ELECTIVES FOR CHEMISTRY MAJORS

Courses that count towards the 5 credits of 500-600 level advanced work					
COURSE	**TITLE**	**CREDITS**	**TERMS**	**PREREQUISITES**	**NOTES**
From Chemistry Department					
CHEM 421	*Polymeric Materials*	3	Spring	CHEM 343	Cross-listed with MS&E 421
CHEM 505	*Industrial Chemistry*	3	occasionally	CHEM 345 and junior standing	Cross-listed with CBE 505
CHEM 511	*Advanced Inorganic Chemistry*	3	Spring	Junior standing; CHEM 345 or concurrent enrollment; chemistry majors should complete CHEM 311 before taking CHEM 511.	
CHEM 524	*Chemical Instrumentation*	3	Spring	CHEM 343; CHEM 116, 327, or 329; PHYS 202, 208, or 248	2 credits count toward advanced work. 1 credit counts toward laboratory requirements.
CHEM 547	*Advanced Organic Chemistry*	3	Fall	CHEM 345	
From Other Departments					
BIOCHEM 501[1]	*Introduction to Biochemistry*	3	Fall, Spring	CHEM 341 or 343 or concurrent enrollment	
BIOCHEM 507[1]	*General Biochemistry I*	3-4	Fall	CHEM 345	Enroll for 4 credits for honors. All others enroll for 3 credits.
BIOCHEM 508	*General Biochemistry II*	3-4	Spring	BIOCHEM 507 with a grade of BC or higher	Enroll for 4 credits for honors. All others enroll for 3 credits.
CBE 440	*Chemical Engineering Materials*	3	Fall, Spring	CHEM 345	
CBE 540	*Polymer Science & Technology*	3	Fall, Spring	CHEM 345; CBE 326 & 430, or concurrent enrollment; Stat 324	
CBE 547	*Introduction to Colloid and Interface Science*	3	Fall	CHEM 562	

Courses that count towards the 3 credits of additional laboratory					
COURSE	**TITLE**	**CREDITS**	**TERMS**	**PREREQUISITES**	**NOTES**
From Chemistry Department					
CHEM 346	*Intermediate Organic Chemistry Lab*	1-2	Fall	CHEM 344 & 345	The 2 credit option counts towards Comm B.
CHEM 524	*Chemical Instrumentation*	3	Spring[2]	CHEM 343; CHEM 116, 327, or 329; PHYS 202 or 208	Just 1 credit counts toward lab requirement. The other 2 credits count as advanced work.
CHEM 699	*Directed study*	1-6	all terms	Instructor consent	Students must find a research mentor.
CHEM 681/682	*Senior Honors Thesis*	2-4 each	all terms	Instructor consent	A total of 6 credits combined is required.
CHEM 691/692	*Senior Thesis*	2-6 each	all terms	Instructor consent	
From Other Departments					
BIOCHEM 699	*Special Problems*	1-4	all terms	Instructor consent	
BMOLCHEM 504	*Human Biochemistry Lab*	3	Fall, Spring[2]	Biochem 501 or 507; CHEM 343 is implied prereq	Only 2 credits count toward lab requirement. The other 1 credit counts as advanced work.
CBE 599	*Special Problems*	1-4	all terms	Instructor consent	

[1] Due to the amount of overlapping content, BIOCHEM 501 and BIOCHEM 507 cannot both count towards the 5 credits of advanced non-lab.

[2] CHEM 524 and BMOLCHEM 504 have conflicting schedules in the spring, so they cannot be taken together.

Updated 5/22/2019

ELECTIVES FOR CHEMISTRY MAJORS

Chemistry Graduate Level Courses that count towards 5 credits of 500-600 level advanced work. *These courses are primarily intended for graduate students, but advanced undergraduates might be eligible. Prerequsities denoted with an asterisk (*) differ from those published in the catalog. Recent course instructors have provided these alternative prereqs as appropriate for undergraduates. Students are encouraged to consult the instructor or the chemistry advisor for additional guidance.*

COURSE	TITLE	CREDITS	TERMS	PREREQUISITES	NOTES
CHEM 605	*Spectrochemical Measurements*	3	Spring	*CHEM 345 with a B or better; CHEM 547 recommended, but not required	
CHEM 606	*Physical Methods for Structure Determination*	1-3	occasionally	CHEM 511 & 562; CHEM 608 recommended	
CHEM 608	*Symmetry, Bonding, and Molecular Shapes*	1-3	Fall	*CHEM 511 & 562	Usually not recommended for undergraduates
CHEM 613	*Chemical Crystallography*	3	Spring	*CHEM 311, 511 & 562.	Usually not recommended for undergraduates
CHEM 621	*Instrumental Analysis*	3-4	Fall	*Grad student standing or completion of CHEM 562 or concurrent enrollment	CHEM 524 is a better choice for undergraduates.
CHEM 622	*Organic Analysis*	2	Every other Fall	CHEM 345 & 524	
CHEM 623	*Experimental Spectroscopy*	2-3	Every other Spring	CHEM 562	Usually not recommended for undergraduates
CHEM 624	*Electrochemistry*	2-3	Fall	Graduate student standing	
CHEM 625	*Separations in Chemical Analysis*	2-3	Every other Fall	*CHEM 343 & 561 or 565	
CHEM 626	*Genomic Science*	2	Spring	Graduate student standing	
CHEM 627	*Protein Characterization*	2-3	Spring	Graduate student standing	
CHEM 628	*Chemical Instrumentation*	3	Every other Spring	CHEM 524 or 621	
CHEM 629	*Atmospheric Chemical Mechanisms*	3	Every other Fall	CBE 310 or concurrent enrollment in CHEM 561 or graduate/professional standing	
CHEM 635	*Topics in Computational Chemistry*	1	Spring	Graduate student standing	
CHEM 636	*Introduction to NMR*	2	Fall, Spring	Instructor consent	
CHEM 637	*Advanced Methods in NMR*	1-2	Summer	Instructor consent	
CHEM 638	*Introduction to Mass Spectrometry*	1	Spring	Instructor consent	
CHEM 641	*Advanced Organic Chemistry (physical organic)*	3	Fall	*Graduate student standing or both CHEM 345 and CHEM 562	Usually not recommended for undergraduates
CHEM 652	*Chemistry of Inorganic Materials*	3	occasionally	Graduate student standing or CHEM 562	
CHEM 653	*Chemistry of Nanoscale Materials*	3	occasionally	Graduate student standing or both CHEM 311 and CHEM 561	
CHEM 661	*Chemical and Statistical Thermodynamics*	3	Fall	Graduate student standing or CHEM 562	Usually not recommended for undergraduates
CHEM 664	*Physical Chemistry of Macromolecules*	2-3	Every other Spring	Graduate student standing or CHEM 562	
CHEM 675	*Introductory Quantum Chemistry*	3	Fall	Graduate student standing or CHEM 562	
CHEM 704	*Chemical Biology*	2	occasionally	Graduate and Professional students only	Cross-listed with Biochem 704
CHEM 713	*Inorganic and Organometallic Chemistry of the Main Group Elements*	1-3	occasionally	Graduate student standing or CHEM 511	
CHEM 714	*Organometallic Chemistry of the Transition Elements*	2-3	occasionally	Graduate student standing or CHEM 511	