**BCMB 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.** |
|  | **CHEM COURSES** |
| **LEARNING OUTCOMES (Graduates will)** | 131 | 132 | 231 | 232 | 320 | 332 | 330 | 331 | 420 |
| 1 a) Quantitatively and qualitatively analyze the transformation and utilization of energy at the molecular level in biological systems. |  | I |  |  | M | M |  | M | D |
| 1 b) Use chemical concepts to describe the structure and function of biological macromolecules. |  |  | I | I | M |  |  |  | M |
| 1 c) Analyze the storage and flow of information at the molecular level in biological systems. |  |  |  |  | M |  |  |  | M |
| 2) Correctly use methods to analyze the properties and functions of biological macromolecules and biological systems at the molecular level using instrumentation, laboratory techniques, statistics or computational methods. |  |  |  |  | M |  | M |  |  |
| 3) Use information and ideas from scientific literature to devise, explain, or defend scientific arguments. |  |  |  | I | D | D | D | D | D |
| 4) Independently conduct and interpret scientific research | I | I |  |  | D |  | D |  |  |
| 5) Use written and oral communication to explain scientific arguments and relay the conclusions about these arguments that are drawn from described experimental evidence. |  |  |  |  | D |  | D | D |  |

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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.** |
|  | **BIOL COURSES** |
| **LEARNING OUTCOMES (Graduates will)** | 200 | 201 | 239 | 325 | 326 | 332 | 343 | 345 | 348 | 338 | 342 |
| 1 a) Quantitatively and qualitatively analyze the transformation and utilization of energy at the molecular level in biological systems. |  | I |  |  |  | D | D |  |  | D |  |
| 1 b) Use chemical concepts to describe the structure and function of biological macromolecules. |  | I | D |  |  | D | D | D | D | D |  |
| 1 c) Analyze the storage and flow of information at the molecular level in biological systems. |  | I | M | D | D |  |  | D | D | D | D |
| 2) Correctly use methods to analyze the properties and functions of biological macromolecules and biological systems at the molecular level using instrumentation, laboratory techniques, statistics or computational methods. | I | I | D |  | D |  | D | D | D | D | D |
| 3) Use information and ideas from scientific literature to devise, explain, or defend scientific arguments. | I | I | D | D | D | D | D | D | D | D | D |
| 4) Independently conduct and interpret scientific research | I | I | D |  | D |  | D | D | D | D |  |
| 5) Use written and oral communication to explain scientific arguments and relay the conclusions about these arguments that are drawn from described experimental evidence. | I | I | D | D | D | D | D | D | D | D | D |

**BCMB Summary Curriculum Map**

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|  | **BIOL Research/Sem** | **CHEM Research/Sem** | **BCMB Research** |
| **LEARNING OUTCOMES (Graduates will)** | 394 | 495 | 496 | 403-8 /460 | 378 | 394 | 494 | 476/478 | 360 | 460 |
| 1 a) Quantitatively and qualitatively analyze the transformation and utilization of energy at the molecular level in biological systems. |  |  |  |  |  |  |  |  |  |  |
| 1 b) Use chemical concepts to describe the structure and function of biological macromolecules. |  |  |  |  |  |  |  |  |  |  |
| 1 c) Analyze the storage and flow of information at the molecular level in biological systems. |  |  |  |  |  |  |  |  |  |  |
| 2) Correctly use methods to analyze the properties and functions of biological macromolecules and biological systems at the molecular level using instrumentation, laboratory techniques, statistics or computational methods. |  |  |  | M |  |  |  | M | D | M |
| 3) Use information and ideas from scientific literature to devise, explain, or defend scientific arguments. | D | D | M | M |  | M | M | M |  | M |
| 4) Independently conduct and interpret scientific research |  |  |  | M | M |  |  | M | D | M |
| 5) Use written and oral communication to explain scientific arguments and relay the conclusions about these arguments that are drawn from described experimental evidence. | D |  | M | M |  | M | M | M |  | M |