<table>
<thead>
<tr>
<th>Program learning outcomes</th>
<th>Courses/Requirements related to these learning outcomes</th>
<th>Assessment method</th>
<th>Measures/Criteria, Rubric</th>
<th>Data collection</th>
<th>Assessment cycle</th>
</tr>
</thead>
</table>
| MA Chemistry              | a) Courses
Synthesis and Materials Courses:
CHEM 5160 - Advanced Synthetic Chemistry
CHEM 5440 - Bioorganic Chemistry
CHEM 5540 - Advanced Organic Chemistry
CHEM 5640 - Synthetic Organic Chemistry
CHEM 5470 - Medicinal Chemistry
CHEM 5550 - Organometallic Chemistry
CHEM 5660 - Solid State Chemistry
Analytical and Physical Methods Courses:
CHEM 5230 - Mass Spectrometry
CHEM 5250 - Bioanalytical Methods
CHEM 5260 - Analytical Separations
CHEM 5270 - Electroanalytical Chemistry
CHEM 5330 - Advanced Physical Chemistry
CHEM 5340 - Advanced Thermodynamics
CHEM 5620 - Biophysical Chemistry
CHEM 5630 - Chemical Biology and Biotechnology
b) Final oral exam | a) For all, final score in class.
b) Rubric being developed | a) >90% Exceeds expectations
70 - 89% Meets expectations
65 - 69% Approaching expectations
<65% Not meeting expectations
b) Rubric | Every offering | 1 course from each area will be assessed in Year 1 of a 3 year cycle |
| Use standard search tools and retrieval methods to obtain information about a topic, substance, technique, or an issue relating to chemistry and assess relevant studies from the chemical literature. | CHEM 5470
CHEM 5200 - Analytical Chemistry 2
CHEM 5270
CHEM 5630
CHEM 5970 - Research Topics
CHEM 5980 - Graduate Reading Course | CHEM 5470 - Rubric is being developed
CHEM 5200 - Rubric
CHEM 5270 - Scoring system
CHEM 5630 - Scoring system
CHEM 5970 - Rubric being developed
CHEM 5980 - Rubric being developed | Scores on rubric | Every offering | 1 course will be assessed in Year 2 of a 3 year cycle |
| Communicate scientific findings from literature in writing and oral presentation. | Courses
CHEM 5620
CHEM 5470
CHEM 5270
CHEM 5630
CHEM 5970
CHEM 5980 | CHEM 5620 - Rubric
CHEM 5470 - Rubric is being developed
CHEM 5270 - Rubric to be developed
CHEM 5630 - Scoring system
CHEM 5970 - Rubric being developed
CHEM 5980 - Rubric being developed | Scores on rubric | Every offering | 1 course will be assessed in Year 3 of a 3 year cycle |
Apply learned chemical practices and theories to proposed problems.

**Courses**

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For all, final score in class

- 90% Exceeds expectations
- 70 - 89% Meets expectations
- 65 - 69% Approaching expectations
- <65% Not meeting expectations

Rubric being developed

Every offering

- 1 course from each area will be assessed in Year 1 of a 3 year cycle
- Assessed in Year 2

Adhere to accepted ethical and professional standards in chemistry.

Will develop online module for students to complete concerning ethics

Score on quiz for online module

- Must score >80% to meet expectations

Every offering

Assessed in Year 3