

# CHEMISTRY MINOR FOR SECONDARY TEACHING

*Updated April 2011*

The minor in Chemistry for Secondary teachers consists of a minimum of 21 credits in Chemistry. Candidates for certification in this minor must pass the Michigan Test for Teacher Certification (MTTC) in Chemistry (Test #18). You must demonstrate your knowledge in following categories:

<b>Subarea</b>	<b>Approximate % of Questions on Test</b>
1. Reflecting on & Constructing Scientific Knowledge	25%
2. Using Inorganic Chemistry	32%
3. Using Physical Chemistry	27%
4. Using Organic Chemistry and Biochemistry	16%

You may access a study guide at the MTTC testing site; the courses below have been selected so that you will be well prepared for the test.

The following chart is intended to provide you a guide for scheduling your semesters and for keeping track of your grade point average. 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 2.5.

## CHEMISTRY FOUNDATIONS - REQUIRED (13 credits)

SUBJECT/ COURSE	TITLE	CREDIT HOURS	SEMESTER	GRADE
CHEM 111	General Chemistry I	3		
CHEM 113	Lab of General & Analytic Chemistry I	1		
CHEM 121	General Chemistry II	3		
CHEM 114	Lab of General & Analytic Chemistry II	1		
CHEM 221	Organic Chemistry I	3		
CHEM 255	Organic Chemistry Laboratory I	2		

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

SUBJECT/ COURSE	TITLE	CREDIT HOURS	SEMESTER	GRADE
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 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		
CHEM 490	Research in Chemistry	1-3		
CHEM 499	Internship in Chemistry	1-2		

## A SCIENCE METHODS COURSE - REQUIRED (3 credits)

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

**This MUST be completed prior to the student teaching semester!**

SUBJECT/ COURSE	TITLE	CREDIT HOURS	SEMESTER	GRADE
EDUC 331	Teaching of Science in the Secondary School (offered Fall Semester only)	2		
EDUC 332	Teaching of Science in the Secondary School	1		

	Field Placement (offered Fall Semester only)			
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