

CHEMISTRY MINOR FOR SECONDARY TEACHING

Updated October 2019

The **Chemistry minor** (State Code: DC) for Secondary teachers consists of a minimum of 21 credits in Chemistry.

Teacher candidates for certification in Chemistry at the Secondary level must pass the Michigan Test for Teacher Certification (MTTC) in Chemistry (Test #018). MTTC content exams should not be taken until 90% of course work in the subject area has been completed. A study guide is available at the MTTC website: (http://www.mttc.nesinc.com/PDFs/MI_field018_SG.pdf).

The courses below meet State standards and have been selected so that teacher candidates will be well prepared for the test. Knowledge must be demonstrated in the following categories in order to successfully pass the MTTC subject area exam:

Subarea	Approximate % of Questions
1. Reflecting On and Constructing Scientific Knowledge	25%
2. Using Inorganic Chemistry	32%
3. Using Physical Chemistry	27%
4. Using Organic Chemistry and Biochemistry	16%

The following chart is intended to provide you a guide for scheduling your semesters and for keeping track of your grade point average.

PLEASE REFER TO YOUR DEGREE EVALUATION IN KNOWHOPE PLUS IN ADDITION TO THIS DOCUMENT TO DETERMINE FULFILLMENT OF COURSE REQUIREMENTS

Please note: Though the Chemistry Department requires a minimum GPA of 2.0 for the science major chemistry courses, students seeking the Chemistry endorsement for teacher certification must have a major and/or minor GPA of 2.75.

CHEMISTRY FOUNDATIONS - REQUIRED (13 credits)

SUBJECT/ COURSE	TITLE	CR. HRS.	SEMESTER TAKEN	SUBSTITUTION
CHEM 125*	General Chemistry I	3		
CHEM 127*	Lab of General & Analytic Chemistry I Laboratory	1		
CHEM 126*	General Chemistry II	3		
CHEM 128*	Lab of General & Analytic Chemistry II Laboratory	1		
CHEM 221	Organic Chemistry I	3		
CHEM 255	Organic Chemistry Laboratory I	2		

* It is possible to substitute the entire general chemistry sequence (Chem 125/126/127/128) with accelerated general chemistry (Chem 131-132)

REMAINING ELECTIVE COURSES (8 credits) *Choose 8 credits from courses listed below:*

SUBJECT/ COURSE	TITLE	CR. HRS.	SEMESTER TAKEN	SUBSTITUTION
CHEM 311	Biochemistry I	3		
CHEM 322	Inorganic Chemistry	3		
CHEM 331	Analytical Chemistry Lecture &	3		
CHEM 332	Analytical Chemistry Laboratory	1		
CHEM 343	Physical Chemistry I	3		
CHEM 231	Organic Chemistry II	3		
CHEM 256	Organic Chemistry Laboratory II	1-2		
CHEM 314	Biochemistry II	3		
CHEM 315	Biochemistry II Lab	1		

CHEM 324	Inorganic Laboratory	1		
CHEM 335	Neurochemistry and Disease	4		
CHEM 344	Physical Chemistry II	3		
CHEM 345	Physical Chemistry Lab I	1		
CHEM 346	Physical Chemistry Lab II	1		
CHEM 347	Chemical Modeling Laboratory	1		
CHEM 348	Advanced Spectroscopy Laboratory	1		
CHEM 421	Structure, Dynamics and Synthesis I	3		
CHEM 422	Structure, Dynamics and Synthesis II	3		
GES 430	Advanced Environmental Geochemistry	4		
CHEM 490	Research in Chemistry	1-3		
CHEM 499	Internship in Chemistry	1-2		

A SCIENCE METHODS COURSE - REQUIRED (4 credits)

(The Science methods course is considered pedagogy and will be counted with your education courses for certification.)

SUBJECT/ COURSE	TITLE	CR. HRS.	SEMESTER TAKEN	SUBSTITUTION
EDUC 331	Teaching of Science in the Secondary School (offered Fall Semester only)	3		
EDUC 332	Teaching of Science in the Secondary School Field Placement (offered Fall Semester only)	1		

This MUST be completed prior to the student teaching semester!