



**Lakehead University**  
**Faculty of Science and Environmental Studies**

**REQUEST REPORT**

**Request Tracking Number:** 2013-SCI-2996  
**Request Title:** First Year Course - Chem

[DeAcTerm[EffectiveDate]] [DeAc[RequestEffectiveDate]]  
**Request Status:** In Workflow  
Request can't be split

**Request Contents**

Type	Title
1. New Version of a Course	Introductory Chemistry I
2. New Version of a Course	Introductory Chemistry II
3. New Course	Introductory Chemistry I
4. New Course	Introductory Chemistry I
5. New Course	Introductory Chemistry II
6. New Version of a Course	Analytical Chemistry I
7. New Version of a Course	Organic Chemistry I
8. New Version of a Course	Inorganic Chemistry I
9. New Version of a Course	Physical Chemistry I
10. New Version of a Course	Environmental Geochemistry

**Request History**

Workflow Step	Workflow Action	User	Change Made	Comments	Date
Initiator	Approved	Christine Gottardo	Yes	Submitted to workflow	12/31/2013
Dean and Faculty Council Review Stage	Approved	Christina Maenpaa	Yes	Approved by Faculty Council on January 9. Approved by Dr. Dean.	01/20/2014

**Supporting Documents**

File Name	Uploaded By	Upload Date	Size
-----------	-------------	-------------	------

Printed: 02/01/2014

## Supporting Documents Audit Trail

File Name	User	Date	Action
-----------	------	------	--------

### Notes

Date	User	Note
------	------	------

1.	New Version of a Course	Chemistry 1110 - Introductory Chemistry I
----	-------------------------	---

**Justification**

Title Change

**Course Details**

CURRENT VERSION	PROPOSED VERSION
Chemistry 1110 - Modern Chemistry I <b>Start Term:</b> Fall 2012 <b>End Term:</b> No Specified End Date	Chemistry 1110 - <del>Modern</del> -Introductory Chemistry I <b>Start Term:</b> Fall <del>2012</del> 2014 <b>End Term:</b> No Specified End Date

<u>Course Details</u>	
CURRENT VERSION	PROPOSED VERSION
<b>Code</b> Chemistry 1110	<b>Code</b> Chemistry 1110
<b>Title</b> Modern Chemistry I	<b>Title</b> <del>Modern</del> -Introductory Chemistry I
<b>Description</b> An introductory course in the fundamental principles of chemistry. Topics include: stoichiometry, atomic structure, chemical bonding, molecular geometry, introduction to organic chemistry, periodic properties of the elements.	<b>Description</b> An introductory course in the fundamental principles of chemistry. Topics include: stoichiometry, atomic structure, chemical bonding, molecular geometry, introduction to organic chemistry, periodic properties of the elements.
<b>End Term</b> No Specified End Date	<b>End Term</b> No Specified End Date
<b>Institution</b> Lakehead University	<b>Institution</b> Lakehead University
<b>Faculty</b> Faculty of Science and Environmental Studies	<b>Faculty</b> Faculty of Science and Environmental Studies
<b>CreditWeight</b> 0.5	<b>CreditWeight</b> 0.5
<b>Rationale</b>	<b>Rationale</b> <i>This is the fundamental chemistry course for all science majors. The title of the course is being changed to better reflect its nature as an introduction to the topic and we will also change the semester offer so that it can be taken in the winter semester for students who are unsuccessful in the fall</i>
<b>Requiredor Elective</b>	<b>Requiredor Elective</b>
<b>Cross List</b>	<b>Cross List</b>

<b>Offering</b> 3-3; 0-0	<b>Offering</b> 3-3; <del>03-03</del>
<b>Prerequisites</b> Chemistry 12U or equivalent	<b>Prerequisites</b> Chemistry 12U or equivalent
<b>Corequisites</b>	<b>Corequisites</b>
<b>Notes</b> (Three lectures weekly; laboratory and tutorial sessions in alternate weeks.) An additional fee (see Miscellaneous Fees) is required for this course.	<b>Notes</b> (Three lectures weekly; <i>and</i> laboratory <del>and tutorial</del> sessions in alternate weeks.) An additional fee (see Miscellaneous Fees) is required for this course.
<b>SpecialTopicDropdown</b>	<b>SpecialTopicDropdown</b>
<b>GradeSchemePF</b>	<b>GradeSchemePF</b>
<b>EffectonEnrolmentINIT</b>	<b>EffectonEnrolmentINIT</b>
<b>EffectonEnrolmentOTHER</b>	<b>EffectonEnrolmentOTHER</b> <i>Approximately 200 science majors are enrolled in this course</i>
<b>AdditionalTeachingSpace</b>	<b>AdditionalTeachingSpace</b> <i>No resources beyond those already in place will be used</i>
<b>EffectonTeachingLoads</b>	<b>EffectonTeachingLoads</b> <i>This change will impact teaching loads as we will extend the offer from 3-3; 0-0 to also offer the course in the winter</i>
<b>EffectonServices</b>	<b>EffectonServices</b> <i>We will need no additional teaching support services for this course.</i>
<b>DirectinkindSupport</b>	<b>DirectinkindSupport</b> <i>We will need no outside support for this course.</i>

2.	New Version of a Course	Chemistry 1130 - Introductory Chemistry II
----	-------------------------	--

<b>Justification</b>
Title Change

### Course Details

CURRENT VERSION	PROPOSED VERSION
Chemistry 1130 - Modern Chemistry II <b>Start Term:</b> Fall 2012 <b>End Term:</b> No Specified End Date	Chemistry 1130 - <del>Modern</del> -Introductory Chemistry II <b>Start Term:</b> Fall <del>2012</del> 2014 <b>End Term:</b> No Specified End Date

<u>Course Details</u>	
CURRENT VERSION	PROPOSED VERSION
<b>Code</b> Chemistry 1130	<b>Code</b> Chemistry 1130
<b>Title</b> Modern Chemistry II	<b>Title</b> <del>Modern</del> -Introductory Chemistry II
<b>Description</b> A continuation of Chemistry 1110 with the introduction of the following topics: states of matter, solution chemistry, thermodynamics, chemical equilibrium, electrochemistry, rates and mechanisms of chemical reactions.	<b>Description</b> A continuation of Chemistry 1110 with the introduction of the following topics: states of matter, solution chemistry, thermodynamics, chemical equilibrium, electrochemistry, rates and mechanisms of chemical reactions.
<b>End Term</b> No Specified End Date	<b>End Term</b> No Specified End Date
<b>Institution</b> Lakehead University	<b>Institution</b> Lakehead University
<b>Faculty</b> Faculty of Science and Environmental Studies	<b>Faculty</b> Faculty of Science and Environmental Studies
<b>CreditWeight</b> 0.5	<b>CreditWeight</b> 0.5
<b>Rationale</b>	<b>Rationale</b> <i>As the second fundamental course in introductory chemistry that is taken by all science majors, we are changing the title to better reflect the introductory nature of the course.</i>
<b>Requiredor Elective</b>	<b>Requiredor Elective</b>
<b>Cross List</b>	<b>Cross List</b>
<b>Offering</b>	<b>Offering</b>

0-0; 3-3	0-0; 3-3
<b>Prerequisites</b> Chemistry 1110	<b>Prerequisites</b> Chemistry 1110 <i>or Chemistry 1111</i>
<b>Corequisites</b>	<b>Corequisites</b>
<b>Notes</b> (Three lectures weekly; laboratory and tutorial sessions in alternate weeks.)	<b>Notes</b> (Three lectures weekly; <i>and</i> laboratory <del>and tutorial</del> sessions in alternate weeks.) <i>An additional fee (see Miscellaneous Fees) is required for this course.</i>
<b>SpecialTopicDropdown</b>	<b>SpecialTopicDropdown</b>
<b>GradeSchemePF</b>	<b>GradeSchemePF</b>
<b>EffectonEnrolmentINIT</b>	<b>EffectonEnrolmentINIT</b>
<b>EffectonEnrolmentOTHER</b>	<b>EffectonEnrolmentOTHER</b> <i>180 science majors usually take this course</i>
<b>AdditionalTeachingSpace</b>	<b>AdditionalTeachingSpace</b> <i>There are no requirements for additional resources</i>
<b>EffectonTeachingLoads</b>	<b>EffectonTeachingLoads</b> <i>This change does not impact teaching loads in the Department of Chemistry</i>
<b>EffectonServices</b>	<b>EffectonServices</b> <i>There are not additional teaching support services requested for this course.</i>
<b>DirectinkindSupport</b>	<b>DirectinkindSupport</b> <i>This course does not require any outside support.</i>

### Prerequisites

CURRENT VERSION			PROPOSED VERSION		
R1: ... All Course(s) from the following...			R1: ... All Course(s) from the following...		
<b>Code</b>	<b>Title</b>	<b>Credits</b>	<b>Code</b>	<b>Title</b>	<b>Credits</b>
Chemistry 1110	Modern Chemistry I		Chemistry 1110	Modern Chemistry I	

3.	New Course	Chemistry 1111 - Introductory Chemistry I
----	------------	---

**Justification**

New Course for Majors

**Course Details**

Chemistry 1111 - Introductory Chemistry I

**Start Term:** Fall 2014

**End Term:** No Specified End Date

<b><u>Course Details</u></b>
<b>Code</b> Chemistry 1111
<b>Title</b> Introductory Chemistry I
<b>Description</b> An introductory course in the fundamental principles of chemistry. Topics include: stoichiometry, atomic structure, chemical bonding, molecular geometry, introduction to organic chemistry, periodic properties of the elements.
<b>End Term</b> No Specified End Date
<b>Institution</b> Lakehead University
<b>Faculty</b> Faculty of Science and Environmental Studies
<b>CreditWeight</b> 0.5
<b>Rationale</b> This course is the fundamental introductory course for chemistry and biology/chemistry majors.
<b>Requiredor Elective</b> Required
<b>Cross List</b>
<b>Offering</b> 3-3; 0-0
<b>Prerequisites</b> Chemistry 12U or equivalent

<b>Corequisites</b>
<b>Notes</b> (Three lectures weekly; laboratory and tutorial sessions in alternate weeks.) An additional fee (see Miscellaneous Fees) is required for this course. This course is restricted to Chemistry and Biology/Chemistry Majors
<b>SpecialTopicDropdown</b>
<b>GradeSchemePF</b>
<b>EffectonEnrolmentINIT</b> There are approximately 30 majors in any given year
<b>EffectonEnrolmentOTHER</b> N/A
<b>AdditionalTeachingSpace</b> There will be no additional laboratory sections needed for this course.
<b>EffectonTeachingLoads</b> This course will require an increase in teaching loads.
<b>EffectonServices</b> There are no additional teaching support services requirements.
<b>DirectinkindSupport</b> This course does not need outside support.



4.	New Course	Chemistry 1112 - Introductory Chemistry I
----	------------	---

**Justification**

Chemistry course for Social Sciences and Humanities Students

**Course Details**

Chemistry 1112 - Introductory Chemistry I

**Start Term:** Fall 2014

**End Term:** No Specified End Date

<b><u>Course Details</u></b>
<b>Code</b> Chemistry 1112
<b>Title</b> Introductory Chemistry I
<b>Description</b> An introductory course in the fundamental principles of chemistry. Topics include: stoichiometry, atomic structure, chemical bonding, molecular geometry, introduction to organic chemistry, periodic properties of the elements.
<b>End Term</b> No Specified End Date
<b>Institution</b> Lakehead University
<b>Faculty</b> Faculty of Science and Environmental Studies
<b>CreditWeight</b> 0.5
<b>Rationale</b> This is a new course that we would like to offer to encourage Humanities and Social Sciences students to take chemistry. This is a terminal course and can not be used as a prerequisite to CHEM 1130 or CHEM 1131.
<b>Requiredor Elective</b> Elective
<b>Cross List</b>
<b>Offering</b> 3-0; 0-0
<b>Prerequisites</b> Chemistry 12U or equivalent

<b>Corequisites</b>
<b>Notes</b> This course is restricted to students enrolled in programs in the Humanities and Social Sciences and does not serve as a prerequisite to any of the further chemistry courses.
<b>SpecialTopicDropdown</b>
<b>GradeSchemePF</b>
<b>EffectonEnrolmentINIT</b>
<b>EffectonEnrolmentOTHER</b> We are estimating approximately 30 students might have interest in this course.
<b>AdditionalTeachingSpace</b> Other than increased teaching loads there are no other
<b>EffectonTeachingLoads</b> This course will increase departmental teaching loads.
<b>EffectonServices</b> There will be no teaching support services requirements
<b>DirectinkindSupport</b> We do not anticipate needing any outside support.

5.	New Course	Chemistry 1131 - Introductory Chemistry II
----	------------	--

**Justification**

New course for chemistry majors

**Course Details**

Chemistry 1131 - Introductory Chemistry II

**Start Term:** Fall 2014

**End Term:** No Specified End Date

**Course Details**

**Code**

Chemistry 1131

**Title**

Introductory Chemistry II

**Description**

A continuation of Chemistry 1111 with the introduction of the following topics: states of matter, solution chemistry, thermodynamics, chemical equilibrium, electrochemistry, rates and mechanisms of chemical reactions.

**End Term**

No Specified End Date

**Institution**

Lakehead University

**Faculty**

Faculty of Science and Environmental Studies

**CreditWeight**

0.5

**Rationale**

We are offering a first year introductory course designed to enhance the learning experience for chemistry and chemistry/biology majors.

**Requiredor Elective**

Required

**Cross List**

**Offering**

0-0; 3-0

**Prerequisites**

CHEM 1111

<b>Corequisites</b>
<b>Notes</b> (Three lectures weekly; laboratory and tutorial sessions in alternate weeks.) An additional fee (see Miscellaneous Fees) is required for this course. This course is restricted to Chemistry and Biology/Chemistry Majors
<b>SpecialTopicDropdown</b>
<b>GradeSchemePF</b>
<b>EffectonEnrolmentINIT</b> we anticipate approximately 30 students in this course
<b>EffectonEnrolmentOTHER</b> N/A
<b>AdditionalTeachingSpace</b> We anticipate that there will be no additional resources required other than increased teaching loads.
<b>EffectonTeachingLoads</b> We will see this course as increasing teaching loads.
<b>EffectonServices</b> We do not anticipate any additional teaching support services for this course.
<b>DirectinkindSupport</b> We do not require outside support for this course.

6.	New Version of a Course	Chemistry 2111 - Analytical Chemistry I
----	-------------------------	---

#### Justification

New course above (1131) can also be a prerequisite

### Course Details

CURRENT VERSION	PROPOSED VERSION
Chemistry 2111 - Analytical Chemistry I <b>Start Term:</b> Fall 2012 <b>End Term:</b> No Specified End Date	Chemistry 2111 - Analytical Chemistry I <b>Start Term:</b> Fall <del>2012</del> 2014 <b>End Term:</b> No Specified End Date

<u>Course Details</u>	
CURRENT VERSION	PROPOSED VERSION
<b>Code</b> Chemistry 2111	<b>Code</b> Chemistry 2111
<b>Title</b> Analytical Chemistry I	<b>Title</b> Analytical Chemistry I
<b>Description</b> Introduction to quantitative chemical analysis; acid-base, complexometric, precipitation and redox titrations; elementary spectrophotometry. Extensive applications to industrial and environmental problems.	<b>Description</b> Introduction to quantitative chemical analysis; acid-base, complexometric, precipitation and redox titrations; elementary spectrophotometry. Extensive applications to industrial and environmental problems.
<b>End Term</b> No Specified End Date	<b>End Term</b> No Specified End Date
<b>Institution</b> Lakehead University	<b>Institution</b> Lakehead University
<b>Faculty</b> Faculty of Science and Environmental Studies	<b>Faculty</b> Faculty of Science and Environmental Studies
<b>CreditWeight</b> 0.5	<b>CreditWeight</b> 0.5
<b>Rationale</b>	<b>Rationale</b> <i>There is an additional course that can function as the prerequisite for this course.</i>
<b>Requiredor Elective</b>	<b>Requiredor Elective</b>
<b>Cross List</b>	<b>Cross List</b>
<b>Offering</b> 3-3; 0-0	<b>Offering</b> 3-3; 0-0

<b>Prerequisites</b> Chemistry 1130	<b>Prerequisites</b> Chemistry 1130 <i>or Chemistry 1131</i>
<b>Corequisites</b>	<b>Corequisites</b>
<b>Notes</b> An additional fee (see Miscellaneous Fees) is required for this course.	<b>Notes</b> An additional fee (see Miscellaneous Fees) is required for this course.
<b>SpecialTopicDropdown</b>	<b>SpecialTopicDropdown</b>
<b>GradeSchemePF</b>	<b>GradeSchemePF</b>
<b>EffectonEnrolmentINIT</b>	<b>EffectonEnrolmentINIT</b> <i>25 students in chemistry and biology/chemistry take this course</i>
<b>EffectonEnrolmentOTHER</b>	<b>EffectonEnrolmentOTHER</b> <i>Approximately 40 other students take this course.</i>
<b>AdditionalTeachingSpace</b>	<b>AdditionalTeachingSpace</b> <i>No additional resources are required</i>
<b>EffectonTeachingLoads</b>	<b>EffectonTeachingLoads</b> <i>There will be no additions to the teaching loads</i>
<b>EffectonServices</b>	<b>EffectonServices</b> <i>There are no requests for teaching support services for this course</i>
<b>DirectinkindSupport</b>	<b>DirectinkindSupport</b> <i>There are no requests for outside support for this course.</i>

### Prerequisites

CURRENT VERSION			PROPOSED VERSION		
R1: ... All Course(s) from the following...			R1: ... All Course(s) from the following...		
<b>Code</b>	<b>Title</b>	<b>Credits</b>	<b>Code</b>	<b>Title</b>	<b>Credits</b>
Chemistry 1130	Modern Chemistry II		Chemistry 1130	Modern Chemistry II	

7.	New Version of a Course	Chemistry 2211 - Organic Chemistry I
----	-------------------------	--------------------------------------

### Justification

New course above (1131) can also be a prerequisite

### Course Details

CURRENT VERSION	PROPOSED VERSION
Chemistry 2211 - Organic Chemistry I <b>Start Term:</b> Fall 2012 <b>End Term:</b> No Specified End Date	Chemistry 2211 - Organic Chemistry I <b>Start Term:</b> Fall <del>2012</del> 2014 <b>End Term:</b> No Specified End Date

### Course Details

CURRENT VERSION	PROPOSED VERSION
<b>Code</b> Chemistry 2211	<b>Code</b> Chemistry 2211
<b>Title</b> Organic Chemistry I	<b>Title</b> Organic Chemistry I
<b>Description</b> Physical properties, chemical reactions, nomenclature and conformational properties of alkanes, alkenes and alkynes. Characteristic reactions of alcohols and alkyl halides. Reactions of various types of carbonyl compounds. Optical, geometric and diastereoisomerism. Introduction to the spectroscopic identification of organic compounds.	<b>Description</b> Physical properties, chemical reactions, nomenclature and conformational properties of alkanes, alkenes and alkynes. Characteristic reactions of alcohols and alkyl halides. Reactions of various types of carbonyl compounds. Optical, geometric and diastereoisomerism. Introduction to the spectroscopic identification of organic compounds.
<b>End Term</b> No Specified End Date	<b>End Term</b> No Specified End Date
<b>Institution</b> Lakehead University	<b>Institution</b> Lakehead University
<b>Faculty</b> Faculty of Science and Environmental Studies	<b>Faculty</b> Faculty of Science and Environmental Studies
<b>CreditWeight</b> 0.5	<b>CreditWeight</b> 0.5
<b>Rationale</b>	<b>Rationale</b> <i>There is an additional course that can function as the prerequisite for this course.</i>
<b>Requiredor Elective</b>	<b>Requiredor Elective</b>
<b>Cross List</b>	<b>Cross List</b>

<b>Offering</b> 3-3; 0-0	<b>Offering</b> 3-3; 0-0
<b>Prerequisites</b> Chemistry 1130	<b>Prerequisites</b> Chemistry 1130 <i>or Chemistry 1131</i>
<b>Corequisites</b>	<b>Corequisites</b>
<b>Notes</b> An additional fee (see Miscellaneous Fees) is required for this course.	<b>Notes</b> An additional fee (see Miscellaneous Fees) is required for this course.
<b>SpecialTopicDropdown</b>	<b>SpecialTopicDropdown</b>
<b>GradeSchemePF</b>	<b>GradeSchemePF</b>
<b>EffectonEnrolmentINIT</b>	<b>EffectonEnrolmentINIT</b> <i>25 majors and joint majors</i>
<b>EffectonEnrolmentOTHER</b>	<b>EffectonEnrolmentOTHER</b> <i>80 students from other programs</i>
<b>AdditionalTeachingSpace</b>	<b>AdditionalTeachingSpace</b> <i>No additional resources are being requested</i>
<b>EffectonTeachingLoads</b>	<b>EffectonTeachingLoads</b> <i>The teaching loads in the department will not be impacted.</i>
<b>EffectonServices</b>	<b>EffectonServices</b> <i>No requests for teaching support services</i>
<b>DirectinkindSupport</b>	<b>DirectinkindSupport</b> <i>No outside support required for this course.</i>

### Prerequisites

CURRENT VERSION			PROPOSED VERSION		
R1: ... All Course(s) from the following...			R1: ... All Course(s) from the following...		
<b>Code</b>	<b>Title</b>	<b>Credits</b>	<b>Code</b>	<b>Title</b>	<b>Credits</b>
Chemistry 1130	Modern Chemistry II		Chemistry 1130	Modern Chemistry II	



8.	New Version of a Course	Chemistry 2351 - Inorganic Chemistry I
----	-------------------------	--

### Justification

New course above (1131) can also be a prerequisite

### Course Details

CURRENT VERSION	PROPOSED VERSION
Chemistry 2351 - Inorganic Chemistry I <b>Start Term:</b> Fall 2012 <b>End Term:</b> No Specified End Date	Chemistry 2351 - Inorganic Chemistry I <b>Start Term:</b> Fall <del>2012</del> 2014 <b>End Term:</b> No Specified End Date

<u>Course Details</u>	
CURRENT VERSION	PROPOSED VERSION
<b>Code</b> Chemistry 2351	<b>Code</b> Chemistry 2351
<b>Title</b> Inorganic Chemistry I	<b>Title</b> Inorganic Chemistry I
<b>Description</b> Review of atomic theory/structure and periodic trends; models of structure and bonding, including the covalent bond (emphasizing the molecular orbital approach), ionic bond (ionic structures and defects and the metallic bond (conductors, semi-conductors, insulators, alloys); chemistry of the main group elements; introduction to transitions metal chemistry, including Crystal Field Theory, structural distortions, colour and electronic spectra of transition metal complexes.	<b>Description</b> Review of atomic theory/structure and periodic trends; models of structure and bonding, including the covalent bond (emphasizing the molecular orbital approach), ionic bond (ionic structures and defects and the metallic bond (conductors, semi-conductors, insulators, alloys); chemistry of the main group elements; introduction to transitions metal chemistry, including Crystal Field Theory, structural distortions, colour and electronic spectra of transition metal complexes.
<b>End Term</b> No Specified End Date	<b>End Term</b> No Specified End Date
<b>Institution</b> Lakehead University	<b>Institution</b> Lakehead University
<b>Faculty</b> Faculty of Science and Environmental Studies	<b>Faculty</b> Faculty of Science and Environmental Studies
<b>CreditWeight</b> 0.5	<b>CreditWeight</b> 0.5
<b>Rationale</b>	<b>Rationale</b> <i>There is an additional course that can function as the prerequisite for this course.</i>
<b>Requiredor Elective</b>	<b>Requiredor Elective</b>
<b>Cross List</b>	<b>Cross List</b>

<b>Offering</b> 0-0; 3-3	<b>Offering</b> 0-0; 3-3
<b>Prerequisites</b> Chemistry 1130	<b>Prerequisites</b> Chemistry 1130 <i>or Chemistry 1131</i>
<b>Corequisites</b>	<b>Corequisites</b>
<b>Notes</b> Students who have previous credit in Chemistry 3351 may not take Chemistry 2351 for credit. An additional fee (see Miscellaneous Fees) is required for this course.	<b>Notes</b> Students who have previous credit in Chemistry 3351 may not take Chemistry 2351 for credit. An additional fee (see Miscellaneous Fees) is required for this course.
<b>SpecialTopicDropdown</b>	<b>SpecialTopicDropdown</b>
<b>GradeSchemePF</b>	<b>GradeSchemePF</b>
<b>EffectonEnrolmentINIT</b>	<b>EffectonEnrolmentINIT</b> <i>There are approximately 25 majors who take this course.</i>
<b>EffectonEnrolmentOTHER</b>	<b>EffectonEnrolmentOTHER</b> <i>N/A</i>
<b>AdditionalTeachingSpace</b>	<b>AdditionalTeachingSpace</b> <i>There are no additional resources required for this course.</i>
<b>EffectonTeachingLoads</b>	<b>EffectonTeachingLoads</b> <i>There will be no impact on teaching loads with this change.</i>
<b>EffectonServices</b>	<b>EffectonServices</b> <i>There are no requirements for teaching support services in this course.</i>
<b>DirectinkindSupport</b>	<b>DirectinkindSupport</b> <i>No outside support is requested.</i>

### Prerequisites

CURRENT VERSION			PROPOSED VERSION		
R1: ... All Course(s) from the following...			R1: ... All Course(s) from the following...		
<b>Code</b>	<b>Title</b>	<b>Credits</b>	<b>Code</b>	<b>Title</b>	<b>Credits</b>
Chemistry 1130	Modern Chemistry II		Chemistry 1130	Modern Chemistry II	

9.	New Version of a Course	Chemistry 2411 - Physical Chemistry I
----	-------------------------	---------------------------------------

**Justification**

New course above (1131) can also be a prerequisite

**Course Details**

CURRENT VERSION	PROPOSED VERSION
Chemistry 2411 - Physical Chemistry I <b>Start Term:</b> Fall 2012 <b>End Term:</b> No Specified End Date	Chemistry 2411 - Physical Chemistry I <b>Start Term:</b> Fall <del>2012</del> 2014 <b>End Term:</b> No Specified End Date

<u>Course Details</u>	
CURRENT VERSION	PROPOSED VERSION
<b>Code</b> Chemistry 2411	<b>Code</b> Chemistry 2411
<b>Title</b> Physical Chemistry I	<b>Title</b> Physical Chemistry I
<b>Description</b> Introduction to thermodynamics; basic principles of electrochemistry and chemical kinetics.	<b>Description</b> Introduction to thermodynamics; basic principles of electrochemistry and chemical kinetics.
<b>End Term</b> No Specified End Date	<b>End Term</b> No Specified End Date
<b>Institution</b> Lakehead University	<b>Institution</b> Lakehead University
<b>Faculty</b> Faculty of Science and Environmental Studies	<b>Faculty</b> Faculty of Science and Environmental Studies
<b>CreditWeight</b> 0.5	<b>CreditWeight</b> 0.5
<b>Rationale</b>	<b>Rationale</b> <i>There is an additional course that can function as the prerequisite for this course.</i>
<b>Requiredor Elective</b>	<b>Requiredor Elective</b>
<b>Cross List</b>	<b>Cross List</b>
<b>Offering</b> 3-3; 0-0	<b>Offering</b> 3-3; 0-0
<b>Prerequisites</b> Chemistry 1130	<b>Prerequisites</b> Chemistry 1130 <i>or Chemistry 1131</i>

<b>Corequisites</b>	<b>Corequisites</b>
<b>Notes</b>	<b>Notes</b>
<b>SpecialTopicDropdown</b>	<b>SpecialTopicDropdown</b>
<b>GradeSchemePF</b>	<b>GradeSchemePF</b>
<b>EffectonEnrolmentINIT</b>	<b>EffectonEnrolmentINIT</b> <i>There are approximately 25 majors in this course</i>
<b>EffectonEnrolmentOTHER</b>	<b>EffectonEnrolmentOTHER</b> <i>There are approximately 10 other science majors who take this course</i>
<b>AdditionalTeachingSpace</b>	<b>AdditionalTeachingSpace</b> <i>We are not requesting additional resources for this course.</i>
<b>EffectonTeachingLoads</b>	<b>EffectonTeachingLoads</b> <i>This change will not impact teaching loads.</i>
<b>EffectonServices</b>	<b>EffectonServices</b> <i>We do not require teaching support services for this course.</i>
<b>DirectinkindSupport</b>	<b>DirectinkindSupport</b> <i>We do not require outside support for this course.</i>

### Prerequisites

CURRENT VERSION			PROPOSED VERSION		
R1: ... All Course(s) from the following...			R1: ... All Course(s) from the following...		
<b>Code</b>	<b>Title</b>	<b>Credits</b>	<b>Code</b>	<b>Title</b>	<b>Credits</b>
Chemistry 1130	Modern Chemistry II		Chemistry 1130	Modern Chemistry II	

10.	New Version of a Course	Geology 4011 - Environmental Geochemistry
-----	-------------------------	---

**Justification**  
 New course above (1131) can also be a prerequisite

### Course Details

CURRENT VERSION	PROPOSED VERSION
Geology 4011 - Environmental Geochemistry <b>Start Term:</b> Fall 2012 <b>End Term:</b> No Specified End Date	Geology 4011 - Environmental Geochemistry <b>Start Term:</b> Fall <del>2012</del> 2014 <b>End Term:</b> No Specified End Date

<u>Course Details</u>	
CURRENT VERSION	PROPOSED VERSION
<b>Code</b> Geology 4011	<b>Code</b> Geology 4011
<b>Title</b> Environmental Geochemistry	<b>Title</b> Environmental Geochemistry
<b>Description</b> An introduction to environmental geochemistry emphasizing the interactions of chemical, physical, geological and biological factors in controlling the chemical distribution, composition and structure of aqueous systems. Students will be introduced to various topics in aqueous geochemistry such as mineral equilibria, ion exchange, redox equilibria, mass transport and the application of radiogenic and stable isotope tracers to environmental systems. Students will gain practical experience with computer software used for modeling geochemical reactions and processes.	<b>Description</b> An introduction to environmental geochemistry emphasizing the interactions of chemical, physical, geological and biological factors in controlling the chemical distribution, composition and structure of aqueous systems. Students will be introduced to various topics in aqueous geochemistry such as mineral equilibria, ion exchange, redox equilibria, mass transport and the application of radiogenic and stable isotope tracers to environmental systems. Students will gain practical experience with computer software used for modeling geochemical reactions and processes.
<b>End Term</b> No Specified End Date	<b>End Term</b> No Specified End Date
<b>Institution</b> Lakehead University	<b>Institution</b> Lakehead University
<b>Faculty</b> Faculty of Science and Environmental Studies	<b>Faculty</b> Faculty of Science and Environmental Studies
<b>CreditWeight</b> 0.5	<b>CreditWeight</b> 0.5
<b>Rationale</b>	<b>Rationale</b> <i>There will be more than one first year chemistry course that will function as the prerequisite.</i>
<b>Requiredor Elective</b>	<b>Requiredor Elective</b>

<b>Cross List</b> Chemistry 4011/Environmental Studies 4011	<b>Cross List</b> Chemistry 4011/Environmental Studies 4011
<b>Offering</b> 3-0; or 3-0	<b>Offering</b> 3-0; or 3-0
<b>Prerequisites</b> Chemistry 1130 and either Geology 2219 or Chemistry 2111	<b>Prerequisites</b> Chemistry 1130 <i>or 1131</i> and either Geology 2219 or Chemistry 2111
<b>Corequisites</b>	<b>Corequisites</b>
<b>Notes</b>	<b>Notes</b>
<b>SpecialTopicDropdown</b>	<b>SpecialTopicDropdown</b>
<b>GradeSchemePF</b>	<b>GradeSchemePF</b>
<b>EffectonEnrolmentINIT</b>	<b>EffectonEnrolmentINIT</b> <i>Approximately 15 students: a combination of majors and non-majors</i>
<b>EffectonEnrolmentOTHER</b>	<b>EffectonEnrolmentOTHER</b> <i>Please see above</i>
<b>AdditionalTeachingSpace</b>	<b>AdditionalTeachingSpace</b> <i>No additional resources will be required for this course.</i>
<b>EffectonTeachingLoads</b>	<b>EffectonTeachingLoads</b> <i>The teaching loads in chemistry will be increased.</i>
<b>EffectonServices</b>	<b>EffectonServices</b> <i>There are no additional teaching support services requested.</i>
<b>DirectinkindSupport</b>	<b>DirectinkindSupport</b> <i>We are not requesting outside support.</i>