

*Recommended course pathway for BSE students interested in careers in*

**FOOD ENGINEERING**

*\*will need to add BCHM 2024 over summer*

(128 - 133 credits)

<b>Fall 1st Year 16 cr.</b>	<b>CHEM 1035 (3)</b> General Chemistry <sup>5</sup>	<b>CHEM 1045 (1)</b> General Chemistry Lab <sup>5</sup>	<b>MATH 1225 (4)</b> Calculus for Science <sup>5</sup>	<b>ENGE 1215 (2)</b> Foundations of Engineering <sup>5</sup>	<b>ENGL 1105 (3)</b> First-Year Writing <sup>5</sup>	<b>Pathways (3)</b>		
<b>Spring 1st Year 16 cr.</b>	<b>CHEM 1036 (3)</b> General Chemistry <sup>5</sup> Pre: CHEM 1035 Spring, Summer	<b>ENGL 1106 (3)</b> Freshman English <sup>5</sup> Pre: ENGL 1105	<b>PHYS 2305 (4)</b> Foundations of Physics <sup>5</sup> Pre: MATH 1225 Co: MATH 1226	<b>MATH 1226 (4)</b> Calculus for Science <sup>5</sup> Pre: MATH 1225	<b>ENGE 1216 (2)</b> Exploration of Engineering Design <sup>5</sup> Pre: ENGE 1215			
<b>Fall 2nd Year 18 cr.</b>	<b>MATH 2114 (3)</b> Intro to Linear Algebra Pre: Math 1225 (min. grade B) or MATH 1226	<b>MATH 2204 (3)</b> Multivariable Calculus Pre: Math 1226	<b>ESM 2104 (3)</b> Statics Pre: MATH 1226	<b>BIOL 1105 (3)</b> Principles of Biology Fall, Summer, Winter	<b>BSE 2004 (3)</b> Intro to BSE Pre: ENGE 1215 Fall Only	<b>Pathways (3)</b>		
<b>Spring 2nd Year 18 cr.</b>	<b>MATH 2214 (3)</b> Differential Equations <sup>5</sup> Pre: MATH 2114 & 1226	<b>Engineering Topics Elective (3)</b>	<b>BIOL 1106 (3)</b> Principles of Biology Spring, Summer, Winter	<b>BSE 3144 (2)</b> Engineering Analysis for Biological Systems Spring Only	<b>PHYS 2306 (4)</b> Foundations of Physics Pre: MATH 1226, PHYS 2305	<b>Pathways (3)</b>		
<b>Fall 3rd Year 14 or 16 cr.</b>	<b>ESM 3024 (3)</b> Intro Fluid Mechanics Pre: ESM 2104, PHYS 2305 Fall Only	<b>BSE 3154 (3)</b> Thermodynamics of Biological Systems Pre: CHEM 1036, PHYS 2305, MATH 2204 Fall Only	<b>STAT 3704 (2)</b> Statistics for Engineering Applications Pre: MATH 2204	<b>**BSE 4984 (2)</b> Engineering Biology CURE Lab <sup>1,4</sup>	<b>CHEM 2535 (3)</b> Organic Chemistry <sup>2</sup> Fall, Spring, Summer	<b>Pathways (3)</b>		
<b>Spring 3rd Year 17 cr.</b>	<b>BIOL 2604 (3)</b> General Microbiology Pre: BIOL 1105, 1106, CHEM 1035, 1036 Fall, Spring, Summer, Winter	<b>BSE 3504 (3)</b> Transport Processes Pre: BSE 3154, ESM 3024 Spring Only	<b>BSE 3524 (3)</b> Unit Operations <sup>1</sup> Spring Only Pre: BSE 3154	<b>BSE 3534 (3)</b> Bioprocess Engineering <sup>1</sup> Pre: BSE 3154 Co: BSE 3504 & BIOL 2604 Spring Only	<b>ISE 3034 (3)</b> Technical Communication for Engineers <sup>5</sup> Spring & Summer	<b>BIOL 2614 (2)</b> Microbiology Lab <sup>4</sup>		
<b>Fall 4th Year 17 or 18 cr.</b>	<b>ISE 2014 (2)</b> Engineering Economy	<b>BSE 4125 (2)</b> Comprehensive Design Project Pre: BSE 3524 & 3534 Fall Only	<b>**BSE 4534 (1):</b> Biological Processing Lab <sup>1,4</sup> Pre: BSE 3524, 3534	<b>BSE 4544 (3)</b> Protein Separation <sup>1</sup> Pre: BSE 3504 Fall Only	<b>BSE 4604 (3)</b> Food Process Engineering <sup>1</sup> Pre: BSE 3524 & 3504 Fall Only	<b>FST 4314 (1):</b> Food Processing Lab	<b>FST 4504 (3)</b> Food Chemistry <sup>4</sup> Pre or co: BCHM 2024 Fall Only	<b>BSE 4524 (3)</b> Bioprocessing Plant Design <sup>1</sup> Pre: BSE 3524 Fall Only
<b>Spring 4th Year 13 or 16 cr.</b>	<b>BSE 4126 (3)</b> Comprehensive Design Project Pre: BSE 4125 Spring Only	<b>FST 3604 (4)</b> Food Microbiology Pre: BIOL 2604 & 2614 Spring Only	<b>BSE 4564 (3)</b> Metabolic Engineering <sup>3</sup> Pre: BSE 3534 Spring Only  <b>**will not need if take both BSE 4984 &amp; 4534 labs</b>	<b>Pathways (3)</b>	<b>FST 4104 (3)</b> Brewing Science & Engineering <sup>3</sup> Pre or Co: FST 3604 Spring Only			

<sup>1</sup> BSE Elective <sup>2</sup> Chemistry Elective <sup>3</sup> Engineering Elective <sup>4</sup> Technical Elective <sup>5</sup> Pathways **\*\*You must take EITHER BSE 4534 OR BSE 4984: CURE lab to fulfill degree requirements.**