

GEOLOGY MAJOR FOR SECONDARY TEACHING CERTIFICATION IN EARTH SCIENCE MAJOR

Updated October 2019

The **Geology major** (State Code: DH) for Secondary teachers consists of a minimum of 30 credits.

Teacher candidates for certification in Geology at the Secondary level must pass the Michigan Test for Teacher Certification (MTTC) in Earth/Space Science (Test #020). 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_field020_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. Foundations of Scientific Inquiry	20%
2. Physical and Historical Geology	20%
3. Oceanography and Freshwater Systems	20%
4. Meteorology	20%
5. Astronomy	20%

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**

REQUIRED GEOLOGY COURSES (14-16 credits)

SUBJECT/ COURSE	TITLE	CR. HRS.	SEMESTER TAKEN	SUBSTITUTION
GEMS 130	Introduction to Environmental Science	4		
GES 203	Historical Geology	4		
GEMS 206	The Night Sky	2		
May choose GES 100/GEMS 157 or combination of GES 111 and GES 125				
GES 100/GEMS 157	The Planet Earth	4		
OR				
GES 111	How the Earth Works	2		
AND				
GES 125	Michigan Field Geology	4		

ADVANCED COURSES (must select 16 credits)

SUBJECT/ COURSE	TITLE	CR. HRS.	SEMESTER TAKEN	SUBSTITUTION
GEMS 201	Evolution of Dinosaurs	2		
GES 225	Intro to Geographic Information Systems	2		
GES 243	Mineralogy	4		
GES 244	Petrology	4		
GES 251	Surficial Geology	4		
GES 252	Structural Geology	4		
GES 320	Introduction to Petroleum Geology	4		
GES 341	Regional Field Geology	2		
GES 351	Invertebrate Paleontology	4		
GES 430	Environmental Geochemistry	4		
GES 450	Hydrogeology	4		
GES 453	Sedimentology	4		

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!