**Chemistry Summary Curriculum Map**

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| **If the course requires students to produce an artifact demonstrating student learning relevant to the outcome, indicate by placing the appropriate letter in the box (I = Introduced; D = Developed; M = Mastered). This form should be completed in concert with the “Student Learning Evidence Inventory” forms.** |
|  | **CHEMISTRY COURSES** | **CO-REQUISITES** |
| **MATH** | **PHYSICS** |
| **LEARNING OUTCOMES** | 131 | 132 | 231 | 232 | 301 | 320 | 330 | 331 | 332 | 345 | 378 | 394 | 425 | 431 | 445 | 478 | 118/119 or 121 | 122 | 220/ 231 | 221/ 232 |
| 1. Master content in organic, physical, analytical, and inorganic chemistry by:
	1. Describing chemical and physical structures,
	2. Problem solving using mathematical models, and
	3. Analyzing and describing the nature of chemical reactions and energy
 | I | I\* | I | D\* | D | D | D | D | D\* | D | D | D | M | M\* | D | M\* | I | I | I | I |
| 1. Be independent learners, by searching and explaining the chemical literature and other scientific resources in order to teach themselves new concepts
 | I | I\* | I | D |  |   | D\* | D | D | D | D | D\* | M | M | D | M\* |  |  |  |  |
| 1. Measure and characterize properties of matter using a variety of research-level chemical instrumentation, laboratory techniques, statistical and computational methods
 | I | I\* | I | D | D | D | D\* | D |  |  | D |  |  | M\* |  | M\* |  |  | I | I |
| 1. Display effective cooperation with others on projects in various learning and work environments
 | I | I\* |  |  |  | D | D\* | D |   |  |   |  |  | M\* |  |   |  |  |  |  |
| 1. Design and conduct original laboratory, computational or theoretical experiments and analyze the results leading to the capstone research project
 |  | I\* |  | I |  |   | D\* | D |  |  | D |  |  | M |  | M\* |  |  |  |  |
| 1. Clearly communicate experimental motivations and results through oral and written means
 | I | I | I | I\* | D | D | D | D\* |  |  | D | M\* | M | M |  | M\* |  |  |  |  |
| 1. Demonstrate professional integrity, safety, and environmental stewardship
 | I\* | I | I | D | D | D | D\* | D |   |  | D |  |  | M\* |  | M |  |  |  |  |