The Graduate Certificate in Biopharmaceutical Analytical Sciences has been designed in response to a need in the biotechnology industry for individuals with an advanced knowledge of the principles and practices of state-of-the-art analyses of protein with focus on the characterization of innovator and biosimilars. Individuals, particularly those who are working in the various sectors of biotechnology including basic research of biological systems, discovery, development, and manufacturing of biopharmaceuticals, have an opportunity to improve their competency and learn new practical skills that enable them to increase productivity and further contribute to their professions. In addition, the certificate was designed for both individuals with and without experience in biopharmaceuticals and their analysis.

Program Requirements
Complete all courses and requirements listed below unless otherwise indicated.

Core Requirements
A grade of C– or higher is required in all courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 5616</td>
<td>Protein Mass Spectrometry</td>
<td>3</td>
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<tr>
<td>CHEM 5617</td>
<td>Protein Mass Spectrometry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 5550</td>
<td>Introduction to Glycobiology and Glycoprotein Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 5660</td>
<td>Analytical Biochemistry</td>
<td>3</td>
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Program Credit/GPA Requirements
12 total semester hours required
Minimum 3.000 GPA required