# Chemical Engineering (MS)

## Master of Science Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Required Courses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHE 711</td>
<td>Chemical Engineering Process Modeling</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>CHE 713</td>
<td>Thermodynamics I</td>
<td></td>
<td></td>
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<tr>
<td>CHE 715</td>
<td>Transport Phenomena</td>
<td></td>
<td></td>
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<tr>
<td>CHE 717</td>
<td>Chemical Reaction Engineering</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td><strong>Thesis Options</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHE 695</td>
<td>Master's Thesis Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Elective Courses&quot; will be determined in conjunction with the academic committee to meet the 30 total hour requirement</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Non-Thesis</strong></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>&quot;Elective Courses&quot; will be determined in conjunction with the academic committee to meet the 30 total hour requirement</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Hours</strong></td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

* Non-CHE undergraduate majors are required to take CHE 596 Core Concepts I and CHE 596 Core Concepts II before they can take any 700-level courses.

## CHE Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 543</td>
<td>Polymer Science and Technology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHE 551</td>
<td>Biochemical Engineering</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHE 560</td>
<td>Chemical Processing of Electronic Materials</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHE 562</td>
<td>Fundamentals of Bio-Nanotechnology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHE 563</td>
<td>Fermentation of Recombinant Microorganisms</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>CHE 568</td>
<td>Conventional and Emerging Nanomanufacturing Techniques and Their Applications in Nanosystems</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHE 577</td>
<td>Advanced Biomaterials Manufacturing and Applications</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Core Chemical Engineering Concepts I (required of all non ChE majors; not available for others))</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Core Chemical Engineering Concepts II (required of all non ChE majors; not available for others))</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Colloid Science &amp; Nanoscale Engineering)</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Green Chemical Engineering)</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Molecular Cell Engineering)</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Chemical Process Engineering)</td>
<td>1-3</td>
<td></td>
</tr>
</tbody>
</table>
Accelerated Bachelor's/Master's Degree Requirements

The Accelerated Bachelors/Master's (ABM) degree program allows exceptional undergraduate students at NC State an opportunity to complete the requirements for both the Bachelor's and Master's degrees at an accelerated pace. These undergraduate students may double count up to 12 credits and obtain a non-thesis Master's degree in the same field within 12 months of completing the Bachelor's degree, or obtain a thesis-based Master's degree in the same field within 18 months of completing the Bachelor's degree.

This degree program also provides an opportunity for the Directors of Graduate Programs (DGPs) at NC State to recruit rising juniors in their major to their graduate programs. However, permission to pursue an ABM degree program does not guarantee admission to the Graduate School. Admission is contingent on meeting eligibility requirements at the time of entering the graduate program.

Faculty

Full Professors

Ruben G. Carbonell
Michael David Dickey
Peter S. Fedkiw
Jan Genzer
Christine S. Grant
Carol K. Hall
Jason M. Haugh
Hasan Jameel
Robert M. Kelly
Saad A. Khan
Fanxing Li
Gregory N Parsons
Walter James Pfaendtner
Behnam Pourdeyhimi
Balaji M. Rao
Sindee Lou Simon
Richard J. Spontak
Orlin Dimitrov Velev
Phillip R. Westmoreland

Associate Professors

Milad Abolhasani
Adriana San Miguel Delgadillo
Chien Ching Lilian Hsiao
Albert Jun Qi Keung
Stefano Menegatti
Erik Emilie Santiso
Qingshan Wei

Assistant Professors

Nathan Crook
Artem Rumyantsev
Wentao Tang

Practice/Research/Teaching Professors

Cristina Boi
Lisa G. Bullard
Matthew Ellis Cooper
Kirill Efimenko
Gary Louis Gilleskie
Hassan Golpour
Gregory McKenna
Luke Neal
John H. van Zanten

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**Adjunct Faculty**
Anthony L. Andrade
Orlando J. Rojas

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**Emeritus Faculty**
Joseph M. DeSimone
Richard M. Felder
Michael Carl Flickinger
Keith Gubbins
Harold B. Hopfenberg
Harold Henry Lamb
Phooi K. Lim
Steven W. Peretti
Hubert Winston