THE UNIVERSITY OF BRITISH COLUMBIA

March 2, 2007

ENROLMENT SERVICES
2016 - 1874 East Mall
Vancouver, B.C. Canada V6T 1Z1
Tel: (604) 822-9952 Fax: (604) 822-5945
christopher.eaton@ubc.ca

To: Okanagan Senate
From: Senate Curriculum Committee

Re: **February Curriculum Proposals**

The Senate Curriculum Committee has reviewed the material forwarded to it by the faculties, and encloses those proposals it deems as ready for approval.

As such, the following is recommended to Senate:

"That Senate approves the new and changed courses and programs brought forward by the Faculties of Applied Science, Arts & Sciences, Creative & Critical Studies, Education, and Health & Social Development"

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To: Okanagan Senate
From: Senate Curriculum Committee

Re: **February Curriculum Proposals**

Attached please find the following for your consideration:

Faculty of Applied Science

1) The following program changes:
   a. **Third Year Engineering – Civil, Electrical, and Mechanical Engineering Programs**

2) The following new courses:

a.	ENGR 305 (3)	Engineering Economic Analysis
b.	ENGR 310 (3)	Fluid Mechanics 2
c.	ENGR 313 (3)	Enginering Project Management
d.	ENGR 315 (3)	Systems Control
e.	ENGR 320 (3)	Electromechanical aDevices & Power Systems
f.	ENGR 325 (3)	Civil Engineering Materials
g.	ENGR 326 (3)	Structural Engineering 1
h.	ENGR 330 (3)	Optimization, Desicison Analysis and Simulation
i.	ENGR 331 (3)	Civil Engineering Laboratory
j.	ENGR 332 (3)	Surveying and GIS Analysis
k.	ENGR 335 (3)	Transporation Engineering 1
l.	ENGR 340 (3)	Geotechnical Engineering 1
m.	ENGR 347 (3)	Environmental Engineering
n.	ENGR 350 (3)	Linear Circuit Theory
o.	ENGR 351 (3)	Microelectronics 1
p.	ENGR 352 (3)	Microelectronics 2
q.	ENGR 353 (3)	Semi-Conductor Devices
r.	ENGR 355 (3)	Digital Systems Design
s.	ENGR 359 (3)	Microcomputer Engineering
t.	ENGR 361 (3)	Signals and Communcation Systems
u.	ENGR 362 (3)	Introduction to Digital Signal Processing
v.	ENGR 365 (3)	Engineering Electromagnetics
w.	ENGR 375 (3)	Energy Ssytem Design
x.	ENGR 376 (3)	Materials Science and Engienering
y.	ENGR 377 (3)	Manufacturing Processes
z.	ENGR 380 (3)	Mechanical Engineering Design 1
aa.	ENGR 381 (3)	Mechanical Engineering Design 2
bb.	ENGR 385 (3)	Heat Transfer Applications
cc.	ENGR 387 (3)	Vibration of Mechanical Systems

Faculty of Arts and Sciences

3) The following new specializations in the Bachelor of science program and associated new and changed courses:

a. **Major in Ecology and Evolutionary Biology**
b. **Honours in Ecology and Evolutionary Biology**

NB: By approving these specializations, the Ecology concentration in the Biology specialization will be discontinued.

c.	BIOL 460 (3)	Population Genetics
d.	BIOL 560 (3)	Population Genetics
e.	BIOL 468 (3)	Molecular Approaches in Ecology and Evolution
f.	BIOL 568 (3)	Molecular Approaches in Ecology and Evolution
g.	BIOL 250 (3)	Evolutionary Biology
h.	BIOL 422 (3)	Conversatiom Biology
i.	BIOL 401 (3)	Spatial Ecology
j.	BIOL 313 (3)	Science Writing
k.	BIOL 459 (3)	Behavioral Ecology

l. **Major in Molecular, Cell, and Developmental Biology**
m. **Honours in Molectular, Cell, and Developmental Biology**
n. **Major in Microbiology**
o. **Honours in Microbiology**

p.	BIOL 480 (3)	Mycology
q.	BIOL 380 (3)	Food and Industrial Microbiology
r.	BIOL 381 (3)	Environmental Microbiology
s.	BIOL 330 (3)	Freshwater Microbiology

NB: By approving this course, BIOL 333 will be discontinued

4) The following new courses:

a.	BIOL 552 (3/6) d	Directed Studies in Biology
b.	GEOG 207 (3)	Introduction to Biogeography
c.	GEOG 307 (3)	Advanced Biogeography

Faculty of Creative and Critical Studies

5) The following new courses:

a.	ENGL 389 (3)	Postcolonian Literary and Cultural Studies
b.	ENGL 453 (3/9) d	African Studies
c.	ENGL 436 (3)	Narative and Conflict in Global Context
d.	SPAN 470 (3)	Spanish Phonetics and Phonology
e.	SPAN 471 (3)	Spanish Lexicology and Semantics

Faculty of Education

6) The following new courses:

a.	EDST 597 (1/15) d	Contemporary Educational Issues
b.	EDST 598 (1/15) d	Contemporary Educational Practice
c.	EDST 599 (1/15) d	Studies in Educational Leadership

Faculty of Health and Social Development

7) The following new courses in the **Bachelor of Human Kinetics** program:

a.	HMKN 101 (3)	Biomechanics
b.	HMKN 102 (3)	Physical Activity in Canadian Society

FACULTY OF APPLIED SCIENCE: CATEGORY 1 ENGINEERING CURRICULUM REPORT

SPRING 2007

<table>
<tr><td>Department: School of Engineering

Faculty Approval Date: January 5, 2007</td><td>Contact Person: Spiro Yannacopoulos
Phone: 7-8722
Email: spiro.yannacopoulos@ubc.ca</td></tr>
<tr><td colspan="2">APSC Undergraduate New Program (s)</td></tr>
<tr><td>Effective Date: September 2007

Proposed Calendar Entry:

Third Year

In third year, students will follow a program in: Civil, Electrical, or Mechanical engineering.

Third Year – Civil Engineering

ENGR 305 Engineering Economic Analysis 3
ENGR 310 Fluid Mechanics 2 3
ENGR 313 Engineering Project Management 3
ENGR 325 Civil Engineering Materials 3
ENGR 326 Structural Engineering 1 3
ENGR 330 Optimization, Decision Analysis & Simulation 3
ENGR 331 Civil Engineering Laboratory 3
ENGR 332 Surveying & GIS Analysis 3
ENGR 335 Civil Engineering Materials 3
ENGR 340 Geotechnical Engineering 1 3
ENGR 347 Environmental Engineering 3

Earth Science Technical Elective 3

Total Credits 36

Third Year – Electrical Engineering

ENGR 305 Engineering Economic Analysis 3
ENGR 315 Systems & Control 3
ENGR 320 Electromechanical Devices & Power Systems 3
ENGR 350 Linear Circuit Theory 3
ENGR 351 Microelectronics 1 3
ENGR 352 Microelectronics 2 3
ENGR 353 Semiconductor Devices 3
ENGR 355 Digital Systems Design 3
ENGR 359 Microcomputer 3</td><td>URL:
http://okanagan.students.ubc.ca/calendar/index.cfm?tree=18,317,989,1184

Present Calendar Entry: n/a

School of Engineering
…
~~Third and Fourth Years~~
~~Currently, the School plans to establish full programs at UBC Okanagan in Civil Engineering, Electrical Engineering, and Mechanical Engineering. Specific information on these programs, including their academic requirements, will be published over the next few years in future editions of the UBC Okanagan Calendar.~~

Type of Action: Revise calendar statement to introduce Third Year of the Engineering Program in Civil Engineering, Electrical Engineering, and Mechanical Engineering.

Rationale: To phase in the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Civil Engineering, Electrical Engineering, and Mechanical Engineering specializations.

Category 1
Document ID#: APSC UG001</td></tr>
</table>

Engineering	
ENGR 361 Signals & Communication Systems 3	
ENGR 362 Introduction to Digital Signal Processing 3	
ENGR 365 Engineering Electromagnetics 3	
Total Credits 36	
Third Year – Mechanical Engineering	
Engineering Two Curriculum	
ENGR 305 Engineering Economic Analysis 3	
ENGR 310 Fluid Mechanics 2 3	
ENGR 315 Systems & Control 3	
ENGR 320 Electromechial Devices & Power 3	
ENGR 375 Energy System Design 3	
ENGR 376 Materials Science & Engineering 3	
ENGR 377 Manufacturing Processes 3	
ENGR 380 Mechanical Engineering Design 1 3	
ENGR 381 Mechanical Engineering Design 2 3	
ENGR 385 Heat Transfer Applications 3	
ENGR 387 Vibration of Mechanical Systems 3	
Humanities Elective[1] 3	
Total Credits 36	
1 **In general, scientific geography courses, statistical courses, studio/performance courses in fine arts, music, and theatre, will not satisfy this requirement. Courses that teach language skills are** also **not acceptable.**	
Fourth Year **Specific information on these programs, including their academic requirements, will be published over the next few years in future editions of the UBC Okanagan Calendar.**	

APSC Undergraduate New Course(s)	
Effective Date: September 2007	URL: n/a
Proposed Calendar Entry:	Present Calendar Entry: n/a
ENGR 305 (3) Engineering Economic Analysis	Type of Action: New course

Cost concepts, accounting, time value of money; depreciation and taxes; public sector projects; economic evaluation techniques; handling uncertainty; sustainability in economic evaluation; societal context; needs infrastructure; project impacts, mitigating risk. Case studies. Prerequisite: APSC 257 [3-0-0]	Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for Mechanical and Civil Engineering specializations. Category 1 Document ID#: APSC UG001
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 310 (3) Fluid Mechanics 2.** **Review of principles, Navier Stokes equations and its solutions, Boundary layers, Open Channel flow, Compressible flows.Turbo Machinery. Prerequisite: APSC 253. Corequisite: ENGR 331. [3-0-1]**	URL: n/a Present Calendar Entry: n/a Type of Action: New course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for Mechanical and Civil Engineering specializations. Category 1 Document ID#: APSC UG002
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 313 (3) Engineering Project Management** **Project management including: initiating, planning, executing, controlling and closing engineering projects. Management of construction and implementation of tools and techniques for resource allocation and construction control. Prerequisite(s): APSC 201, APSC 257, ENGR 305. [3-0-0]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Civil, Electrical, and Mechanical Engineering specializations. Category 1 Document ID#: APSC UG003
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 315 (3) Systems Control** **Control concepts, linear systems, transfer functions, block diagram reduction, root locus, Bode and Nyquist plots, transient response, frequency response, controller design, state space concepts, controllability and observability, introduction to discrete-time control systems. Prerequisite: APSC 250. [3-0-1]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Electrical and Mechanical Engineering specializations. Category 1 Document ID#: APSC UG004
Effective Date: September 2007	URL: n/a

Proposed Calendar Entry: **ENGR 320 (3) Electromechanical Devices & Power Systems** **DC & AC magnetic circuits, transformers, DC machines, principles of electromagnetic devices, synchronous machines, induction motors, power systems, power generation, distribution, and delivery. Prerequisite: APSC 255 [3-2*-0]**	Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Electrical and Mechanical Engineering specializations. Category 1 Document ID#: APSC UG005
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 325 (3) Civil Engineering Materials** **Structures and properties of common materials: aggregates, Portland cement, concrete, asphalt, timber and metals. Relationships between materials structures and mechanical properties. Prerequisite: APSC 251. Co-requisite(s): ENGR 331, Civil Lab [3-0-0]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Civil Engineering specialization. Category 1 Document ID#: APSC UG006
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 326 (3) Structural Engineering 1** **Analysis and design of structures; indeterminate and approximate analysis of structures; calculation of displacements using virtual work; flexibility (force) method; stiffness method for frames; moment distribution method. Design of static structures. Prerequisite (s): APSC 251, APSC 250. Co-requisite: ENGR 325 [3-0-2]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Civil Engineering specialization. Category 1 Document ID#: APSC UG007
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 330 (3) Optimization, Decision Analysis and Simulation** **Systems engineering, optimization, applied probability and simulation for civil engineering infrastructure and the environment, life cycle perspective; cost functions, capacity issues; and optimization, alternative goals, constraints, resource allocation and multi-objective design. Prerequisite(s): APSC 254, APSC 256, APSC 257**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Civil Engineering specialization. Category 1

[3-0-0]	Document ID#: APSC UG008
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 331 (3) Civil Engineering Laboratory Applications of fluid mechanics, civil engineering materials, surveying and GIS and transportation engineering. Corequisites ENGR 310, ENGR 325, ENGR 332, ENGR 335 [0-6-0]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Civil Engineering specialization. Category 1 Document ID#: APSC UG009
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 332 (3) Surveying and GIS Analysis Theory and application methods for measuring and representing objects of interest on, below and over the earth's surface and for analyzing data to meet engineering design and operational objectives driven by socio-economic or environmental concerns of natural and engineered systems. Prerequisite(s): APSC 170, APSC 254 [3-0-0]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Civil Engineering specialization. Category 1 Document ID#: APSC UG010
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 335 (3) Transportation Engineering 1 Analysis, planning, design and operation of transportation systems, including: governance; economics; land use; transport modes; users; roads; freeways; end-of-trip facilities; public transit; and intersection controls. Prerequisite: APSC 254. [3-0-0]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Civil Engineering specialization. Category 1 Document ID#: APSC UG011
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 340 (3) Geotechnical Engineering 1 Geological processes, soil classification, principle of effective stress, seepage analysis, shear strength and consolidation, and slope stability analysis. Prerequisite: APSC 251, APSC 253. [2-2-1]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Civil Engineering

	specialization. Category 1 Document ID#: APSC UG012
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 347 (3) Environmental Engineering** **Air, water, environmental pollutants, and treatment design concepts. Prerequisite(s): APSC 172, APSC 173, APSC 175. [3-0-0]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Civil Engineering specialization. Category 1 Document ID#: APSC UG013
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 350 (3) Linear Circuit Theory** **Sinusoidal steady-state analysis for AC circuits, AC power analysis, three-phase circuits, frequency response, Laplace transform analysis, synthesis of passive networks using zero-pole placements, second-order systems and sensitivity functions, operational amplifiers, two-port networks. Prerequisite: APSC 250 and APSC 255 [3-0-1]**	URL: n/a Type of Action: New Course. Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Electrical Engineering specialization. Category 1 Document ID#: APSC UG014
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 351 (3) Microelectronics 1** **Diodes, bipolar junction transistor (BJT), MOSFET, single-stage and multi-stage amplifiers, differential amplifiers, MOS digital circuits. Prerequisite: APSC 255 [3-2*-0]**	URL: n/a Type of Action: New Course. Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Electrical Engineering specialization. Category 1 Document ID#: APSC UG015
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 352 (3) Microelectronics 2** **Frequency-response of amplifier, feedback, analog integrated circuits, introduction to analog filter design (Butterworth, Chebyshev), D/A, A/D converting circuits. Prerequisite: ENGR 351 [3-2*-0]**	URL: n/a Type of Action: New Course. Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Electrical Engineering specialization.

	Category 1 Document ID#: APSC UG016
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 353 (3) Semi-Conductor Devices** **Semiconductor materials, carrier transport phenomena, P-N diode, metal-semiconductor junction, light-emitting diode (LED), semiconductor lasers and photodiodes, bipolar junction transistors, MOSFET, and other semiconductor devices. [3-0-0]**	URL: n/a Type of Action: New Course. Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Electrical Engineering specialization. Category 1 Document ID#: APSC UG017
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 355 (3) Digital Systems Design** **Logic design methods, hardware description language (HDL), number representation and arithmetic circuits, combinational circuits, flip-flops, registers, counters, synchronous and asynchronous sequential circuits, digital system designs. Prerequisite: APSC 255 [3-2*-0]**	URL: n/a Type of Action: New Course. Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Electrical Engineering specialization. Category 1 Document ID#: APSC UG018
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 359 (3) Microcomputer Engineering** **Microcomputer architecture, number representation, assembly language, parallel and serial input/output, interrupts, memory, peripherals. Prerequisite: APSC 255 [2-2-0]**	URL: n/a Type of Action: New Course. Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Electrical Engineering specialization. Category 1 Document ID#: APSC UG019
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 361 (3) Signals and Communication Systems** **Continuous-time signals, signal classifications, linear time-invariant systems, Fourier series and transform, sampling theorem, amplitude(AM), phase(PM), and frequency(FM) modulation, baseband digital transmission, pulse code modulation (PCM) and quantization, Nyquist pulses, Inter-symbol interference (ISI). Prerequisite: APSC 250 [3-2*-0]**	URL: n/a Type of Action: New Course. Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Electrical Engineering specialization. Category 1 Document ID#: APSC UG020

Effective Date: September 2007 Proposed Calendar Entry: **ENGR 362 (3) Introduction to Digital Signal Processing** **Discrete-time signals and systems, difference equations, sampling and aliasing, decimation and interpolation, quantization errors, z-transform, discrete Fourier transform (DFT), fast Fourier transform (FFT), implementation of discrete-time systems, finite and infinite impulse response filter design. Prerequisite: APSC 250 [3-0-1]**	URL: n/a Type of Action: New Course. Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Electrical Engineering specialization. Category 1 Document ID#: APSC UG021
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 365 (3) Engineering Electromagnetics** **Review of vector calculus, electrostatic and magnetostatic fields, boundary conditions, Faraday's Law and induction, Maxwell's equations, electromagnetic waves and propagation, reflection of plane waves, introduction to antennas and electromagnetic radiation. [3-0-1]**	URL: n/a Type of Action: New Course. Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Electrical Engineering specialization. Category 1 Document ID#: APSC UG022
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 375 (3) Energy System Design** **Primary energy sources and carriers. Energy conversion. Analysis of thermal systems. Reacting systems and combustion. Thermal systems design including steam power plants, gas turbines, internal combustion engines, and refrigeration systems. Prerequisites(s): APSC 175, APSC 253. [3-0-1]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Mechanical Engineering specialization. Category 1 Document ID#: APSC UG023
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 376 (3) Materials Science and Engineering** **Review, comprehensive study of phase diagrams, phase transformations, TTT diagrams, heat treatment, ferrous and nonferrous alloys, composite and concrete materials, and materials selection. [3-0-1]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Mechanical Engineering specialization. Category 1 Document ID#: APSC UG024

Effective Date: September 2007 Proposed Calendar Entry: **ENGR 377 (3) Manufacturing Processes** **Metal forming processes, plastic deformation, rolling, forging,drawing,extrusion, sheet metal forming. Machining processes and machine tools, turning, milling ,drilling, grinding. Metal fabrication, welding, casting. Introduction of process planning, measurement, quality control. [2-2-0]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Mechanical Engineering specialization. Category 1 Document ID#: APSC UG025
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 380 (3) Mechanical Engineering Design I** **Product design methodology; fatigue; design/selection of components including springs, bearings, gears, brakes, clutches. Design evaluation and optimization; interaction of materials, processing and design; motion generated by cams and four-bar linkages; design for system dynamics. Major design project. [2-0-3]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Mechanical Engineering specialization. Category 1 Document ID#: APSC UG026
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 381 (3) Mechanical Engineering Design 2** **The design, analysis of mechanisms, linkages, cams. Design and selection of gears, gear trains, belt drives, brakes clutches. Instrumentation and computer control of selected systems.** **Prerequisite: ENGR 380 [2-0-3]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Mechanical Engineering specialization. Category 1 Document ID#: APSC UG027

Effective Date: September 2007 Proposed Calendar Entry: **ENGR 385 (3) Heat Transfer Applications Steady and transient conduction heat transfer. Internal and external forced convection. Introduction to free convection. Radiation heat transfer. Design of heat exchangers, boilers, condensors. Prerequisite(s): APSC 175, APSC 250 [2-0-2]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Mechanical Engineering specialization. Category 1 Document ID#: APSC UG028
Effective Date: September 2007 Proposed Calendar Entry: **ENGR 387 (3) Vibration of Mechanical Systems Vibration of mechanical systems. Single and multiple degree of freedom systems. Undamped, damped vibrations. Forced vibrations and resonance. Modal analysis, modelling vibrating systems. Spectral analysis. Measurement and control of vibrating mechanical systems. Prerequisite: APSC 250 [3-0-1]**	URL: n/a Present Calendar Entry: n/a Type of Action: New Course Rationale: New course in support of the third year curriculum for the Bachelor of Applied Science program and to provide the prerequisite body of knowledge required for the Mechanical Engineering specialization. Category 1 Document ID#: APSC UG029

THE UNIVERSITY OF BRITISH COLUMBIA

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School of Arts and Sciences **Unit:** Biology and Physical Geography **Faculty Approval Date:** February 19, 2007 **Effective Session** W Term 1 2007	**Date:** 21 September 2006 **Contact Person:** Louise Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca

Proposed Calendar Entry:

Major in Ecology and Evolutionary Biology

Graduates will obtain a grounding in theory, practical experience, and skills in laboratory and field work, computers and communications (both verbal and written). This program prepares students for graduate school and professional programs.

Requirements for the B.Sc. in Ecology and Evolution

First Year and Second Years	**Credits**
BIOL 116 and 125	6
MATH 100 and 101	6
CHEM 111 & 113 or 121 & 123	6
PHYS 112 & 122 or 102 & 111	6
Two of ENGL 112,113, 150, 151, 152, 153	6
BIOL 200	3
BIOL 203	3
BIOL 209 or 210	3
BIOL 204 or 205	3
BIOL 228	3
BIOL 2XX	3
CHEM 203 & 204	6
Arts Electives	6
Third and Fourth Years*	
BIOL 304	3
BIOL 308	3
BIOL 365	3
One of BIOL 306, 307 or 309	3
One of BIOL 4XA or 4XB	3
BIOL 364 or 417	3

URL: n/a

Present Calendar Entry: n/a

Type of Action: new program

Rationale:

Currently, the Biology faculty at UBC Okanagan offers a B.Sc Major in Biology as well as a B.Sc. Honours in Biology. There are three existing concentrations within the Biology major, including Ecology. With the rapid growth in undergraduate enrollment at UBC Okanagan, and the opening of the new interdisciplinary centre for Species at Risk and Habitat Studies, a new B.Sc. Major in Ecology and Evolutionary Biology will offer our students greatly increased opportunities to take advantage of the research and expertise of faculty with interests in these areas.

Nationally and internationally, there are rapidly increasing job opportunities for graduates in the fields of Ecology and Evolutionary Biology, and programs in these areas typically attract many students. As brief examples of this trend, the Canadian Society for Ecology and Evolution was formed in 2005 with NSERC's encouragement, since these disciplines have for many years had the largest Grant Selection Committee of any NSERC panel. The number of ecological and environmental science undergraduate programs in North America has more than tripled in the last three decades. The Canadian Council on Human Resources in the Environment Industry indicates that jobs in environmental fields are increasing at a rate 60% higher than growth of the economy in general. We are therefore confident that creation of this B.Sc. degree will attract students.

Additional courses to fulfill requirements for an Ecology and Evolution major; 12 credits required. Courses used to fulfill requirements listed above cannot be re-used here: 12 BIOL 306 BIOL 307 BIOL 309 BIOL 330 BIOL 357 BIOL 364 BIOL 417 BIOL 420 BIOL 459 BIOL 440 BIOL 4XA BIOL 4XB BIOL 4XC BIOL 4XD BIOL 452	Please note that courses with an X in the title are proposed in the following section of this proposal.
Additional Arts electives 6 **Additional Credits** 24 **Total Credits** **120** Total of 120 credits is required for graduation, including a minimum of 42 upper-level credits with at least 36 Science credits. Students are encouraged to take courses offered in other disciplines that are relevant to the B.Sc. in Ecology and Evolutionary Biology. Such courses often have prerequisites, so students should start planning their electives early in their degree program.	

THE UNIVERSITY OF BRITISH COLUMBIA

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School of Arts and Sciences **Unit:** Biology and Physical Geography **Faculty Approval Date:** February 19, 2007 **Effective Session** W Term 1 2007	**Date:** 21 September 2006 **Contact Person:** Louise Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca
Proposed Calendar Entry: Honours in Ecology and Evolutionary Biology Graduates will obtain a grounding in theory, practical experience, and skills in laboratory and field work, computers and communications (both verbal and written). With the inclusion of a required research component to their curriculum, the students who complete this program will have demonstrated their ability for competent independent work. This experience is designed to prepare students for graduate school. The course requirements are the same as in the Major in Ecology and Evolutionary Biology, except that students must complete 6 credits of BIOL 440 in the elective component of the program. ADMISSION REQUIREMENTS • Fourth-year standing • A minimum grade average of 75% over all courses completed • Enrolment in BIOL 440 with a research project and research supervisor approved by the Unit Head GRADUATION REQUIREMENTS • Completion of the course requirements for the Major in Ecology and Evolutionary Biology • A 75% overall grade average • BIOL 440 (6 credits), with a minimum grade of 75%. A written thesis is required, with a public presentation in the form of a poster session or a seminar.	**URL**: n/a **Present Calendar Entry:** n/a **Type of Action:** new program **Rationale:** Currently, the Biology faculty at UBC Okanagan offers a B.Sc Major in Biology as well as a B.Sc. Honours in Biology. There are three existing concentrations within the Biology major, including ecology. The Biology faculty are proposing a new Honours program in Ecology and Evolutionary Biology to complement their proposal for a new B.Sc. program in Ecology and Evolutionary Biology.

THE UNIVERSITY OF BRITISH COLUMBIA

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School **Unit:** Biology and Physical Geography **Faculty Approval Date:** February 19, 2007 **Effective Session:** Winter Term 1 2007	**Date:** 21 September 2006 **Contact Person:** Louise Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca
Proposed Calendar Entries: ~~Ecology Concentration~~ ~~42 upper-level credits (of which 30 must be BIOL credits) are needed to satisfy the requirements for the B.Sc. Biology Major.~~ ~~First and Second Years~~ ~~As listed under Major in Biology~~ ~~Students should complete all four survey courses:~~ ~~BIOL 204, 205, 209, 210~~ ~~Total Credits 60~~ ~~Third and Fourth Years~~ ~~BIOL 3042 3~~ ~~BIOL 308 and 311 6~~ ~~BIOL 354 and 365 6~~ ~~Two of BIOL 306, 307, 3095 6~~ ~~Four of BIOL 306, 307, 309, 330, 357, 359, 417, 467; and 420, 440, 452, if in appropriate area; EESC 311, 313, 341, 418, 435, 456; GEOG 3704 12~~ ~~Non-Biology Science electives numbered 300 or higher 6~~ ~~Arts electives1 6~~ ~~Satisfy prerequisite and UBC O requirements3 15~~ ~~Total Credits 60~~ ~~Minimum credits for degree 120~~	**URL: (**URL from the current web Calendar – not the draft calendar. This URL is not needed if you are only making changes to existing content - for course entries simply list the course number.) **Present Calendar Entry:** Ecology Concentration 42 upper-level credits (of which 30 must be BIOL credits) are needed to satisfy the requirements for the B.Sc. Biology Major. First and Second Years As listed under Major in Biology Students should complete all four survey courses: BIOL 204, 205, 209, 210 Total Credits 60 Third and Fourth Years BIOL 3042 3 BIOL 308 and 311 6 BIOL 354 and 365 6 Two of BIOL 306, 307, 3095 6 Four of BIOL 306, 307, 309, 330, 357, 359, 417, 467; and 420, 440, 452, if in appropriate area; EESC 311, 313, 341, 418, 435, 456; GEOG 3704 12 Non-Biology Science electives numbered 300 or higher 6 Arts electives1 6 Satisfy prerequisite and UBC O requirements3 15 Total Credits 60 Minimum credits for degree 120 **Type of Action**: Dissolution of the Ecology concentration for Biology Majors. **Rationale:** Development of a new B.Sc. Degree program in Ecology and Evolutionary Biology (EEB) will render the Ecology concentration redundant, as EEB will provide more thorough coverage of the disciplines and enhanced flexibility to pursue sub-disciplinary tracks within EEB.

THE UNIVERSITY OF BRITISH COLUMBIA

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School **Unit:** Biology and Physical Geography **Faculty Approval Date:** February 19, 2007 **Effective Session:** W Term 1 2007	**Date:** 21 September 2006 **Contact Person:** Louise Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca
Proposed Calendar Entries: BIOL 460 (3) Population Genetics Concepts in empirical and theoretical population genetics. Primary processes shaping genetic variation within and among populations. Methodologies for measuring genetic variation in nature, and practical applications of population genetic principles to genomics, molecular evolution, human evolution and conservation biology. Credit will not be granted for both BIOL460 and 560. Prerequisite: Biol 365. [3,0,0] BIOL 560 (3) Population Genetics Concepts in empirical and theoretical population genetics. Primary processes shaping genetic variation within and among populations. Methodologies for measuring genetic variation in nature, and practical applications of population genetic principles to genomics, molecular evolution, human evolution and conservation biology. **Credit will not be granted for both BIOL460 and 560.** Prerequisite: Graduate standing. [3,0,0]	**URL: (**URL from the current web Calendar – not the draft calendar. This URL is not needed if you are only making changes to existing content - for course entries simply list the course number.) **Present Calendar Entry:** n/a **Type of Action**: 460 is a new course, that will contribute to the Biology B.Sc. and to the proposed Ecology and Evolutionary Biology Undergraduate program. Will also contribute to the Biology Graduate Program through cross-listing as 560. **Rationale:** See attached documentation for the Ecology and Evolutionary Biology Undergraduate Program. This course also fits the specialty of a new faculty member (Russello) in Biology & Physical Geography.

THE UNIVERSITY OF BRITISH COLUMBIA

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School **Unit:** Biology and Physical Geography **Faculty Approval Date:** February 19, 2007 **Effective Session:** Winter Term 1 2007	**Date:** 21 September 2006 **Contact Person:** Louise Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca
Proposed Calendar Entries: BIOL 468 (3) Molecular Approaches in Ecology and Evolution Techniques for collecting molecular and population genetic data. Applications in ecology, evolution and conservation. Characteristics of molecular markers, associated analytical approaches, emerging genomic technologies, and case studies. Credit will not be granted for both 468 and 568. Prerequisites: Biol 365. [3,0,0] BIOL 568 (3) Molecular Approaches in Ecology and Evolution Techniques for collecting molecular and population genetic data. Applications in ecology, evolution and conservation. Characteristics of molecular markers, associated analytical approaches, emerging genomic technologies, and case studies. **Credit will not be granted for both 468 and 568**. Prerequisites: graduate standing. [3,0,0]	**URL: (**URL from the current web Calendar – not the draft calendar. This URL is not needed if you are only making changes to existing content - for course entries simply list the course number.) **Present Calendar Entry:** n/a **Type of Action**: 468 is a new course, that will contribute to the Biology B.Sc. and to the proposed Ecology and Evolutionary Biology Undergraduate program. Will also contribute to the Biology Graduate Program through cross-listing as 568. **Rationale:** See attached documentation for the Ecology and Evolutionary Biology Undergraduate Program. This course also fits the specialty of a new faculty member (Russello) in Biology & Physical Geography.

THE UNIVERSITY OF BRITISH COLUMBIA

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School **Unit:** Biology and Physical Geography **Faculty Approval Date:** February 19, 2007 **Effective Session:** Winter Term 1 2007	**Date:** 21 September 2006 **Contact Person:** Louise Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca
Proposed Calendar Entries: BIOL 250 (3) Evolutionary Biology Natural selection, neutral evolution, the evolutionary perspective on life history variation, speciation and macroevolution. Prerequisites: 116, 125. [3,0,0]	**URL: (**URL from the current web Calendar – not the draft calendar. This URL is not needed if you are only making changes to existing content - for course entries simply list the course number.) **Present Calendar Entry:** n/a **Type of Action**: New required course, as part of proposed Ecology and Evolutionary Biology Undergraduate program. **Rationale:** See attached documentation for the Ecology and Evolutionary Biology Undergraduate Program.

THE UNIVERSITY OF BRITISH COLUMBIA

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School **Unit:** Biology and Physical Geography **Faculty Approval Date:** February 19, 2007 **Effective Session:** Winter Term 1 2007	**Date:** 21 September 2006 **Contact Person:** Louise Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca
Proposed Calendar Entries: BIOL 422 (3) CONSERVATION BIOLOGY Scientific basis of conservation biology. Analysis of demographic data, population models, and extinction risks. Examine complex habitat, landscape, genetic and trophic interactions that affect populations. Conservation approaches including habitat planning, reserve design, surrogacy, and policy. Credit will not be granted for both 422 and 513. Prerequisite: 308. [3,0,0] BIOL 513 (3) CONSERVATION BIOLOGY Scientific basis of conservation biology. Analysis of demographic data, population models, and extinction risks. Examine complex habitat, landscape, genetic and trophic interactions that affect populations. Conservation approaches including habitat planning, reserve design, surrogacy, and policy. **Credit will not be granted for both 422 and 513.** Prerequisite: Graduate Standing [3,0,0]	**URL: (**URL from the current web Calendar – not the draft calendar. This URL is not needed if you are only making changes to existing content - for course entries simply list the course number.) **Present Calendar Entry:** n/a **Type of Action**: Approve course as 422. **Rationale:** Course was approved as 513 as part of the Biology Graduate Program. This request is for listing it as a 4th year course so that students in the Biology major or in the proposed Ecology and Evolutionary Biology major can use it for their programs.

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School **Unit:** Biology and Physical Geography **Faculty Approval Date:** not applicable **Effective Session:** Winter Term 1 2007	**Date:** 21 September 2006 **Contact Person:** Louise Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca
Proposed Calendar Entries: BIOL 401 (3) SPATIAL ECOLOGY Spatial patterns in ecology, exploring ways to describe variation and mechanisms that give rise to patterns. Dispersal, metapopulation and source-sink dynamics, connectivity and fragmentation, heterogeneity, disturbance, edges, and dynamics of geographical ranges. Credit will not be granted for both 401 and 512. Prerequisite: 304. [3,0,0] BIOL 512 (3) SPATIAL ECOLOGY Spatial patterns in ecology, exploring ways to describe variation and mechanisms that give rise to patterns. Dispersal, metapopulation and source-sink dynamics, connectivity and fragmentation, heterogeneity, disturbance, edges, and dynamics of geographical ranges. **Credit will not be granted for both 401 and 512.** Prerequisite: Graduate Standing [3,0,0]	**URL: (**URL from the current web Calendar – not the draft calendar. This URL is not needed if you are only making changes to existing content - for course entries simply list the course number.) **Present Calendar Entry:** n/a **Type of Action**: Approve course as 401. **Rationale:** Course was approved as 512 as part of the Biology Graduate Program. This request is for listing it as a 4th year course so that students in the Biology major or in the proposed Ecology and Evolutionary Biology major can use it for their programs.

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School **Unit:** Biology and Physical Geography **Faculty Approval Date:** February 19, 2007 **Effective Session:** Winter Term 1 2007	**Date:** 21 September 2006 **Contact Person:** Louise Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca
Proposed Calendar Entries: BIOL 313 (3) SCIENCE WRITING Develop strong and efficient writing skills in the biological sciences. Improve quality of written work; develop techniques for writing, editing, evaluating, and critiquing writing; and learn attributes unique to science writing and methods for writing fluent scientific prose. [3,0,0]	**URL: (**URL from the current web Calendar – not the draft calendar. This URL is not needed if you are only making changes to existing content - for course entries simply list the course number.) **Present Calendar Entry:** n/a **Type of Action**: new course **Rationale:** This course could be used by students in the Biology B.Sc. program as an elective or students in the proposed Ecology and Evolutionary Biology B.Sc. program to fulfill program requirements.

THE UNIVERSITY OF BRITISH COLUMBIA

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School of Arts and Sciences **Unit:** Biology and Physical Geography **Faculty Approval Date:** February 19, 2007 **Effective Session** W Term 1 2007	**Date:** 21 September 2006 **Contact Person:** Louise Nelson **Phone:** 807 8756 **Email:** louise.nelson@ubc.ca
Biol 459 (3) Behavioural Ecology Ecological and evolutionary basis for behaviour, role of behaviour in enabling an organism to adapt to its environment. Topics include optimization and game theoretic approaches, foraging, sociality, mating and parental care. Laboratory provides opportunities to explore concepts covered in lecture. Prerequisite: BIOL 203. (3,3,0)	**URL**: n/a **Present Calendar Entry:** **Biol 359 (3) Introduction to Animal Behaviour** Introduction to the ethological approach to the study of animal behaviour. Emphasis placed on social behaviour. Physiological mechanism underlying behaviour briefly considered. Laboratory provides opportunities to work with a variety of animals, experimenting with the principles established in the lecture. OUC equivalent: BIOL 355. Prerequisite: All of BIOL 203, BIOL 204, [3-3-0] **Type of Action**: Change of title, number, content and prerequisite to existing course, as part of proposed Ecology and Evolutionary Biology Undergraduate program. **Rationale:** See attached documentation for the Ecology and Evolutionary Biology Undergraduate Program. Course is renamed because of change in content that reflects how the present course has evolved and to allow coverage of non-animal behaviour. Prerequisite is changed because vertebrate biology is no longer needed because of repositioning of the course. Course is renumbered to 4th year level because of specialized subject matter and to allow future cross-listing as a graduate course.

Curriculum Proposal Form
UBC OKANAGAN
New or Change to Course or Program

Category: 1

Faculty: Barber School of Arts & Sciences **Unit: Biology and Physical Geography** **Faculty Approval Date: February 19, 2007** **Effective Session Winter Term 1 2007**	**Date: 16 January 2007** **Contact Person: Louise Nelson** **Phone: 807-8756** **Email: louise.nelson@ubc.ca**

Proposed Calendar Entry:

Major in Molecular, Cell and Developmental Biology

Provides students with comprehensive training in molecular, cell and developmental biology. Core courses ensure that students will obtain the most current information pertaining to the fundamental nature of cells as well as their molecular and developmental mechanisms.

Requirements for the B.Sc. in Molecular, Cell and Developmental Biology

	Credits
First Year	
BIOL 116 and 125	6
MATH 100 and 101	6
CHEM 111 and 113 or 121 and 123	6
PHYS 112 and 122 or 102 and 111	6
Two of ENGL 112, 113, 150, 151, 152, 153	6
Second Year	
BIOL 200 and 263	6
BIOL 203 and 228	6
BIOL 204 or 205	3
CHEM 203 and 204	6
BIOL 209 or 210	3
Arts electives	6
Total Credits	**60**
Third and Fourth Year	
BIOL 304	3
BIOL 311	3
BIOL 319	3
BIOL 354	3
BIOL 365	3
BIOL 366	3
one of BIOL 363 or 364	3

URL:
http://okanagan.students.ubc.ca/calendar/index.cfm?tree=18,282,858,991

Present Calendar Entry:

~~Cell and Development Concentration~~

~~Forty-two upper-level credits (of which 30 must be BIOL credits) are needed to satisfy the requirements for the B.Sc. Biology major.~~
~~First and Second Years~~
~~As listed under Major in Biology~~
~~Total Credits 60~~
~~Third and Fourth Years~~
~~BIOL 3042 3~~
~~BIOL 308 and 311 6~~
~~BIOL 354 and 365 6~~
~~BIOL 319 and 366 6~~
~~BIOL 363 or 3644 3~~
~~Four of BIOL 318, 333, 363, 364, 461; and 420, 440, 452 if in the appropriate area. 12~~
~~Non-Biology science electives numbered 300 or higher 6~~
~~Arts electives1 6~~
~~Satisfy prerequisites and UBC-O requirements3 12~~
~~Total Credits 60~~
~~Minimum credits for degree 120~~
~~1 A minimum of 18 credits of Arts electives is required (including 6 credits in first-year English) for the degree.~~
~~2 Must be taken in third year.~~
~~3 Total of 120 credits is required for graduation including a minimum of 42 upper-level credits which include at least 36 credits of science courses.~~
~~4 Each course can only be used once to fulfill the requirements for this concentration.~~

Type of Action: New Program

12 credits from the following electives:

BIOL 312	3
BIOL 341	3
BIOL 318	3
BIOL 363	3
BIOL 364	3
BIOL 461	3
BIOL 420 (if appropriate)*	3
BIOL 452 (if appropriate)*	3 or 6

Upper level non-Biology science electives	6
Upper level Arts or Science electives	3
Courses to satisfy degree requirements	12
Arts electives	6
Minimum credits for degree	**120**

***Course must be approved as appropriate by the Unit Head or the Biology Program Advisor**

Rationale:

Student interest in molecular, cell and developmental biology is very high and enrolment in these courses has increased dramatically in the last few years. In the past three years 45% of graduating biology students chose the existing Cell and Development Concentration. In addition, there has been an increase in the number of courses that are suitable for this major such as Biology 341 (Neurobiology), Biology 363 and 364 (Developmental Biology II and Evolutionary Development), and Biology 461 (Cell Signaling) The proposed new major would better prepare students for advanced graduate-level training in molecular, cell and developmental biology, as well prepare students for careers in the health sciences. This new major can be offered now without the need to hire new faculty or establish new courses. This is essentially a conversion of the existing cell and development concentration to a major but with recognition of the emphasis on molecular biology.

Proposed Calendar Entry:

Molecular, Cell and Developmental Biology Honours Program

Through course work and research experience, the Honours program is an intensive program of study. Students trained in this program will have the ability to work independently with a high degree of competency in molecular cellular biology and developmental biology.

The course requirements are the same as the Major in Molecular, Cell and Developmental Biology, except that students must complete 6 credits of BIOL 440. Students may replace 6 credits of Biology electives with BIOL 440.

ADMISSION REQUIREMENTS
Fourth-year standing
A minimum grade average of 75% over all courses completed.

Enrolment in BIOL 440 with a research project and research supervisor approved by the Unit head.

URL: N/A

Present Calendar Entry: N/A

Type of Action: New Program, in addition to the proposed major in molecular, cell and developmental Biology.

Rationale:

This program is part of the proposal for a new major in molecular, cell and developmental Biology.

THE UNIVERSITY OF BRITISH COLUMBIA

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School of Arts and Sciences **Unit:** Biology and Physical Geography **Faculty Approval Date:** February 19, 2007 **Effective Session** Winter Term 1 2007	**Date:** 2 October 2006 **Contact Person:** Louise Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca

Proposed Calendar Entry:

Major in Microbiology

Designed to provide graduates with a breadth of knowledge in microbiology as it applies to the environment, health and industry. Students graduating from UBC Okanagan with a B.Sc. in Microbiology will have developed a wide-range of lab, communication, and critical thinking skills. Prepares students for careers in microbiology (e.g. food and beverage industries, health sciences and environmental sciences), graduate school, and professional programs.

Requirements for the B.Sc. in Microbiology

First Year	**Credits**
BIOL 116, 125	6
MATH 100 and 101	6
CHEM 111 & 113 or 121 & 123	6
PHYS 112 & 122 or 102 & 111	6
Two of ENGL 112, 113, 150, 151, 152, 153	6
Second year	
Biology 200	3
Biology 228	3
Chemistry 203/204	6
Biology 203	3
Biology 209	3
One of Biology 204, 210, 205	3
2 Arts electives	6
1 Science elective	3
Total Credits	60
Third and Fourth Year:	
Biology 311/319	6
Biology 365/366	6
Biology 304	3
Biology 354	3
Biology 393/395	6

URL: N/A
Present Calendar Entry: n/a

Type of Action: new program

Rationale:

Currently, UBC Okanagan offers a B.Sc. Major in Biology as well as a B.Sc. Honours in Biology. Demand by students for microbiology programs is very high as evidenced by the waiting list of 100+ students for the Microbiology Major at UBCV. Typically, between second and third year at UBCO, we lose 5-10 students to the microbiology program at UBCV. We anticipate that our new Microbiology program will help to retain these students in the Okanagan and we anticipate some of the students on the waiting list at Vancouver will transfer to our new microbiology program, particularly those students with a medical interest. The majority of students in our Introductory Microbiology course are interested in a career related to medicine. We anticipate many of these students will enroll into our new Microbiology Major. Although our proposed Major is not the same as that offered at UBCV, it complements it and offers students a number of options for pursuing careers in industrial, medical or environmental microbiology.

A new hire with expertise in medical microbiology and virology is top on the hiring list of the Biology and Physical Geography unit (Unit 2). With the addition of this position, there will be the breadth and expertise to offer a well-balanced Microbiology Major.

Please note that courses with an X, Y or Z in the course number are proposed below in the next section of this proposal. Only one of these courses is completely new, whereas the others are redesigned from existing courses.

Four of the following seven courses*:*	
Biology 318 3	
Biology 310 3	
Biology 312 3	
Biology 4XX (Mycology) 3	
[1]Biology 3XY (Food and Industrial Microbiology) 3	
Biology 3XZ (Environmental Microbiology) 3	
[2]Biology 420 (special topics) 3	
Arts electives 6	
Non-Biology Science electives numbered 300 or higher 6	
[3] electives 12	
Total Credits: 120	
[1] This course will replace Biology 333: Applied microbiology	
[2]If related to microbiology	
[3] Total of 120 credits is required for graduation including a minimum of 42 upper-level credits, which include at least 36 credits of Science courses.	

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School **Unit:** Biology and Physical Geography **Faculty Approval Date:** February 19, 2007 **Effective Session:** Winter Term 1 2007	**Date: 2** October 2006 **Contact Person: Louise** Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca
Proposed Calendar Entries: Microbiology Honours Program Through course work and research experience, the Honours in Microbiology is an intensive program of study. Students who complete this program will have the ability to work independently with a high level of competency in the field of microbiology. The course requirements are the same as in the Major in Microbiology, except that students must complete 6 credits of BIOL 440. Students may replace 6 credits of electives with BIOL 440. **Third and Fourth Year**: Biology 311/319 6 Biology 365/366 6 Biology 304 3 Biology 354 3 Biology 393/395 6 Biology 440 6 **Four of the following seven courses*:*** Biology 318 3 Biology 310 3 Biology 312 3 Biology 480 (Mycology) 3 [1]Biology 380 (Food and Industrial Microbiology) 3 Biology 381 (Environmental Microbiology) 3 [2]Biology 420 (special topics) 3 Arts electives 6 Non-Biology Science electives numbered 300 or higher 6 [3]electives 6 **Total Credits: 120**	**URL:** N/A **Present Calendar Entry:** N/A **Type of Action**: New Program, in addition to the proposed Microbiology Major. **Rationale:** This program is part of the proposal for a new Microbiology Major.

This course will replace Biology 333: Applied microbiology [2]If related to microbiology [3] Total of 120 credits is required for graduation including a minimum of 42 upper-level credits, which include at least 36 credits of Science courses. ADMISSION REQUIREMENTS Fourth-year standing A minimum grade average of 75% from all courses completed. Enrolment in BIOL 440 with a research project and research supervisor approved by the Academic Unit.	

THE UNIVERSITY OF BRITISH COLUMBIA

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School **Unit:** Biology and Physical Geography **Faculty Approval Date:** February 19, 2007 **Effective Session:** Winter Term 1 2007	**Date: 21** September 2006 **Contact Person: Louise** Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca
Proposed Calendar Entries: BIOL 480 (3) Mycology A detailed examination of the fungi. Emphasis is on taxonomy, evolution, genetics, ecology and physiology of the Zygomycota, Ascomycota and Basidiomycota. The laboratory emphasizes morphological and molecular taxonomy of mushrooms. Prerequisites: Biol 311. [3-3-0]	**URL: N/A** **Present Calendar Entry:** N/A **Type of Action**: Add new course, as part of the proposed Microbiology Major. **Rationale:** This course is part of the proposed Microbiology Major.

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School **Unit:** Biology and Physical Geography **Faculty Approval Date:** February 19, 2007 **Effective Session:** Winter Term 1 2007	**Date: 21** September 2006 **Contact Person: Louise** Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca
Proposed Calendar Entries: BIOL 380 (3) Food and Industrial Microbiology A detailed examination of the microbes that play a role in the manufacturing of beverages (e.g. beer and wine), solid foods (e.g. cheese), and industrial processes (e.g. waste water treatment). Prerequisites: Biol 228. [3-0-0]	**URL:** N/A **Present Calendar Entry:** n/a **Type of Action**: Add new course, as part of the proposed Microbiology Major. **Rationale**: This course is part of the proposed Microbiology Major.

THE UNIVERSITY OF BRITISH COLUMBIA

UBC Curriculum Proposal Form
Change to Course or Program

Category: (1)

Faculty: I. Barber School of Arts and Sciences **Unit: Biology and Physical Geography** **Faculty Approval Date:** February 19, 2007 **Effective Session: Winter Term 1 2007**	**Date: October 2, 2006** **Contact Person:** Louise Nelson **Phone:** 807-8756 **Email:**louise.nelson@ubc.ca
Proposed Calendar Entry: BIOL 381 Environmental Microbiology Introduction to the diverse roles of microbes in natural and artificial environments. Topics range from community interactions to biogeochemical cycles to biodegradation. Lectures introduce principles, practical applications and implications of environmental microbiology. Laboratories explore classic and molecular research methodologies. Prerequisites: BIOL 228 or BIOL 330. [3-3-0]	**URL:** N/A **Present Calendar Entry:** n/a **Type of Action:** Add new course, as part of the proposed Microbiology Major. **Rationale:** This course is part of the proposed program for a new Microbiology Major.

THE UNIVERSITY OF BRITISH COLUMBIA

UBC Curriculum Proposal Form
Change to Course or Program

Category: **1** **Faculty:** Barber School **Unit:** Biology and Physical Geography **Faculty Approval Date:** February 19, 2007 **Effective Session:** Winter Term 1 2007	**Date: 21** September 2006 **Contact Person: Louise** Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca
Proposed Calendar Entries: BIOL 330 (3) Freshwater Microbiology Integrates taxonomy, physiology, and ecosystem functioning of freshwater microbes. Effects of microbial activities in perturbed aquatic environments will be examined. Labs introduce basic and advanced techniques for identification, enumeration and measuring biogeochemical activity within an aquatic and experimental context. Prerequisite: either (a) one of BIOL 307, EESC 301 or (b) one of BIOL 209, BIOL 210, BIOL 275 and one of BIOL 204, BIOL 205. Note: this course will be offered on alternate years. [3-3-0]	**URL:** N/A **Present Calendar Entry:** Integrates taxonomy, physiology, and ecosystem functioning of freshwater bacteria, fungi, and protozoans. Effects of microbial activities in nature and in environments perturbed by humans. Labs include aseptic technique, isolation of bacteria, estimation of numbers and biomass, identification of fungi and protozoans. Prerequisite: either (a) one of BIOL 307, EESC 301 or (b) one of BIOL 209, BIOL 210, BIOL 275 and one of BIOL 204, BIOL 205. [3-3-0] **Type of Action**: Change course description as is stated to reflect it being offered every other year rather than every year and to reflect more closely to what is presently being taught. **Rationale:** Freshwater Microbiology (BIOL 330) is a required course in the Freshwater Science program, thus it is directed towards these students. However, only 2-3 Freshwater Science students, along with 10-15 Biology students, take it on a yearly basis. This change will accommodate Freshwater Science students, but at the same time it will allow Environmental Microbiology to alternate with it. Most Biology and Microbiology students will take Environmental Microbiology.

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School **Unit:** Biology and Physical Geography **Faculty Approval Date:** February 19, 2007 **Effective Session:** Winter Term 1 2007	**Date:** 21 September 2006 **Contact Person:** Louise Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca
Delete Biology 333 from calendar ~~**Biol 333** (3) APPLIED MICROBIOLOGY. Study of industrial and microbiology, Food and pharmaceutical microbiology, clinical aspects and epidemiology of disease, soil and water microorganisms, and industrial and agricultural applications. OUC equivalent: BIOL 328. Prerequisite: All of BIOL 228, CHEM 204. [3,0,0]~~	**URL**: **N/A** **Present Calendar Entry:** **Biol 333 (3)** Study of industrial and medical microbiology. Food and pharmaceutical microbiology, clinical aspects and epidemiology of disease, soil and water microorganisms, and industrial and agricultural applications. (3-0-0) **Type of Action**: Delete Biology 333. Stand alone courses in the Microbiology Major, including Medical Microbiology, Food and Industrial microbiology, and Environmental Microbiology will make Applied Microbiology redundant. **Rationale:** See attached documentation for the Microbiology Major. Applied Microbiology is not needed, because Medical Microbiology, Food and Industrial Microbiology, and Environmental Microbiology will now be taught.

THE UNIVERSITY OF BRITISH COLUMBIA

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School **Unit:** Biology and Physical Geography **Faculty Approval Date:** not applicable **Effective Session:** Winter Term 2 Year 2006-2007	**Date:** 9 January 2007 **Contact Person:** Louise Nelson **Phone:** 250-807-8152 **Email:** louise.nelson@ubc.ca
Proposed Calendar Entries: BIOL 552 (3/6) D DIRECTED STUDIES IN BIOLOGY Allows investigation on a specific topic as agreed upon by the faculty member and the student. Prerequisite: Permission of the Graduate Program Advisor and the course instructor required	**URL: (**URL from the current web Calendar – not the draft calendar. This URL is not needed if you are only making changes to existing content - for course entries simply list the course number.) **Present Calendar Entry:** n/a **Type of Action**: New course, as part of Biology Graduate Program **Rationale:** Biology 552 was approved in principle as part of the Biology Graduate Program in 2006, but we had neglected to provide calendar language for this course. Please note that no course outline is attached because the readings and the marking scheme will vary each time the course is taught.

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School **Unit:** Biology and Physical Geography **Faculty Approval Date:** January 9, 2007 **Effective Session:** Winter Term 1, 2007	**Date:** 07 November 2006 **Contact Person:** Louise Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca
Proposed Calendar Entries: **GEOG 207 (3) Introduction to Biogeography** Geographical ecology emphasizing species distributions, abiotic-biotic interactions, disturbance and vegetation response, and human impacts across spatial scales. Labs and field trips examine local sites and provide students with sampling and analysis skills. Credit will not be granted for both BIOL 203 and GEOG 207. Prerequisites: GEOG 108 and 109; or BIOL 116 and 125; or BIOL 117 and 122; or EESC 111 and 121. [3-3-0]	**URL: N/A** **Present Calendar Entry:** N/A **Type of Action**: Add new course. **Rationale:** Biogeography is a major sub-discipline within Geography, but there are no biogeography courses offered in the Geography program. In addition, this course allows a faculty member (Kavanagh) to teach in her area of expertise. Please note that the course description parallels the comparable course taught at UBC-Vancouver: **GEOG 207 (3) Introduction to Biogeography** Geographical ecology emphasizing plant distributions, abiotic-biotic interactions, effects of disturbance, succession, and human impacts across scales. Labs and field trips examine a local site.

THE UNIVERSITY OF BRITISH COLUMBIA

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Barber School **Unit:** Biology and Physical Geography **Faculty Approval Date:** January 9, 2007 **Effective Session:** Winter Term 1 2008	**Date:** 7 November 2006 **Contact Person:** Louise Nelson **Phone:** 807-8756 **Email:** louise.nelson@ubc.ca
Proposed Calendar Entries: **GEOG 307 (3) Advanced Biogeography** Examines present distribution and diversity of plants and animals; factors underlying the development of modern biogeographic realms; dispersal, colonization and invasion; prehistoric and modern evolution and extinction; biodiversity; island biogeography; conservation biogeography. Reading and writing intensive. Prerequisite: GEOG 207 or BIOL 203 [3-0-1]	**URL:** N/A **Present Calendar Entry:** n/a **Type of Action**: Add new course. **Rationale:** Biogeography is a major sub-discipline in Geography, but there are no biogeography courses offered in the Geography program. In addition, this course allows a faculty member (Kavanagh) to teach in her area of expertise.

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: FCCS **Department:** Critical Studies **Faculty Approval Date:** Feb. 13, 2007 **Effective Session _Winter Term I Year 2007 for Change**	**Date:** November 14, 2006 **Contact Person:** David Jefferess **Phone:** 7-9359 **Email:** david.jefferess@ubc.ca
Proposed Calendar Entry: ENGL 379 (3) Postcolonial Literary and Cultural Studies Examines colonialism, representation, nationalism, decolonization, identity, globalization, and neo-imperialism, in relation to literature, film, and other forms of cultural production. Pre-requisite: 3 credits of 200-level English. ENGL 224 and/or ENGL 250 are recommended.	**URL: N/A** **Present Calendar Entry: N/A** **Type of Action:** New Course **Rationale:** This interdisciplinary course provides an introduction to the key theoretical concerns of postcolonial studies. It provides an important conceptual framework for studying international literatures in English and cultural production in a global framework. Hence, it provides an important addition to English's theory and international literature offerings, and provides a key course in the Global Cultural Studies stream of the Cultural Studies program.

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Change to Course or Program

Category: 1

Faculty: FCCS **Department:** Critical Studies **Faculty Approval Date:** Feb. 13, 2007 **Effective Session** Winter **Term** I **Year** 2007 **for Change**	**Date:** November 14, 2006 **Contact Person:** David Jefferess **Phone:** 7-9359 **Email:** david.jefferess@ubc.ca
Proposed Calendar Entry: ENGL 435 (3/9) D African Studies An examination of African literature and other forms of cultural production using a postcolonial approach. Topics vary from year to year. Pre-requisite: 3 credits of 200-level English. English 224 and/or 379 are recommended.	**URL:** N/A **Present Calendar Entry:** N/A **Type of Action:** New Course **Rationale:** The current category at the 400 level in International Literature in English, "ENGL 480 Studies in International Literature in English" has been taught from a wide variety of perspectives and, as such, is a rather broad title that does not adequately inform students of course content or focus. The introduction of a 400 level course in African studies provides a more specific title that can still allow for varying topics. This course will contribute to the development of the study of international literature in English within the English program, and allow for the development of interdisciplinary courses that fulfill the mandate of the department of Critical Studies, as well as support the Global Cultural Studies stream of the major in Cultural Studies.

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: FCCS **Department:** Critical Studies **Faculty Approval Date:** Feb. 13, 2007 **Effective Session** Winter **Term** I **Year** 2007 **for Change**	**Date:** November 14, 2006 **Contact Person:** David Jefferess **Phone:** 7-9359 **Email:** david.jefferess@ubc.ca
Proposed Calendar Entry: ENGL 436 (3) Narrative and Conflict in Global Context Examines conflict, violence, and struggles for social justice in relation to narrative, discourse, and representation, as well as questions of nationalism, identity, and globalization. Pre-requisite: 3 credits of 200-level English. ENGL 250 and/or ENGL 379 are recommended.	**URL:** N/A **Present Calendar Entry:** N/A **Type of Action:** New Course **Rationale:** This interdisciplinary course provides a cross-cultural approach to contemporary concerns of global culture, neo-imperialism, transnationalism, violence, and social justice, as they relate to forms of cultural production, including literature, film, and other forms of global popular culture. The course supports the mandate of the department of Critical Studies and the university to develop interdisciplinary programming that reflects faculty research as well as the global framework of the UBCO academic plan. The course develops the offerings of international literature in English within the English program and supports the Global Cultural Studies stream of the Cultural Studies major.

UBC Curriculum Proposal Form
Change to Course or Program

Category: (1)

Faculty: FCCS **Department: Critical Studies** **Faculty Approval Date:** **Effective Session ___Winter_ Term _1_ Year_2007__ for Change**	**Date: November 8, 2006** **Contact Person: Grisel Garcia** **Phone: 807-9310** **Email: grisel.garcia-perez@ubc.ca**
Proposed Calendar Entry: SPAN 470 (3) **Spanish phonetics and phonology** *Prerequisite*: SPAN 315 *Corequisite*: SPAN 302	**URL:** N/A **Present Calendar Entry:** N/A **Type of Action: new course** **Rationale:** This course will expand offerings in Spanish in the field of Spanish Linguistics.
Proposed Calendar Entry: SPAN 471 (3) **Spanish lexicology and semantics** *Prerequisite*: SPAN 315 *Corequisite*: SPAN 302	**URL:** N/A **Present Calendar Entry:** N/A **Type of Action: new course** **Rationale:** This course will expand offerings in Spanish in the field of Spanish Linguistics.

UBC Curriculum Proposal Form
Change to Course or Program

Category: 1

Faculty: Education **Unit:** **Faculty Approval Date: October 2006** **Effective Session _Summer_ __ Term 2___ Year_2007__ for Change**	**Date: February 5, 2007** **Dean: Dr. Robert Campbell** **Contact Person: Sharon McCoubrey** **Phone 807-8109** **Email: Sharon.mccoubrey@ubc.ca**
Proposed Calendar Entries: **EDST 497 Contemporary Educational Issues (1/15) D** Seminar that examines special topics and current issues within Education. **EDST 498 Contemporary Educational Practice (1/15) D** Seminar that explores various approaches, projects, methodologies, and teaching applications. **EDST 499 (1/15) D Studies in Educational Leadership** Seminar that investigates effective educational programs, leadership and practice.	**Present Calendar Entry:** n/a **Type of Action**: The establishment of three new Courses. **Rationale:** These are new courses being established to allow the delivery of 1-credit seminars on a variety of topics. As indicated, these courses can be taken more than once for credit.

UBC Curriculum Proposal Form
Change to Course or Program

Category: (1)

Faculty: Health and Social Development **Department: Human Kinetics** **Faculty Approval Date:** **Effective Session Fall Term 1** **Year 07 for change**	**Date: November 28, 2006** **Contact Person: Dr. Joan Bottorff** **Phone: 7-9901** **Email: joan.bottorff@ubc.ca**
HMKN 1-- (3) **Biomechanics** Application of the elementary principles of physics and math to quantitative analysis of human movement. Analysis will also focus on the development of forces within muscles and their effect on initiating and controlling human movement (pertaining to exercise, physical activity and rehabilitation). [3-0]	**Present Calendar Entry** **N/A** **Type of Action:** The establishment of two new courses. **Rationale:** These are new courses being established for the first year of the new Bachelor of Human Kinetics Program.
HMKN 1-- (3) **Physical Activity in Canadian Society** Introduction to the role, history and social basis of physical activity in society; concepts, theories, links to health. [3-0]	