

Rochester INSTITUTE OF TECHNOLOGY

Minor Program proposal form

COLLEGE OF SCIeNCE

**Name of Certifying Academic Unit:** School of Chemistry and Materials Science

**Name of Minor:** Chemistry

**Brief description of the minor to be used in university publications**

|  |
| --- |
| Chemistry is intrinsically a part of our society from the fuels we use, the air we breathe and the water we drink, to the complex chemical behaviors of our own bodies. Chemistry is involved in the development of myriad materials such as computer chips, packaging materials, and alternative fuels. Increasing numbers of policy and ethical choices facing the global community involve issues where Chemistry plays a pivotal role. This minor provides students with the opportunity to study Chemistry in order to build a secondary area of expertise in support of their program or as an additional area of interest. |

**1.0 Minor Program Approvals**

|  |  |  |
| --- | --- | --- |
|  | Approval request date: | Approval granted date: |
| Academic Unit Curriculum Committee | 3/7/2017 |  |
| College Curriculum Committee |  |  |
| Inter-College Curriculum Committee |  |  |

**2.0 Rationale:**

A minor at RIT is a related set of academic courses consisting of no fewer than 15 semester credit hours leading to a formal designation on a student's baccalaureate transcript

How is this set of academic courses related?

|  |
| --- |
| All courses for this minor are offered by the School of Chemistry and Materials Science. |

**3.0 Multidisciplinary involvement:**

If this is a multidisciplinary minor spanning two or more academic units, list the units and their role in offering and managing this minor.

|  |
| --- |
| N/A |

**4.0 Students ineligible to pursue this minor:**

The purpose of the minor is both to broaden a student's college education and deepen it in an area outside the student’s major program. A minor may be related to and complement a student’s major, or it may be in a completely different academic/professional area.   It is the responsibility of the academic unit proposing a minor and the unit’s curriculum committee to indicate any home programs for which the minor is not a broadening experience.

Please list below any home programs whose students will not be allowed to pursue this minor, provide the reasoning, and indicate if this exclusion has been discussed with the affected programs:

|  |
| --- |
| Majors within the School of Chemistry and Materials Science such as Chemistry and Biochemistry majors are ineligible for this minor. |

**5.0 Minor Program Structure, Sequence and Course Offering Schedule:**

Describe the structure of the proposed minor and list all courses, their anticipated offering schedule, and any prerequisites.

* All minors must contain at least fifteen semester credit hours;
* Minors may be discipline-based or interdisciplinary;
* In most cases, minors shall consist of a minimum of two upper division courses (300 or above) to provide reasonable breadth and depth within the minor;
* As per New York State requirements, courses within the minor must be offered with sufficient frequency to allow students to complete the minor within the same time frame allowed for the completion of the baccalaureate degree;
* Provide a program mask showing how students will complete the minor.

Narrative of Minor Program Structure:

|  |
| --- |
| **Eligibility** Any student not enrolled in a major of the School of Chemistry and Materials Science may pursue this minor.  **Prerequisites**  A student must be matriculated in a baccalaureate program and must have successfully completed the following courses or the equivalent:   * COS-CHMG-141 General and Analytical Chemistry I and COS-CHMG-145 Chemical Principles I Laboratory * COS-CHMG-142 General and Analytical Chemistry II and COS-CHMG-146 Chemical Principles II Laboratory   **Requirements**   * Completion of the two semester Organic Chemistry sequence with the required laboratories. * A grade of a C or better must be attained in all courses applied to the minor. * All prerequisites must be met prior to taking courses that require them. * A minimum of 9 semester credit hours of additional courses from the listing below or other appropriate courses as approved by SCMS. These 9 credits must be in courses not required by the student's home program and must be completed in residency at RIT. * At least three credits must be 400-level or above. |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Course Number & Title | SCH | Required | Optional | Fall | Spring | Annual/  Biennial | Prerequisites |
| CHMO-231 Organic Chemistry I | 3 | X |  | X | X | Annual | CHMG-142 or permission of instructor |
| CHMO-232-Organic Chemistry II | 3 | X |  | X | X | Annual | CHMO- 231 Organic Chemistry I |
| CHMO-235-Organic Chemistry Lab I | 1 | X |  | X | X | Annual | Co-Req. CHMO-231 Organic Chemistry I |
| CHMO-236-Organic Chemistry Lab II | 1 | X |  | X | X | Annual | CHMO-235-Organic Chemistry Lab I and Co-Req. CHMO-232-Organic Chemistry II |
| CHMO-637 Advanced Organic Chemistry | 3 |  | X | X |  | Annual | CHMO-332 Comprehensive Organic Chemistry II |
| CHMO-636 Spec. ID of Organic Compounds | 3 |  | X | X |  | Annual | CHMO-332 Comprehensive Organic Chemistry II |
| CHMO-739 Advanced Physical Organic Chemistry | 3 |  | X |  | X | Biennial | CHMO-332 Comprehensive Organic Chemistry II and CHMP-441 Physical Chemistry I |
| CHMO-640 Mechanisms of Drug Interactions | 3 |  | X |  | X | Biennial | Graduate standing or CHMB-402 |
| CHMO-710\* Literature Explorations in Organic Synthesis | 1 |  | X | X | X | Annual | CHMO-637 Advanced Organic Chemistry Synthesis |
| CHMA-161 Quantitative Analysis | 3 |  | X |  | X | Annual | Prerequisites: CHEM-151 or CHMG-141 or equivalent course. Corequisites: CHMA-165 or equivalent course. |
| CHMA-261 Instrumental Analysis | 3 |  | X | X | X | Annual | Prerequisites: CHMA-161 or CHMG-142 or equivalent course. Corequisities: CHMA-265 or equivalent course. |
|  |  |  |  |  |  |  |  |
| CHMA-711 Advanced Instrumental Analysis | 3 |  | X | X | X | Annual | Prerequisites: CHMA-221 and CHMP-441 or equivalent courses or graduate standing in CHEM-MS. |
| CHMB-402 Biochemistry I | 3 |  | X | X | X | Annual | Prerequisite: CHMO-231 or CHMO-331 or equivalent course. |
|  |  |  |  |  |  |  |  |
| CHMB-460  Infectious Disease: Impact on Society and Culture | 3 |  | X |  | X | Annual | Prerequisites: CHMB-402 or BIOL-201. Students may not take and receive credit for BIOL-460 and CHMB-460. If you have earned credit for BIOL-460 or you are currently enrolled in BIOL-460 you will not be permitted to enroll in CHMB-460. |
| CHMB-610 Advanced  Protein  Biochemistry:  Structure  and  Function | 3 |  | X |  | X | Annual | Prerequisites: CHMB-402 or equivalent course or Graduate Standing in CHEM-MS. |
|  |  |  |  |  |  |  |  |
| CHMI-351 Descriptive Inorganic Chemistry | 3 |  | X | X |  | Annual | Prerequisite: CHMO-231 or CHMO-331 or equivalent course. |
| CHMI-464 Structural Inorganic Chemistry | 3 |  | X |  | X | Annual | ? |
| CHMI-764 Modern Inorganic Chemistry | 3 |  | X |  | X | Annual | This class is restricted to degree-seeking graduate students or those with permission from instructor. |
| CHMP-441 Physical Chemistry I | 3 |  | X | X |  | Annual | Prerequisites: MATH-219 or MATH-251 or STAT-145 and PHYS-211 or equivalent course. |
| CHMP-442 Physical Chemistry II | 3 |  | X |  | X | Annual | Prerequisite: CHMP-441 and (MATH-233 or (MATH-231 and MATH-241)) or equivalent courses |
| CHMP-751 Colloid and Interface Science | 3 |  | X |  | X | Annual | Prerequisites: CHMP-441 or equivalent course or Graduate Standing in CHEM-MS. |
| CHMP-752 Molecular Photophysics and Photochemistry | 3 |  | X |  | X | Annual | Prerequisites: CHMP-442 or equivalent course or Graduate Standing in CHEM-MS. |
| CHMP-753 Computational Chemistry | 3 |  | X | X |  | Annual | Prerequisites: CHMP-442 or equivalent course or Graduate Standing in CHEM-MS. |
| CHPO-706 Polymer Chemistry I | 3 |  | X | X |  | Annual | Prerequisites: CHMO-332 and CHMP-441 or equivalent course or Graduate Standing in CHEM-MS. |
| CHPO-707 Polymer Chemistry II | 3 |  | X |  | X | Annual | Prerequisites: CHPO-706 or equivalent course. |
| CHMA-621  Advanced Instrumental Analysis Lab | 3 |  | X | X | X | Annual | Prerequisites: CHMB-405 or CHMP-445 or Graduate Standing in CHEM-MS. |
| CHMA-740  Practical NMR | 3 |  | X |  | X | Annual | Prerequisites: CHMO-332 or CHMA-221 or equivalent course or graduate standing in CHEM-MS. |
| CHEM-493\* Undergraduate Research Experience | Var. |  | X | X | X | Annual | Permission of instructor |
| CHEM-495\*  Advanced Undergraduate Research Experience | Var. |  | X | X | X | Annual | Permission of instructor |
| CHMB-493 Biochemistry Research | Var. |  | X | X | X | Annual | Permission of instructor |
| CHMB-495 Advanced Biochemistry Research | Var. |  | X | X | X | Annual | Permission of instructor |
| CHEM-301\*  Undergraduate Teaching Experience | Var. |  | X | X | X |  | Achieved a B or better in the course assigned to assist. |
|  |  |  |  |  |  |  |  |

\*indicates that the course is repeatable for credit

|  |  |
| --- | --- |
| Total credit hours: 17 |  |

Please note that students seeking to obtain a Minor in Chemistry may use CHEM-493, CHEM-495, CHMB-493, CHMB-495 and CHEM-301 to satisfy up to 3 credit hours of the 9 credit hours required for the partial fulfillment of the minor. The remaining 6 credit hours must be acquired through traditional coursework from this list.

**Example student A**

|  |  |
| --- | --- |
| Course Number & Title | SCH |
| CHMO-637 Advanced Organic Chemistry | 3 |
| CHMO-636 Spec. ID of Organic Compounds | 3 |
| CHEM-493\* Undergraduate Research Experience | 1 |
| CHEM-301\*Undergraduate Teaching Experience | 2 x 1 |
| **TOTAL** | **9** |

**Example Student B**

|  |  |
| --- | --- |
| Course Number & Title | SCH |
| CHMO-739 Advanced Physical Organic Chemistry | 3 |
| CHMB-402 Biochemistry I | 3 |
| CHEM-301\*Undergraduate Teaching Experience | 1 x 3 |
| **TOTAL** | **9** |

**Example student C**

|  |  |
| --- | --- |
| Course Number & Title | SCH |
| CHPO-706 Polymer Chemistry I | 3 |
| CHPO-707 Polymer Chemistry II | 3 |
| CHEM-493\* Undergraduate Research Experience | 1 x 3 |
| **TOTAL** | **9** |