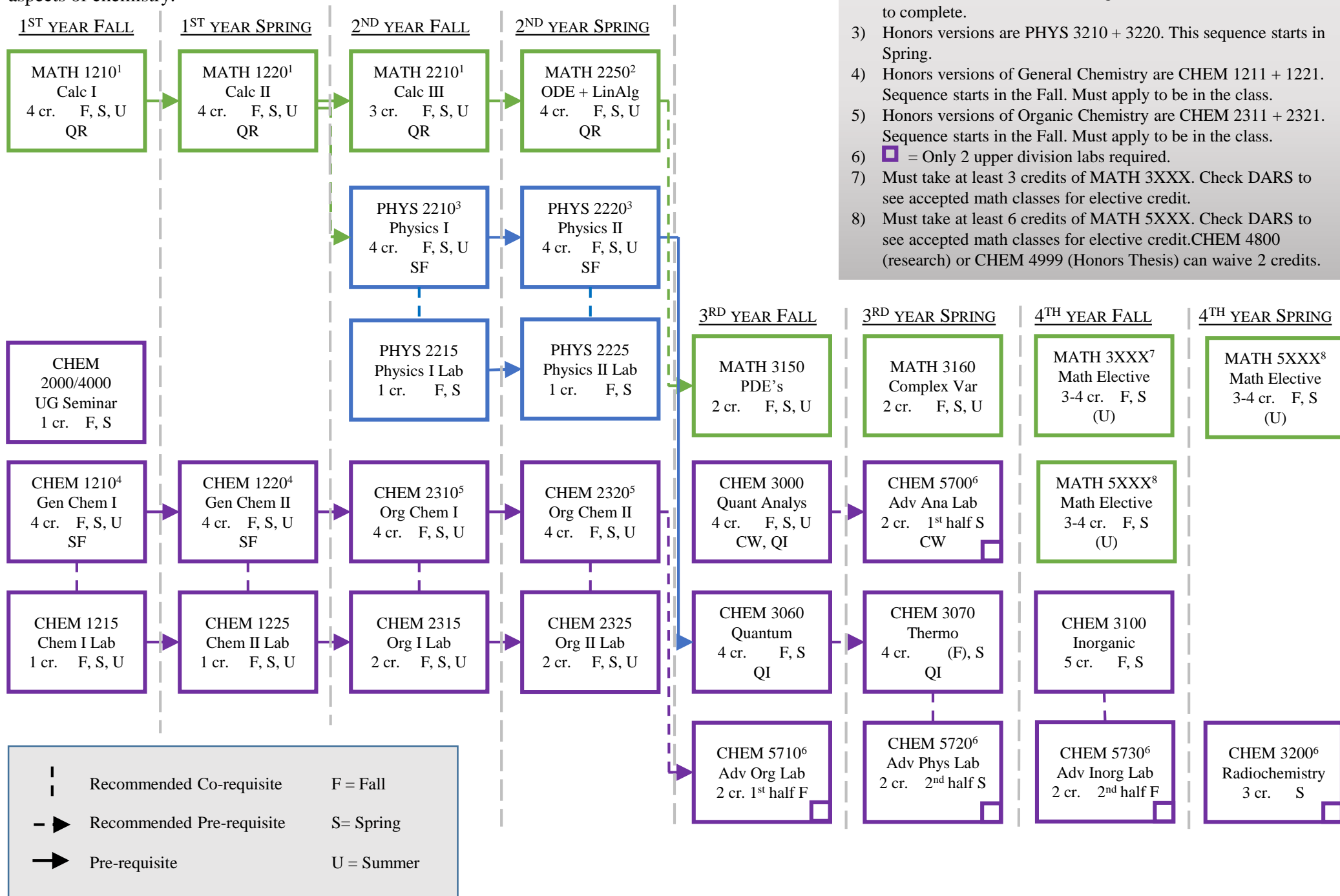


# Chemistry Course Requirements – Mathematics Emphasis (2016-17)

The Mathematics emphasis is designed for students who enjoy the mathematical aspects of chemistry. This math-intensive track will enhance students in their problem solving skills and may be of interest to those wanting to pursue a career in computational chemistry, although will give students an edge in all aspects of chemistry.

- 1) Can take whichever calculus sequence is appropriate, including AP Calculus (MATH 1250 & 1260) or Engineering Calculus (MATH 1310 & 1320) Must finish the sequence that was started.
- 2) MATH 2270 + 2280 are more rigorous, but will take 2 semesters to complete.
- 3) Honors versions are PHYS 3210 + 3220. This sequence starts in Spring.
- 4) Honors versions of General Chemistry are CHEM 1211 + 1221. Sequence starts in the Fall. Must apply to be in the class.
- 5) Honors versions of Organic Chemistry are CHEM 2311 + 2321. Sequence starts in the Fall. Must apply to be in the class.
- 6)  = Only 2 upper division labs required.
- 7) Must take at least 3 credits of MATH 3XXX. Check DARS to see accepted math classes for elective credit.
- 8) Must take at least 6 credits of MATH 5XXX. Check DARS to see accepted math classes for elective credit. CHEM 4800 (research) or CHEM 4999 (Honors Thesis) can waive 2 credits.



# Chemistry Course Requirements – Mathematics Emphasis (2016-17)

The Mathematics emphasis is designed for students who enjoy the mathematical aspects of chemistry.. This math-intensive track will enhance students in their problem solving skills and may be of interest to those wanting to pursue a career in computational chemistry, although will give students an edge in all aspects of chemistry

## Mathematics Emphasis

| Done?                    | Depart. | Number            | Course Name                           | Credit Hours | Gen Ed/<br>Bach Req | Prerequisites |  | Taught |   |   |
|--------------------------|---------|-------------------|---------------------------------------|--------------|---------------------|---------------|--|--------|---|---|
|                          |         |                   |                                       |              |                     | Chemistry     | Math/Other                             | F      | S |   |
| <b>MATH CLASSES</b>      |         |                   |                                       |              |                     |               |  |        |   |   |
| <input type="checkbox"/> | MATH    | 1210              | Calculus I <sup>o</sup>               | 4            | QR                  |               | MATH 1060 or 1080                      | x      | x | x |
| <input type="checkbox"/> | MATH    | 1220              | Calculus II <sup>o</sup>              | 4            | QR                  |               | MATH 1210                              | x      | x | x |
| <input type="checkbox"/> | MATH    | 2210              | Calculus III <sup>o</sup>             | 4            | QR                  |               | MATH 1220                              | x      | x | x |
| <input type="checkbox"/> | MATH    | 2250              | ODE's and Linear Algebra <sup>o</sup> | 4            | QR                  |               | MATH 2210                              | x      | x | x |
| <input type="checkbox"/> | MATH    | 3150              | PDE's                                 | 2            |                     |               | MATH 2250                              | x      | x | x |
| <input type="checkbox"/> | MATH    | 3160              | Complex Variables                     | 2            |                     |               | MATH 2250                              | x      | x | x |
| <input type="checkbox"/> | MATH    | 3XXX              |                                       | 3-4          |                     |               | See list of approved courses and DARS  |        |   |   |
| <input type="checkbox"/> | MATH    | 5XXX              |                                       | 3-4          |                     |               | See list of approved courses and DARS) |        |   |   |
| <input type="checkbox"/> | MATH    | 5XXX <sup>T</sup> |                                       | 3-4          |                     |               | See list of approved courses and DARS  |        |   |   |

## PHYSICS CLASSES

|                          |      |      |                                       |   |    |  |                       |   |   |   |
|--------------------------|------|------|---------------------------------------|---|----|--|-----------------------|---|---|---|
| <input type="checkbox"/> | PHYS | 2210 | Physics for Sci & Eng I <sup>o</sup>  | 4 | SF |  | MATH 1210             | x | x | x |
| <input type="checkbox"/> | PHYS | 2215 | Physics Lab for Sci & Eng I           | 1 |    |  | MATH 1210             | x | x |   |
| <input type="checkbox"/> | PHYS | 2220 | Physics for Sci & Eng II <sup>o</sup> | 4 | SF |  | MATH 1220 + PHYS 2210 | x | x | x |
| <input type="checkbox"/> | PHYS | 2225 | Physics Lab for Sci & Eng II          | 1 |    |  | MATH 1220 + PHYS 2210 | x | x | x |

## CHEMISTRY CLASSES

|                          |      |             |   |       |        |  |  |     |   |   |
|--------------------------|------|-------------|---|-------|--------|--|--|-----|---|---|
| <input type="checkbox"/> | CHEM | 2000/4000   | Undergrad Seminar                       | 1     |        |  |  | x   | x |   |
| <input type="checkbox"/> | CHEM | 1210 + 1215 | General Chemistry I <sup>o</sup> + Lab  | 4 + 1 | SF     |  | MATH 1050                                  | x   | x | x |
| <input type="checkbox"/> | CHEM | 1220 + 1225 | General Chemistry II <sup>o</sup> + Lab | 4 + 1 | SF     |  | CHEM 1210 + 1215                           | x   | x | x |
| <input type="checkbox"/> | CHEM | 2310 + 2315 | Organic Chemistry I <sup>A</sup> + Lab  | 4 + 2 |        |  | CHEM 1220 + 1225                           | x   | x | x |
| <input type="checkbox"/> | CHEM | 2320 + 2325 | Organic Chemistry II <sup>A</sup> + Lab | 4 + 2 |        |  | CHEM 2310 + 2315                           | x   | x | x |
| <input type="checkbox"/> | CHEM | 3000        | Quantitative Analysis                   | 4     | QI, CW |  | CHEM 1220                                  | x   | x | x |
| <input type="checkbox"/> | CHEM | 3060        | Quantum Chemistry & Spect               | 4     | QI     |  | MATH 1220 or 1250<br>MATH 2210 + PHYS 2220 | x   | x |   |
| <input type="checkbox"/> | CHEM | 3070        | Thermodynamics & Kinetics               | 4     | QI     |  | MATH 2210 + PHYS 2220                      | (x) | x |   |
| <input type="checkbox"/> | CHEM | 3100        | Inorganic Chemistry                     | 5     |        |  | CHEM 1220<br>CHEM 2320 + 3060              | x   | x |   |

## ADVANCED LABS - Choose 2

|                          |      |      |                          |   |    |  |                 |  |  |     |
|--------------------------|------|------|--------------------------|---|----|--|-----------------|--|--|-----|
| <input type="checkbox"/> | CHEM | 5700 | Analytical Chemistry Lab | 2 | CW |  | CHEM 3000       |  |  | 1st |
| <input type="checkbox"/> | CHEM | 5710 | Organic Chemistry Lab    | 2 |    |  | CHEM 2320       |  |  | 1st |
| <input type="checkbox"/> | CHEM | 5720 | Physical Chemistry Lab   | 2 |    |  | CHEM 3060, 3070 |  |  | 2nd |
| <input type="checkbox"/> | CHEM | 5730 | Inorganic Chemistry Lab  | 2 |    |  | CHEM 3100       |  |  | 2nd |
| <input type="checkbox"/> | CHEM | 3200 | Radiochemistry           | 3 |    |  |                 |  |  | x   |

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<sup>T</sup>: MATH 2270 + 2280 are more rigorous, but will take 2 semesters to complete.

<sup>F</sup>: CHEM 4800 (research) or CHEM 4999 (Honors Thesis) can count for up to 2 credit hours of math elective

<sup>o</sup>: Honors versions are PHYS 3210 + 3220. This sequence starts in Spring.

<sup>o</sup>: Honors versions of General Chemistry are CHEM 1211 + 1221. Sequence starts in the Fall. Must apply to be in the class.

<sup>A</sup>: Honors versions of Organic Chemistry are CHEM 2311 + 2321. Sequence starts in the Fall. Must apply to be in the class