

**Chemistry Department, TCNJ
Learning Outcomes Map**

Course #	Course Title	General Learning Outcomes (Chemistry)							Program Learning Outcomes (Chemistry)												
		Critical analysis and reasoning	Scientific reasoning	Quantitative reasoning	Oral communication	Written communication	Technological competence	Information reasoning	Understanding of the fundamentals and application of chemical and scientific theories in all of the five primary sub-disciplines of chemistry.	Design, conduct, record, analyze, and explain the results of chemical experiments.	Ability to use modern analytical instrumentation and have a working understanding of classical wet techniques.	Skilled in problem solving, critical thinking, and analytical reasoning including necessary numeracy skills.	Use and/or identify methods by which to solve chemical problems.	Use modern library searching and retrieval methods to obtain information about any topic relating to chemistry.	Ability to use current chemical databases and pertinent software.	Computer literacy.	Ability to understand and apply safety in the laboratory including proper procedures and regulations for safe handling and use of chemicals.	Be capable writers and be able to orally communicate with chemists and non-chemists alike.	Able to understand the current problems and societal issues facing the discipline.	Able to find gainful employment in industry or government, be accepted at graduate or professional schools (law, medicine, etc.), or find employment in school systems as teachers or administrators.	
Courses for Non-majors																					
CHE 350	Biochemistry	X	X					X	X	X	X	X					X			X	
Support Courses																					
CHE 111	Biochemistry of the Human Body	X	X	X						X	X		X	X						X	
Core Courses																					
CHE 201	General Chemistry I	X	X	X						X	X	X	X	X				X		X	
CHE 202	General Chemistry II	X	X	X				X	X	X	X	X	X	X				X		X	
CHE 310	Analytical Chemistry	X	X	X				X	X	X	X	X	X		X		X	X		X	
CHE 316	Sophomore Chemistry Seminar	X	X		X	X	X	X	X					X	X	X	X	X	X	X	
CHE 317	Junior Chemistry Seminar	X	X		X	X	X	X	X					X	X	X	X	X	X	X	
CHE 331	Organic Chemistry I	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	
CHE 332	Organic Chemistry II	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	
CHE 371	Quantum Chemistry	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
CHE 372	Thermodynamics	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X	
CHE 430	Biochemistry (CHE majors)	X	X	X		X	X	X	X	X	X	X	X				X	X		X	
CHE 451	Inorganic Chemistry I	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X		X	
CHE 452	Inorganic Chemistry II	X	X	X	P	X	X	X	X	X	X	X	X	X		X	X	X		X	
Option Courses																					
CHE 360	Forensic Chemistry	X	X	X		X	X	X	X	X	X	X	X				X	X	X	X	
CHE 370	Selected Topics in Chemistry	X	X	P	X	X	X	X	X	X	P	X	X	X	P		P	X	X	P	X
CHE 393	Independent Research I	X	X	P	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	
CHE 410	Instrumental Analysis	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X	
CHE 415	Separation Science	X	X			X	X	X	X	X	X	X	X			P	X	X		X	
CHE 457	Organometallic Chemistry Laboratory	X	X			X	X	X	X	X	X	X	X				X	X		X	
CHE 470	Selected Topics in Chemistry	X	X	P	X	X	X	X	X	X	X	X	X	P	X	X	X	X		X	

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CHE 471	Forensics Applications of Mass Spectrometry	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CHE 474	Special Topics in Biochemistry	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CHE 476	Special Topics in Organic Chemistry	X	X	P	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CHE 478	Special Topics in Condensed Matter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
CHE 490	Student Teaching in Chemistry	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	
CHE 493	Independent Research II	X	X	P	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

P: possible (depending on individual course topic)