# Chemical Engineering (PhD)

## Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 701</td>
<td>Introduction to Chemical Engineering Research</td>
<td>16</td>
<td>Required Courses</td>
</tr>
<tr>
<td>CHE 702</td>
<td>Chemical Engineering Research Proposition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHE 711</td>
<td>Chemical Engineering Process Modeling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHE 713</td>
<td>Thermodynamics</td>
<td></td>
<td></td>
</tr>
<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>
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</tr>
</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.

<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>
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</tbody>
</table>

## Dissertation Research Course

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 895</td>
<td>Doctoral Dissertation Research</td>
<td>6</td>
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</tbody>
</table>

## Elective Courses

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<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>
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</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 Biomannufacturing and Biocatalysis</td>
<td>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>
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</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Chemical Process Engineering)</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Polymer Rheology and Processing)</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>CHE 596</td>
<td>Special Topics in Chemical Engineering (Drug Delivery Concepts)</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>CHE 761</td>
<td>Polymer Blends and Alloys</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHE 775</td>
<td>Multi-Scale Modeling of Matter</td>
<td>3</td>
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</table>

## Preliminary Exam

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

## Total Hours

72
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
Walter James Pfaendtner
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
Artem Rumyantsev
Wentao Tang
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. Andraday
Christina Boi
Eric Muller Gomez
Raghurir P. Gupta
Patrick V. Gurgel
Michael R. Ladisch
Gregory B. McKenna
Orlando J. Rojas
Martin Schoen
Sindee Lou Simon
Malgorzata Sliwinska-Bartowiak
Simeon D. Stoyanov