Chemistry, M.S.

Master of Science

Degree Requirements

- Completed Plan of Study indicating either Thesis or Coursework Degree Track
- Credit Hours: Students are required to complete a minimum of 30 graduate credit hours in Chemistry at the 500, 600, and 700 level.
- Grade Point Average: Students must earn a minimum cumulative GPA of 2.75 and a 2.75 GPA in coursework applied to their graduate program.

Graduation Requirements

- Thesis Track:
  - Complete a plan of study.
  - Complete at least 21 formal (graded) course credit-hours; up to 6 hours of research credit; up to 3 hours of seminar credit.
    - A final grade of B- or better is required to have the course count towards satisfying this requirement.
    - Up to 10 formal (graded) course credit-hours may come from outside of CHEM to be approved by the Graduate Advising Committee prior to the beginning of the semester in which they are offered.
  - Complete and defend a Master's thesis.

- Coursework Track:
  - Complete a plan of study.
  - Complete at least 24 formal (graded) course credit-hours; up to 3 hours of research credit; up to 3 hours of seminar credit.
    - A final grade of B- or better is required to have the course count towards satisfying this requirement.
    - Up to 10 formal (graded) course credit-hours may come from outside of CHEM to be approved by the Graduate Advising Committee prior to the beginning of the semester in which they are offered.

- Benchmarks:
  - Guidance Examinations: By the end of the second semester in residence, students are required to pass 3 out of 4 guidance exams. The guidance exams are in the areas of analytical, inorganic, organic, and physical chemistry. Students have 3 total attempts to pass each exam. The initial attempt occurs prior to the student's first semester, during orientation, in the form of written exams. Subsequent attempts occur by either re-taking the written exam or earning a grade of B or better in a designated graduate course.
  - Master's Thesis: Graduate students in the thesis track in chemistry are required to submit a research thesis. A research project is chosen in the area of the student's interest and in consultation with the faculty. The thesis defense shows the ability of the student to defend scientific conclusions based on their research project. A final oral examination is administered after completion and submission of the thesis.
  - Seminars: All students in the thesis track must register for both graduate seminar (CHEM 796) and research seminar (CHEM 789) every semester. Students in the coursework track may register in a graduate seminar and must register for research seminar every semester.

Curriculum Requirements

<table>
<thead>
<tr>
<th>CORE REQUIREMENTS</th>
<th>21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any CHEM courses at the 500, 600, or 700 level *</td>
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<table>
<thead>
<tr>
<th>DEGREE TRACK</th>
<th>9</th>
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<tbody>
<tr>
<td>Select one track:</td>
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**Thesis Track:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CHEM 797</td>
<td>Research (repeated; up to 6 credit hours)</td>
</tr>
<tr>
<td>CHEM 796</td>
<td>Graduate Seminar (repeated; up to 3 credit hours)</td>
</tr>
<tr>
<td>CHEM 789</td>
<td>Research Seminar (repeated; up to 3 credit hours)</td>
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**Coursework Track:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
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<tr>
<td>Select a combination of options below:</td>
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<tr>
<td>Any CHEM course(s) at the 500, 600, 700 level (at least 3-9 credit hours) *</td>
<td></td>
</tr>
<tr>
<td>CHEM 797</td>
<td>Research (repeated; up to 3 credit hours)</td>
</tr>
<tr>
<td>CHEM 796</td>
<td>Graduate Seminar (repeated; up to 3 credit hours)</td>
</tr>
<tr>
<td>CHEM 789</td>
<td>Research Seminar (repeated; up to 3 credit hours)</td>
</tr>
</tbody>
</table>

Total Hours 30

* A final grade of B- or better is required to have the course count towards satisfying this requirement. Courses from outside the Department of Chemistry may be applied toward this requirement with approval from the departmental Graduate Studies Committee.
Major Learning Outcomes

CHEMISTRY

The graduate programs in the C. Eugene Bennett Department of Chemistry provide rigorous training in chemistry. The central mission of the Graduate Program is to train the next generation of Chemists for productive careers in the global economy.

Students earning a M.S. in Chemistry (Thesis Track) will be able to:

- Communicate chemical concepts orally and in writing.
- Explain chemical principles as they pertain to their specific field of research.
- Demonstrate the ability to understand and critically evaluate the existing literature published within their field of research.
- Generate quality data using a variety of experimental and/or computational techniques.
- Effectively communicate their research in oral and written formats.
- Inquire about and prepare for various career opportunities with their advanced degree.
- Learn and adopt best safety practices (chemical hygiene, personal protective wear, proper handling of chemical waste streams, etc.) in chemical research.
- Learn and apply the ethical impact of personal and professional behavior.
- Understand and apply good laboratory practices (chemical hygiene, personal protective wear, etc.) and the proper handling of chemical waste streams.
- Generate quality data using a variety of experimental and/or computational techniques.
- Interpret the meaning and implication of their data.
- Effectively communicate their research in oral and written formats, including the ability to author manuscripts suitable for publication in peer reviewed scientific journals.
- Understand the ethical impact of personal and professional behavior.

Students earning a M.S. in Chemistry (Coursework Track) will be able to:

- Communicate chemical concepts orally and in writing.
- Demonstrate the ability to understand and critically evaluate contemporary chemical literature.
- Inquire about and prepare for various career opportunities with their advanced degree.
- Learn and adopt best safety practices (chemical hygiene, personal protective wear, proper handling of chemical waste streams, etc.) in the chemical enterprise.
- Learn and apply the ethical impact of personal and professional behavior.