Sample Schedule for ChemE/BME Additional Majors in the BMTE Track Updated 4/3/22

Chemical Eng	ineering		Chemical Engineer	ing + BME		
First Year			First Year			
	Fall	Units		Fall		Units
21-120	Differential & Integral Calculus	10	21-120	Differential & Integral Calculus		10
76-xxx	Designated Writing Course	9	76-xxx	Designated Writing Course		9
99-101	Computing@Carnegie Mellon	3	99-101	Computing@Carnegie Mellon		3
06-100	Introduction to Chemical Engineering	12	06-100 or 42-101	Intro to Chemical Engineering or Intro to Biomedical Engineering		12
09-105	Introduction to Modern Chemistry I	10	09-105 or 03-121	Introduction to Modern Chemistry I or Modern Biology		9-10
	Tota	l: 44			Total:	43-44
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	Spring	Units		Spring		Units
21-122	Integration, Differential Equations & Approximation	10	21-122			10
XX-XXX	Introductory Engineering Elective	12	06-100 or 42-101	Intro to Chemical Engineering or Intro to Biomedical Engineering		12
33-141	Physics I for Engineering Students	12	33-141	Physics I for Engineering Students		12
XX-XXX	General Education Course	9	09-105 or 03-121	Introduction to Modern Chemistry I or Modern Biology		9-10
	Tete		XX-XXX	General Education Course	Tetel	9
	Iota	1: 43			Total:	52-53
Second Year			Second Year			
Second real	Fall	Units	Second real	Fall		Units
21-254	Linear Algebra and Vector Calculus for Engineers	11	21-254	Linear Algebra and Vector Calculus for Engineers		11
06-223	Chemical Engineering Thermodynamics	12	06-223	Chemical Engineering Thermodynamics		12
06-222	Sophomore Chemical Engineering Seminar	1	06-222	Sophomore Chemical Engineering Seminar		1
09-106	Modern Chemistry II	10	09-106	Modern Chemistry II		10
xx-xxx	Computer Sci /Physics II**	10 or 12	XX-XXX	Computer Sci /Physics II**		10 or 12
XX-XXX	General Education Course	9	42-202 or 42-203	Physiology or BME Laboratory		9
39-210	Experiential Learning I	0	39-210	Experiential Learning I		0
	Tota	1: 53-55			Total:	53-55
	Spring	Units		Spring		Units
06-261	Fluid Mechanics	9	06-261	Fluid Mechanics		9
06-262	Math. Methods of Chem. Engineering	12	06-262	Math: Methods of Chem. Engineering		12
09-221	Lab I: Introduction to Chemical Analysis	12	09-221	Lab I: Introduction to Chemical Analysis		12
xx-xxx	Computer Sci./Physics II**	10 or 12	XX-XXX	Computer Sci./Physics II**		10 or 12
xx-xxx	General Education Course	9	42-201	Professional Issues in BME		3
39-220	Experiential Learning II	0	42-202 or 42-203	Physiology or BME Laboratory		9
			39-220	Experiential Learning II		0
	Tota	l: 52-54			Total:	55-57
Third Year			Third Year			
	Fall	Units		Fall		Units
06-310	Molecular Foundations of ChemE	9	06-310	Molecular Foundations of ChemE		9
06-322	Junior ChemE Seminar	2	06-323	Heat and Mass Transfer		9
06-323	Heat and Mass Transfer	9	06-325	Numerical Methods & Machine Learning for ChemE		6
06-325	Numerical Methods & Machine Learning for Cheme	6	06-326	Optimization, Modeling, & Algorithms		6
06-326	Optimization, Modeling, & Algorithms	6	09-217/219	Organic Chemistry I or Modern Organic Chemistry		9 or 10
09-217/219	Organic Chemistry I or Modern Organic Chemistry	9 or 10	42-xxx or 42-302	BMTE Track Elective or BME Systems Modeling and Analysis		9
XX-XXX	General Education Course	9	XX-XXX	General Education Course		9
39-310	Experiential Learning III	0	39-310	Experiential Learning III		0
	Tota	l: 50-51				57-58
					Total:	
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06-361	Spring	Units		Spring	Total:	Units
	Spring Unit Operations of ChemE	Units 9	06-361	Spring Unit Operations of ChemE	Total:	Units 9
00-303	Spring Unit Operations of ChemE Transport Process Laboratory	Units 9 9	06-361 06-363	Spring Unit Operations of ChemE Transport Process Laboratory	Total:	Units 9 9
06-364	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering	Units 9 9 9	06-361 06-363 06-364	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering	Total:	Units 9 9 9
06-364 xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective	Units 9 9 9 9	06-361 06-363 06-364 42-xxx or 42-302	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis	Total:	Units 9 9 9 9
06-363 06-364 xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective	Units 9 9 9 9 9	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective	Total:	Units 9 9 9 9 9
06-364 xx-xxx xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course	Units 9 9 9 9 9 9 9	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course	Total:	Units 9 9 9 9 9 9
06-364 xx-xxx xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota	Units 9 9 9 9 9 9 1: 54	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course	Total: Total:	Units 9 9 9 9 9 9 54
06-363 06-364 xx-xxx xx-xxx xx-xxx Fourth Year	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota	Units 9 9 9 9 9 9 1: 54	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course	Total: Total:	Units 9 9 9 9 9 9 54
06-364 xx-xxx xx-xxx xx-xxx Fourth Year	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota	Units 9 9 9 9 9 9 1: 54	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx Fourth Year	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course	Total: Total:	Units 9 9 9 9 9 54
06-364 xx-xxx xx-xxx Fourth Year	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota	Units 9 9 9 9 9 9 1: 54 Units 12	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx Fourth Year	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course Fall Chemical Process System Design	Total: Total:	Units 9 9 9 9 9 9 54 Units 12
06-363 06-364 xx-xxx xx-xxx Fourth Year 06-421 06-423	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota Fall Chemical Process System Design Unit Operations Laboratory	Units 9 9 9 9 9 1: 54 12 9	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx Fourth Year 06-421 06-423	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course Fall Chemical Process System Design Unit Operations Laboratory	Total: Total:	Units 9 9 9 9 9 9 54 Units 12 9
06-363 06-364 xx-xxx xx-xxx xx-xxx Fourth Year 06-421 06-423 xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota Fall Chemical Process System Design Unit Operations Laboratory Unrestricted Elective Unrestricted Elective	Units 9 9 9 9 9 9 9 1: 54 12 9 9	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx Fourth Year 06-421 06-423 42-401	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course Fall Chemical Process System Design Unit Operations Laboratory Foundations of BME Design	Total: Total:	Units 9 9 9 9 9 54 Units 12 9 6
06-363 06-364 xx-xxx xx-xxx Fourth Year 06-421 06-423 xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota Fall Chemical Process System Design Unit Operations Laboratory Unrestricted Elective Unrestricted Elective Unrestricted Elective	Units 9 9 9 9 9 9 9 1: 54 12 9 9 9 9	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx Fourth Year 06-421 06-423 42-401 42-xx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course Fall Chemical Process System Design Unit Operations Laboratory Foundations of BME Design BMTE Track Elective	Total: Total:	Units 9 9 9 9 9 9 54 Units 12 9 6 9
06-363 06-364 xx-xxx xx-xxx Fourth Year 06-421 06-423 xx-xxx xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota Fall Chemical Process System Design Unit Operations Laboratory Unrestricted Elective General Education Course	Units 9 9 9 9 9 9 9 9 1: 54 12 9 9 9 9 9	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx x-xxx Fourth Year 06-421 06-423 42-401 42-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course Fall Chemical Process System Design Unit Operations Laboratory Foundations of BME Design BMTE Track Elective General Education Course	Total: Total:	Units 9 9 9 9 9 9 54 Units 12 9 6 9 9
06-363 06-364 xx-xxx xx-xxx Fourth Year 06-421 06-423 xx-xxx xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota Fall Chemical Process System Design Unit Operations Laboratory Unrestricted Elective Unrestricted Elective General Education Course	Units 9 9 9 9 9 9 9 9 9 1: 54 Units 12 9 9 9 9 9	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx Fourth Year 06-421 06-423 42-401 42-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course Fall Chemical Process System Design Unit Operations Laboratory Foundations of BME Design BMTE Track Elective General Education Course General Education Course	Total: Total:	Units 9 9 9 9 9 54 Units 12 9 6 9 9 9
06-363 06-364 xx-xxx xx-xxx Fourth Year 06-421 06-423 xx-xxx xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota Fall Chemical Process System Design Unit Operations Laboratory Unrestricted Elective Unrestricted Elective General Education Course	Units 9 9 9 9 9 9 9 1: 54 Units 12 9 9 9 9 9	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx Fourth Year 06-421 06-423 42-401 42-xxx xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course Fall Chemical Process System Design Unit Operations Laboratory Foundations of BME Design BMTE Track Elective General Education Course General Education Course	Total: Total:	Units 9 9 9 9 54 Units 12 9 6 9 9 9 9
06-363 06-364 xx-xxx xx-xxx Fourth Year 06-421 06-423 xx-xxx xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota Fall Chemical Process System Design Unit Operations Laboratory Unrestricted Elective Unrestricted Elective General Education Course	Units 9 9 9 9 9 9 9 9 1: 54 Units 12 9 9 9 9 9 9	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx Fourth Year 06-421 06-423 42-401 42-xxx xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course Fall Chemical Process System Design Unit Operations Laboratory Foundations of BME Design BMTE Track Elective General Education Course General Education Course	Total: Total: Total:	Units 9 9 9 9 54 Units 12 9 6 9 9 9 9 9 54
06-363 06-364 xx-xxx xx-xxx Fourth Year 06-421 06-423 xx-xxx xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota Fall Chemical Process System Design Unit Operations Laboratory Unrestricted Elective General Education Course Tota Spring	Units 9 9 9 9 9 9 9 1: 54 Units 9 9 9 9 9 1: 48 Units	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx Fourth Year 06-421 06-423 42-401 42-xxx xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course Fall Chemical Process System Design Unit Operations claboratory Foundations of BME Design BMTE Track Elective General Education Course General Education Course General Education Course	Total: Total: Total:	Units 9 9 9 54 Units 12 9 6 9 9 9 9 54 Units
06-363 06-364 xx-xxx xx-xxx Fourth Year 06-421 06-423 xx-xxx xx-xxx xx-xxx 06-463	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota Fall Chemical Process System Design Unit Operations Laboratory Unrestricted Elective General Education Course Tota Spring Chemical Product Design	Units 9 9 9 9 9 9 9 1: 54 Units 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx Fourth Year 06-421 06-423 42-401 42-xxx xx-xxx xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course Fall Chemical Process System Design Unit Operations Laboratory Foundations of BME Design BMTE Track Elective General Education Course General Education Course General Education Course General Education Course	Total: Total: Total:	Units 9 9 9 9 54 Units 12 9 6 9 9 9 54 Units 9
06-363 06-364 xx-xxx xx-xxx Fourth Year 06-421 06-423 xx-xxx xx-xxx xx-xxx 06-463 06-464	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota Fall Chemical Process System Design Unit Operations Laboratory Unrestricted Elective General Education Course Tota Spring Chemical Product Design Chemical Engineering Process Control	Units 9 9 9 9 9 9 9 1: 54 12 9 9 9 9 1: 48 Units 9 9	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx Fourth Year 06-421 06-423 42-401 42-xxx xx-xxx xx-xxx 06-464 42-402	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course Fall Chemical Process System Design Unit Operations Laboratory Foundations of BME Design BMTE Track Elective General Education Course General Education Course General Education Course General Education Course Chemical Engineering Process Control BME Design	Total: Total: Total:	Units 9 9 9 9 54 Units 2 9 6 9 9 54 Units 9 9 9 9 9 9 9 9 9
06-363 06-364 xx-xxx xx-xxx Fourth Year 06-421 06-423 xx-xxx xx-xxx xx-xxx 06-463 06-464 xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota Fall Chemical Process System Design Unit Operations Laboratory Unrestricted Elective Unrestricted Elective General Education Course Tota Spring Chemical Product Design Chemical Engineering Process Control Unrestricted Elective	Units 9 9 9 9 9 9 9 9 9 9 9 9 9 1: 48 Units 9 9 9 9	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx Fourth Year 06-421 06-423 42-401 42-xxx xx-xxx xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course Fall Chemical Process System Design Unit Operations Laboratory Foundations of BME Design BMTE Track Elective General Education Course General Education Course General Education Course General Education Course BME Design BMTE Track Elective	Total: Total: Total:	Units 9 9 9 9 54 Units 9 9 54 Units 9 9 9 9 9 9 9
06-363 06-364 xx-xxx xx-xxx Fourth Year 06-421 06-423 xx-xxx xx-xxx 06-463 06-464 xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota Fall Chemical Process System Design Unit Operations Laboratory Unrestricted Elective General Education Course Tota Spring Chemical Product Design Chemical Product Design Chemical Product Design Chemical Product Design Chemical Elective Unrestricted Unrestricted Unrestricted Unrestricted Unrestricted Unrestricted	Units 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx Fourth Year 06-421 06-423 42-401 42-xxx xx-xxx xx-xxx 06-464 42-402 42-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course Fall Chemical Process System Design Unit Operations Laboratory Foundations of BME Design BMTE Track Elective General Education Course General Education Course General Education Course BME Design BMTE Track Elective General Education Course	Total: Total: Total:	Units 9 9 9 9 54 Units 12 9 6 9 9 9 54 Units 9 9 9 9 9 9 9 9 9
06-363 06-364 xx-xxx xx-xxx Fourth Year 06-421 06-421 06-421 06-463 xx-xxx xx-xxx 06-463 06-464 xx-xxx xx-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering Advanced Chemistry Elective Unrestricted Elective General Education Course Tota Fall Chemical Process System Design Unit Operations Laboratory Unrestricted Elective General Education Course Tota Spring Chemical Product Design Chemical Engineering Process Control Unrestricted Elective General Education Course General Education Course	Units 9 9 9 9 9 9 9 9 1: 554 Units 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	06-361 06-363 06-364 42-xxx or 42-302 xx-xxx xx-xxx Fourth Year 06-421 06-423 42-401 42-xxx xx-xxx xx-xxx 06-464 42-402 42-402 42-xxx xx-xxx	Spring Unit Operations of ChemE Transport Process Laboratory Chemical Reaction Engineering BMTE Track Elective or BME Systems Modeling and Analysis Advanced Chemistry Elective General Education Course Fall Chemical Process System Design Unit Operations Laboratory Foundations of BME Design BMTE Track Elective General Education Course General Education Course BME Design BMTE Track Elective General Education Course General Education Course General Education Course General Education Course	Total: Total: Total:	Units 9 9 9 9 54 Units 12 9 6 6 9 9 9 54 Units 9 9 9 9 9 9

Minimum no. of units to graduate: 391 (ChemE), 415 (BME/ChemE)