1.0 Degree Title
Specify the two degrees for concurrent degree programs

Bachelor of Science (B.Sc.)

1.1 Major (Legacy = Subject) (30-char. max.)
Chemistry

1.2 Concentration (Legacy = Concentration/Option)
If applicable (30 char. max.)
Atmosphere & Environment Option

1.3 Minor (with Concentration, if applicable)
(30 char. max.)

1.4 Category
☐ Faculty Program (FP)  ☐ Honours (HON)
☒ Major
☐ Joint Honours
☐ Component (HC)
☐ Internship/Co-op
☐ Thesis (T)
☐ Non-Thesis (N)
☐ Other
Please specify

1.5 Complete Program Title
B. Sc. in Chemistry, Atmosphere & Environment Option

2.0 Administering Faculty/Unit

Science / Chemistry

3.0 Effective Term of revision or retirement
Please give reasons in 5.0 “Rationale” in the case of retirement
(Ex. Sept. 2004 = 200409) ☐ Retirement

Term: 200709

4.0 Existing Credit Weight
Proposed Credit Weight
62  63

5.0 Rationale for revised program
Environmental Chemistry is a multi-disciplinary field which spans orientations going from the prediction of long-term environmental changes to the re-design of industrial chemistry to reduce environmental impacts. Throughout most of these orientations, Atmospheric Chemistry plays a central role. The existing Environmental option does not reflect these facts and in particular does not include any course on the fundamentals in atmospheric sciences. The new Atmospheric and Environmental option corrects this lack by requiring one course of Atmospheric Chemistry or Green Chemistry, while allowing students to take an atmospheric sciences orientation in addition to existing orientations. This new programme can also be taken as a preparation for graduate studies in atmospheric chemistry. This revision comes as the Department of Chemistry reinforced its expertise in Atmospheric Chemistry by hiring a second faculty in this discipline. The course CHEM 307 is now a complementary course instead of a required course.

6.0 Revised Program Description (Maximum 150 words)
The Atmospheric and Environmental Chemistry option is a multi-disciplinary programme which spans orientations going from the prediction of long-term environmental changes to the re-design of industrial chemistry to reduce environmental impacts. It provides students with an in-depth knowledge of either atmospheric chemistry or green chemistry, as well as a choice of different orientations related to environmental chemistry: chemistry of pollutants, instrumental chemistry, oceanographic chemistry, atmospheric sciences and numerical analysis.
### Existing Program

**Major in Chemistry: Atmosphere and Environment Option**

**63 credits**

**Required Courses (54 credits)**

- CHEM 212* Introductory Organic Chemistry 1 (4)
- CHEM 222* Introductory Organic Chemistry 2 (4)
- CHEM 223 Intro to Physical Chemistry 1 (2)
- CHEM 243 Intro to Physical Chemistry 2 (2)
- CHEM 253 Intro to Physical Chemistry I Lab (1)
- CHEM 263 Intro to Physical Chemistry II Lab (1)
- CHEM 277D1 Analytical Chemistry (1.5)
- CHEM 277D2 Analytical Chemistry (1.5)
- CHEM 281 Inorganic Chemistry 1 (3)
- CHEM 302 Introductory Organic Chemistry 3 (3)
- CHEM 345 Molecular Properties and Structure 1 (3)
- CHEM 355 Molecular Properties and Structure 2 (3)
- CHEM 365 Statistical Thermodynamics (2)
- CHEM 367 Instrumental Analysis 1 (3)
- CHEM 377 Instrumental Analysis 2 (3)
- CHEM 381 Inorganic Chemistry 2 (3)
- CHEM 392 Integrated Inorganic/Organic Laboratory (3)
- CHEM 393 Physical Chemistry Laboratory 2 (2)
- MATH 222** Calculus 3 (3)
- PHYS 242 Electricity and Magnetism (2)
- * asterisks denote courses with CEGEP equivalents
- ** Students who have successfully completed MATH 150 and MATH 151 are not required to take MATH 222.

**Complementary Courses (3 credits)**

- CHEM 219 Introduction to Atmospheric Chemistry (3)
- CHEM 307 Analytical Chemistry of Pollutants (3)

**Elective Courses**

3 credits, one of:
- CHEM 419 Advances in Chemistry of Atmosphere (3)
- CHEM 462 Green Chemistry (3)
- CHEM 567 Chemometrics: Data Analysis (3)
- CHEM 575 Chemical Kinetics (3)

**Total Credits:** 63

### Proposed Program

**Major in Chemistry: Atmosphere and Environment Option**

**63 credits**

**Required Courses (54 credits)**

- CHEM 212* Introductory Organic Chemistry 1 (4)
- CHEM 222* Introductory Organic Chemistry 2 (4)
- CHEM 223 Intro to Physical Chemistry 1 (2)
- CHEM 243 Intro to Physical Chemistry 2 (2)
- CHEM 253 Intro to Physical Chemistry I Lab (1)
- CHEM 263 Intro to Physical Chemistry II Lab (1)
- CHEM 277D1 Analytical Chemistry (1.5)
- CHEM 277D2 Analytical Chemistry (1.5)
- CHEM 281 Inorganic Chemistry 1 (3)
- CHEM 302 Introductory Organic Chemistry 3 (3)
- CHEM 345 Molecular Properties and Structure 1 (3)
- CHEM 355 Molecular Properties and Structure 2 (3)
- CHEM 365 Statistical Thermodynamics (2)
- CHEM 367 Instrumental Analysis 1 (3)
- CHEM 377 Instrumental Analysis 2 (3)
- CHEM 381 Inorganic Chemistry 2 (3)
- CHEM 392 Integrated Inorganic/Organic Laboratory (3)
- CHEM 393 Physical Chemistry Laboratory 2 (2)
- MATH 222** Calculus 3 (3)
- MATH 315 Ordinary Differential Equations (3)
- PHYS 242 Electricity and Magnetism (2)
- * asterisks denote courses with CEGEP equivalents
- ** Students who have successfully completed MATH 150 and MATH 151 are not required to take MATH 222.

**Complementary Courses (9 credits)**

- CHEM 219 Introduction to Atmospheric Chemistry (3)
- CHEM 419 Advances in Chemistry of Atmosphere (3)
- CHEM 462 Green Chemistry (3)
- CHEM 507 Analytical Chemistry of Pollutants (3)
- CHEM 532 Structural Organic Chemistry (3)
- CHEM 537 Numerical Analysis (3)
- CHEM 567 Chemometrics: Data Analysis (3)
- CHEM 575 Chemical Kinetics (3)
- CHEM 597 Analytical Spectroscopy (3)

**Elective Courses**

3 credits, one of:
- CHEM 219 Introduction to Atmospheric Chemistry (3)
- CHEM 419 Advances in Chemistry of Atmosphere (3)
- CHEM 462 Green Chemistry (3)

**Total Credits:** 63

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**Attainment of the Honours degree requires a CGPA of at least 2.00.**

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Attach extra page(s) as needed
8.0 Consultation with Related Units  ☑ Yes  ☐ No  ☐ Yes  ☐ No

Attach list of consultations

9. Approvals

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Submitted by

Name
Phone
Email
Submission Date

To be completed by ARR:

CIP Code