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

Chemical Engineering

First Year

	Fall	Units
21-120	Differential & Integral Calculus	10
76-xxx	Designated Writing Course	9
99-101	Computing@Carnegie Mellon	3
06-100	Introduction to Chemical Engineering	12
09-105	Introduction to Modern Chemistry I	10
	Total:	**44**

	Spring	Units
21-122	Integration, Differential Equations & Approximation	10
xx-xxx	Introductory Engineering Elective	12
33-141	Physics I for Engineering Students	12
xx-xxx	General Education Course	9
	Total:	**43**

Second Year

	Fall	Units
21-254	Linear Algebra and Vector Calculus for Engineers	11
06-223	Chemical Engineering Thermodynamics	12
06-222	Sophomore Chemical Engineering Seminar	1
09-106	Modern Chemistry II	10
xx-xxx	*Computer Sci./Physics II**	10 or 12
xx-xxx	General Education Course	9
39-210	Experiential Learning I	0
	Total:	**53-55**

	Spring	Units
06-261	Fluid Mechanics	9
06-262	Math. Methods of Chem. Engineering	12
09-221	Lab I: Introduction to Chemical Analysis	12
xx-xxx	*Computer Sci./Physics II**	10 or 12
xx-xxx	General Education Course	9
39-220	Experiential Learning II	0
	Total:	**52-54**

Third Year

	Fall	Units
06-310	Molecular Foundations of ChemE	9
06-322	Junior ChemE Seminar	2
06-323	Heat and Mass Transfer	9
06-325	Numerical Methods & Machine Learning for ChemE	6
06-326	Optimization, Modeling, & Algorithms	6
09-217/219	*Organic Chemistry I or Modern Organic Chemistry*	9 or 10
xx-xxx	General Education Course	9
39-310	Experiential Learning III	0
	Total:	**50-51**

	Spring	Units
06-361	Unit Operations of ChemE	9
06-363	Transport Process Laboratory	9
06-364	Chemical Reaction Engineering	9
xx-xxx	Advanced Chemistry Elective	9
xx-xxx	Unrestricted Elective	9
xx-xxx	General Education Course	9
	Total:	**54**

Fourth Year

	Fall	Units
06-421	Chemical Process System Design	12
06-423	Unit Operations Laboratory	9
xx-xxx	Unrestricted Elective	9
xx-xxx	Unrestricted Elective	9
xx-xxx	General Education Course	9
	Total:	**48**

	Spring	Units
06-463	Chemical Product Design	9
06-464	Chemical Engineering Process Control	9
xx-xxx	Unrestricted Elective	9
xx-xxx	Unrestricted Elective	9
xx-xxx	General Education Course	9
	Total:	**45**

Chemical Engineering + BME

First Year

	Fall	Units
21-120	Differential & Integral Calculus	10
76-xxx	Designated Writing Course	9
99-101	Computing@Carnegie Mellon	3
06-100 or **42-101**	Intro to Chemical Engineering or **Intro to Biomedical Engineering**	12
09-105 or **03-121**	Introduction to Modern Chemistry I or **Modern Biology**	9-10
	Total:	**43-44**

	Spring	Units
21-122	Integration & Approximation	10
06-100 or **42-101**	Intro to Chemical Engineering or **Intro to Biomedical Engineering**	12
33-141	Physics I for Engineering Students	12
09-105 or **03-121**	Introduction to Modern Chemistry I or **Modern Biology**	9-10
xx-xxx	General Education Course	9
	Total:	**52-53**

Second Year

	Fall	Units
21-254	Linear Algebra and Vector Calculus for Engineers	11
06-223	Chemical Engineering Thermodynamics	12
06-222	Sophomore Chemical Engineering Seminar	1
09-106	Modern Chemistry II	10
xx-xxx	*Computer Sci./Physics II**	10 or 12
42-202 or 42-203	**Physiology or BME Laboratory**	**9**
39-210	Experiential Learning I	0
	Total:	**53-55**

	Spring	Units
06-261	Fluid Mechanics	9
06-262	Math: Methods of Chem. Engineering	12
09-221	Lab I: Introduction to Chemical Analysis	12
xx-xxx	*Computer Sci./Physics II**	10 or 12
42-201	**Professional Issues in BME**	**3**
42-202 or 42-203	**Physiology or BME Laboratory**	**9**
39-220	Experiential Learning II	0
	Total:	**55-57**

Third Year

	Fall	Units
06-310	Molecular Foundations of ChemE	9
06-323	Heat and Mass Transfer	9
06-325	Numerical Methods & Machine Learning for ChemE	6
06-326	Optimization, Modeling, & Algorithms	6
09-217/219	*Organic Chemistry I or Modern Organic Chemistry*	9 or 10
42-xxx or 42-302	**CMBT Track Elective or BME Systems Modeling and Analysis**	**9**
xx-xxx	General Education Course	9
39-310	Experiential Learning III	0
	Total:	**57-58**

	Spring	Units
06-361	Unit Operations of ChemE	9
06-363	Transport Process Laboratory	9
06-364	Chemical Reaction Engineering	9
42-xxx or 42-302	**CMBT Track Elective or BME Systems Modeling and Analysis**	**9**
xx-xxx	Advanced Chemistry Elective	9
xx-xxx	General Education Course	9
	Total:	**54**

Fourth Year

	Fall	Units
06-421	Chemical Process System Design	12
06-423	Unit Operations Laboratory	9
42-401	**Foundations of BME Design**	**6**
42-xxx	**CMBT Track Elective**	**9**
xx-xxx	General Education Course	9
xx-xxx	General Education Course	9
	Total:	**54**

	Spring	Units
06-464	Chemical Engineering Process Control	9
42-402	**BME Design**	**9**
42-xxx	**CMBT Track Elective**	**9**
xx-xxx	General Education Course	9
xx-xxx	General Education Course	9
	Total:	**45**

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