S.18-73

SFU OFFICE OF THE ASSOCIATE VICE-PRESIDENT, ACADEMIC

8888 University Drive, Burnaby, BC Canada V5A 1S6
TEL: 778.782.4636 FAX: 778.782.5876
avpcio@sfu.ca www.sfu.ca/vpacademic

MEMORANDUM

ATTENTION	Senate	**DATE**	May 4, 2018
FROM	Daniel Leznoff, Chair Senate Committee on Undergraduate Studies	**PAGES**	1/2
RE:	Course Changes (SCUS 18-34)		

Daniel Leznoff

For information:

Acting under delegated authority at its meeting of May 3, 2018 SCUS approved the following curriculum revisions effective Spring 2019.

a. Faculty of Environment (SCUS 18-34a)

1. Department of Geography

(i) Deletion of GEOG 427
(ii) Title and description change for GEOG 221 and 241
(iii) Title, description and prerequisite change for GEOG 261
(iv) Prerequisite and equivalent statement change for GEOG 321
(v) Prerequisite change for GEOG 322, 322W, 323, 324, 325 and 327
(vi) Units and prerequisite change for GEOG 328
(vii) Prerequisite change for GEOG 362, 362W, 363, 377, 381 and 381W
(viii) Title, description and prerequisite change for GEOG 382
(ix) Prerequisite change for GEOG 383
(x) Title, description and prerequisite change for GEOG 385
(xi) Prerequisite change for GEOG 386,387 and 389W

b. Faculty of Science (SCUS 18-34b)

1. Department of Biomedical Physiology and Kinesiology

(i) Prerequisite change for BPK 326
and equivalency

2. Department of Chemistry

(i) Prerequisite changes for: CHEM 126, 192, 215, 236W, 266, 281, 284, 317, 332, 336, 363, 366W, 367, 371, 372, 380, 381, 391, 419, 432, 439, 442, 444, 449, 450, 452, 455, 459, 460, 462, 469,481, 482, 483 and 484

(ii) Prerequisite and equivalent statement changes for CHEM 109, 111, 121, 122, 123, 124, 180, 260, 282, 283, 316, 360, 440, 464 and 465

(iii) Description and prerequisite changes for CHEM 230 and 286

(iv) Description, prerequisite and equivalent statement changes for CHEM 110, 120 and 433

(v) Prerequisite changes for NUSC 342, 346, 444 and 482

(vi) Units number change for NUSC 346

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

EXISTING COURSE DELETION FORM

COURSE SUBJECT GEOG **NUMBER** 427 **TITLE** Selected Topics in the Geography of Tourism

RATIONALE (must be included)

Faculty member who taught this course retired.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (enter in textbox) Spring 2019

PLEASE DO THE FOLLOWING:

1. Attach a program impact list along with your course deletion form. Contact the Senate and Academic Services Office (sfucal@sfu.ca) for a program impact list.
2. Once you have the program impact list, please review how deleting this course affects each program's requirements.
3. If more substantial changes are required to programs as a result of this deletion, please also submit a program modification form.
4. If no further changes other than deletion is required in program requirements, please list those programs in the box below:

- BA Geography Honours
- BA Geography Major

5. Lastly, please conduct a course impact analysis, which reviews the effect of a course number change and/or course deletion on course prerequisites. For instructions on how to do a course impact analysis, please visit our page and click on "deleting a course" and review Step 2. Course Impact Analysis.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 221 **TITLE** Economic Geography

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☐
Title	x	Description	x	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 221 - ~~Economic Geography~~ **Economic Worlds** (3)

~~The basic concepts of economic geography, involving consideration of the spatial organization and development of economic and resource based systems.~~ **The fundamentals of economic geography, the study of the forces that shape the arrangement of economic activity in the real world.** Prerequisite: GEOG 100. Breadth-Social Sciences.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

New title and description reflect the course's current approach.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 241 **TITLE** Social Geography

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☐
Title	X	Description	X	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 241 - ~~Social Geography~~ **People, Place, Society** (3)

~~Systematic consideration of the spatial and environmental bases of societies, in historical and cultural perspective.~~ **An introduction to key concepts and contexts in contemporary geographical approaches to social practices, meanings, and struggles**. Prerequisite: GEOG 100. Breadth-Social Sciences.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

New title and description reflect the course's current approach.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 261 **TITLE** Introduction to Urban Geography

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	x
Title	x	Description	x	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 261 - ~~Introduction to Urban Geography~~ **Encountering the City** (3)

~~This course will introduce basic concepts in the study of urban geography by systematically identifying and examining major components of urban structure.~~ **An introduction to key concepts and themes in contemporary geographical approaches to cities and urbanization.**

Prerequisite: GEOG 100 or 102~~ or 30 units~~. Breadth-Social Sciences.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

New title and description reflect the course's focus on experiential learning. The prerequisite change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	GEOG	NUMBER	321	TITLE	Geographies of Global Capitalism

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 321 - Geographies of Global Capitalism (4)

Examines the historical development, spatial organization, and social impact of market function, firm structure and operation, economic policy, and regulation and deregulation at various scales from local to global, from a geographical perspective. Prerequisite: ~~GEOG 221~~ **At least 45 units, including GEOG 100**. ~~Students who received credit for GEOG 321 (STT), Contemporary Capitalism, in Spring 2010, may not take this course for further credit.~~

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.
Equivalency: it's been 8 years since the STT was offered so it's highly unlikely a student will be looking to take the course for additional credit.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 322 **TITLE** World Resources

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 322 - World Resources (4)

An analysis of the use and development of natural resources from a geographic, economic and institutional perspective. Prerequisite: ~~At least 30 units including GEOG 221~~ **At least 45 units, including GEOG 100**. Students with credit for GEOG 322W may not take this course for further credit.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 322W **TITLE** World Resources

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 322W - World Resources (4)

An analysis of the use and development of natural resources from a geographic, economic and institutional perspective. Prerequisite: ~~At least 30 units including GEOG 221~~ **At least 45 units, including GEOG 100**. Students with credit for GEOG 322 may not take this course for further credit. Writing.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 323 **TITLE** Industrial Location (4)

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 323 - Industrial Location (4)

An examination of the factors affecting industrial location and the geographic organization of production systems within and among firms from the perspectives of national, regional and urban development. Prerequisite: ~~GEOG 221~~ **At least 45 units, including GEOG 100**.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 324 **TITLE** Geography of Transportation

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 324 - Geography of Transportation (4)

An empirical and theoretical examination of the geographical aspects of transportation systems. Prerequisite: ~~GEOG 221 or 241~~ **At least 45 units, including GEOG 100**.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 325 **TITLE** Geographies of Consumption

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 325 - Geographies of Consumption (4)

Spaces, places, landscapes, and scales of consumption emphasizing commodity cultures, marketing, retail, ideology, subjectivity, objects, technology, and tourism.
Prerequisite: ~~GEOG 221 or 261~~ **At least 45 units, including GEOG 100**.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 327 **TITLE** Geography of Tourism

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 327 - Geography of Tourism (4)

Factors underlying the changing geography of tourism. Issues of demand, supply and impact are examined. Prerequisite: ~~GEOG 221 or 241, or permission of the instructor~~ **At least 45 units, including GEOG 100**.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 328 **TITLE** Labour Geographies

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☒	Prerequisite	x
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 328 Labour Geographies (~~3~~ **4**)

An examination of contemporary debates in Labour Geography, surveying geographical approaches to work and employment. Lectures will explore the relationships between space, place and labour market change in the context of globalization and uneven development. Prerequisite: ~~At least 60 units, including~~ ~~LBST 101~~ ~~or~~ ~~GEOG 221~~. **At least 45 units, including GEOG 100 or LBST 101.** Students with credit for LBST 328 may not take this course for further credit.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Credits: This course is similar in level and approach to other upper-division courses in the Geography undergraduate program, which are all 4 units. This change brings the course in line with those similar upper-division human geography courses. It also matches a change in the cross-listed course, LBST 328, which is also being changed to 4 credits.

Prerequisites: This change makes the course more accessible to students and matches a larger set of changes being made to 300 level courses in our program, that are intended to make it more navigable for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 362 **TITLE** Geography of Urban Built Environments

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 362 - Geography of Urban Built Environments (4)

Current concepts and approaches in urban geography regarding the development of built environments. Central concerns are the relationships between urbanization and the state, capital, and civil society at various scales. Prerequisite: ~~At least 30 units, including one of GEOG 221, 241, or 261~~ **At least 45 units, including GEOG 100**. Students with credit for GEOG 362W may not take this course for further credit.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 362W **TITLE** Geography of Urban Built Environments

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 362W - Geography of Urban Built Environments (4)

Current concepts and approaches in urban geography regarding the development of built environments. Central concerns are the relationships between urbanization and the state, capital, and civil society at various scales. Prerequisite: ~~At least 30 units, including one of GEOG 221, 241, or 261~~ **At least 45 units, including GEOG 100**. Students with credit for GEOG 362 may not take this course for further credit. Writing.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 363 **TITLE** Urban Planning and Policy

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 363 - Urban Planning and Policy (4)

An introduction to the major approaches and key ideas of the professions of urban governance; urban planning and urban policy. Through a focus on contemporary theory, process-based understanding, and specific issues and examples, the course examines key trends and interventions and promotes critical reflection on urban development. Prerequisite: ~~30 units, including one of GEOG 221 or 241 or 261; or enrollment in the Post Baccalaureate Diploma in Sustainable Community Development~~ **At least 45 units, including GEOG 100**.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 377 **TITLE** Environmental History

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 377 - Environmental History (4)

Examines the reciprocal influences between humans and nature through time. Topics may include settlement, agriculture, technology, politics, urbanization, science, and conservation. Prerequisite: ~~45 units with nine of lower division Geography units~~ **At least 45 units, including GEOG 100**. Students with credit for HIST 377 may not take this course for further credit.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 381 **TITLE** Territory, Power, State

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 381 - Territory, Power, State (4)

Surveys the manner in which power relations are expressed territorially. Attention given to such topics as state sovereignty, colonialism, rights, and law. Prerequisite: ~~GEOG 241~~ **At least 45 units, including GEOG 100**. Students with credit for GEOG 381W may not take this course for further credit.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 381W **TITLE** Territory, Power, State

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 381W - Territory, Power, State (4)

Surveys the manner in which power relations are expressed territorially. Attention given to such topics as state sovereignty, colonialism, rights, and law. Prerequisite: ~~GEOG 241~~ **At least 45 units, including GEOG 100**. Students with credit for GEOG 381 may not take this course for further credit. Writing.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 382 **TITLE** Population Geography

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☒	Description	☒	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 382 - ~~Population Geography~~ **World on the Move** (4)
~~A survey - from geographic perspective - of data, concepts, themes, and debates in the study of population. Particular concern for population numbers, fertility, mortality, and migration over space and time.~~ **The world is on the move. Migrants seeking better opportunities cross paths with refugees fleeing persecution. Some are helped and welcomed, many encounter barriers and threats, while identities, including class, race, gender, sexuality, mediate their prospects. This course's geographic perspective clarifies these complexities by combining conceptual analyses with contemporary cases.**
Prerequisite: ~~GEOG 221 or 241~~ **At least 45 units, including GEOG 100**.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

New title and description reflect the central concerns addressed by, and the key approaches followed by, contemporary geographers who study population and society. The prerequisite change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 383 **TITLE** Regional Development and Planning (4)

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 383 - Regional Development and Planning (4)
Theories and concepts of regional development and planning in the advanced capitalist and third worlds; methods of spatial analysis. Prerequisite: ~~GEOG 221 and GEOG 241~~ **At least 45 units, including GEOG 100**.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 385 **TITLE** Agriculture and the Environment

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	x
Title	x	Description	x	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 385 - ~~Agriculture and the Environment~~ **Food and the City** (4)

~~An examination of the relationship between agricultural production systems and the biophysical environment, with emphasis on the origins of, and potential solutions to, agri-environmental degradation.~~ **An exploration of how food is related to cities, giving particular attention to the culture and politics of food production, distribution, and consumption.**

Prerequisite: ~~GEOG 221~~ **At least 45 units, including GEOG 100**.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

A reorientation of the course to better reflect how it is currently taught and to fit better with the urban focus of our program.

Prerequisites: This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 386 **TITLE** Health Geography

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 386 - Health Geography (4)

A survey of health issues from a geographic perspective, including major spatial influences shaping the health status of populations and health-place relationships. Prerequisite: ~~at least 30 units, including either GEOG 241 or HSCI 130~~ **At least 45 units, including GEOG 100**.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 387 **TITLE** Geography and Gender

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 387 - Geography and Gender (4)

Geographical perspectives on gender and sexuality. This course investigates feminist theory in geography and its analysis of home, city, nation, state, global economy, colonialism, and migration. Prerequisite: ~~GEOG 241~~ **At least 45 units, including GEOG 100**.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT GEOG **NUMBER** 389W **TITLE** Nature and Society

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

GEOG 389W - Nature and Society (4)

Examines the relationship between nature and society, covering the dominant geographical approaches to human-environment interaction, and their social, spatial, and political economic effects. Prerequisite: ~~GEOG 221 or GEOG 241 (Students who received credit for EVSC 200 before 2011 may use it to meet the prerequisite requirement for this course)~~ **At least 45 units, including GEOG 100**. Writing.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

This change is intended to make the course more accessible to students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT BPK **NUMBER** 326 **TITLE** Functional Anatomy

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Coursenumber	☐	Units	☐	Prerequisite	☐X
Title	☐	Description	☐	EquivalentStatement	☐X

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline.If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand.Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Functional Anatomy BPK 326 (4)
Pursues a systematic study of human anatomy with emphasis on functional applications. A comparative study of organs and body systems using laboratory dissections to provide an understanding of the three dimensional organization of the human body. Participation in all labs is required. Prerequisite: **Admission to the major or honours program in Behavioural Neuroscience or Biomedical Physiology or Kinesiology.** BPK 142, 201, 205 and at least 60 units. Behavioral Neuroscience Major and Honours students require BPK 142, 205, PSYC 280 and at least 60 units. Students with credit for ~~**BPK 324 or**~~ BPK-325 may not repeat this course for further credit.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE(must be included)

The department only has the resources to offer this course to the large number of the three BPK Majors. However multiple requests come in for enrolment in this course from our own Minors, students outside of the department and even external to the university. It is seen as a course needed if students want to apply to Physiotherapy programs.

BPK or KIN 324 has never been offered, nor will it be. The KIN designations were deleted from all course listing in a previous motion passed through to Senate.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 126 **TITLE** General Chemistry Laboratory II

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Experiments in chemical equilibrium, acids and bases, qualitative analysis, electrochemistry and chemical kinetics. Prerequisite: CHEM 121 with a minimum grade of C-. Corequisite: CHEM 122. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 192 **TITLE** Chemistry in Your Home, Work, and Environment

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

The impact of chemistry on modern living. Students will gain a broad perspective on chemical processes with historical, environmental and economic importance in shaping society, examining both the beneficial and harmful aspects of the chemicals that shape our lives. Topics may include: perfumes, explosives, drugs, dyes, plastics, pesticides and greenhouse gases. Intended for both science and non-science students. Quantitative/Breadth-Science. ~~Prerequisite: . Quantitative/Breadth-Science.~~

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Removing redundancy, and there is no prerequisite for this course.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 215 **TITLE** Introduction to Analytical Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

The principles of analytical chemistry and their practical application to solution samples. Titrimetric and electrochemical methods. Prerequisite: CHEM 122 and 126, both with a minimum grade of C-. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 236W **TITLE** Inorganic Chemistry Laboratory

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

An introduction to the synthetic and spectroscopic techniques used in the preparation and characterization of both main group and transition metal compounds. Prerequisite: CHEM ~~122 and~~ 126 with a minimum grade of C-. Corequisite: CHEM 230. Students with credit for CHEM 236 may not take this course for further credit. Writing/Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Removing CHEM 122 as a prerequisite since students cannot take CHEM 126 without having taken CHEM 122.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	266	TITLE	Physical Chemistry Laboratory I

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Fundamental principles of experimental physical chemistry from the microscopic perspective. Modern experiments in atomic and molecular spectroscopy and structure. Prerequisite: CHEM 260~~: Atoms, Molecules, Spectroscopy~~ with a minimum grade of C-.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 281 **TITLE** Organic Chemistry I

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Structure, bonding, physical and chemical properties of simple organic compounds. Introduction to spectroscopy. Kinetics and mechanisms of organic reactions. This course includes a laboratory component. Prerequisite: CHEM 121 with a minimum grade of C-. Corequisite: CHEM 122. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 284 **TITLE** Organic Chemistry IIb

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Intended for students planning to take upper division organic chemistry courses. Advanced treatment of topics beyond those covered in CHEM 281 and CHEM 282, including radical reactions, organometallic reagents and metal-based catalysis, pericyclic reactions and planning multi-step syntheses. Prerequisite: CHEM 282 with ~~at least a C+ grade~~a minimum grade of C+, or permission of the Department. Students with credit for CHEM 283 may not take this course for further credit.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Changed wording for consistency.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 317 **TITLE** Analytical Environmental Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Principles and applications of the methodologies of analytical chemistry employed in the determination of substances in air, water, and soil, with particular emphasis upon sampling and sample preparation. Prerequisite: CHEM 316 and 371, both with a minimum grade of C-. Corequisite: CHEM 372 ~~should be taken concurrently~~. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Removing redundancy.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 332 **TITLE** The Chemistry of Transition Metals

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

The synthesis and characterization of classical and organometallic complexes of the transition metals, and their physical and chemical properties. Prerequisite: CHEM 230, 236W and 260, all with a minimum grade of C-, or permission of the ~~department~~Department. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Adding the W as Chem 236 (non-W) no longer exists.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 336 **TITLE** Advanced Inorganic Chemistry Laboratory

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Laboratory experiments in co-ordination, organometallic and solid state chemistry, involving synthesis, characterization and spectroscopy. Prerequisite: CHEM 236W with a minimum grade of C-. Corequisite: CHEM 332~~ must precede or be taken concurrently~~. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Adding the W as Chem 236 (non-W) no longer exists. Removing redundancy.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	363	TITLE	Chemical Kinetics and Reaction Dynamics

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Fundamental principles of chemical kinetics, rate laws, mechanisms, reactive intermediates, theories of reaction rates, solvation effects, photochemistry, radiation chemistry, and experimental methods. Prerequisite: CHEM 260 with a minimum grade of C-. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	366W	TITLE	Physical Chemistry Laboratory II

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Advanced experimental methods in thermodynamics, chemical kinetics, electrochemistry, and atomic and molecular structure. Prerequisite: CHEM 266 with a minimum grade of C-. Corequisite: CHEM 360. Writing/Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 367 **TITLE** Advanced Physical Chemistry Laboratory

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Advanced experimental methods in physical chemistry. Prerequisite: CHEM 366W with a minimum grade of C-. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Adding the W as Chem 366 (non-W) no longer exists.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	371	TITLE	Chemistry of the Aqueous Environment

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

An introduction to chemical processes in the aqueous environment. Quantitative treatment of the variables determining the composition of natural systems. Chemistry of aqueous toxic agents, wastewater treatment, and related matters. Prerequisite: CHEM 281 and CHEM 360, both with a minimum grade of C-. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	372	TITLE	Chemistry of the Atmospheric Environment

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Quantitative treatment of chemical and physical processes in the atmospheric environment. Chemistry of the troposphere including air pollution and climate change. Chemistry of the stratosphere including ozone depletion. Environmental radioactivity. Current topics. Prerequisite: CHEM 281 and CHEM 360, both with a minimum grade of C-. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	380	TITLE	Chemical and Instrumental Methods of Identification of Organic Compounds

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Basic principles of infrared, ultraviolet, nuclear magnetic resonance and mass spectroscopy as applied to the identification of organic compounds. Prerequisite: CHEM 283 or 284, and CHEM 286, both with a minimum grade of C-, or permission of the ~~department~~Department.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Adding new course, Chem 284, to prerequisite.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	381	TITLE	Intermediate Organic Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

An intermediate level course in modern organic chemistry, including both theoretical design of synthetic routes and practical training in the laboratory. The central topics to be discussed include methods to form carbon-carbon bonds, use of organometallic reagents, asymmetric synthesis, pericyclic reactions, the use of enzymes in organic synthesis, and the automation of synthetic organic chemistry. Prerequisite: CHEM 380 with a minimum grade of C-. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 391 **TITLE** Industrial Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

A survey of industrial chemistry. Topics include the production of raw petrochemical and mineral materials, bulk organic and inorganic chemicals that drive the economy, industrially relevant polymers, and health and hygiene products. Green approaches to industrial chemistry are discussed. Prerequisite: CHEM 215, 230, and 282 (or 283), all with a minimum grade of C-, ~~and CHEM 230 and CHEM 282~~ or permission of the ~~department~~Department.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Cleaning up formatting for consistency.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	419	TITLE	Special Topics in Analytical Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Principles and applications of emerging techniques in analytical chemistry.
Prerequisite: CHEM 316 with a minimum grade of C-.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 432 **TITLE** Organometallic Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

The organometallic chemistry of the transition elements; the synthesis, characterization and catalytic behavior of organometallic compounds.
Prerequisite: CHEM 332 with a minimum grade of C-. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	439	TITLE	Special Topics in Inorganic Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

An in-depth treatment of a current topic in inorganic chemistry. Contact the department for information regarding the topic to be covered in a given term. Prerequisite: CHEM 332 with a minimum grade of C-.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 442 **TITLE** Polymeric Materials Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

The course covers the detailed chemistry of polymers, including polymer structure, studies of polymer solutions, molecular weight determination, and the synthesis of polymers. In addition, topics of current interest in polymer science will be discussed. Prerequisite: CHEM 282 or 283, with a minimum grade of C-. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 444 **TITLE** Organic Materials Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Emphasis will be placed on the synthesis and properties of materials that are useful in the design of electrooptical devices, such as light emitting diodes (LEDs) and liquid crystal displays (LCDs). Topics to be discussed will include liquid crystals, conjugated polymers, and the assembly of thin film materials. A case study approach will be employed in order to provide an overview of these areas of research, with examples taken from the primary literature. Prerequisite: CHEM 282 or 283, with a minimum grade of C-. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	449	TITLE	Special Topics in Materials Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Selected topics in materials chemistry not regularly covered in chemistry undergraduate course offerings. Topics may vary from year to year and may include (but are not limited to): materials with tunable optoelectronic properties, trace element analysis of materials using non-destructive techniques, materials with applications in producing and utilizing chemical energy. Prerequisite: CHEM 215, 260, 283 (or 284), ~~CHEM 215, CHEM 260,~~ and 12 units of upper division CHEM, all with a minimum grade of C-;~~300 level chemistry~~ or permission of the Department.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Cleaning up formatting for consistency.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 450 **TITLE** Physical Organic Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

A study of the structure, stereochemistry and conformation of molecules and their effect on the reactivity of organic molecules. The physical basis of organic chemistry. Prerequisite: CHEM 360 and 380, both with a minimum grade of C-. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 452 **TITLE** Bio-organic Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

An advanced treatment of the use of enzymes in organic synthesis, the use of stable and radioisotopes in the study of enzymatic processes and the design of enzyme inhibitors. Prerequisite: CHEM 380 and MBB 222, both with a minimum grade of C- , or permission of the ~~department~~Department. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 455 **TITLE** Synthetic Organic Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

This course teaches the principles involved in the planning and execution of the synthesis of organic molecules. Emphasis is on synthesis of naturally occurring compounds of biological importance. Prerequisite: CHEM 381 with a minimum grade of C-, or permission of the instructor. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	459	TITLE	Special Topics in Organic Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

An advanced, in-depth treatment of a specialized area of organic chemistry.
Prerequisite: CHEM 380 with a minimum grade of C-, or permission of the instructor.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 460 **TITLE** Advanced Physical Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Statistical thermodynamics, kinetic theory of gases, transport properties, intermolecular forces, electrical properties of molecules, properties of ionic solutions, Debye-Huckel theory, electrochemistry. Prerequisite: MATH 251; CHEM 260 and 360, or PHYS ~~385~~ 285 and 344, all with a minimum grade of C-. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 462 **TITLE** Molecular Spectroscopy

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Atomic spectra. Electronic, vibrational and rotational spectra of diatomic and polyatomic molecules. The Raman effect. Nuclear and electron spin resonance. Symmetry classification of molecules and their energy levels. Prerequisite: CHEM 260 or PHYS ~~385~~285, with a minimum grade of C-. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	469	TITLE	Special Topics in Physical Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Selected topics of physical chemistry not regularly covered in the chemistry undergraduate course offerings. Topics may vary from year to year and may include (but are not limited to): chemical kinetics, electrochemistry, magnetic resonance, polymer chemistry, surface chemistry. Prerequisite: CHEM 260 and 360, both with a minimum grade of C-, or permission of the instructor.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 481 **TITLE** Undergraduate Research

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Experimental and/or theoretical research; preparation of a written report and oral presentation in research seminar format. Admission requires selection of a faculty supervisor and submission of a research proposal. Prospective students must contact the chemistry advisor to register their interest in this course before the last day of classes of the previous term. The research proposal is due by the end of the examination period preceding the research term. Prerequisite: Permission of the ~~department~~Department; knowledge of chemistry at an advanced level. Normally taken after completion of ~~300~~ 300-level course requirements.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Formatting for consistency.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 482 **TITLE** Directed Study in Advanced Topics of Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Directed reading in a topic chosen in consultation with a supervisor. Admission requires selection of a faculty supervisor and submission of a study topic to the department a least one month prior to the start of the term in which the course will be taken. May repeat for credit. Prerequisite: Permission of the ~~department~~Department. Normally taken during the fourth year of study.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Formatting for consistency.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 483 **TITLE** Undergraduate Research II

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Experimental and/or theoretical research; preparation of a written report and oral presentation in research seminar format. Admission requires selection of a faculty supervisor and submission of a research proposal. Prospective students must contact the chemistry advisor to register their interest in this course before the last day of classes of the previous semester. The research proposal is due by the end of the examination period preceding the research term. Prerequisite: CHEM 481 and permission of the ~~department~~Department. This course cannot be counted towards the 400-level CHEM unit requirement for the Chemistry Major~~s~~ program.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Formatting for consistency.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 484 **TITLE** Two-Semester Undergraduate Research in Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Experimental and/or theoretical research normally over two consecutive semesters; preparation of a written report and oral presentation in research seminar format. Admission requires selection of a faculty supervisor and submission of a research proposal. Prospective students must contact the chemistry advisor to register their interest in this course before the last day of classes of the previous term. The research proposal is due by the end of the examination period preceding the research term. Prerequisite: Permission of the ~~department~~Department; knowledge of chemistry at an advanced level. Normally taken after completion of ~~300~~ 300-level course requirements. No credit will be given for CHEM 481 or CHEM 483 if CHEM 484 is completed.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Formatting for consistency.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 109 **TITLE** Introduction to Chemistry for Health Careers

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

General concepts of chemistry for those with no chemistry background who are interested in pursuing careers in health sciences. Principles of atomic structure, chemical bonding, gases, liquids and solutions, chemical kinetics and equilibrium are covered. The chemistry of everyday materials, drugs and poisons, and environmental issues are surveyed. Prerequisite: ~~Math 12 or equivalent~~ Pre-Calculus 12 (or equivalent) or MATH 100 (may be taken concurrently). This course is open only to students in the Aboriginal pre-health program. Students with credit for ~~high school chemistry~~ Chemistry 12 (or equivalent)~~,~~ or any university chemistry course may not ~~complete~~ take this course for further credit. Quantitative/Breadth-Science.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Wording changes are intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 111 **TITLE** Introductory Chemistry and Laboratory

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

General fundamental concepts and nomenclature; stoichiometry and chemical calculations; nuclear and atomic structures, chemical bonding; properties of gases, liquids, solids and solutions; chemical kinetics and chemical equilibrium. This course includes a laboratory component. Prerequisite: ~~BC high school mathematics~~Pre-Calculus 12 (or equivalent), MATH 100 (may be taken concurrently), or permission of the ~~department~~Department. No previous training in chemistry is required for this course. ~~Corequisite: if BC high school Mathematics 12 credit not obtained, then MATH 100 must be taken as a corequisite to CHEM 111. Equivalent Courses: CHEM101 CHEM110~~ Students with credit for ~~high school chemistry~~ Chemistry 12 (or equivalent), ~~CHEM 101, or~~ CHEM 110, or any university chemistry course may not take this course for further credit. Quantitative/Breadth-Science.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Wording changes are intended to make the course listing clearer for students. Removal of outdated equivalent course CHEM 101.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	121	TITLE	General Chemistry and Laboratory I

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Atomic and molecular structure; chemical bonding; thermochemistry; elements; periodic table; gases liquids, solids, and solutions. This course includes a laboratory component. Prerequisite: ~~BC high school chemistry~~ Chemistry 12, or CHEM 109 or ~~CHEM~~ 111 with a minimum grade of C-. Students with credit for CHEM 120 or 123 may not ~~count both CHEM 120 and 121~~take this course for further credit. Quantitative/Breadth-Science.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Wording changes are intended to make the course listing clearer for students. Added Enriched General Chemistry I to equivalency statement.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 122 **TITLE** General Chemistry II

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Chemical equilibria; electrochemistry; chemical thermodynamics; kinetics. Students who intend to take further laboratory courses in chemistry should take CHEM 122 concurrently with CHEM 126. Prerequisite: CHEM 120 or~~CHEM~~ 121 ~~or 120~~with a minimum grade of C-. ~~Recommended: MATH 152 (or 155) and PHYS 121 (or 102) as a corequisite.~~Students with credit for CHEM 124 or CHEM 180 may not take this course for further credit. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Wording changes are intended to make the course listing clearer for students. Added equivalency statement for courses with enough overlapping course content (Enriched General Chemistry II and Gen Chem II for Engineers).

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	123	TITLE	Enriched Chemistry I and Laboratory

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

An enriched chemistry course, covering atomic and molecular structure; chemical bonding; thermochemistry; elements; periodic table; gases, liquids, solids, and solutions, focusing on current chemistry research and applications. The topics will be covered with more sophistication than in other 1st year chemistry courses, and thus a thorough mastery of high-school chemistry will be assumed. This course includes a laboratory component. Prerequisite: ~~By p~~Permission of the Department~~. ; BC high school chemistry~~ Chemistry 12 or CHEM 111. Students with credit for CHEM 120 or CHEM 121 may not ~~count more than one of CHEM 120, 121 or 123~~take this course for further credit. ~~Recommended: MATH 125 (or 151 or 154) and PHYS 125 (or 120 or 101) as a corequisite.~~ Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Wording changes are intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 124 **TITLE** Enriched Chemistry II

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

An enriched chemistry course, covering chemical equilibria; electrochemistry; chemical thermodynamics; kinetics, energy and nuclear science, focusing on current chemistry research and applications. The topics will be covered with more sophistication than in other 1st year chemistry courses, and thus a thorough mastery of high-school chemistry will be assumed. Prerequisite: CHEM 123 with a minimum grade of C-; or CHEM 120 or~~CHEM~~ 121 ~~(or 120)~~ and permission of the Department. Students with credit for CHEM 122 or CHEM 180 may not ~~count more than one of CHEM 122 or 124~~take this course for further credit. ~~Corequisite:~~ Students who intend to take further laboratory courses in chemistry should take CHEM 124 concurrently with CHEM 126. ~~Recommended: MATH 126 (or 152 or 155) and PHYS 126 (or 121 or 102) as a corequisite.~~ Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Wording changes are intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 180 **TITLE** The Chemistry of Life

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

A basic introduction to chemical kinetics, thermodynamics, electrochemistry, and equilibria as they apply to the structure and function of biomolecules. Concepts will be illustrated using modern examples of biological systems. Students will be introduced to central ideas and selected molecular engineering methods in biochemistry and molecular biology. Prerequisite: CHEM 121 with a minimum grade of C-. Students with credit for CHEM 122 or CHEM 124 may not take this course for further credit.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Added equivalency statement for courses with enough overlapping course content (General Chemistry II and Enriched Gen Chem II).

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	260	TITLE	Atoms, Molecules, Spectroscopy

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Elements of physical chemistry from the molecular point of view. Introduction to quantum chemistry, atomic and molecular structure, and spectroscopy. Prerequisite: CHEM 122, MATH 152, and ~~PHYS 102 (with at least a B grade) or~~ PHYS 121, ~~or PHYS~~ 126 or ~~PHYS~~ 141 (or PHYS 102 with a minimum grade of B), all with a minimum grade of C-. Recommended: MATH 232. Students with credit for PHYS 285 may not take this course for further credit. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Wording changes and inclusion of minimum grade requirement are intended to make the course listing clearer for students. Added equivalency statement for PHYS 285 as this course is an acceptable prerequisite substitute for future CHEM courses and has enough overlapping content.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 282 **TITLE** Organic Chemistry II

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Polyfunctional organic compounds and complex organic reactions. Introduction to natural products. Prerequisite: CHEM 281 with a minimum grade of C-. Students with credit for CHEM 283 may not ~~complete~~ take this course for further credit. ~~Prerequisite: CHEM 281.~~ Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Moved the prerequisite statement before equivalency statement. Changed "complete" to "take" for consistency.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 283 **TITLE** Organic Chemistry IIb

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

An advanced treatment of Organic Chemistry II. Topics include dienes and their reactivity, conjugation and aromaticity, aromatic substitution reactions, carboxylic acids and their derivatives, ketones and aldehydes, biological molecules, radical reactions, organometallic reagents, pericyclic reactions and planning multi-step synthesis. Prerequisite: CHEM 281 with a minimum grade of C-. Students ~~should not receive~~with credit for ~~both~~ CHEM 282 ~~and 283~~may not take this course for further credit. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Changed wording of equivalency statement for consistency.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	316	TITLE	Introductory Instrumental Analysis

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Principles and applications of basic analytical instrumentation based upon spectroscopy, chromatography and electrochemistry. Prerequisite: CHEM 215 and ~~CHEM~~ 260, both with a minimum grade of C-, or permission of the ~~department~~Department. ~~Students with credit for CHEM 416 may not take this course for further credit.~~ Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Removing an outdated course equivalency statement.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	360	TITLE	Thermodynamics and Chemical Kinetics

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Elements of physical chemistry from the macroscopic point of view. Thermodynamics, and its applications to chemical equilibrium. Chemical kinetics and reaction rate theories. Prerequisite: CHEM 260 with a minimum grade of C-. Recommended: MATH 251. ~~Credit will not be granted for both CHEM 360 and MBB 323~~Students with credit for MBB 323 may not take this course for further credit. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Changing equivalency statement wording for consistency.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	440	TITLE	Solid State Materials Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

The study of the detailed chemistry of solid state inorganic materials in terms of crystal structures, bonding, preparative methods, analytical and characterization techniques, mixed valence states, solid solutions, defects and non-stoichiometry, molecular mechanisms of the optical, electronic, ionic, magnetic and dielectric properties, and materials applications in advanced technology. Prerequisite: CHEM 340 with a minimum grade of C-. ~~Students with credit for CHEM 438 may not take this course for further credit.~~ Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Removing outdated equivalency statement.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 464 **TITLE** Quantum Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Fundamentals of quantum mechanics and its principal results and techniques as applied to atoms and molecules: atomic structure, molecular bonding, rotations and vibrations of molecules, symmetry of atomic and molecular orbitals. Prerequisite: CHEM 260 or PHYS 285, MATH 232, and MATH 251~~; or PHYS 385~~, all with a minimum grade of C-. Recommended: MATH 310. ~~Students with credit for CHEM 469 may not take this course for further credit.~~ Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Removing outdated equivalency statement (Chem 469 ST has not been offered as quantum chemistry).

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 465 **TITLE** Electrochemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Modern techniques and concepts in electrochemistry. Topics include equilibrium and dynamic electrochemistry, ion transport and voltammetry. Electrochemical systems of increasing importance including chemically modified electrodes, fuel cells and solar energy conversion applications will also be discussed. Prerequisite: CHEM 360 with a minimum grade of C-. ~~Students with credit for CHEM 469 may not take this course for further credit.~~ Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Removing outdated equivalency statement (Chem 469 ST has not been offered as electrochemistry).

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 230 **TITLE** Inorganic Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☒	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

The chemistry of the elements and their inorganic compounds in terms of fundamental concepts of periodicity of properties, valence, ionization potential, electron affinity, electronegativity, stability of oxidation states, bonding, structure and stereochemistry. Co-ordination complexes and organometallic chemistry. Prerequisite: CHEM 122 with a minimum grade of C-. ~~Corequisite: students~~ Students who expect to take further courses in inorganic chemistry should take CHEM 230 concurrently with ~~take the laboratory course~~ CHEM 236W ~~concurrently with 230~~. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Fixing minor spelling error in "periodicity". Following a standard format for concurrent lecture/lab course statements throughout all chemistry course descriptions. Adding the W as Chem 236 (non-W) no longer exists.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	CHEM	NUMBER	286	TITLE	Organic Chemistry Laboratory II

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☒	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Laboratory work chosen to complement ~~CHEM 282~~the lecture course.
Prerequisite: CHEM 281 with a minimum grade of C-. Corequisite: CHEM 282 or 283. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Wording change and inclusion of the minimum grade requirement in the prerequisite statement are intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 110 **TITLE** Introductory Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☒	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

General fundamental concepts and nomenclature; stoichiometry and chemical calculations; nuclear and atomic structures, chemical bonding; properties of gases, liquids, solids and solutions; chemical kinetics and chemical equilibrium. This course has the same lecture component as CHEM 111 but no laboratory work. Students who intend to take further laboratory courses in chemistry ~~must~~ should take CHEM 111 instead. Prerequisite: ~~BC high school mathematics~~Pre-Calculus 12 (or equivalent), MATH 100 (may be taken concurrently), or permission of the ~~department~~Department. No previous training in chemistry is required for this course. ~~Corequisite: If BC high school mathematics 12 credit not obtained, then MATH 100 must be taken as a corequisite to CHEM 110.~~ Students with credit for ~~high school chemistry~~ Chemistry 12 (or equivalent), CHEM 111, or any university chemistry course may not take ~~CHEM 110 or 111~~this course for further credit. ~~Students may not count both CHEM 110 and 111 for credit.~~ Quantitative/Breadth-Science.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Wording changes are intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 120 **TITLE** General Chemistry I

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☒	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Atomic and molecular structure; chemical bonding; thermochemistry; elements; periodic table; gases, liquids, solids, and solutions. This course has the same lecture component as CHEM 121 but no laboratory work. Students who intend to take further laboratory courses in chemistry ~~must~~ should take CHEM 121 instead. Prerequisite: ~~BC high school chemistry~~ Chemistry 12, or CHEM 110 or~~CHEM~~ 111 ~~or CHEM 110~~with a minimum grade of C-. ~~Recommended: MATH 151 (or 154) and PHYS 120 (or 101) as a corequisite.~~ Students with credit for ~~CHEM 102, CHEM 104, or~~ CHEM 121 or CHEM 123 may not take this course for further credit. Quantitative/Breadth-Science.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Wording changes are intended to make the course listing clearer for students. Enriched General Chemistry I added to equivalency statement and outdated courses (CHEM 102 and CHEM 104) removed.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT CHEM **NUMBER** 433 **TITLE** Bioinorganic Chemistry

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☒	Equivalent Statement	☒

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

An overview of the roles of metal ions in biological systems, from trace elements, to enzymes, to medicinal inorganic chemistry. ~~Repeat for Credit.~~ Prerequisite: CHEM 332 with a minimum grade of C~~-: The Chemistry of Transition Metals~~; or at least 6 units of upper-division MBB ~~courses~~; or permission of the Department. ~~Students with credit for CHEM 333 may not take this course for further credit.~~

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Removing outdated equivalency statement and "repeat for credit" (which was accidentally included when this course was created).

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT NUSC **NUMBER** 342 **TITLE** Introduction to Nuclear Science

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Review of nuclear properties and systematics. Properties of the nuclear force; shell model and structure of complex nuclei, nuclear decay via particle emission and spontaneous fission; experimental description of nuclear reactions; nucleon-nucleus and heavy ion reactions. Prerequisite: NUSC 341, with a minimum grade of C-, or permission of the ~~department~~Department. Recommended: MATH 251. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Formatting for consistency.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT NUSC **NUMBER** 346 **TITLE** Radiochemistry Laboratory

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Introduction to the techniques of radiochemistry; proportional and Geiger counters; sample preparations and half-life measurement; synthesis and separation of labelled compounds; beta and gamma-ray spectroscopy. Prerequisite: NUSC 341 with a minimum grade of C-. Quantitative.

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT NUSC **NUMBER** 444 **TITLE** Special Topics in Nuclear Science

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Advanced topics in nuclear science. Prerequisite: NUSC 342 or 442, with a minimum grade of C-, or permission of the ~~department~~Department.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Including the minimum grade requirement in the prerequisite statement is intended to make the course listing clearer for students. Formatting for consistency.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT	NUSC	NUMBER	482	TITLE	Directed Study in Advanced Topics in Nuclear

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	☐	Prerequisite	☒
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Directed reading in a topic chosen in consultation with a supervisor. Admission requires selection of a faculty supervisor and submission of a study topic to the department at least one month prior to the start of the term in which the course will be taken. Normally taken during the fourth year of study. Prerequisite: Permission of the ~~department~~Department.

EFFECTIVE TERM AND YEAR FOR CHANGES

Fall, Spring, Summer and year (please enter in textbox)

Spring 2019

RATIONALE (must be included)

Formatting for consistency.

SFU SENATE COMMITTEE ON UNDERGRADUATE STUDIES

COURSE MODIFICATION FORM

COURSE SUBJECT NUSC **NUMBER** 346-3 **TITLE** Radiochemistry Laboratory

TYPE OF CHANGES. Please type 'X' for the appropriate revision(s):

Course number	☐	Units	X	Prerequisite	☐
Title	☐	Description	☐	Equivalent Statement	☐

WORDING/DESCRIPTION EDITS. Indicate deleted or changed text using ~~strike through~~, indicate added or new text using underline. If you need to enter more text than the box allows, drag the endpoint of the text box to make it bigger, as it will not automatically expand. Please review the "Equivalency statements" section under Information about specific course components if changing equivalent statement(s).

Change unit value from 2 to 3

EFFECTIVE TERM AND YEAR FOR CHANGES
Fall, Spring, Summer and year (please enter in textbox)

Spring 2018

RATIONALE (must be included)

Presently the Radiochemistry Laboratory (NUSC 346) is a 2-credit course and involves up to 10 4-h nuclear science experiments, each accompanied by corresponding written reports. Due to the lack of a lecture component, the students do not have the opportunity to discuss and sufficiently learn about the theory behind the experiments, the experimental procedures, and how to approach some of the extensive data analysis. By adding a one-hour/week lecture component to this course (and thereby increasing the credit assignment from 2 to 3), the students will have the chance to a) better master the theoretical concepts behind each experiment, b) ensure that they have the experimental procedure ready for the lab and c) understand and prepare the data analysis excel sheets in advance of the laboratory.

This added credit hour of lecture (which will be scheduled in addition to the lab time) will also lead to a more efficient use of time during the laboratory and overall, will lead to better learning outcomes for the students.