Chemical Engineering (MS)

Master of Science Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 711</td>
<td>Chemical Engineering Process Modeling</td>
<td>3</td>
</tr>
<tr>
<td>CHE 713</td>
<td>Thermodynamics I</td>
<td>3</td>
</tr>
<tr>
<td>CHE 715</td>
<td>Transport Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>CHE 717</td>
<td>Chemical Reaction Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

Thesis Options

**Thesis**

CHE 695  
Master’s Thesis Research

“Elective Courses” will be determined in conjunction with the academic committee to meet the 30 total hour requirement

**Non-Thesis**

“Elective Courses” will be determined in conjunction with the academic committee to meet the 30 total hour requirement

Total Hours  
30

* 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>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 543</td>
<td>Polymer Science and Technology</td>
<td>3</td>
</tr>
<tr>
<td>CHE 551</td>
<td>Biochemical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CHE 560</td>
<td>Chemical Processing Of Electronic Materials</td>
<td>3</td>
</tr>
<tr>
<td>CHE 562</td>
<td>Fundamentals of Bio-Nanotechnology</td>
<td>3</td>
</tr>
<tr>
<td>CHE 563</td>
<td>Fermentation of Recombinant Microorganisms</td>
<td>2</td>
</tr>
<tr>
<td>CHE 568</td>
<td>Conventional and Emerging Nanomanufacturing Techniques and Their Applications in Nanosystems</td>
<td>3</td>
</tr>
<tr>
<td>CHE 577</td>
<td>Advanced Biomanufacturing and Biocatalysis</td>
<td>3</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>
</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>
</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Colloid Science &amp; Nanoscale Engineering)</td>
<td>1-3</td>
</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Green Chemical Engineering)</td>
<td>1-3</td>
</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Molecular 1-3 Cell Engineering)</td>
<td>1-3</td>
</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Chemical 1-3 Process Engineering)</td>
<td>1-3</td>
</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Polymer Rheology and Processing)</td>
<td>1-3</td>
</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Drug Delivery Concepts)</td>
<td>1-3</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
Joseph M. DeSimone
Michael David Dickey
Peter S. Fedkiw
Jan Genzer
Christine S. Grant
Keith E. Gubbins
Carol K. Hall
Jason M. Haugh
Hasan Jameel
Robert M. Kelly
Saad A. Khan
Harold Henry Lamb
Fanxing Li
Phooi K. Lim
Gregory N Parsons
Chemical Engineering (MS)

Behnam Pourdeyhimi  
Balaji M. Rao  
Richard J. Spontak  
Orlin Dimitrov Velev  
Phillip R. Westmoreland  

**Associate Professors**  
Chase Beisel  
Steven W. Peretti  
Erik Emilio Santiso  

**Assistant Professors**  
Milad Abolhasani  
Nathan Crook  
Chien Ching Lilian Hsiao  
Albert Jun Qi Keung  
Stefano Menegatti  
Adriana San Miguel Delgadillo  
Qingshan Wei  

**Practice/Research/Teaching Professors**  
Lisa G. Bullard  
Matthew Ellis Cooper  
Kirill Efimenko  
Gary Louis Gilleskie  
Luke Neal  
John H. van Zanten  

**Emeritus Faculty**  
Richard M. Felder  
Michael Carl Flickinger  
Harold B. Hopfenberg  
David Frederick Ollis  
Hubert Winston  

**Adjunct Faculty**  
Anthony L. Andrady  
Christina Boi