

Rochester INSTITUTE OF TECHNOLOGY

Minor Program proposal form

COLLEGE OF SCIeNCE

**Name of Certifying Academic Unit:** Department of Chemistry

**Name of Minor:** Chemistry

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

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| 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**

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| --- | --- | --- |
|  | Approval request date: | Approval granted date: |
| Academic Unit Curriculum Committee | 1/13/2012 | 1/30/2012 |
| College Curriculum Committee | 1/30/2012 | 1/31/2012 |
| 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?

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| All courses for this minor are offered by the Department of Chemistry. |

**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.

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| 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:

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| Majors within the Department of Chemistry 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:

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| **Eligibility** Any student not enrolled in a major of the Department of Chemistry 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. 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 one course must be 400-level or above. |

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| 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-403 |
| 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 | CHEM-151 or CHMG-141 |
| CHMA-165 Analytical Methods Lab | 2 |  | X |  | X | Annual | CHEM-130 or CHMG-145 |
| CHMA-221 Instrumental Analysis | 3 |  | X | X | X | Annual | CHMA-161 or CHMG-142 |
| CHMA-222 Chemical Separations | 3 |  | X | X | X | Annual | CHMA-161 or CHMG-142 |
| CHMA-711 Advanced Instrumental Analysis | 3 |  | X | X | X | Annual | CHMA-221 Instrumental Analysis and CHMP-441 Physical Chemistry I |
| CHMB-402 Biochemistry I | 3 |  | X | X | X | Annual | CHMO-231 or equiv |
| CHMB-403  Biochemistry II | 3 |  | X | X | X | Annual | CHMB-402, and CHMO-232 or equivalent, or permission of instructor |
| CHMB-540  Biochemistry of Infectious Diseases | 3 |  | X |  | X | Annual | CHMB-402 Biochemistry I or permission of instructor |
| CHMB-610 Advanced Protein Biochemistry | 3 |  | X |  | X | Annual | CHMB-403 Biochemistry II |
| CHMB-694 Molecular Modeling and Proteomics | 3 |  | X |  | X | Annual | CHMB-402 Biochemistry I |
| CHMI-351 Inorganic Chemistry I | 3 |  | X | X |  | Annual | CHMO-231 or equivalent |
| CHMI-352 Inorganic Chemistry II | 3 |  | X |  | X | Annual | CHMI-351, CHMP-442 |
| CHMI-764 Modern Inorganic Chemistry | 3 |  | X |  | X | Annual | CHMI-552 Inorganic Chemistry II |
| CHMP-441 Physical Chemistry I | 3 |  | X | X |  | Annual | CHMA-221, MATH-219 and one year of College Physics or equivalent |
| CHMP-442 Physical Chemistry II | 3 |  | X |  | X | Annual | CHMP-441 & PHYS-212 |
| CHMP-751 Colloid and Interface Science | 3 |  | X |  | X | Annual | Graduate standing or COS-CHMP-441 (or equivalent) |
| CHMP-752 Molecular Photophysics and Photochemistry | 3 |  | X |  | X | Annual | Graduate standing or COS-CHMP-442 (or equivalent) |
| CHMP-753 Computational Chemistry | 3 |  | X | X |  | Annual | Graduate standing or COS-CHMP-442 (or equivalent) |
| CHPO-706 Polymer Chemistry I | 3 |  | X | X |  | Annual | Graduate Standing or CHMO-332 Comprehensive Organic Chemistry II and CHMP-441 Physical Chemistry I (or equivalent) |
| CHPO-707 Polymer Chemistry II | 3 |  | X |  | X | Annual | CHPO-706 Polymer Chemistry II |
| CHMA-621  Advanced Instrumental Analysis Lab | 3 |  | X | X | X | Annual | COS-CHMB-405 or COS-CHMP-445 |
| CHMA-740  Practical NMR | 3 |  | X |  | X | Annual | Graduate Standing, or CHMO-332 or CHMA-221 and permission of instructor |
| CHMB-405 Biochemistry Experimental Techniques | 3 |  | X | X | X | Annual | CHMB-402 Biochemistry I |
| CHMI-565 Preparative Inorganic Chemistry Lab | 3 |  | X |  | X | Annual | CHMI-351 Inorganic Chemistry I |
| CHMO-535  Advanced Techniques in Organic Synthesis | 3 |  | X |  | X | Annual | CHMO-336 Comprehensive Organic Chemistry Lab II |
| CHPO-708  Polymer Synthesis & Characterization Lab | 3 |  | X | X |  | Annual | Graduate Standing or COS-CHMO-336 and permission of instructor |

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| Total credit hours: 17 |  |

**Minor Course Conversion Table: Quarter Calendar and Semester Calendar Comparison**

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| **Directions: The tables on this page will be used by the registrar’s office to aid student’s transitioning from the quarter calendar to the semester calendar.**  **If this minor existed in the quarter calendar and is being converted to the semester calendar please complete the following tables.**  **If this is a new minor that did not exist under the quarter calendar do not complete the following tables.**  Use the following tables to show minor course comparison in quarter and semester calendar formats. Use courses in the (2011-12) minor mask for this table. Display all required and elective minor courses. If necessary clarify how course sequences in the quarter calendar convert to semesters by either bracketing or using some other notation. |

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| Name of Minor in Semester Calendar: | Chemistry |
| Name of Minor in Quarter Calendar: | Chemistry |
| Name of Certifying Academic Unit: | Department of Chemistry |

| **QUARTER: Current Minor Courses** | | | **SEMESTER: Converted Minor Courses** | | |  |
| --- | --- | --- | --- | --- | --- | --- |
| Course # | Course Title | QCH | Course # | Course Title | SCH | **Comments** |
| 1013-231, 1013-232 | Organic Chemistry I, Organic Chemistry II | 3,3 | CHMO-231 | Organic Chemistry I | 3 |  |
| 1013-232, 1013-233 | Organic Chemistry II, Organic Chemistry III | 3,3 | CHMO-232- | Organic Chemistry II | 3 |  |
| 1013-235, 1013-236 | Organic Chemistry Lab I, Organic Chemistry Lab II | 1,1 | CHMO-235- | Organic Chemistry Lab I | 1 |  |
| 1013-236, 1013-237 | Organic Chemistry Lab II, Organic Chemistry Lab III | 1,1 | CHMO-236- | Organic Chemistry Lab II | 1 |  |
| 1013-537 | Advanced Organic Chemistry Synthesis | 3 | CHMO-637 | Advanced Organic Chemistry | 3 |  |
| 1013-736 | Spec. ID of Organic Compounds | 4 | CHMO-636 | Spec. ID of Organic Compounds | 3 |  |
| 1013-739 | Advanced Organic: Physical | 4 | CHMO-739 | Advanced Physical Organic Chemistry | 3 |  |
|  |  |  | CHMO-640 | Mechanisms of Drug Interactions | 3 | New |
| 1013-710 | Literature Explorations in Organic Synthesis | 1 | CHMO-710 | Literature Explorations in Organic Synthesis | 1 |  |
| 1008-261, 1008-262 | Quantitative Analysis I, Quantitative Analysis II | 3,4 | CHMA-161 | Quantitative Analysis | 3 |  |
| 1008-265,  1008-266 | Quantitative Analysis Lab I  Quantitative Analysis Lab II | 1,2 | CHMA-165 | Analytical Methods Lab | 2 |  |
| 1008-311 | Instrumental Analysis | 3 | CHMA-221 | Instrumental Analysis | 3 |  |
| 1008-312 | Separation Techniques | 3 | CHMA-222 | Chemical Separations | 3 |  |
| 1008-511/711 | Advanced Instrumental Analysis | 3 | CHMA-711 | Advanced Instrumental Analysis | 3 |  |
| 1009-502 | Biochemistry: Conf & Dyn. | 3 | CHMB-402 | Biochemistry I | 3 |  |
| 1009-503 & 1009-504 | Biochemistry: Metabolism & Biochemistry: Nucleic Acids | 3,3 | CHMB-403 | Biochemistry II | 3 |  |
|  |  |  | CHMB-540 | Biochemistry of Infectious Diseases | 3 | New |
| 1009-510 | Advanced Protein Biochemistry: Structure and Function | 3 | CHMB-610 | Advanced Protein Biochemistry | 3 |  |
| 1009-594 | Molecular Modeling and Proteomics | 4 | CHMB-694 | Molecular Modeling and Proteomics | 3 |  |
| 1012-562 | Inorganic Chemistry I | 3 | CHMI-351 | Inorganic Chemistry I | 3 |  |
| 1012-563 | Inorganic Chemistry II | 4 | CHMI-352 | Inorganic Chemistry II | 3 |  |
| 1012-564/764 | Modern Inorganic Chemistry | 3 | CHMI-764 | Modern Inorganic Chemistry | 3 |  |
| 1014-441,  1014-443 | Chemical Thermodynamics,  Chemical Kinetics | 4,4 | CHMP-441 | Physical Chemistry I | 3 |  |
| 1014-442 | Quantum Chemistry | 4 | CHMP-442 | Physical Chemistry II | 3 |  |
|  |  |  | CHMP-751 | Colloid and Interface Science | 3 | New |
|  |  |  | CHMP-752 | Molecular Photophysics and Photochemistry | 3 | New |
|  |  |  | CHMP-753 | Computational Chemistry | 3 | New |
| 1029-501/701 and 1029-502/702 | Organic Chemistry of Polymers & Polymer Chemistry: Chains & Solutions | 4,4 | CHPO-706 | Polymer Chemistry I | 3 |  |
| 1029-501/701 and 1029-502/702 | Organic Chemistry of Polymers & Polymer Chemistry: Chains & Solutions | 4,4 | CHPO-707 | Polymer Chemistry II | 3 |  |
| 1008-621 | Advanced Instrumental Analysis Lab | 2 | CHMA-621 | Advanced Instrumental Analysis Lab | 3 |  |
| 1014-740 | Basics of Pulsed NMR | 4 | CHMA-740 | Practical NMR | 3 |  |
| 1009-505 | Biochemistry Experimental Techniques | 2 | CHMB-405 | Biochemistry Experimental Techniques | 3 |  |
| 1012-565 | Preparative Inorganic Chemistry Lab | 3 | CHMI-565 | Preparative Inorganic Chemistry Lab | 3 |  |
|  |  |  | CHMO-535 | Advanced Techniques in Organic Synthesis | 3 | New |
| 1029-504/704 & 1029-505/705 | Polymer Characterization Lab & Synthesis of High Polymers Lab | 2,2 | CHPO-708 | Polymer Synthesis & Characterization Lab | 3 |  |

Policy Name: **D1.1 MINORS POLICY**

 1. Definition

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.

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.

In most cases, minors shall consist of a minimum of two upper division courses to provide reasonable breadth and depth within the minor.

2. Institutional parameters

1. Minors may be discipline-based or interdisciplinary;
2. Only matriculated students may enroll in a minor;
3. At least nine semester credit hours of the minor must consist of courses not required by the student's home program;
4. Students may pursue multiple minors.  A minimum of nine semester credit hours must be designated towards each minor; these courses may not be counted towards other minors;
5. The residency requirement for a minor is a minimum of nine semester credit hours consisting of RIT courses (excluding "X" graded courses);
6. Posting of the minor on the student's academic transcript requires a minimum GPA of 2.0 in each of the minor courses;
7. Minors may not be added to the student's academic record after the granting of the bachelor's degree.

3. Development/approval/administration processes

* 1. Minors may be developed by faculty at the departmental, inter-departmental, college, or inter-college level. As part of the minor development process:
     1. students ineligible for the proposed minor will be identified;
     2. prerequisites, if any, will be identified;
  2. Minor proposals must be approved by the appropriate academic unit(s) curriculum committee, and college curriculum committee(s), before being sent to the Inter-College Curriculum Committee (ICC) for final consideration and approval.
  3. The academic unit offering the minor (in the case of interdisciplinary minors, the designated college/department) is responsible for the following:
     1. enrolling students in the minor (as space permits);
     2. monitoring students progress toward completion of the minor;
     3. authorizing the recording of the minor's completion on student's academic records;
     4. granting of transfer credit, credit by exam, credit by experience, course substitutions, and advanced placement;
     5. responding to student requests for removal from the minor.
  4. 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.

4. Procedures for Minor revision

It is the duty of the college curriculum committee(s) involved with a minor to maintain the program’s structure and coherence.  Once a minor is approved by the ICC, changes to the minor that do not have a significant effect on its focus may be completed with the approval of the involved academic unit(s) and the college curriculum committee(s).  Significant changes in the focus of the minor must be approved by the appropriate academic unit(s) curriculum committee(s), the college curriculum committee(s) and be resubmitted to the ICC for final consideration and approval.