## Chemical Engineering (PhD)

### Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 701</td>
<td>Introduction to Chemical Engineering Research</td>
<td>3</td>
</tr>
<tr>
<td>CHE 702</td>
<td>Chemical Engineering Research Proposition</td>
<td>3</td>
</tr>
<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>
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</tbody>
</table>

### Additional Courses

Select six additional credit hours at 500 or 700 level in any technical discipline approved in conjunction with the academic committee.

### Dissertation Research Course

- CHE 895 Doctoral Dissertation Research

### Elective Courses

"Elective Courses" are determined in conjunction with the academic committee to meet the 72 total credit hours.

### Preliminary Exam

The Preliminary Exam is taken in the 4th semester, however, it requires an annual progress report.

Total Hours: 72

### Elective 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 (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 Cell Engineering)</td>
<td>1-3</td>
</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Chemical 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>
<tr>
<td>CHE 761</td>
<td>Polymer Blends and Alloys</td>
<td>3</td>
</tr>
<tr>
<td>CHE 775</td>
<td>Multi-Scale Modeling of Matter</td>
<td>3</td>
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</tbody>
</table>

### 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
- 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

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**Practice/Research/Teaching Professors**

Lisa G. Bullard
Matthew Ellis Cooper
Kirill Efimenko
Gary Louis Gilleskie
Luke Neal
John H. van Zanten

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**Emeritus Faculty**

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

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**Adjunct Faculty**

Anthony L. Andrady
Christina Boi
Eric Muller Gomez
Raghubir P. Gupta
Patrick V. Gurgel
Michael R. Ladisch
Orlando J. Rojas
Martin Schoen
Malgorzata Sliwinska-Bartowiak
Simeon D. Stoyanov