not exclusively so, on the psychological characteristics of this stage of development as evidenced by the scientific literature.</p>
<p><b>Men &amp; Masculinities (SOC 3704)</b></p>	<p>Emerging out of the feminist theorizations of the later 20th century, theories and empirical studies of masculinity have recently established an important new critical lens through which to understand the experiences, actions, perceptions, and emotions of diverse boys and men. This course, which focuses on the North American context, explores various discursive constructions of masculinity, the ways in which boys and men experience and embody their masculinities, and the various means in which the gendered social order influences men’s actions and understandings. We will employ an intersectional analysis to think about the ways that masculinities are influenced by race, sexuality, disability, body shape, and class. Some of the topics we will cover are theories of and responses to hegemonic masculinity, male socialization and guyland culture, male sexualities, male body image, male aggression and violence, experiences of fatherhood, media representations of masculinity, the centrality of work and sport to understandings of masculinity, and the social construction of masculinities in different historical and cultural contexts. The course is interdisciplinary and will use feminist theory, social science research, popular texts, multimedia masculinities, art, and autobiography to aid our exploration.</p>

# INTERDISCIPLINARY

Questions and problems arise organically in contexts, and those contexts do not always correspond to previously accepted ways of organizing ideas. At Quest, a significant number of our courses engage in inquiries that fall across or beyond traditional academic disciplines, and for these types of explorations we have reserved the designation “interdisciplinary courses.” These courses are centred around fundamental questions or problems, the addressing of which requires a multifaceted or complex approach. Whether practicing skills needed for “thinking in the raw” through our Milestone courses, or pursuing deep questions in the full and integrated setting of Concentration courses, our interdisciplinary courses showcase what is possible when learning experiences are considered creatively in broad and natural contexts.

## MILESTONES

Our Milestone courses highlight the practices required for meaningful inquiry, including ways of framing an inquiry, bringing to it sharp tools of articulation, asking valuable and well designed questions, and pursuing such questions to focused ends. While developed particularly in the Milestone courses, these skills underlie the curriculum as a whole.

### **Cornerstone: What is Knowledge? (IND 2100)**

The Cornerstone block is the first course that all students take upon entering Quest. The purpose of Cornerstone is twofold: to introduce students to Quest, and to investigate a significant question through a variety of academic perspectives. The question for Cornerstone is: what is knowledge? By investigating this question, we explore the unexamined principles and assumptions that underpin our views on science and culture. When we classify something as knowledge, we are implicitly appealing to a system of values: what is knowable is worthwhile, if not for its own sake, at least for its utility. For example, we believe that astronomy expands what we know, but astrology does not. But why? To respond that the former is science while the latter is nonsense merely reiterates the view that the one is knowledge and the other not, and so fails as an answer. We make progress on this question by investigating three sub-questions: (i) what assumptions do we have about knowledge; (ii) what is scientific knowledge; (iii) what is knowledge itself? In answering each of these, we are better able to say what knowledge is.

<p><b>Foundation Rhetoric (IND 2200)</b></p>	<p>After the Cornerstone block, all students take a required block in Rhetoric. The theme for the Rhetoric block varies according to the individual Tutor, but all sections of this block are designed to give students the opportunity to work intensively on good writing and effective public speaking at the outset of their Quest career. The skills involved include research and professional requirements for documentation, the uses and abuses of academic research, an introduction to quantitative reasoning, as well as techniques for writing cogent, persuasive, university-level papers. Throughout the entire class, we focus on improving students' critical thinking skills. Students are given the opportunity to make and then improve upon several presentations in front of their peers and to learn to deliver effective talks, reports, and speeches. The lessons of cogent writing and speaking will serve students throughout their university career—indeed, throughout their lives.</p>
<p><b>Question (IND 2300)</b></p>	<p>At the end of their Foundation Program, Quest undergraduates work with a faculty advisor of their choosing to submit a statement of their "Question": a proposal describing a topic of special interest to them. The Question guides students' attention in a sustained and rigorous intellectual inquiry during the final 16 Concentration blocks. The proposal may take the form of a statement or a question or even a set of related questions. For example, one student might be interested in the broad thematic question, "What is honour?" Another might choose a specific policy topic like, "How does politics influence the treatment of global epidemics such as malaria, SARS, or AIDS?" By designing their own Question, students construct an academic program that suits their intellectual interests, allowing them to cross disciplinary boundaries. We expect there to be as many different questions as there are Quest students.</p>
<p><b>Keystone (IND 3000)</b></p>	<p>The Keystone course is required of all graduating students, and takes place in the block immediately preceding the Commencement ceremony. It has four main purposes: 1) students put the finishing touches on their Keystone projects; 2) students prepare and deliver a public presentation about their Question to the University community; 3) students take some time to reflect more broadly on their education—both prospectively and retrospectively—in hopes of understanding how a liberal arts and sciences education has changed them, and how they will integrate that learning into their future plans; and finally, 4) the time honoured ritual of Commencement involves special activities, such as invited guest speakers and formal dinners.</p>

## CONCENTRATION INTERDISCIPLINARY

<b>Exploring the Ecological Self (IND 3002)</b>	This course explores the human relationship to nature through readings, discussions, and experiential exercises. Students first examine the root causes of our environmental problems through the fields of deep ecology, eco-feminism, and eco-psychology, and then apply these concepts to how we currently attempt to “manage” the natural environment. During a 12 day backcountry trip in the Brooks Peninsula, students examine how contextual forces influence their perspectives on the environment and how one perceives their relationship to nature. During the backcountry trip, students are asked to observe shifts in behaviour, community dynamics, attitudes towards nature and emotion in themselves and their peers.
<b>Limits of Knowledge 1: Infinity, Certainty, Knowledge (IND 3103)</b>	The past 150 years in mathematics have raised deep questions about what we really know, and how we come to know it. The beginnings of set theory in the late 19th century made possible the logical contemplation of infinity. Around the same time non-Euclidean geometries began to seem possible as physical realities. Until then mathematics had been seen as a domain in which absolute certainty was achievable. Today that belief has been shaken, nuanced, and split into several different points of view. Students come to grips with the set theory of Georg Cantor, the Zermelo-Frankel axioms, and the Continuum Hypothesis; explore the geometries of Riemann and Lobachevsky; outline the implications of Russell’s, Frege’s, and Gödel’s work on the character of mathematical knowledge; and critique modern views of what it means to be certain.
<b>Limits of Knowledge 2: Cognition (IND 3104)</b>	This is the second in a series of two course titled Limits of Knowledge. Cognition (or cognitive science, or cognitive psychology) is the study of the mind through interdisciplinary research with roots in philosophy, psychology, artificial intelligence, computer engineering, neuroscience, linguistics, and anthropology. Unifying theories of the mind are based on computational processes, and experimentation. That is, cognitive psychologists believe that the mind is best understood through the representations the mind makes, and the ways it acts on those representations. To this end, cognitive psychology examines conceptual development (how concepts are formed and employed), types of mistakes that are made by people during deductive reasoning, reaction time differences in information processing, and problem solving techniques. Topics include studying the cognitive architecture and cognitive processes (like working memory, attention, reasoning and problem solving, and conceptual representation). Other topics include: the ways that language is represented in the brain, and what this means for acquisition of language, what it means to be “intelligent” and the role of computers and artificial intelligence in our understanding of cognition.

<p><b>Geographic Information Systems (GIS) in Multidisciplinary Studies (IND 3106)</b></p>	<p>GIS is computer software used to analyze digital layers of map embedded with a wide variety of geographic information. The information on each layer could be economic, social, geological, ecological, or biological. By combining and comparing different layers, students are then able to answer a variety of questions. For example, a student can assess the effects of climate on social and economic conditions among different regions; the relationship between solar radiation inputs on incidents of a certain type of disease across Canada; the feasibility of developing a new ecologically-sensitive mountain biking route in Squamish; or the potential threats of development to ecologically sensitive areas and endangered species. Through this introductory GIS course, students learn fundamental GIS skills in Arc GIS as well as develop creativity and problem solving skills in their chosen field.</p>
<p><b>Marine and Coastal Management (IND 3107)</b></p>	<p>This interdisciplinary course aims to seek solutions that will help to secure a healthy future for marine and coastal ecosystems. The first part of the course will provide an introduction on the impacts of human activities on marine and coastal systems. The second, will investigate the political, social, and economic drivers of how we manage (or mis-manage) coastal and marine resources. Finally, we will draw on tools from ecology, resource management, business and communications, amongst others to develop effective and equitable strategies.</p>
<p><b>Sex, Gender, and Sexuality (IND 3111)</b></p>	<p>Sex, gender, sexuality: what do they mean? This is an interdisciplinary course taught from biological, and psychological perspectives. What is sex, and how is it determined across the major domains of life? How do humans and other vertebrates express gender and sexual orientation? How might we deconstruct our normative understandings of orientation, gender, and even sex, to make room for new ideas? This course includes challenging primary readings and other materials to facilitate our understanding of sex, gender and sexual orientation.</p>
<p><b>Environmental Ethics and Policy (IND 3112)</b></p>	<p>This course considers how societies form customs, laws, and regulations to guide their interactions with the natural environment. We first consider the values underlying human relationships with nature and the interplay between preservation, conservation, and exploitation of natural resources. We then explore how these have been translated into major pieces of environmental legislation that have been enacted in the last several decades. Finally, we examine potential policy responses to current environmental problems as well as the barriers to taking action. The course places a dominant focus on Canada and the United States, but other countries are considered as well.</p>
<p><b>Urban Infrastructure (IND 3115)</b></p>	<p>This course focuses on the roads, bridges, airports, mass transit, dams, levees, pipelines, power plants, waste disposal facilities, ports, railways, and buildings that allow an urban area to function. The course will incorporate overviews of urban planning, civil engineering, and environmental engineering in a block-long focus on Metro Vancouver, a district of more than 2.3 million residents that is consistently named one of the most livable areas on Earth. The course will focus on the science, engineering, political, and economic factors that have determined why the electricity, water, transportation, housing, and sanitation systems of the city have been built the way they have. Students will have ample opportunities to influence the content of the class and explore their own interests related to urban infrastructure.</p>

<p><b>Journalism (IND 3118)</b></p>	<p>Journalists are key players in how we understand our world as it happens, by defining what information reaches the public and how it's presented. How do specific articles make their way into media? What is the role of narrative in how we understand our society? What do journalists consider truth, and how do their research techniques and editorial choices reflect that? Students will examine themes of truth and narrative through readings, discussions, and field trips to observe working journalists. Students are expected to pursue their own original journalistic research and writing, and will complete a publishable feature-length article which they will be encouraged to submit to a professional periodical for publication.</p>
<p><b>Psychology And The Environment (IND 3120)</b></p>	<p>Ever wonder what stops people from recycling? Or why climate change is such a divisive issue? Or if there are psychological effects of living in rural Squamish instead of urban Vancouver? The relationship between humans and the environment cannot be fully captured without understanding human behaviour and motivations. Using environmental studies as our context, we will explore basic psychology concepts and how they can be used to understand key issues facing our air quality, energy resources, and climate.</p>
<p><b>African Feminism (IND 3121)</b></p>	<p>What do African women have to say about political, economic, and social "development" in Africa? What is unique about their voices and why should they matter in discourse about Africa? This course will explore these questions from the perspectives of African women who have fought alongside their male counterparts to end colonialism, apartheid, and inequities in African societies. Special emphasis will be given to what African women think about issues that many non-Africans and African men have written about (e.g. labor, fertility, polygamy, economic growth, sexism, and feminism). Their perspectives on these issues promise to challenge, contextualize, and add texture to any conventional, dichotomous thoughts of African women as either queens to be put on a pedestal or downtrodden victims that need to be "saved" from their circumstances. Authors may include Peyi Soyinka Airewele, Buchi Emecheta, Oyeronke Oyewumi, and Noo Sarowiwa.</p>
<p><b>Integrated Resource Management (IND 3123)</b></p>	<p>Integration. Natural resources. Management. What do these terms mean? Together, what does Integrated Resource Management (IRM) mean...if anything? Through a variety of exercises and field trips we will explore what IRM is and what makes for good IRM practice and policy, with a focus on examples in BC and Canada. We will emphasize specific topics such as: values and utility; common resources; First Nations rights and access; cumulative effects; and climate change. Many exercises will focus on effective negotiation skills and interpersonal relationships, as these are essential to IRM. (You will be amazed by how many important decisions are made or not made as a result of people having their feelings hurt!)</p>

<p><b>Indios de papel: Indigenous Peoples in Latin America (IND 3124)</b></p>	<p>In what ways have textual representations of Indians perpetuated inaccurate generalizations about the very diverse groups of indigenous peoples in the Americas? Why are these generalizations problematic? This course uses the idea of indios de papel (“paper Indians”) to dissect historical imaginaries of indigeneity from the colonial period to the present. We will explore intersections of the discourses and practices of colonialism, race relations, and nation formation. European colonialism shaped Western identities by leading to “self-discovery” in the early sixteenth century, as the colonizers’ need to understand the “other” forced them to conceptualize themselves as well. Since mainly Westerners recorded official information about the “Indians,” we are left with biased accounts of indigenous populations. This seminar examines different texts about the “Indians” from colonial and postcolonial Spanish and Portuguese states which perpetuated stereotypes of the cultures of Native Americans. Focusing on indigenous peoples in Latin America, students will critically engage in discussion about the variations of historically constructed meanings that created the concept of being a native. More importantly, students will learn that, although the colonial construct of the term “Indian” is deeply rooted in our current discourses, Amerindians often negotiated and recreated notions of indigeneity to help them survive. Our main goal will be to replace “Paper Indians” with more complex understandings of being Guarani, Araweté, Bororo, Tupinambá, Chumash, Quechua, or Caiapó, among others.</p>
<p><b>Medical Geography (IND 3125)</b></p>	<p>Medical Geography, a sub discipline of Geography, allows us to examine health issues from biological, environmental, and social perspectives across spatial scales and time. In this class, we will use concepts and methodologies traditionally used in the discipline of Geography to learn more about population health, disease, and health care in a global and integrated context. Topics covered include geography of disease, climate and health, health service delivery and planning, health inequalities, and health-mapping using GIS.</p>
<p><b>Entrepreneurship (IND 3126)</b></p>	<p>The course is about how to plan and start one’s own company or project inside the concept of entrepreneurship. We will explain and provide examples of rules of law, legal concepts and general legal terms relating to the forming, operating, managing and selling a company based on a technology based service or product. The course will address the following topics/content: Corporations; Share Capital; Shareholders / Board of Directors Contractors, employees and advisors; IP Rights; Equity vs Loan financing; Seed / Series A financing; Shareholders Agreement; M&amp;A: Share / Asset Purchase Agreement; Negotiating Contracts.</p>
<p><b>Sound and Spaces: Aural Architecture and Acoustic Engineering (IND 3139)</b></p>	<p><b>Prerequisites: Any Foundation Humanities and any Foundation Physical Science course.</b>  This course investigates how the sounds of spaces affects how we interact within spaces and with other people, and how the acoustic elements of spaces can be designed. The course begins with historical and contemporary examinations of the relationship between the acoustics of spaces and social interaction and organization, from the relationships of democracy and amphitheatres in ancient Greece to religious music and architecture to contemporary soundscapes of shopping. The course then turns to the physics of sound, including how sounds propagate, room acoustics, and sound diffusion. The knowledge of the social history of aural architecture and acoustics is then applied to projects where students engineer the sounds of spaces, with the option to complete projects to improve the acoustics of spaces on Quest’s campus.</p>

<p><b>Computer Science (IND 3141)</b></p>	<p>This is a course in theoretical computer science that looks at some major problems in the field. We will begin with a question that is fundamental to all computer science: what is the nature of computation? The answer is that computation is equivalent to effective calculability in lambda calculus. This answer will lead us to study general recursive functions, and from there to Lisp, which is a functional programming language that grew out of lambda calculus. Lisp will provide a springboard for studying several other serious problems, possibly including: (i) whether the extensions of P and NP are equivalent (whether every problem that can be quickly verified by a computer can be quickly solved by a computer); (ii) what limitations does the Halting Problem put on effective calculable; (iii) do super-recursive algorithms disprove the Church-Turing thesis; (iv) what are the limits of artificial intelligence to solve certain computational problems; (v) how does the quantum theory of computation address problems of computational complexity; (vi) what philosophical dimensions of computational complexity. Please note: this course is theoretical in focus, and is not a course in programming.</p>
<p><b>The History Of Probability And Statistics (IND 3142)</b></p>	<p><b>Prerequisites: Any Foundation Math course, any Culture course, (maybe) Statistics I</b></p> <p>Probability, the analysis of random phenomena, is the foundation for modern-day statistics. In this course, we examine and recreate key moments in the history of probability and statistics, including Cardano's concept of odds ratios; Pascal and Fermat's mathematical theory of probability; de Moivre's analysis of probability distributions, Legendre's method of least squares; and the contribution of Thomas Bayes, an obscure 18th century Scottish church minister, to accurately predicting earthquakes, stock markets, poker hands, and elections. This course will involve a close reading of historical texts in context and a detailed comparison of the Frequentist and Bayesian approaches to statistics, and will be complemented by a rigorous mathematical exploration of why the tests taught in Statistics I work as they do.</p>
<p><b>The Conservation Of Wide-Ranging Migratory Species (IND 3143)</b></p>	<p>Wide-ranging and migratory species use multiple habitats throughout the year. This can lead them particularly vulnerable to habitat change, jurisdictional challenges, as well as to uncertainties in estimating population sizes. The first part of the course will investigate the causes of imperilment and conservation strategies for migratory species. The second part of the course will focus on specific techniques to help monitor and conserve wide-ranging and migratory species. Strategies may include tagging programs, bycatch reduction techniques, protected areas as well as international agreements such as RAMSAR and the Convention on the Conservation of Migratory Species of Wild Animals. Readings will include texts in population ecology, biogeography, conservation biology as well as policy. This course will focus primarily on birds, mammals and fish.</p>

<p><b>Algorithm Analysis And Design (IND 3144)</b></p>	<p><b>Prerequisites: Computer Programming or Object-Oriented Programming or Permission of Instructor</b></p> <p>An algorithm is a finite procedure, governed by precise instructions, moving in discrete steps, whose execution requires no insight or intelligence. However, the process of creating such an algorithm, especially to solve complex real-life problems, requires tremendous intuition and creativity. In this course, students develop this intuition by analyzing and designing algorithms that optimize efficiency and effectiveness, and applying them to a wide variety of problems, including: sorting sets, searching graphs, matching roommates, planning courses, scheduling tournaments, and solving six-star Sudoku puzzles. In addition to programming algorithms in Java, students will explore the key ideas in computational complexity theory, including NP-completeness and the P-versus-NP problem.</p>
<p><b>Computer Programming (IND 3145)</b></p>	<p>This course explores the fundamental concepts and techniques used to design, implement and test computer programs. Students will use the Java programming language to explore commonly implemented algorithms and learn how to write understandable and efficient programs. Topics covered in this course will include object-oriented programming, data structures, arrays and recursion. This course is appropriate to everyone who wants to create software. No prior computing experience is required.</p>
<p><b>Statistics 1: The Practice of Statistics (IND 3146)</b></p>	<p>Statistics, the most pervasive application of mathematics in modern society, is a standard research tool in such diverse fields as biology, psychology, medicine, business, and politics. Its apparent invincibility belies the ease with which it can be abused to assist corporate, political, and even scientific agendas. In addition to critiquing existing uses of statistics, students develop an ability to use them responsibly to reflect information implied in data. Specific topics include: descriptive statistics, distributions, hypothesis testing and confidence intervals, regression and correlation, and analysis of variance.</p>
<p><b>Statistics 2: Data Analysis (IND 3147)</b></p>	<p><b>Prerequisite: Statistics 1: The Practice of Statistics.</b></p> <p>The central goal of Statistics 2 is to enable students to analyze and present data confidently. A second goal is to provide students with experience needed to judge the suitability of the data analysis of others. Techniques covered include: linear regression, comparison of populations, principal component analysis, and perhaps also time series analysis, cluster analysis, or other techniques of the students' choosing as time permits. Students examine data from studies in a range of disciplines and have the opportunity to analyze data relevant for their Question or contribute their own data to assignments, regardless of their interests.</p>
<p><b>Translation And Cross-Cultural Communication (IND 3148)</b></p>	<p><b>Prerequisite: Completion of the language requirement, or a demonstration of competence in a language that is not English.</b></p> <p>What does it mean to translate? This course will examine the problems of translation from multiple perspectives. We will look at literature about translation; at discussions of the social and political implications of translation; and at the political and psychological processes behind moving/living between languages. Along the way, we'll debate word choices and governmental policies, and look forward to the meaning of machine translation.</p>

<p><b>Economic History: Plague, Famine, And Depression (IND 3149)</b></p>	<p><b>Prerequisite: Political Economy and any Foundation Scholarship course.</b>  How do economic theories shape responses to crises? In times of distress, governments have tried to implement policies such as currency depreciation, labor market restrictions, large-scale public works projects, and simply doing nothing. In this course, we examine the intellectual origins and practical results of such approaches. We use the Black Death, the Potato Famine, and the Great Depression as case-studies through which to understand how governments put medieval proto-economics, classical economics, and Keynesian economics into practice. Students will draw on the techniques of intellectual history in order to understand economic theories in historical context and use economic models to investigate the crises and government responses to them.</p>
<p><b>Negotiating Risk A: Sociology Of Sport In Winter Hazards (IND 3150)</b></p>	<p><b>Prerequisites: There are no course prerequisites for this class. However, you must:</b></p> <ol style="list-style-type: none"> <li>1) be an intermediate/advanced on piste skier,</li> <li>2) possess a full set of backcountry touring equipment and know how to use it all,</li> <li>3) be able to properly execute a basic transceiver search (find one beacon in 3 minutes), and</li> <li>4) be in good shape with the ability to hike in challenging conditions for the entire day. All of these requirements will be assessed once registration has taken place.</li> </ol> <p>This class focuses on the sociology of sport within the context of the winter hazards associated with ski-touring. We will examine the socio-cultural patterns, structures, inequities, and organizations that shape understandings and experiences of sport and extreme sports, not always in similar ways for all people. The class engages a long-standing and robust multidisciplinary framework stemming from cultural anthropology, sociology, and psychology. The central guiding academic conversation which will integrate classroom-based learning, academic snow science literature, and backcountry skiing-related experiences is the thread of who chooses to participate in extreme sports, how we can explain those seemingly personal choices within a greater field of social forces, institutions, and representations, and how we can interrogate our own understandings and embodied experiences in the backcountry. In order to facilitate this exploration, roughly half the course will take place in off-piste ski environments.  Additional Fees: Course fees will apply.</p>

<p><b>Negotiating Risk B: Risk and Rescue in the Alpine (IND 3151)</b></p>	<p><b>Prerequisites:</b> There are no course prerequisites for this class. However, you must be in good shape with the ability to hike in challenging conditions for the entire day. Fitness will be assessed once registration has taken place. Squamish is an easy entry point to the alpine environment – either in the form of roadside climbing on the Chief, or alpine mountaineering on Sky Pilot. This course explores individual, group, and societal responses to the risks inherent in alpine recreation, particularly climbing and mountaineering. Students will acquire some conceptual tools for understanding risk as a phenomenon, and will explore how aspects of human cognition, group dynamics, and environmental stress affect decision-making under conditions of risk and uncertainty. The course will also consider the broader social, political, and legal context of risk as recreation, closing by pondering whether or not there ought to be a right to rescue in the wilderness. Throughout the course, classroom discussions will be interwoven with field experience in the alpine, and students will directly experience the challenges associated with evaluating risk in wilderness settings, while also acquiring the skills needed to move safely and thoughtfully through alpine environments.</p> <p>Additional Fees: Course fees will apply.</p>
<p><b>Impacts of Outdoor Recreation and Tourism (IND 3152)</b></p>	<p><b>Prerequisites:</b> Any Earth, Oceans and Space course and Biodiversity of British Columbia (LIF 2210).</p> <p>This course will examine different types of impacts (both positive and negative) related to outdoor recreation and tourism activities, with a particular focus on economic, social, cultural and ecological impacts. (Ecological impacts will be further subdivided into soil, water, wildlife and vegetation.) Students will obtain an understanding of how to identify and monitor impacts, mitigate negative impacts and maximize positive benefits associated with recreation and tourism. We will explore how these impacts may be reviewed and measured through readings, lectures, assignments, field trips and substantial field work. Squamish provides an ideal ‘living library’ in which to explore this complex and multi-faceted subject. Impact identification, monitoring, and mitigation are critical skills for developing and maintaining a sustainable recreation and/or tourism industry. Through extensive fieldwork, students will develop field skills within the physical, ecological and social sciences.</p>
<p><b>Education For The Future (IND 3154)</b></p>	<p>How do we prepare school-aged children for an unknown future? What skills and knowledge will best situate them to solve problems that do not exist now, to work in careers that have not yet been imagined, to be global citizens in a world we can scarcely predict? A child starting school in 2016, at age 5, will graduate in 2028, and possibly live until 2100. What knowledge, skills, and attitudes should be focus for that child’s optimal development and preparation for the future? During this course, we will develop our own answers to these questions and consider others’ ideas about what education for the future should entail. We’ll study examples of innovative school curricula around the world and debate what “success” and “achievement” in school should mean. Play and inquiry (or project-based learning) are frequently proposed as engaging and effective ways for students to develop what are termed “21st century skills”. During class, we will experience the continuum of play and inquiry and then draw from our experiences to think more about the questions (above) that form the basis of this course. Howard Gardner’s book, “Five Minds For the Future”, will be the required text.</p>

<p><b>Introduction to Computer Programming (IND 3156)</b></p>	<p><b>Prerequisite: any Physical Science course</b>  Working at the command line in a POSIX environment, the student will learn the Fortran and C languages and compilers. Writing every algorithm in at least these two languages, a variety of methods will be applied to the overarching theme of computing the value of pi. The measurement of processor and memory loadings will be used to improve technique and to understand precision and built-in functions such as exponentiation. The differences among the ultimate sets of binary instructions due to differing operating systems, syntax, compilers, linkers, and optimization levels will also be explored. Methods include numerical integration, Monte Carlo, and rejection sampling; problems include pi-dependent definite integrals and Buffon's Needle.</p>
<p><b>Human Responses to Climate Change (IND 3201)</b></p>	<p>Despite a wealth of observations and a scientific consensus regarding the anthropogenic influences on earth's climate system, we have yet to develop any meaningful national or international policies about what (if anything) should be done about climate change. Why is this? In this course we will look at the 'super-wicked' challenge of climate change from a number of different perspectives: including as a scientific, behavioural, technological, economic, development and political phenomenon. We will explore the major human responses to climate change: mitigation (i.e., lowering GHG emissions); adaptation (i.e., adjusting to impacts); and also obfuscation (i.e., debating the scientific consensus and distracting the argument). Students will have the opportunity to explore specific aspects of this topic in detail in projects, and interact with international experts on field trips.</p>
<p><b>Environmental and Ecological Economics (IND 3202)</b></p>	<p><b>Prerequisites: Political Economy and Biodiversity of BC or Foundation Ecology.</b>  One of the biggest challenges facing the world today is that of living within the limits of our environment. Natural resources are becoming scarcer, and human activity is changing our environment and planet. This course examines perspectives from economics on these and related issues, concentrating on both conventional economic analyses of issues such as pollution and optimal resource use (for which established techniques of microeconomics can be adapted) and newer, heterodox approaches that have come to be known as ecological economics.</p>
<p><b>War In The Middle East From An Interdisciplinary Perspective (IND 3204)</b></p>	<p>Since 2001, the US has been involved in two "hot" wars in the Middle East, invading both Afghanistan and Iraq, and the region has become a hotbed of violence, civil strife, intertribal/interborder war, and extremist ideologies and groups. None of this happened in a vacuum. In this course, we will examine and analyze the current wars — including the short term causes, principal actors, and major issues and points of contention among warring parties — and the historical context behind the current configuration of the Near and Middle East from European colonialism to postwar global power dynamics including the Cold War and the post-9/11 world."</p>

<p><b>Design Thinking (IND 3205)</b></p>	<p>How do designers work and what is the role of 'design' today? How do art and science connect in innovation? How can we visualise the future? Design Thinking embraces the unknown, working across boundaries and disciplines to provide a platform for everyone to be creative. The course combines theory with practical skills, methodology with hands on making, 'thinking' with both mind and hand. Students will be exposed to and explore design processes; the double diamond, divergent/convergent ideation, design space, developing and practicing skills in visualizing, 'quick and dirty' prototyping, cognitive mapping, visual stories and more. The course will be built around an agreed problem or issue and aims to equip each student with an understanding of how to deal with the messy, early stages of complex, multidiscipline problems and with a command of a range of design processes and tools which can support successful exploration of a wide range of business and societal issues. Project based, the output will reflect the problem chosen and may include visualisations, posters, prototypes, publications or video presented by the students at an end of project exhibition.</p>
<p><b>Land use, Climate Change, and Wildlife (IND 3206)</b></p>	<p>Land use is considered to be the major threat to species in the immediate future; however climate change is also having short and long term impacts on species. Both factors can interact to increase overall impacts to species, communities, and ecosystems. At the same time, there is uncertainty in what changes will occur under climate change, and how to mitigate those changes. Despite uncertainty, decisions must be made. This course is primarily case-study based. Students will be required to act as terrestrial ecologists working under a variety of stakeholder umbrellas (government, industry, consulting, academia, NGO, First Nations), which means understanding the key issues, limitations, and responsibilities encountered in each position. They will engage in a decision-making process within a multi-stakeholder team to resolve a topical wildlife issue resulting from climate change and land use impacts.</p>

**QUEST**  
UNIVERSITY  
CANADA

2016 - 2017  
**QUESTU.CA**

