

**INTEGRATED SCIENCE GROUP MAJOR**  
**FOR SECONDARY TEACHING**  
*May 2015*

The **Integrated Science major** (State Code: DI) for Secondary Certification consists of **40 credits** distributed over three areas of emphasis: Life Science, Earth and Space Science, and Physical Science. The courses must include significant laboratory experiences.

Teacher candidates for certification in Integrated Science at the Secondary level must pass the Michigan Test for Teacher Certification (MTTC) in Secondary Integrated Science (Test #094). 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\\_field094\\_SG.pdf](http://www.mttc.nesinc.com/PDFs/MI_field094_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:

	<b>Subarea</b>	<b>Approximate % of Questions</b>
1.	Constructing and Reflecting on Scientific Knowledge	25%
2.	Life Science	25%
3.	Earth and Space Sciences	25%
4.	Physical Sciences	25%

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

**LIFE SCIENCE COURSES (12 Credits) – Required**

<b>SUBJECT/ COURSE</b>	<b>TITLE</b>	<b>CREDITS</b>	<b>SEMESTER</b>	<b>GRADE</b>
BIOL 105 & BIOL 107	Introduction to Biology I & Introduction to Biology I Lab	3 1		
BIOL 106 & BIOL 108	General Biology II & General Biology II Lab	3 1		
BIOL 221	Human Physiology	4		

**EARTH AND SPACE SCIENCE COURSES (12 Credits) – Required**

<b>SUBJECT/ COURSE</b>	<b>TITLE</b>	<b>CREDITS</b>	<b>SEMESTER</b>	<b>GRADE</b>
GEMS 152	The Atmosphere and Environmental Change	4		
GEMS 157 (GES 100)	The Planet Earth	4		
GES 203	Historical Geology	4		

**PHYSICAL SCIENCE COURSES (16 Credits) - Required**

<b>SUBJECT/ COURSE</b>	<b>TITLE</b>	<b>CREDITS</b>	<b>SEMESTER</b>	<b>GRADE</b>
PHYS 121 & PHYS 141	General Physics I & Physics Lab I	3 1		
PHYS 122 & PHYS 142	General Physics II & Physics Lab II	3 1		
CHEM 125 & CHEM 127	General Chemistry I & Lab of General & Analytic Chemistry I	3 1		
CHEM 126 & CHEM 128	General Chemistry II & Lab of General & Analytic Chemistry II	3 1		

**OTHER COURSES (4 Credits)**

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

<b>SUBJECT/ COURSE</b>	<b>TITLE</b>	<b>CREDITS</b>	<b>SEMESTER</b>	<b>GRADE</b>
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!**

**\*Effective for students entering Fall 2015, EDUC 331 changed from a 2 credit course to a 3 credit course**