Program learning outcomes	Courses/Requirements related to these learning outcomes	Assessment method	Measures/Criteria, Rubric	Data collection	Assessment cycle
MS Chemistry					
Demonstrate advanced level knowledge in both (i) synthesis and materials chemistry and (ii) analytical and physical chemistry methods, with a higher level of knowledge expected in the student's area of research.	a) Courses Synthesis and Materials Courses: CHEM 5160 - Advanced Synthetic Chemistry CHEM 5440 - Bioorganic Chemistry CHEM 5450 - Advanced Organic Chemistry CHEM 5460 - Synthetic Organic Chemistry CHEM 5470 - Medicinal Chemistry CHEM 5550 - Organometallic Chemistry CHEM 5560 - 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 defense	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	a) 1 course from each area will be assessed in Year 1 of a 3 year cycle b) Year 2
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.	a) Courses CHEM 5470 CHEM 5200 CHEM 5270 CHEM 5630 b) Thesis	a) CHEM 5470 - Rubric is being developed CHEM 5200 - Rubric CHEM 5270 - Scoring system CHEM 5630 - Scoring system b) Rubric being developed	a, b) Scores on rubric	Every offering	a) 1 course will be assessed in Year 2 of a 3 year cycle b) Year 3
Communicate scientific findings from literature and original findings from the student's own advanced research in written publications and oral presentations.	a) Courses CHEM 5620 CHEM 5470 CHEM 5270 CHEM 5630 b) Thesis c) Final defense	a) CHEM 5620 - Rubric CHEM 5470 - Rubric is being developed CHEM 5270 - Rubric to be developed CHEM 5630 - Scoring system b) Rubric being developed c) Rubric being developed	a, b, c) Scores on rubric	Every offering	a) 1 course will be assessed in Year 3 of a 3 year cycle b) Year 1
Acquire the basic tools, including chemical practices and theories, needed to conduct advanced chemical research. Students will become proficient in their specialized area of chemistry and complete an advanced reserach project.	a) Courses Synthesis and Materials Courses: CHEM 5160 - Advanced Synthetic Chemistry CHEM 5440 - Bioorganic Chemistry CHEM 5450 - Advanced Organic Chemistry CHEM 5460 - Synthetic Organic Chemistry CHEM 5470 - Medicinal Chemistry CHEM 5550 - Organometallic Chemistry CHEM 5560 - 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) Thesis c) Final defense	a) For all, final score in class b) Rubric being developed c) Rubric being developed	a) >90% Exceeds expectations 70 - 89% Meets expectations 65 - 69% Approaching expectations <65% Not meeting expectations b, c) Rubric	Every offering	a) 1 course from each area will be assessed in Year 1 of a 3 year cycle b) Assessed in Year 2 c) Year 3

Adhere to accepted ethical and professional standards in chemistry.	a) CHEM 5000 b) Thesis	a) Score on online quiz being developed b) Thesis will require section devoted to ethics that will be evaluated with a rubric	a) Must score >80% to meet expectations b) Rubric	Every offering	a) Assessed in Year 3 b) Year 2