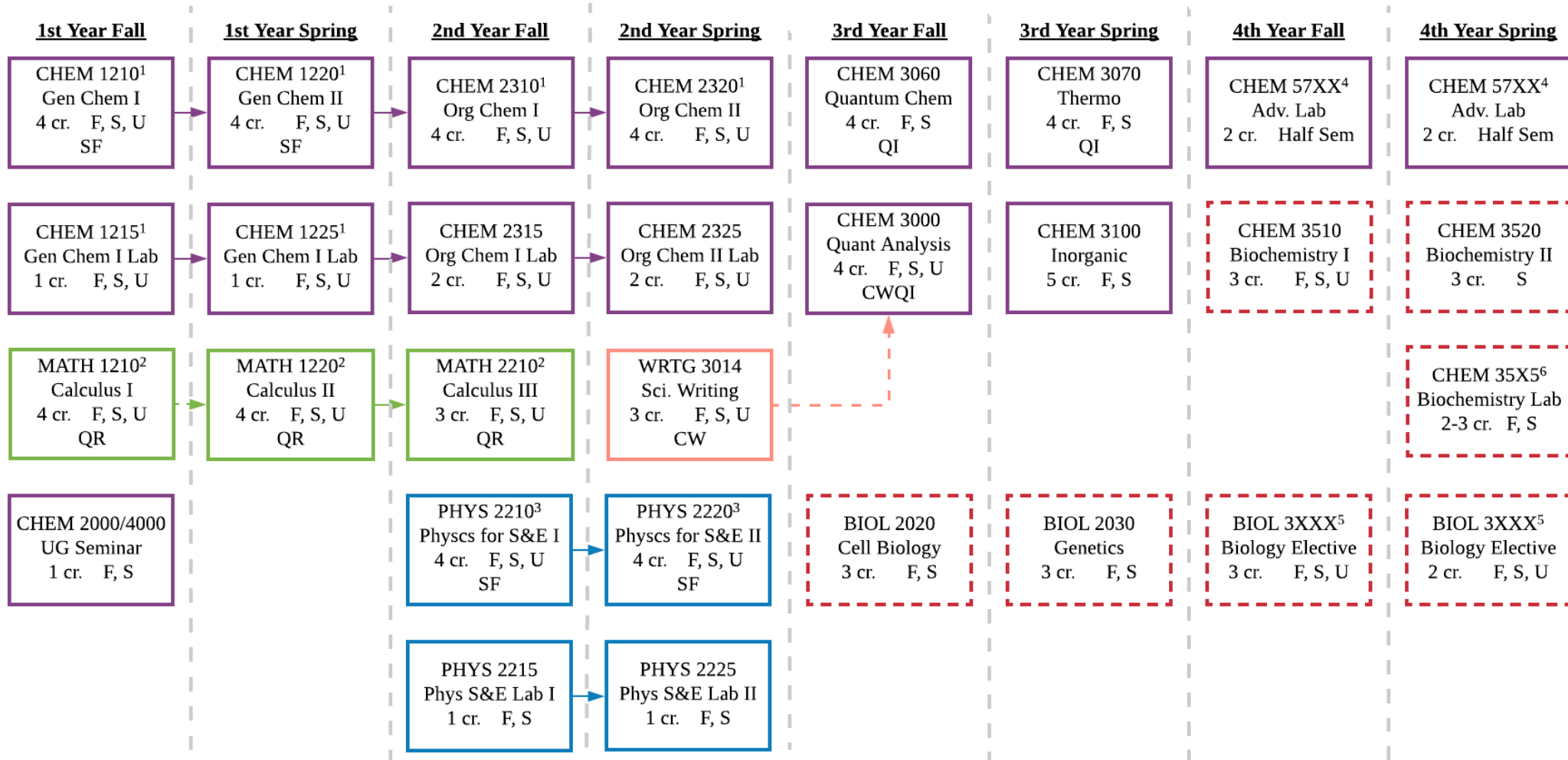


Chemistry Course Requirements - Biological Emphasis (2018-2019)

The Biological emphasis has more biology electives and less math. Satisfies many of the prerequisites for students planning to attend health related post-bachelor's schools, such as medical, dental, pharmaceutical, or wanting to pursue graduate school in medical or biological chemistry.



- Honors versions of available. Sequence starts in the Fall. Must apply to be in the class.
- Talk with advisors to see how other calculus sequences could fulfill the calculus requirement.
- Honors versions are PHYS 3210 + 3220.
- 2 upper division labs required. Fall options: CHEM 5710 (org) 1st half, CHEM 5730 (inorg) 2nd half. Spring options: CHEM 5700 (ana) 1st half, CHEM 5720 (phys) 2nd half, CHEM 3200 (radiochem) + NUCL 4000 Spring + Fall.
- Need at least 5 credits of biology-related electives. Check Degree Audit to see accepted biology electives. Contact chemistry advisors to determine if a course not listed could fulfill this requirement. CHEM 4800 (research), CHEM 4999 (Honors Thesis), or CHEM 4965 (internship) can waive 2 credits.
- For biochemistry labs, students can take CHEM 3515 (Biochemistry Lab, Spring), 3525 (Molecular Biology of DNA Lab, Fall), or CHEM 5750 (Adv. Chemical Biology Lab, 1st half Spring)

Chemistry Course Requirements – Biological Emphasis (2018-19)

The Biological emphasis has more biology electives and less math. Satisfies many of the prerequisites for students planning to attend health related post-bachelor's schools, such as medical, dental, pharmaceutical, or wanting to pursue graduate school in medical or biological chemistry.

Biological Emphasis										
Done?	Dept.	Number	Course Name	Credit Hours	Gen Ed/ Bach Req	Prerequisites		Taught		
						Chemistry	Math/Other	F	S	U
MATH CLASSES										
<input type="checkbox"/>	MATH	1210	Calculus I ^o	4	QR		1080	x	x	x
<input type="checkbox"/>	MATH	1220	Calculus II ^o	4	QR		MATH 1210	x	x	x
<input type="checkbox"/>	MATH	2210	Calculus III ^o	4	QR		MATH 1220	x	x	x
PHYSICS CLASSES										
<input type="checkbox"/>	PHYS	2210	Physics for Sci & Eng I ^o	4	SF		MATH 1210	x	x	x
<input type="checkbox"/>	PHYS	2215	Physics Lab for Sci & Eng I	1			MATH 1210	x		
<input type="checkbox"/>	PHYS	2220	Physics for Sci & Eng II ^o	4	SF		MATH 1220 + PHYS 2210	x	x	x
<input type="checkbox"/>	PHYS	2225	Physics Lab for Sci & Eng II	1			MATH 1220 + PHYS 2210	x		
CHEMISTRY CLASSES										
<input type="checkbox"/>	CHEM	2000/4000	Undergrad Seminar	1					x	x
<input type="checkbox"/>	CHEM	1210 + 1215	General Chemistry I ^o + Lab	4 + 1	SF		MATH 1050	x	x	x
<input type="checkbox"/>	CHEM	1220 + 1225	General Chemistry II ^o + Lab	4 + 1	SF		CHEM 1210 + 1215	x	x	x
<input type="checkbox"/>	CHEM	2310 + 2315	Organic Chemistry I ^A + Lab	4 + 2			CHEM 1220 + 1225	x	x	x
<input type="checkbox"/>	CHEM	2320 + 2325	Organic Chemistry II ^A + Lab	4 + 2			CHEM 2310 + 2315	x	x	x
<input type="checkbox"/>	CHEM	3000	Quantitative Analysis	4	QI, CW		MATH 1220	x	x	x
<input type="checkbox"/>	CHEM	3060	Quantum Chemistry & Spect	4	QI		MATH 2210 + PHYS 2220	x		
<input type="checkbox"/>	CHEM	3070	Thermodynamics & Kinetics	4	QI		MATH 2210 + PHYS 2220	(x)	x	
<input type="checkbox"/>	CHEM	3100	Inorganic Chemistry	5			CHEM 1220		x	x
<input type="checkbox"/>	CHEM	3510	Biological Chemistry I	3			CHEM 2320 + 3060	x	x	x
<input type="checkbox"/>	CHEM	3510	Biological Chemistry II	3			CHEM 2310	x	x	x
<input type="checkbox"/>	CHEM	5750	Biological Chemistry Lab ^φ	2			CHEM 3510			1st
<input type="checkbox"/>	WRITG	3014	Scientific Writing	3			CHEM 3510		x	x
ADVANCED LABS - Choose 2										
<input type="checkbox"/>	CHEM	5700	Analytical Chemistry Lab	2	CW		CHEM 3000			1st
<input type="checkbox"/>	CHEM	5710	Organic Chemistry Lab	2			CHEM 2320		1st	
<input type="checkbox"/>	CHEM	5720	Physical Chemistry Lab	2			CHEM 3060, 3070			2nd
<input type="checkbox"/>	CHEM	5730	Inorganic Chemistry Lab	2			CHEM 3100		2nd	
<input type="checkbox"/>	CHEM	3200	Radiochemistry	3						x
BIOLOGY ELECTIVES[†]: Need 5 credit hours of approved electives (see list of approved courses and DARS)										
<input type="checkbox"/>	BIOL	2020	Cell Biology	3					x	x
<input type="checkbox"/>	BIOL	2030	Genetics	3					x	x
<input type="checkbox"/>	BIOL									
<input type="checkbox"/>	BIOL									

o: Can take whichever calculus sequence is appropriate, talk to advisor about sequencing.

o: Honors versions are PHYS 3210 + 3220.

o: Honors versions of General Chemistry are CHEM 1211 + 1221. Sequence starts in the Fall. Must apply to be in the class.

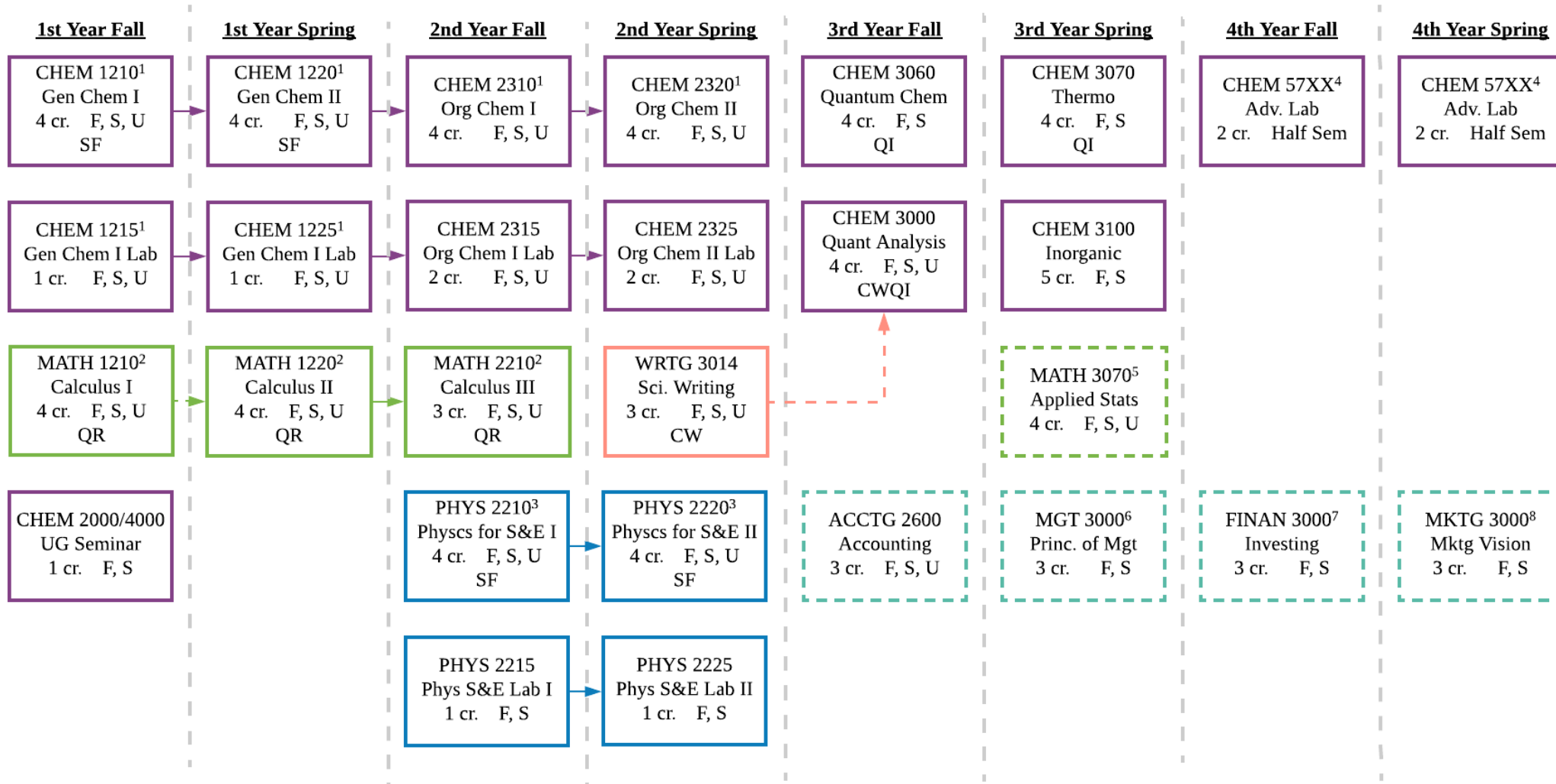
o: Honors versions of Organic Chemistry are CHEM 2311 + 2321. Sequence starts in the Fall.

φ: Can also take CHEM 3515 (Biochemistry Lab) or 3525 (Molecular Biology of DNA Lab) in place of CHEM 5750, to count for 3 advanced lab credits.

†: CHEM 4800 (research), CHEM 4965 (internship), or CHEM 4999 (Honors Thesis) can count for up to 2 credit hours of biology elective

Chemistry Course Requirements - Business Emphasis (2018-2019)

The Business emphasis will familiarize students with chemistry as well as the field of business. May be appropriate for students who plan to work in an industrial chemistry field, such as pharmaceuticals, or who plan to start and run their own business (dental, medical, chemical, etc)



- Honors versions of available. Sequence starts in the Fall. Must apply to be in the class.
- Talk with advisors to see how other calculus sequences could fulfill the calculus requirement.
- Honors versions are PHYS 3210 + 3220.
- 2 upper division labs required. Fall options: CHEM 5710 (org) 1st half, CHEM 5730 (inorg) 2nd half. Spring options: CHEM 5700 (ana) 1st half, CHEM 5720 (phys) 2nd half, CHEM 3200 (radiochem) + NUCL 4000 Spring + Fall.
- Other classes accepted as a replacement (check Degree Audit)..
- Can also take MGT 3680 (Human Behavior in Organizations) offered F, S, U.
- Can also take FINAN 3040 (Financial Management) offered in F, S, U.
- Can also take MKTG 3010 (Principles of Marketing) offered in F, S, U.

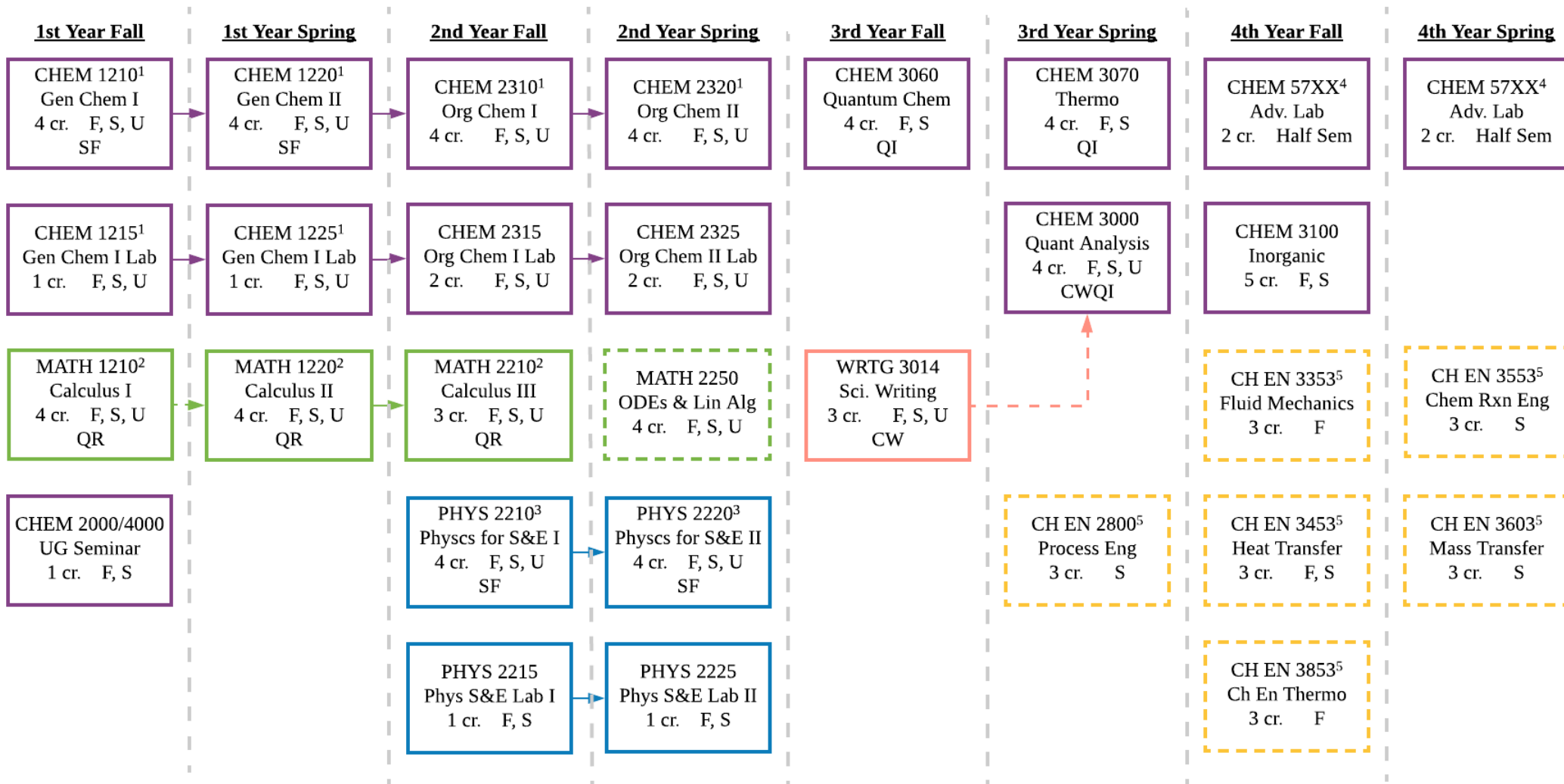
Chemistry Course Requirements – Business Emphasis (2018-19)

The Business emphasis will familiarize students with chemistry as well as the field of business. May be appropriate for students who plan to work in an industrial chemistry field, such as pharmaceuticals, or who plan to start and run their own business (dental, medical, chemical, etc.)

Business Emphasis										
Done?	Dept.	Number	Course Name	Credit Hours	Gen Ed/ Bach Req	Prerequisites		Taught		
						Chemistry	Math/Other	F	S	U
MATH CLASSES										
<input type="checkbox"/>	MATH	1210	Calculus I ^o	4	QR		MATH 1060 or 1080	x	x	x
<input type="checkbox"/>	MATH	1220	Calculus II ^o	4	QR		MATH 1210	x	x	x
<input type="checkbox"/>	MATH	2210	Calculus III ^o	4	QR		MATH 1220	x	x	x
<input type="checkbox"/>	MATH	3070	Advanced Statistics I ^T	4	QR			x	x	x
PHYSICS CLASSES										
<input type="checkbox"/>	PHYS	2210	Physics for Sci & Eng I ^o	4	SF		MATH 1210	x	x	x
<input type="checkbox"/>	PHYS	2215	Physics Lab for Sci & Eng I	1			MATH 1210	x		
<input type="checkbox"/>	PHYS	2220	Physics for Sci & Eng II ^o	4	SF		MATH 1220 + PHYS 2210	x	x	x
<input type="checkbox"/>	PHYS	2225	Physics Lab for Sci & Eng II	1			MATH 1220 + PHYS 2210	x		x
CHEMISTRY CLASSES										
<input type="checkbox"/>	CHEM	2000/4000	Undergrad Seminar	1				x	x	
<input type="checkbox"/>	CHEM	1210 + 1215	General Chemistry I ^o + Lab	4 + 1	SF		MATH 1050	x	x	x
<input type="checkbox"/>	CHEM	1220 + 1225	General Chemistry II ^o + Lab	4 + 1	SF		CHEM 1210 + 1215	x	x	x
<input type="checkbox"/>	CHEM	2310 + 2315	Organic Chemistry I ^A + Lab	4 + 2			CHEM 1220 + 1225	x	x	x
<input type="checkbox"/>	CHEM	2320 + 2325	Organic Chemistry II ^A + Lab	4 + 2			CHEM 2310 + 2315	x	x	x
<input type="checkbox"/>	CHEM	3000	Quantitative Analysis	4	QI, CW		CHEM 1220	x	x	x
<input type="checkbox"/>	CHEM	3060	Quantum Chemistry & Spect	4	QI		MATH 2210 + PHYS 2220	x		
<input type="checkbox"/>	CHEM	3070	Thermodynamics & Kinetics	4	QI		MATH 2210 + PHYS 2220	(x)	x	
<input type="checkbox"/>	CHEM	3100	Inorganic Chemistry	5			CHEM 1220 CHEM 2320 + 3060	x	x	
<input type="checkbox"/>	WRTG	3014	Scientific Writing	3			WRTG 2010	x	x	x
ADVANCED LABS - Choose 2										
<input type="checkbox"/>	CHEM	5700	Analytical Chemistry Lab	2	CW		CHEM 3000			1st
<input type="checkbox"/>	CHEM	5710	Organic Chemistry Lab	2			CHEM 2320			1st
<input type="checkbox"/>	CHEM	5720	Physical Chemistry Lab	2			CHEM 3060, 3070			2nd
<input type="checkbox"/>	CHEM	5730	Inorganic Chemistry Lab	2			CHEM 3100			2nd
<input type="checkbox"/>	CHEM	3200	Radiochemistry	3						x
BUSINESS ELECTIVES										
<input type="checkbox"/>	ACCTG	2600	Accounting	3				x	x	x
<input type="checkbox"/>	MGT	3000 or 3680	Princ. Of Management or Human Behav in Organizations	3				x	x	x
<input type="checkbox"/>	FINAN	3000 or 3040	Investing or Financial Management	3				x	x	x
<input type="checkbox"/>	MKTG	3000 or 3010	Marketing Vision or Principles of Marketing	3				x	x	x
^o : Can take whichever calculus sequence is appropriate, talk to advisor about sequencing.										
^T : Find the statistics option that works best for you. Talk to your advisor! CHEM 4800 (research), CHEM 4965 (internship), or CHEM 4999 (Honors Thesis)										
^o : Honors versions are PHYS 3210 + 3220.										
^o : Honors versions of General Chemistry are CHEM 1211 + 1221. Sequence starts in the Fall. Must apply to be in the class.										
^A : Honors versions of Organic Chemistry are CHEM 2311 + 2321. Sequence starts in the Fall.										

Chemistry Course Requirements - Chemical Engineering Emphasis (2018-2019)

This emphasis is great for those interested in double majoring in chemistry and chemical engineering as well as those who are considering graduate school in chemical engineering.



- Honors versions of available. Sequence starts in the Fall. Must apply to be in the class.
- Talk with advisors to see how other calculus sequences could fulfill the calculus requirement.
- Honors versions are PHYS 3210 + 3220.
- 2 upper division labs required. Fall options: CHEM 5710 (org) 1st half, CHEM 5730 (inorg) 2nd half. Spring options: CHEM 5700 (ana) 1st half, CHEM 5720 (phys) 2nd half, CHEM 3200 (radiochem) + NUCL 4000 Spring + Fall.
- Visit chemical engineering website to get permission code for these classes if you are not double majoring in chemical engineering.
- MATH 2270 + 2280 are more rigorous, and will take 2 semesters to complete.

Chemistry Course Requirements – Chemical Engineering Emphasis (2018-19)

This emphasis is great for those interested in double majoring in chemistry and chemical engineering as well as those who are considering graduate school in chemical engineering.

Chemical Engineering Emphasis										
Done?	Dept.	Number	Course Name	Credit Hours	Gen Ed/ Bach Req	Prerequisites		Taught		
						Chemistry	Math/Other	F	S	U
MATH CLASSES										
<input type="checkbox"/>	MATH	1210	Calculus I ^o	4	QR		MATH 1060 or 1080	x	x	x
<input type="checkbox"/>	MATH	1220	Calculus II ^o	4	QR		MATH 1210	x	x	x
<input type="checkbox"/>	MATH	2210	Calculus III ^o	4	QR		MATH 1220	x	x	x
<input type="checkbox"/>	MATH	2250	ODE's and Linear Algebra ^o	4	QR		MATH 2250	x	x	x
PHYSICS CLASSES										
<input type="checkbox"/>	PHYS	2210	Physics for Sci & Eng I ^o	4	SF		MATH 1210	x	x	x
<input type="checkbox"/>	PHYS	2215	Physics Lab for Sci & Eng I	1			MATH 1210	x	x	
<input type="checkbox"/>	PHYS	2220	Physics for Sci & Eng II ^o	4	SF		MATH 1220 + PHYS 2210	x	x	x
<input type="checkbox"/>	PHYS	2225	Physics Lab for Sci & Eng II	1			MATH 1220 + PHYS 2210	x	x	x
CHEMISTRY CLASSES										
<input type="checkbox"/>	CHEM	2000/4000	Undergrad Seminar	1				x	x	
<input type="checkbox"/>	CHEM	1210 + 1215	General Chemistry I ^o + Lab	4 + 1	SF		MATH 1050	x	x	x
<input type="checkbox"/>	CHEM	1220 + 1225	General Chemistry II ^o + Lab	4 + 1	SF	CHEM 1210 + 1215		x	x	x
<input type="checkbox"/>	CHEM	2310 + 2315	Organic Chemistry I ^A + Lab	4 + 2		CHEM 1220 + 1225		x	x	x
<input type="checkbox"/>	CHEM	2320 + 2325	Organic Chemistry II ^A + Lab	4 + 2		CHEM 2310 + 2315		x	x	x
<input type="checkbox"/>	CHEM	3000	Quantitative Analysis	4	QI, CW	CHEM 1220	MATH 1220 + 1250	x	x	x
<input type="checkbox"/>	CHEM	3060	Quantum Chemistry & Spect	4	QI	CHEM 1220	MATH 2210 + PHYS 2220	x	x	
<input type="checkbox"/>	CHEM	3070	Thermodynamics & Kinetics ^T	4	QI	CHEM 1220	MATH 2210 + PHYS 2220	(x)	x	
<input type="checkbox"/>	CHEM	3100	Inorganic Chemistry	5		CHEM 1220		x	x	
<input type="checkbox"/>	WRITG	3014	Scientific Writing	3		CHEM 2320 + 3060		x	x	x
ADVANCED LABS - Choose 2										
<input type="checkbox"/>	CHEM	5700	Analytical Chemistry Lab	2	CW	CHEM 3000				1st
<input type="checkbox"/>	CHEM	5710	Organic Chemistry Lab	2		CHEM 2320			1st	
<input type="checkbox"/>	CHEM	5720	Physical Chemistry Lab	2		CHEM 3060, 3070				2nd
<input type="checkbox"/>	CHEM	5730	Inorganic Chemistry Lab	2		CHEM 3100			2nd	
<input type="checkbox"/>	CHEM	3200	Radiochemistry	3						x
CHEMICAL ENGINEERING ELECTIVES¹										
<input type="checkbox"/>	CH EN	2800	Process Engineering	3			MATH 2210		x	
<input type="checkbox"/>	CH EN	3853	Chem Eng Thermodynamics	3			CH EN 2800	x		
<input type="checkbox"/>	CH EN	3353	Fluid Mechanics	3			CH EN 2800	x		
<input type="checkbox"/>	CH EN	3453	Heat Transfer	3			CH EN 2800	x		
<input type="checkbox"/>	CH EN	3553	Chemical Rxn Engineering	3			CH EN 3853, 3353, 3453		x	
<input type="checkbox"/>	CH EN	3603	Mass Transfer	3			CH EN 3853, 3353, 3453		x	

^o: Can take whichever calculus sequence is appropriate, talk to advisor about sequencing.

^o: MATH 2270 + 2280 are more rigorous, but will take 2 semesters to complete.

^o: Honors versions are PHYS 3210 + 3220.

^o: Honors versions of General Chemistry are CHEM 1211 + 1221. Sequence starts in the Fall. Must apply to be in the class.

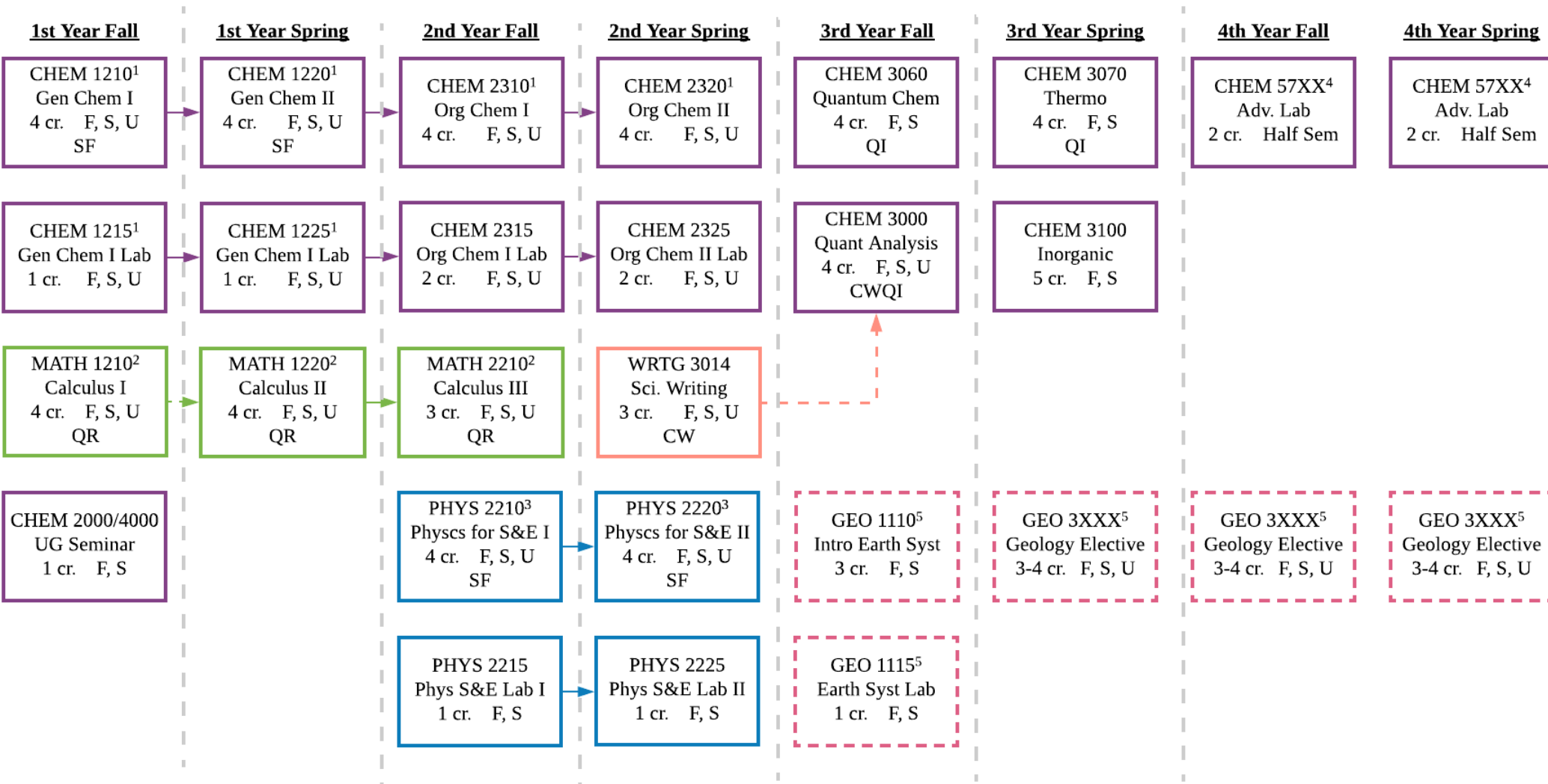
^o: Honors versions of Organic Chemistry are CHEM 2311 + 2321. Sequence starts in the Fall.

^T: CHEM 4800 (research), CHEM 4965 (internship), or CHEM 4999 (Honors Thesis) can waive with advisor consent for double majors in chemical engineering.

¹: Visit chemical engineering website to get permission code for these classes if you are not double majoring in chemical engineering.

Chemistry Course Requirements - Geology Emphasis (2018-2019)

The Geology emphasis allows students to choose geology electives that interest them, and potentially go into fields related to geoscience, geochemistry, hydrology, and oil and gas exploration.



- Honors versions of available. Sequence starts in the Fall. Must apply to be in the class.
- Talk with advisors to see how other calculus sequences could fulfill the calculus requirement.
- Honors versions are PHYS 3210 + 3220.
- 2 upper division labs required. Fall options: CHEM 5710 (org) 1st half, CHEM 5730 (inorg) 2nd half. Spring options: CHEM 5700 (ana) 1st half, CHEM 5720 (phys) 2nd half, CHEM 3200 (radiochem) + NUCL 4000 Spring + Fall.
- Need at least 16 credits of geology. Check Degree Audit to see accepted geology. Contact chemistry advisors to determine if a course not listed could fulfill this requirement. CHEM 4800 (research), CHEM 4999 (Honors Thesis), or CHEM 4965 (internship) can waive 2 credits.

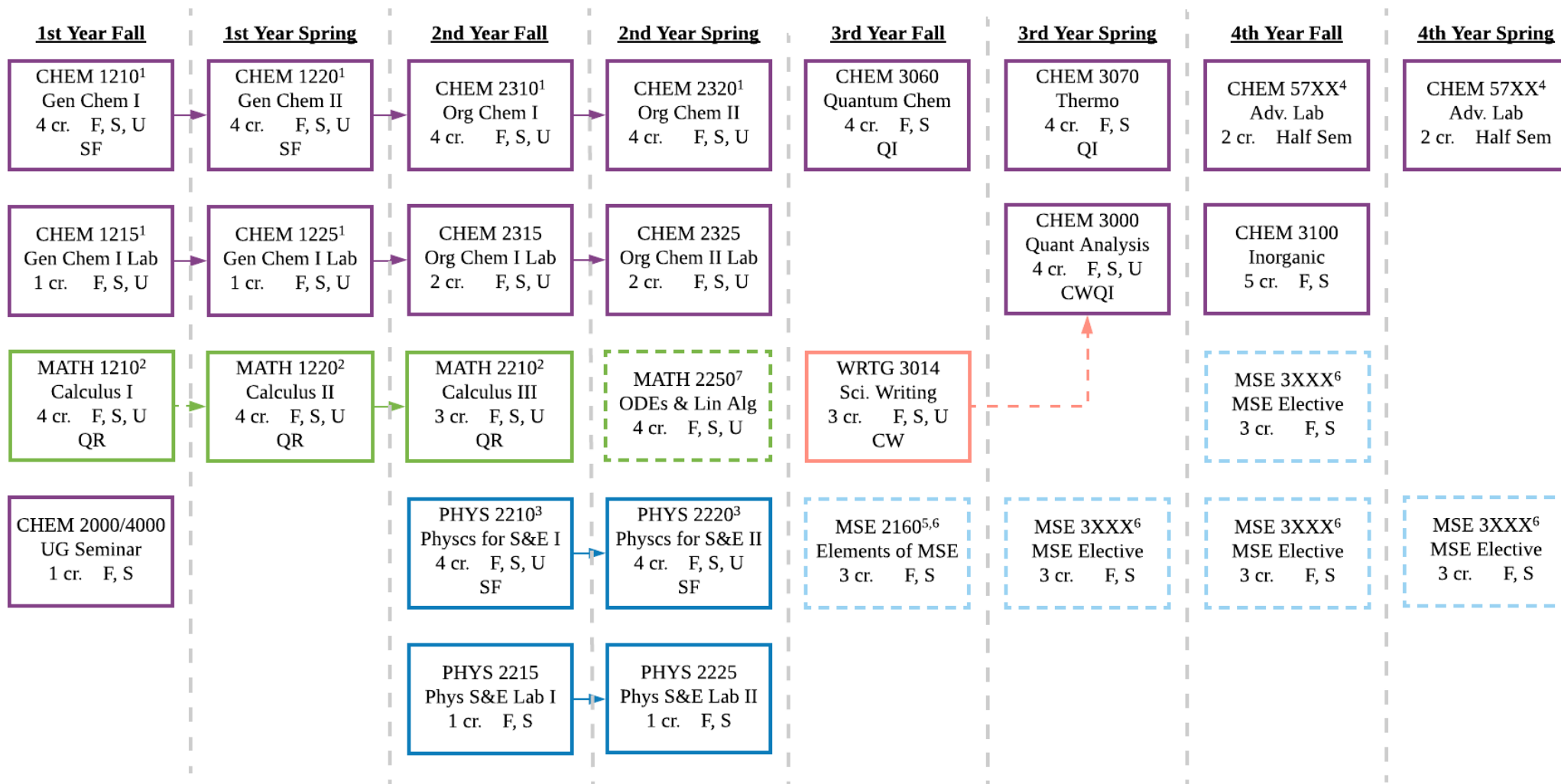
Chemistry Course Requirements – Geology Emphasis (2018-2019)

The Geology emphasis allows students to choose geology electives that interest them, and potentially go into fields related to geoscience, geochemistry, hydrology, and oil and gas exploration.

Geology Emphasis											
Done?	Depart.	Number	Course Name	Credit Hours	Gen Ed/ Bach Req	Prerequisites			Taught		
						Chemistry	Math/Other		F	S	U
MATH CLASSES											
<input type="checkbox"/>	MATH	1210	Calculus I ^o	4	QR		MATH 1060 or 1080		x	x	x
<input type="checkbox"/>	MATH	1220	Calculus II ^o	4	QR		MATH 1210		x	x	x
<input type="checkbox"/>	MATH	2210	Calculus III ^o	4	QR		MATH 1220		x	x	x
PHYSICS CLASSES											
<input type="checkbox"/>	PHYS	2210	Physics for Sci & Eng I ^o	4	SF		MATH 1210		x	x	x
<input type="checkbox"/>	PHYS	2215	Physics Lab for Sci & Eng I	1			MATH 1210		x	x	
<input type="checkbox"/>	PHYS	2220	Physics for Sci & Eng II ^o	4	SF		MATH 1220 + PHYS 2210		x	x	x
<input type="checkbox"/>	PHYS	2225	Physics Lab for Sci & Eng II	1			MATH 1220 + PHYS 2210		x	x	x
CHEMISTRY CLASSES											
<input type="checkbox"/>	CHEM	2000/4000	Undergrad Seminar	1					x	x	
<input type="checkbox"/>	CHEM	1210 + 1215	General Chemistry I ^o + Lab	4 + 1	SF		MATH 1050		x	x	x
<input type="checkbox"/>	CHEM	1220 + 1225	General Chemistry II ^o + Lab	4 + 1	SF		1215		x	x	x
<input type="checkbox"/>	CHEM	2310 + 2315	Organic Chemistry I ^A + Lab	4 + 2			1225		x	x	x
<input type="checkbox"/>	CHEM	2320 + 2325	Organic Chemistry II ^A + Lab	4 + 2			2315		x	x	x
<input type="checkbox"/>	CHEM	3000	Quantitative Analysis	4	QI, CW		CHEM 1220		x	x	x
<input type="checkbox"/>	CHEM	3060	Quantum Chemistry & Spect	4	QI		MATH 2210 + PHYS 2220		x	x	
<input type="checkbox"/>	CHEM	3070	Thermodynamics & Kinetics	4	QI		MATH 2210 + PHYS 2220		(x)	x	
<input type="checkbox"/>	CHEM	3100	Inorganic Chemistry	5			CHEM 2320 + 3060		x	x	x
<input type="checkbox"/>	WRTG	3014	Scientific Writing	3			WRTG 2010		x	x	x
ADVANCED LABS - Choose 2											
<input type="checkbox"/>	CHEM	5700	Analytical Chemistry Lab	2	CW		CHEM 3000				1st
<input type="checkbox"/>	CHEM	5710	Organic Chemistry Lab	2			CHEM 2320				1st
<input type="checkbox"/>	CHEM	5720	Physical Chemistry Lab	2			CHEM 3060, 3070				2nd
<input type="checkbox"/>	CHEM	5730	Inorganic Chemistry Lab	2			CHEM 3100				2nd
<input type="checkbox"/>	CHEM	3200	Radiochemistry	3							x
GELOGY ELECTIVES[†]: Need 16 credit hours of approved electives (see list of approved courses and DARS)											
<input type="checkbox"/>	GEO	1110	Intro Earth Systems	3					x	x	
<input type="checkbox"/>	GEO	1115	Intro Earth Systems Lab	1					x	x	
<input type="checkbox"/>	GEO										
<input type="checkbox"/>	GEO										
<input type="checkbox"/>	GEO										
<input type="checkbox"/>	GEO										
<p>^o: Can take whichever calculus sequence is appropriate, talk to advisor about sequencing.</p> <p>^Δ: Honors versions are PHYS 3210 + 3220.</p> <p>^o: Honors versions of General Chemistry are CHEM 1211 + 1221. Sequence starts in the Fall. Must apply to be in the class.</p> <p>^Δ: Honors versions of Organic Chemistry are CHEM 2311 + 2321. Sequence starts in the Fall.</p> <p>[†]: CHEM 4800 (research), CHEM 4965 (internship), or CHEM 4999 (Honors Thesis) can count for up to 2 credit hours of geology elective</p>											

Chemistry Course Requirements - Material Science & Engineering Emphasis (2018-2019)

The Materials Science & Engineering emphasis is for students who are interested in learning how to develop new materials in chemistry, and explore the MSE department. Students who choose this emphasis may work for a company to design new products or go to graduate school in chemistry or MSE.



- Honors versions of available. Sequence starts in the Fall. Must apply to be in the class.
- Talk with advisors to see how other calculus sequences could fulfill the calculus requirement.
- Honors versions are PHYS 3210 + 3220.
- 2 upper division labs required. Fall options: CHEM 5710 (org) 1st half, CHEM 5730 (inorg) 2nd half. Spring options: CHEM 5700 (ana) 1st half, CHEM 5720 (phys) 2nd half, CHEM 3200 (radiochem) + NUCL 4000 Spring + Fall.
- MSE 2010 can be taken instead, but it is reserved for MSE majors.
- Need at least 15 credits in Materials Science & Engineering, including MSE 2160 or MSE 2010. Check DARS to see accepted courses. CHEM 4800 (research), CHEM 4999 (Honors Thesis), or CHEM 4965 (internship) can waive 2 credits.
- MATH 2270 + 2280 are more rigorous, and will take 2 semesters to complete.

Chemistry Course Requirements – Materials Science & Engineering Emphasis (2018-19)

The Materials Science & Engineering emphasis is for students who are interested in learning how to develop new materials in chemistry, and explore the MSE department. Students who choose this emphasis may work for a company to design new products or go to graduate school in chemistry or MSE.

Material Science & Engineering Emphasis											
Done?	Dept.	Number	Course Name	Credit Hours	Gen Ed/ Bach Req	Prerequisites		Taught			
						Chemistry	Math/Other	F	S	U	
MATH CLASSES											
<input type="checkbox"/>	MATH	1210	Calculus I ^o	4	QR		1080		x	x	x
<input type="checkbox"/>	MATH	1220	Calculus II ^o	4	QR		MATH 1210		x	x	x
<input type="checkbox"/>	MATH	2210	Calculus III ^o	4	QR		MATH 1220		x	x	x
<input type="checkbox"/>	MATH	2250	ODE's and Linear Algebra ^o	4	QR		MATH 2250		x	x	x
PHYSICS CLASSES											
<input type="checkbox"/>	PHYS	2210	Physics for Sci & Eng I ^o	4	SF		MATH 1210		x	x	x
<input type="checkbox"/>	PHYS	2215	Physics Lab for Sci & Eng I	1			MATH 1210		x	x	
<input type="checkbox"/>	PHYS	2220	Physics for Sci & Eng II ^o	4	SF		MATH 1220 + PHYS 2210		x	x	x
<input type="checkbox"/>	PHYS	2225	Physics Lab for Sci & Eng II	1			MATH 1220 + PHYS 2210		x	x	x
CHEMISTRY CLASSES											
<input type="checkbox"/>	CHEM	2000/4000	Undergrad Seminar	1					x	x	
<input type="checkbox"/>	CHEM	1210 + 1215	General Chemistry I ^o + Lab	4 + 1	SF		MATH 1050		x	x	x
<input type="checkbox"/>	CHEM	1220 + 1225	General Chemistry II ^o + Lab	4 + 1	SF		CHEM 1210 + 1215		x	x	x
<input type="checkbox"/>	CHEM	2310 + 2315	Organic Chemistry I ^A + Lab	4 + 2			CHEM 1220 + 1225		x	x	x
<input type="checkbox"/>	CHEM	2320 + 2325	Organic Chemistry II ^A + Lab	4 + 2			CHEM 2310 + 2315		x	x	x
<input type="checkbox"/>	CHEM	3000	Quantitative Analysis	4	QI, CW		CHEM 1220		MATH 1220	x	x
<input type="checkbox"/>	CHEM	3060	Quantum Chemistry & Spect	4	QI		CHEM 1220		MATH 2210 + PHYS 2220	x	x
<input type="checkbox"/>	CHEM	3070	Thermodynamics & Kinetics	4	QI		CHEM 1220		MATH 2210 + PHYS 2220	(x)	x
<input type="checkbox"/>	CHEM	3100	Inorganic Chemistry	5			CHEM 1220				
<input type="checkbox"/>	WRTG	3014	Scientific Writing	3			CHEM 2320 + 3060			x	x
ADVANCED LABS - Choose 2											
<input type="checkbox"/>	CHEM	5700	Analytical Chemistry Lab	2	CW		CHEM 3000				1st
<input type="checkbox"/>	CHEM	5710	Organic Chemistry Lab	2			CHEM 2320				1st
<input type="checkbox"/>	CHEM	5720	Physical Chemistry Lab	2			CHEM 3060, 3070				2nd
<input type="checkbox"/>	CHEM	5730	Inorganic Chemistry Lab	2			CHEM 3100				2nd
<input type="checkbox"/>	CHEM	3200	Radiochemistry	3							x
MSE ELECTIVES^F: Need 15 credit hours of approved electives (see list of approved courses and DARS)[†]											
<input type="checkbox"/>	MSE	2160	Elements of Material Science	3			CHEM 1210		MATH 1210	x	x
<input type="checkbox"/>	MSE										
<input type="checkbox"/>	MSE										
<input type="checkbox"/>	MSE										
<input type="checkbox"/>	MSE										

^o: Can take whichever calculus sequence is appropriate, talk to advisor about sequencing.

[†]: MATH 2270 + 2280 are more rigorous, but will take 2 semesters to complete.

^o: Honors versions are PHYS 3210 + 3220.

^o: Honors versions of General Chemistry are CHEM 1211 + 1221. Sequence starts in the Fall. Must apply to be in the class.

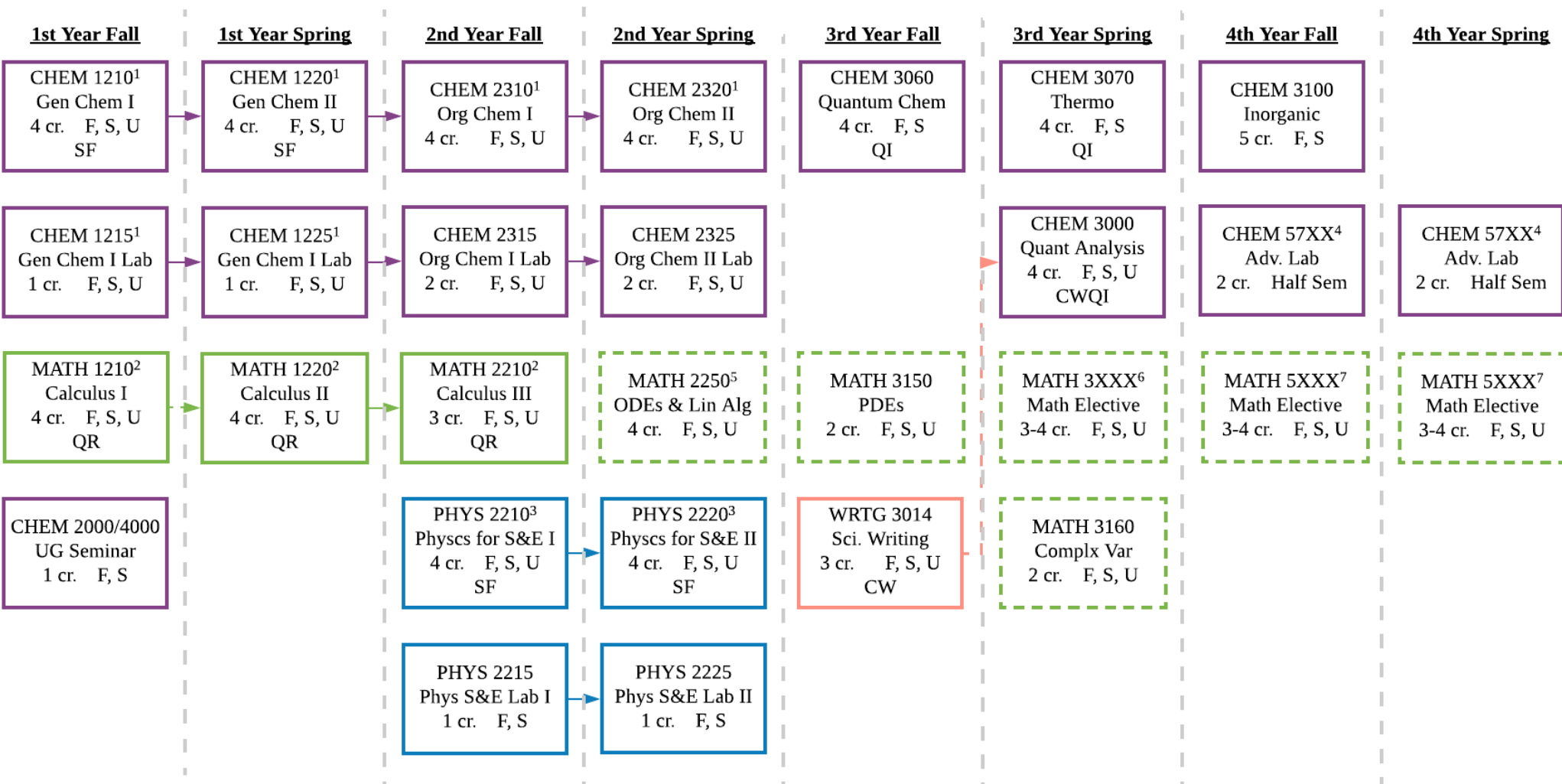
^Δ: Honors versions of Organic Chemistry are CHEM 2311 + 2321. Sequence starts in the Fall.

^T: CHEM 4800 (research), CHEM 4965 (internship), or CHEM 4999 (Honors Thesis) can waive 2 credits

^I: Visit material science & engineering website to get permission code for these classes.

Chemistry Course Requirements - Mathematics Emphasis (2018-2019)

The Mathematics emphasis is designed for students who enjoy the mathematical aspects of chemistry. This math-intensive track will enhance students in their problem solving skills and may be of interest to those wanting to pursue a career in computational chemistry, although will give students an edge in all aspects of chemistry.



- Honors versions of available. Sequence starts in the Fall. Must apply to be in the class.
- Talk with advisors to see how other calculus sequences could fulfill the calculus requirement.
- Honors versions are PHYS 3210 + 3220.
- 2 upper division labs required. Fall options: CHEM 5710 (org) 1st half, CHEM 5730 (inorg) 2nd half. Spring options: CHEM 5700 (ana) 1st half, CHEM 5720 (phys) 2nd half, CHEM 3200 (radiochem) + NUCL 4000 Spring + Fall.
- MATH 2270 + 2280 are more rigorous, and will take 2 semesters to complete.
- Must take at least 3 credits of MATH 3XXX. Check Degree Audit or w/ advisor to see accepted math classes for elective credit.
- Must take at least 6 credits of MATH 5XXX. Check Degree Audit or w/ advisor to see accepted math classes for elective credit. CHEM 4800 (research), CHEM 4999 (Honors Thesis), or CHEM 4965 (internship) can waive 2 credits.

Chemistry Course Requirements – Mathematics Emphasis (2018-19)

The Mathematics emphasis is designed for students who enjoy the mathematical aspects of chemistry.. This math-intensive track will enhance students in their problem solving skills and may be of interest to those wanting to pursue a career in computational chemistry, although will give students an edge in all aspects of chemistry

Mathematics Emphasis											
Done?	Depart.	Number	Course Name	Credit Hours	Gen Ed/ Bach Req	Prerequisites			Taught		
						Chemistry	Math/Other	F	S	U	
MATH CLASSES											
<input type="checkbox"/>	MATH	1210	Calculus I ^o	4	QR		1080		x	x	x
<input type="checkbox"/>	MATH	1220	Calculus II ^o	4	QR		MATH 1210		x	x	x
<input type="checkbox"/>	MATH	2210	Calculus III ^o	4	QR		MATH 1220		x	x	x
<input type="checkbox"/>	MATH	2250	ODE's and Linear Algebra ^o	4	QR		MATH 2210		x	x	x
<input type="checkbox"/>	MATH	3150	PDE's	2			MATH 2250		x	x	x
<input type="checkbox"/>	MATH	3160	Complex Variables	2			MATH 2250		x	x	x
<input type="checkbox"/>	MATH	3XXX		3-4				See list of approved courses and DARS			
<input type="checkbox"/>	MATH	5XXX		3-4				See list of approved courses and DARS			
<input type="checkbox"/>	MATH	5XXX ^T		3-4				See list of approved courses and DARS			
PHYSICS CLASSES											
<input type="checkbox"/>	PHYS	2210	Physics for Sci & Eng I ^o	4	SF		MATH 1210		x	x	x
<input type="checkbox"/>	PHYS	2215	Physics Lab for Sci & Eng I	1			MATH 1210		x	x	
<input type="checkbox"/>	PHYS	2220	Physics for Sci & Eng II ^o	4	SF		MATH 1220 + PHYS 2210		x	x	x
<input type="checkbox"/>	PHYS	2225	Physics Lab for Sci & Eng II	1			MATH 1220 + PHYS 2210		x	x	x
CHEMISTRY CLASSES											
<input type="checkbox"/>	CHEM	2000/4000	Undergrad Seminar	1					x	x	
<input type="checkbox"/>	CHEM	1210 + 1215	General Chemistry I ^o + Lab	4 + 1	SF		MATH 1050		x	x	x
<input type="checkbox"/>	CHEM	1220 + 1225	General Chemistry II ^o + Lab	4 + 1	SF		CHEM 1210 + 1215		x	x	x
<input type="checkbox"/>	CHEM	2310 + 2315	Organic Chemistry I ^A + Lab	4 + 2			CHEM 1220 + 1225		x	x	x
<input type="checkbox"/>	CHEM	2320 + 2325	Organic Chemistry II ^A + Lab	4 + 2			CHEM 2310 + 2315		x	x	x
<input type="checkbox"/>	CHEM	3000	Quantitative Analysis	4	QI, CW		CHEM 1220		x	x	x
<input type="checkbox"/>	CHEM	3060	Quantum Chemistry & Spect	4	QI		MATH 2210 + PHYS 2220		x	x	
<input type="checkbox"/>	CHEM	3070	Thermodynamics & Kinetics	4	QI		MATH 2210 + PHYS 2220		(x)	x	
<input type="checkbox"/>	CHEM	3100	Inorganic Chemistry	5			CHEM 1220 CHEM 2320 + 3060		x	x	
ADVANCED LABS - Choose 2											
<input type="checkbox"/>	CHEM	5700	Analytical Chemistry Lab	2	CW		CHEM 3000				1st
<input type="checkbox"/>	CHEM	5710	Organic Chemistry Lab	2			CHEM 2320				1st
<input type="checkbox"/>	CHEM	5720	Physical Chemistry Lab	2			CHEM 3060, 3070				2nd
<input type="checkbox"/>	CHEM	5730	Inorganic Chemistry Lab	2			CHEM 3100				2nd
<input type="checkbox"/>	CHEM	3200	Radiochemistry	3							x

o: Can take whichever calculus sequence is appropriate, talk to advisor about sequencing.

o: MATH 2270 + 2280 are more rigorous, but will take 2 semesters to complete.

F: CHEM 4800 (research), CHEM 4965 (internship), or CHEM 4999 (Honors Thesis) can count for up to 2 credit hours of math elective

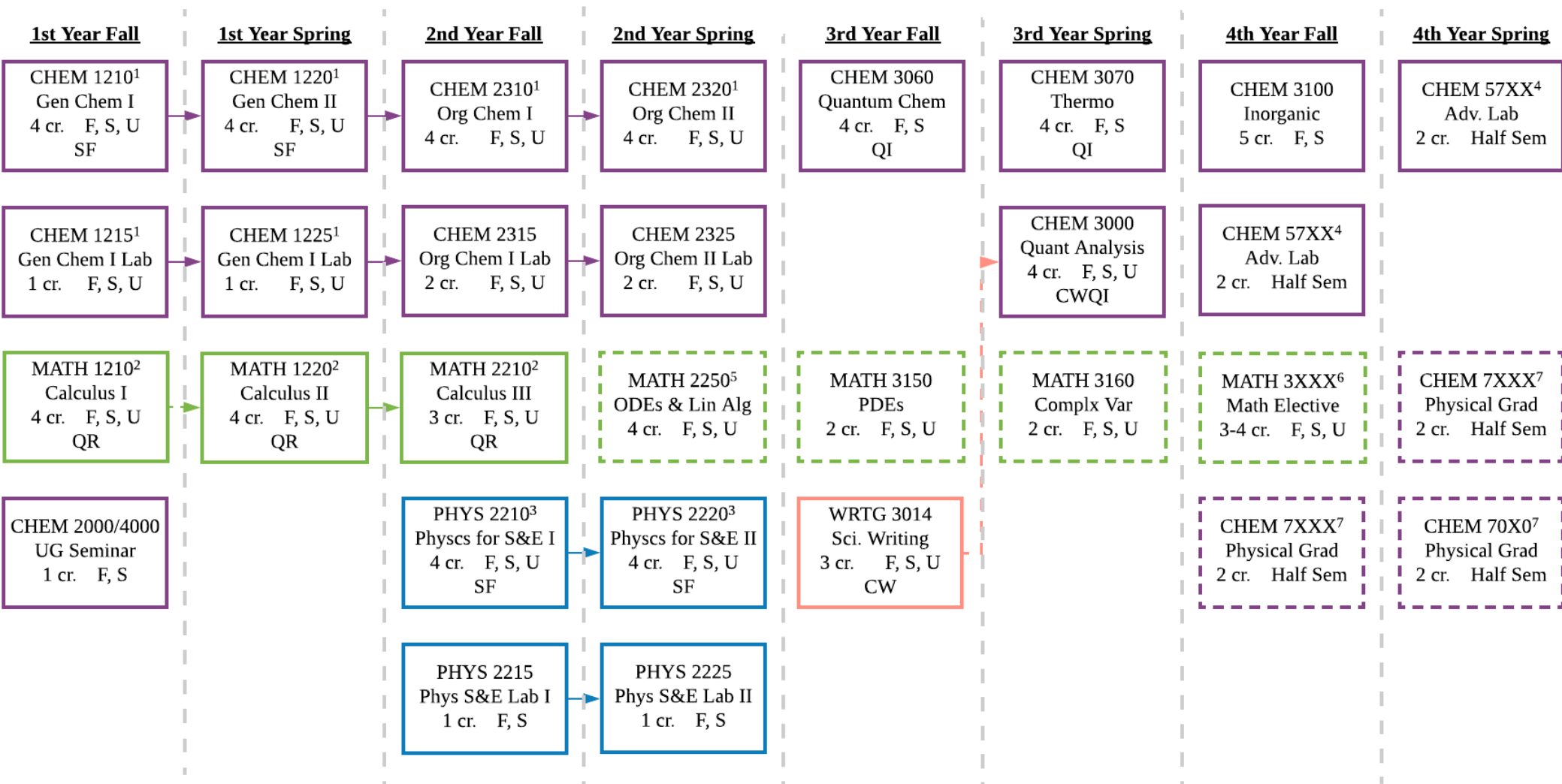
o: Honors versions are PHYS 3210 + 3220.

o: Honors versions of General Chemistry are CHEM 1211 + 1221. Sequence starts in the Fall. Must apply to be in the class.

A: Honors versions of Organic Chemistry are CHEM 2311 + 2321. Sequence starts in the Fall.

Chemistry Course Requirements - Chemical Physics Emphasis (2018-2019)

The Physics emphasis is more math-intensive and gives students the opportunity to take some graduate-level physical chemistry classes. Careers in physical chemistry allow students to discover, test, and understand the fundamental physical characteristics of a material.



- Honors versions of available. Sequence starts in the Fall. Must apply to be in the class.
- Talk with advisors to see how other calculus sequences could fulfill the calculus requirement.
- Honors versions are PHYS 3210 + 3220.
- 2 upper division labs required. Fall options: CHEM 5710 (org) 1st half, CHEM 5730 (inorg) 2nd half. Spring options: CHEM 5700 (ana) 1st half, CHEM 5720 (phys) 2nd half, CHEM 3200 (radiochem) + NUCL 4000 Spring + Fall.
- MATH 2270 + 2280 are more rigorous, and will take 2 semesters to complete.
- Must take at least 3 credits of MATH 3XXX. Check Degree Audit or w/ advisor to see accepted math classes for elective credit.
- CHEM 4800 (research), CHEM 4999 (Honors Thesis), or CHEM 4965 (internship) can waive 2 credits.

Chemistry Course Requirements – Physics Emphasis (2018-19)

The Physics emphasis is more math-intensive and gives students the opportunity to take some graduate-level physical chemistry classes. Careers in physical chemistry allow students to discover, test, and understand the fundamental physical characteristics of a material.

Physics Emphasis

Done?	Dept.	Number	Course Name	Credit Hours	Gen Ed/ Bach Req	Prerequisites		Taught		
						Chemistry	Math/Other	F	S	U
MATH CLASSES										
<input type="checkbox"/>	MATH	1210	Calculus I ^o	4	QR		MATH 1060 or 1080	x	x	x
<input type="checkbox"/>	MATH	1220	Calculus II ^o	4	QR		MATH 1210	x	x	x
<input type="checkbox"/>	MATH	2210	Calculus III ^o	4	QR		MATH 1220	x	x	x
<input type="checkbox"/>	MATH	2250	ODE's and Linear Algebra ^o	4	QR		MATH 2210	x	x	x
<input type="checkbox"/>	MATH	3150	PDE's	2			MATH 2250	x	x	x
<input type="checkbox"/>	MATH	3160	Complex Variables	2			MATH 2250	x	x	x
<input type="checkbox"/>	MATH	3XXX		3-4			See list of approved courses and DARS			

PHYSICS CLASSES

<input type="checkbox"/>	PHYS	2210	Physics for Sci & Eng I ^o	4	SF		MATH 1210	x	x	x
<input type="checkbox"/>	PHYS	2215	Physics Lab for Sci & Eng I	1			MATH 1210	x	x	
<input type="checkbox"/>	PHYS	2220	Physics for Sci & Eng II ^o	4	SF		MATH 1220 + PHYS 2210	x	x	x
<input type="checkbox"/>	PHYS	2225	Physics Lab for Sci & Eng II	1			MATH 1220 + PHYS 2210	x	x	x

CHEMISTRY CLASSES

<input type="checkbox"/>	CHEM	2000/4000	Undergrad Seminar	1				x	x	
<input type="checkbox"/>	CHEM	1210 + 1215	General Chemistry I ^o + Lab	4 + 1	SF		MATH 1050	x	x	x
<input type="checkbox"/>	CHEM	1220 + 1225	General Chemistry II ^o + Lab	4 + 1	SF	CHEM 1210 + 1215		x	x	x
<input type="checkbox"/>	CHEM	2310 + 2315	Organic Chemistry I ^A + Lab	4 + 2		CHEM 1220 + 1225		x	x	x
<input type="checkbox"/>	CHEM	2320 + 2325	Organic Chemistry II ^A + Lab	4 + 2		CHEM 2310 + 2315		x	x	x
<input type="checkbox"/>	CHEM	3000	Quantitative Analysis	4	QI, CW	CHEM 1220	MATH 1220	x	x	x
<input type="checkbox"/>	CHEM	3060	Quantum Chemistry & Spect	4	QI	CHEM 1220	MATH 2210 + PHYS 2220	x	x	
<input type="checkbox"/>	CHEM	3070	Thermodynamics & Kinetics	4	QI	CHEM 1220	MATH 2210 + PHYS 2220	(x)	x	
<input type="checkbox"/>	CHEM	3100	Inorganic Chemistry	5		CHEM 1220, CHEM 2320, 3060		x	x	
<input type="checkbox"/>	WRTG	3014	Scientific Writing	3		WRTG 2010		x	x	x

ADVANCED LABS - Choose 2

<input type="checkbox"/>	CHEM	5700	Analytical Chemistry Lab	2	CW	CHEM 3000				1st
<input type="checkbox"/>	CHEM	5710	Organic Chemistry Lab	2		CHEM 2320				1st
<input type="checkbox"/>	CHEM	5720	Physical Chemistry Lab	2		CHEM 3060, 3070				2nd
<input type="checkbox"/>	CHEM	5730	Inorganic Chemistry Lab	2		CHEM 3100				2nd
<input type="checkbox"/>	CHEM	3200	Radiochemistry	3						x

PHYSICAL CHEMISTRY ELECTIVES[†]: Need 6 credit hours of approved electives (see list of approved courses and DARS)

<input type="checkbox"/>	CHEM	70X0		2		CHEM 3060, 3070				
<input type="checkbox"/>	CHEM	70X0		2		CHEM 3060, 3070				
<input type="checkbox"/>	CHEM	70X0		2		CHEM 3060, 3070				

^o: Can take whichever calculus sequence is appropriate, talk to advisor about sequencing.

^o: MATH 2270 + 2280 are more rigorous, but will take 2 semesters to complete.

^o: Honors versions are PHYS 3210 + 3220.

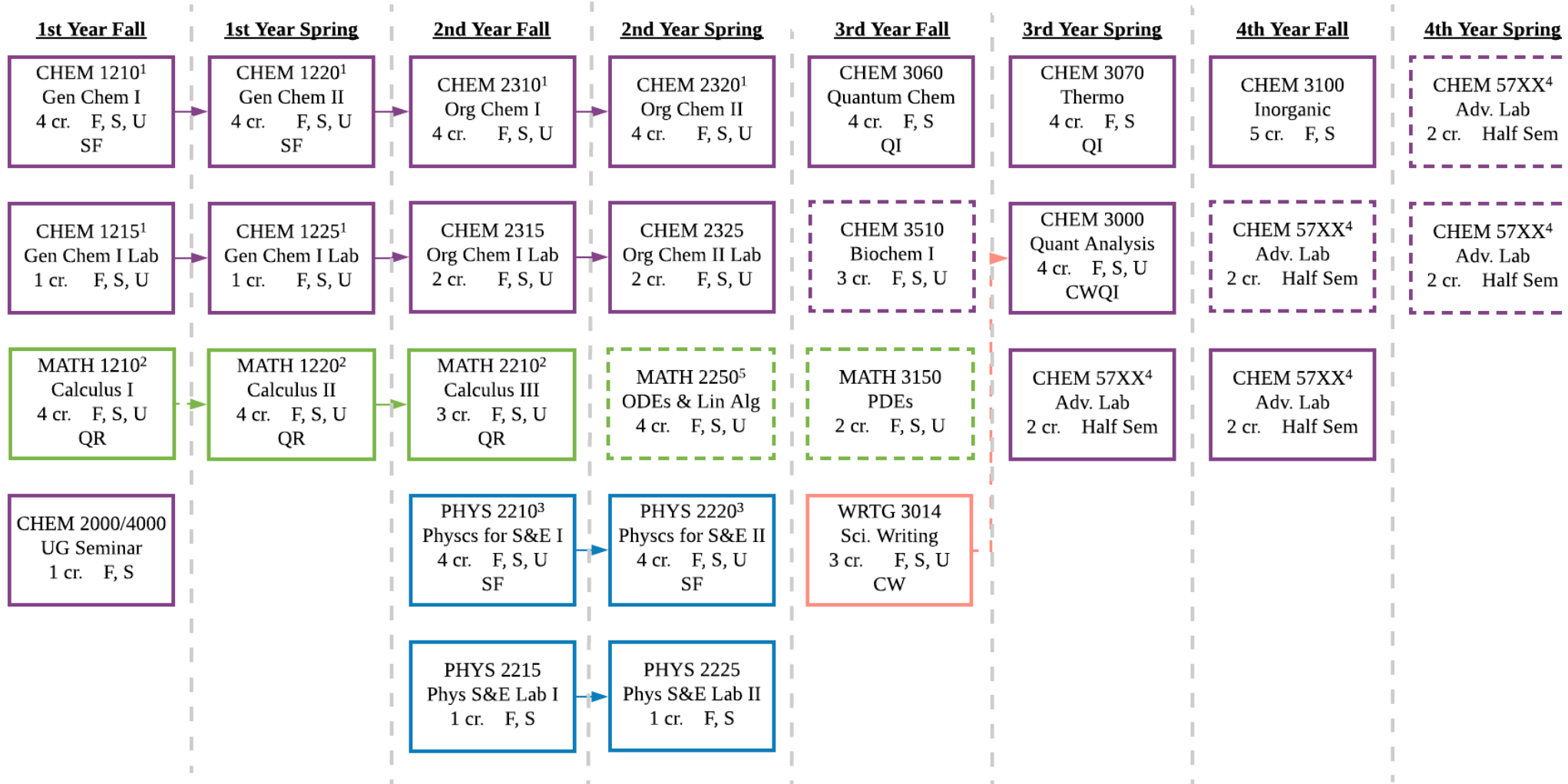
^o: Honors versions of General Chemistry are CHEM 1211 + 1221. Sequence starts in the Fall. Must apply to be in the class.

^o: Honors versions of Organic Chemistry are CHEM 2311 + 2321. Sequence starts in the Fall.

^o: CHEM 4800 (research), CHEM 4965 (internship), or CHEM 4999 (Honors Thesis) can count for up to 2 credit hours.

Chemistry Course Requirements - Professional Emphasis (2018-2019)

The Professional emphasis is the traditional chemistry major; this path offers an in-depth look into the many distinct areas of chemistry. Students in this emphasis are prepared to apply for many post-bachelor programs, such as graduate school, or work for a chemical company.



- Honors versions of available. Sequence starts in the Fall. Must apply to be in the class.
- Talk with advisors to see how other calculus sequences could fulfill the calculus requirement.
- Honors versions are PHYS 3210 + 3220.
- Need to take 10 credit hours of upper division lab. Fall options: CHEM 5710 (org) 1st half, CHEM 5730 (inorg) 2nd half. Spring options: CHEM 5700 (ana) 1st half, CHEM 5750 (bio) 1st half, CHEM 5720 (phys) 2nd half, CHEM 3200 (radiochem) + NUCL 4000. CHEM 4800 (research), CHEM 4999 (Honors Thesis), or CHEM 4965 (internship) can waive 2 credits. CHEM 3515 (Biochemistry Lab) or 3525 (Molecular Biology of DNA Lab) in place of CHEM 5750, to count for 3 advanced lab credits.
- MATH 2270 + 2280 are more rigorous, and will take 2 semesters to complete.

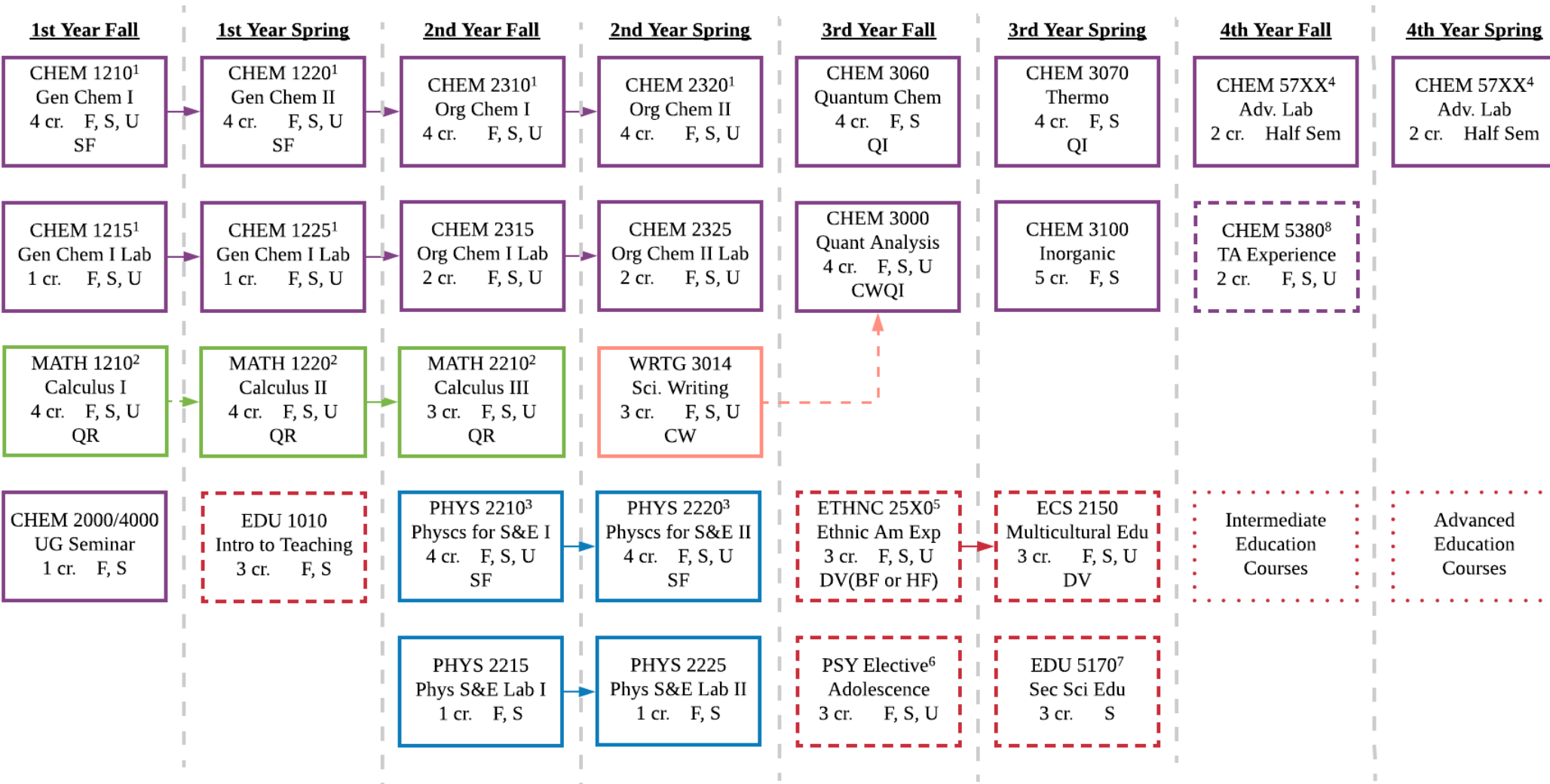
Chemistry Course Requirements – Professional Emphasis (2018-19)

The Professional emphasis is the traditional chemistry major; this path offers an in-depth look into the many distinct areas of chemistry. Students in this emphasis are prepared to apply for many post-bachelor programs, such as graduate school, or work for a chemical company.

Professional Emphasis										
Done?	Dept.	Number	Course Name	Credit Hours	Gen Ed/ Bach Req	Prerequisites		Semester		
						Chemistry	Math/Other	F	S	U
MATH CLASSES										
<input type="checkbox"/>	MATH	1210	Calculus I [◊]	4	QR		MATH 1060 or 1080	x	x	x
<input type="checkbox"/>	MATH	1220	Calculus II [◊]	4	QR		MATH 1210	x	x	x
<input type="checkbox"/>	MATH	2210	Calculus III [◊]	4	QR		MATH 1220	x	x	x
<input type="checkbox"/>	MATH	2250	ODE's and Linear Algebra [□]	4	QR		MATH 2250	x	x	x
<input type="checkbox"/>	MATH	3150	PDE's	2			MATH 2250	x	x	x
PHYSICS CLASSES										
<input type="checkbox"/>	PHYS	2210	Physics for Sci & Eng I [◊]	4	SF		MATH 1210	x	x	x
<input type="checkbox"/>	PHYS	2215	Physics Lab for Sci & Eng I	1			MATH 1210	x		x
<input type="checkbox"/>	PHYS	2220	Physics for Sci & Eng II [◊]	4	SF		MATH 1220 + PHYS 2210	x	x	x
<input type="checkbox"/>	PHYS	2225	Physics Lab for Sci & Eng II	1			MATH 1220 + PHYS 2210	x		x
CHEMISTRY CLASSES										
<input type="checkbox"/>	CHEM	2000/4000	Undergrad Seminar	1				x		x
<input type="checkbox"/>	CHEM	1210 + 1215	General Chemistry I [◊] + Lab	4 + 1	SF		MATH 1050	x	x	x
<input type="checkbox"/>	CHEM	1220 + 1225	General Chemistry II [◊] + Lab	4 + 1	SF		CHEM 1210 + 1215	x	x	x
<input type="checkbox"/>	CHEM	2310 + 2315	Organic Chemistry I ^Δ + Lab	4 + 2			CHEM 1220 + 1225	x	x	x
<input type="checkbox"/>	CHEM	2320 + 2325	Organic Chemistry II ^Δ + Lab	4 + 2			CHEM 2310 + 2315	x	x	x
<input type="checkbox"/>	CHEM	3000	Quantitative Analysis	4	QI, CW		CHEM 1220	MATH 1220 or 1250	x	x
<input type="checkbox"/>	CHEM	3060	Quantum Chemistry & Spect	4	QI		CHEM 1220	MATH 2210 + PHYS 2220	x	x
<input type="checkbox"/>	CHEM	3070	Thermodynamics & Kinetics	4	QI		CHEM 1220	MATH 2210 + PHYS 2220	(x)	x
<input type="checkbox"/>	CHEM	3100	Inorganic Chemistry	5			CHEM 1220		x	x
<input type="checkbox"/>	CHEM	3510	Biological Chemistry I	3			CHEM 2320 + 3060		x	x
<input type="checkbox"/>	WRTG	3014	Scientific Writing	3			CHEM 2320	BIOL 2020	x	x
ADVANCED LABS - 10 CREDIT HOURS[†]										
<input type="checkbox"/>	CHEM	5700	Analytical Chemistry Lab	2	CW		CHEM 3000			1st
<input type="checkbox"/>	CHEM	5710	Organic Chemistry Lab	2			CHEM 2320			1st
<input type="checkbox"/>	CHEM	5720	Physical Chemistry Lab	2			CHEM 3060, 3070			2nd
<input type="checkbox"/>	CHEM	5730	Inorganic Chemistry Lab	2			CHEM 3100			2nd
<input type="checkbox"/>	CHEM	5750	Biological Chemistry Lab ^φ	2			CHEM 3510			1st
◊: Can take whichever calculus sequence is appropriate, talk to advisor about sequencing.										
□: MATH 2270 + 2280 are more rigorous, but will take 2 semesters to complete.										
Δ: Honors versions are PHYS 3210 + 3220.										
◊: Honors versions of General Chemistry are CHEM 1211 + 1221. Sequence starts in the Fall. Must apply to be in the class.										
Δ: Honors versions of Organic Chemistry are CHEM 2311 + 2321. Sequence starts in the Fall.										
†: CHEM 4800 (research), CHEM 4965 (internship), or CHEM 4999 (Honors Thesis) can count for up to 2 credit hours										
φ: Can also take CHEM 3515 (Biochemistry Lab) or 3525 (Molecular Biology of DNA Lab) in place of CHEM 5750, to count for 3 advanced lab credits.										

Chemistry Course Requirements - Teaching Emphasis (2018-2019)

The Teaching emphasis is a great option for students who are interested in teaching high school chemistry, where jobs are readily available. Students should meet with education department early in their degree to ensure certification by end of degree.



- Honors versions of available. Sequence starts in the Fall. Must apply to be in the class.
- Talk with advisors to see how other calculus sequences could fulfill the calculus requirement.
- Honors versions are PHYS 3210 + 3220.
- 2 upper division labs required. Fall options: CHEM 5710 (org) 1st half, CHEM 5730 (inorg) 2nd half. Spring options: CHEM 5700 (ana) 1st half, CHEM 5720 (phys) 2nd half, CHEM 3200 (radiochem) + NUCL 4000 Spring + Fall.
- Can take ETHNC 2550 – 2590. Some classes also satisfy BF or HF.
- Check DARS to see other accepted courses.
- Can also take EDU 5375 (Science Methods) offered in F, S, U – but EDU 5170 is preferred
- PHYS 3949, (CHEM 4800 (research), or CHEM 4999 (Honors Thesis) can replace.

Chemistry Course Requirements – Teaching Emphasis (Without Certification) (2018-19)

The Teaching emphasis is a great option for students who are interested in teaching high school chemistry, where jobs are readily available. Students should meet with education department **early in their degree** to ensure certification by end of degree.

Teaching Emphasis										
Done?	Dept.	Number	Course Name	Credit Hours	Prerequisites		Taught			
					Gen Ed/ Bach Req	Chemistry	Math/Other	F	S	U
MATH CLASSES										
<input type="checkbox"/>	MATH	1210	Calculus I ^o	4	QR		1080	x	x	x
<input type="checkbox"/>	MATH	1220	Calculus II ^o	4	QR		MATH 1210	x	x	x
<input type="checkbox"/>	MATH	2210	Calculus III ^o	4	QR		MATH 1220	x	x	x
PHYSICS CLASSES										
<input type="checkbox"/>	PHYS	2210	Physics for Sci & Eng I ^o	4	SF		MATH 1210	x	x	x
<input type="checkbox"/>	PHYS	2215	Physics Lab for Sci & Eng I	1			MATH 1210	x	x	
<input type="checkbox"/>	PHYS	2220	Physics for Sci & Eng II ^o	4	SF		MATH 1220 + PHYS 2210	x	x	x
<input type="checkbox"/>	PHYS	2225	Physics Lab for Sci & Eng II	1			MATH 1220 + PHYS 2210	x	x	
CHEMISTRY CLASSES										
<input type="checkbox"/>	CHEM	2000/4000	Undergrad Seminar	1				x	x	
<input type="checkbox"/>	CHEM	1210 + 1215	General Chemistry I ^o + Lab	4 + 1	SF		MATH 1050	x	x	x
<input type="checkbox"/>	CHEM	1220 + 1225	General Chemistry II ^o + Lab	4 + 1	SF		CHEM 1210 + 1215	x	x	x
<input type="checkbox"/>	CHEM	2310 + 2315	Organic Chemistry I ^A + Lab	4 + 2			CHEM 1220 + 1225	x	x	x
<input type="checkbox"/>	CHEM	2320 + 2325	Organic Chemistry II ^A + Lab	4 + 2			CHEM 2310 + 2315	x	x	x
<input type="checkbox"/>	CHEM	3000	Quantitative Analysis	4	QI, CW		CHEM 1220	x	x	x
<input type="checkbox"/>	CHEM	3060	Quantum Chemistry & Spect	4	QI		MATH 2210 + PHYS 2220	x	x	
<input type="checkbox"/>	CHEM	3070	Thermodynamics & Kinetics	4	QI		MATH 2210 + PHYS 2220	(x)	x	
<input type="checkbox"/>	CHEM	3100	Inorganic Chemistry	5			CHEM 1220 CHEM 2320 + 3060	x	x	
<input type="checkbox"/>	WRTG	3014	Scientific Writing	3			WRTG 2010	x	x	x
ADVANCED LABS - Choose 2										
<input type="checkbox"/>	CHEM	5700	Analytical Chemistry Lab	2	CW		CHEM 3000			1st
<input type="checkbox"/>	CHEM	5710	Organic Chemistry Lab	2			CHEM 2320			1st
<input type="checkbox"/>	CHEM	5720	Physical Chemistry Lab	2			CHEM 3060, 3070			2nd
<input type="checkbox"/>	CHEM	5730	Inorganic Chemistry Lab	2			CHEM 3100			2nd
<input type="checkbox"/>	CHEM	3200	Radiochemistry	3						x
TEACHING ELECTIVES¹										
<input type="checkbox"/>	EDU	1010	Intro to Teaching	3				x	x	
<input type="checkbox"/>	ETHNC	2550-2590	Ethnic Experiences	3	DV			x	x	x
<input type="checkbox"/>	ECS	3150	Multicultural Education	3	DV			x	x	x
<input type="checkbox"/>	ELP	3140	Teachers & Law	3				x	x	x
<input type="checkbox"/>	PSY ^o			3				x	x	(x)
<input type="checkbox"/>	EDU	5170 or 5375	Secondary Science Methods or Science Methods ^T	3	3					x
<input type="checkbox"/>	CHEM	5380	TA Service	2				x	x	x

^o: Can take whichever calculus sequence is appropriate, talk to advisor about sequencing.

^o: Honors versions are PHYS 3210 + 3220.

^o: Honors versions of General Chemistry are CHEM 1211 + 1221. Sequence starts in the Fall. Must apply to be in the class.

^o: Honors versions of Organic Chemistry are CHEM 2311 + 2321. Sequence starts in the Fall.

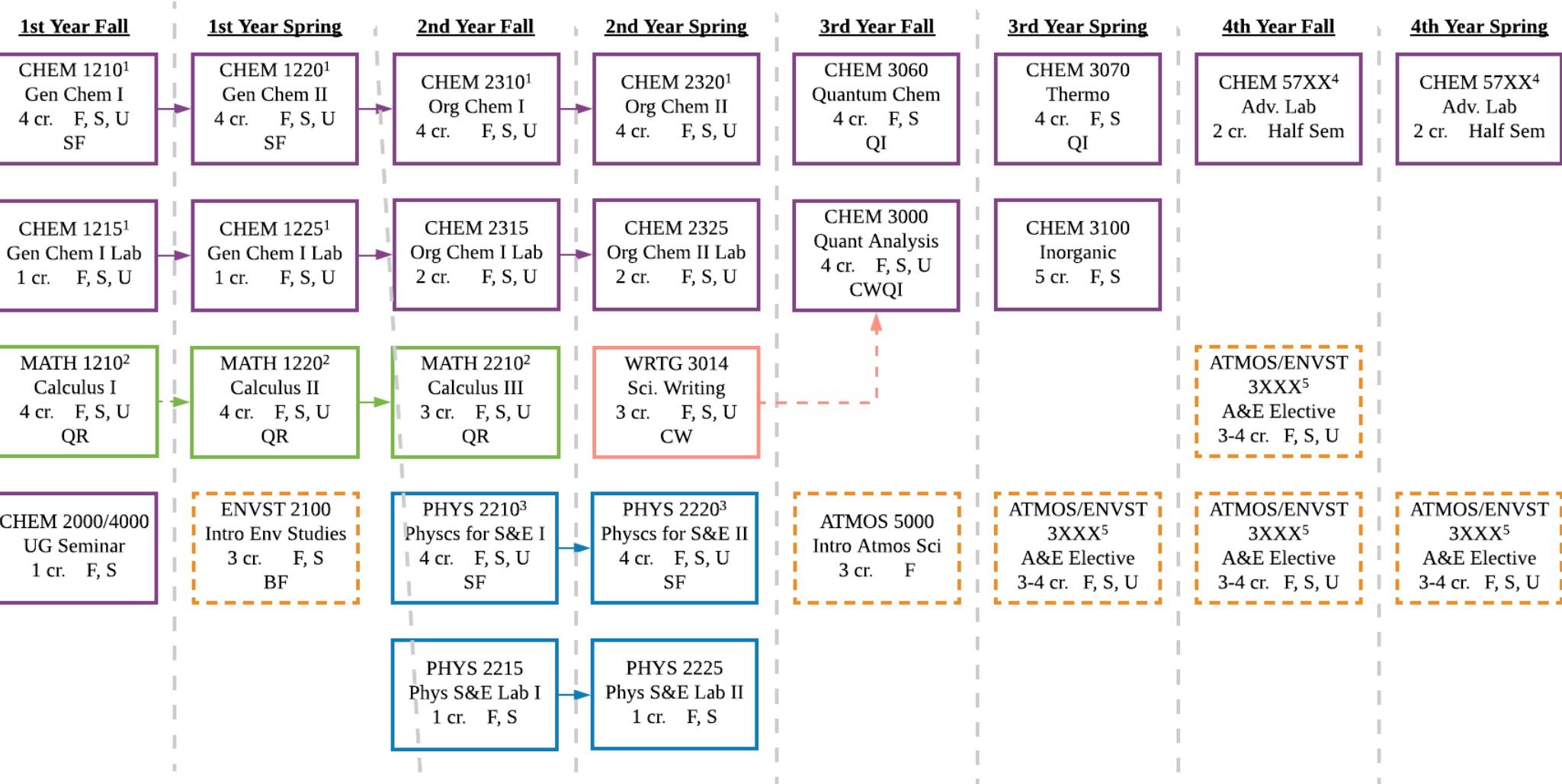
^o: Need Adolescent psychology course (PYS, FCS, ED PS). There are multiple options: see list of approved courses and DA.RS. ED PS 3030 counts as a BF. gen ed.

^o: Visit with Education Advisor (Sara Hatch) for entrance into certification program.

^T: PHYS 3949, CHEM 4800 (research), CHEM 4965 (internship), or CHEM 4999 (Honors Thesis) can waive, with approval

Chemistry Course Requirements - Atmospheric & Environmental Chemistry (A&E) Emphasis (2018-2019)

Whether you want to study the science behind the atmosphere or the impact of humans on the environment, the A&E emphasis allows students to tailor their degree in a way that will make a lasting impact on society and the world.



- 1) Honors versions of available. Sequence starts in the Fall. Must apply to be in the class.
- 2) Talk with advisors to see how other calculus sequences could fulfill the calculus requirement.
- 3) Honors versions are PHYS 3210 + 3220.
- 4) 2 upper division labs required. Fall options: CHEM 5710 (org) 1st half, CHEM 5730 (inorg) 2nd half. Spring options: CHEM 5700 (ana) 1st half, CHEM 5720 (phys) 2nd half, CHEM 3200 (radiochem) + NUCL 4000 Spring + Fall.
- 5) In addition to ENVST 2100 and ATMOS 5000, students need at least 14 credits of electives within the Atmospheric Science and/or Environmental Studies departments. Check Degree Audit to see accepted courses. Contact chemistry advisors to determine if a course not listed could fulfill this requirement. CHEM 4800 (research), CHEM 4999 (Honors Thesis), or CHEM 4965 (internship) can waive 2 credits.

Chemistry Course Requirements – Atmospheric & Environmental Emphasis (2018-19)

Whether you want to study the science behind the atmosphere or the impact of humans on the environment, the A&E emphasis allows students to tailor their degree in a way that will make a lasting impact on society and the world.

Atmospheric & Environmental Emphasis										
Done?	Dept.	Number	Course Name	Credit Hours	Gen Ed/ Bach Req	Prerequisites		Taught		
						Chemistry	Math/Other	F	S	U
MATH CLASSES										
<input type="checkbox"/>	MATH	1210	Calculus I ^o	4	QR		MATH 1060 or 1080	x	x	x
<input type="checkbox"/>	MATH	1220	Calculus II ^o	4	QR		MATH 1210	x	x	x
<input type="checkbox"/>	MATH	2210	Calculus III ^o	4	QR		MATH 1220	x	x	x
PHYSICS CLASSES										
<input type="checkbox"/>	PHYS	2210	Physics for Sci & Eng I ^o	4	SF		MATH 1210	x	x	x
<input type="checkbox"/>	PHYS	2215	Physics Lab for Sci & Eng I	1			MATH 1210	x		
<input type="checkbox"/>	PHYS	2220	Physics for Sci & Eng II ^o	4	SF		MATH 1220 + PHYS 2210	x	x	x
<input type="checkbox"/>	PHYS	2225	Physics Lab for Sci & Eng II	1			MATH 1220 + PHYS 2210	x		
CHEMISTRY CLASSES										
<input type="checkbox"/>	CHEM	2000/4000	Undergrad Seminar	1				x	x	
<input type="checkbox"/>	CHEM	1210 + 1215	General Chemistry I ^o + Lab	4 + 1	SF		MATH 1050	x	x	x
<input type="checkbox"/>	CHEM	1220 + 1225	General Chemistry II ^o + Lab	4 + 1	SF		CHEM 1210 + 1215	x	x	x
<input type="checkbox"/>	CHEM	2310 + 2315	Organic Chemistry I ^A + Lab	4 + 2			CHEM 1220 + 1225	x	x	x
<input type="checkbox"/>	CHEM	2320 + 2325	Organic Chemistry II ^A + Lab	4 + 2			CHEM 2310 + 2315	x	x	x
<input type="checkbox"/>	CHEM	3000	Quantitative Analysis	4	QI, CW		CHEM 1220	MATH 1220	x	x
<input type="checkbox"/>	CHEM	3060	Quantum Chemistry & Spect	4	QI		CHEM 1220	MATH 2210 + PHYS 2220	x	x
<input type="checkbox"/>	CHEM	3070	Thermodynamics & Kinetics	4	QI		CHEM 1220	MATH 2210 + PHYS 2220	x	x
<input type="checkbox"/>	CHEM	3100	Inorganic Chemistry	5			CHEM 1220		x	x
<input type="checkbox"/>	WRTG	3014	Scientific Writing	3			CHEM 2320 + 3060	WRTG 2010	x	x
ADVANCED LABS - Choose 2										
<input type="checkbox"/>	CHEM	5700	Analytical Chemistry Lab	2	CW		CHEM 3000			1st
<input type="checkbox"/>	CHEM	5710	Organic Chemistry Lab	2			CHEM 2320			1st
<input type="checkbox"/>	CHEM	5720	Physical Chemistry Lab	2			CHEM 3060, 3070			2nd
<input type="checkbox"/>	CHEM	5730	Inorganic Chemistry Lab	2			CHEM 3100			2nd
<input type="checkbox"/>	CHEM	3200	Radiochemistry	3						x
ATMOSPHERIC & ENVIRONMENTAL ELECTIVES[†]: Need 14 cr. of A&E electives after intro courses listed below										
<input type="checkbox"/>	ENVST	2100	Intro to Environ and Sust	3	BF			x	x	
<input type="checkbox"/>	ATMOS	5000	Intro Atmos Sci	3				x		
<input type="checkbox"/>										
<input type="checkbox"/>										
<input type="checkbox"/>										
<input type="checkbox"/>										

⚠: Can take whichever calculus sequence is appropriate, talk to advisor about sequencing.

Ⓞ: Honors versions are PHYS 3210 + 3220.

Ⓛ: Honors versions of General Chemistry are CHEM 1211 + 1221. Sequence starts in the Fall. Must apply to be in the class.

Ⓐ: Honors versions of Organic Chemistry are CHEM 2311 + 2321. Sequence starts in the Fall.

†: CHEM 4800 (research), CHEM 4965 (internship), or CHEM 4999 (Honors Thesis) can count for up to 2 credit hours of A&E elective