

Integrated Science, Secondary Education, Comprehensive Endorsement

Physical and Earth Science

CEM 141 General Chemistry	4
CEM 142 General and Inorganic Chemistry	3
CEM 161 Chemistry Laboratory I	1
CEM 143 Survey of Organic Chemistry	
Or	
CEM 251 Organic Chemistry I and	
CEM 252 Organic Chemistry II and	
CEM 255 Organic Chemistry Lab	4-8
PHY 231 Introductory Physics I	3
PHY 232 Introductory Physics II	3
PHY 251 Introductory Physics Laboratory	1
PHY 252 Introductory Physics Laboratory II	1
<i>(Note: PHY 183 and 184, 8 credits, <u>with no additional Physics labs, can substitute for the 200 level physics and labs.</u>)</i>	
GLG 201 The Dynamic Earth	4
GEO 203 Introduction to Meteorology	3
AST 207 The Science of Astronomy	3

Biological Science

BS 110 Organisms and Populations	4
BS 111 Cells and Molecules	3
BS 111L Cell and Molecular Biology Laboratory	2
PSL 250 Introductory Physiology	
Or	
ZOL 355, 355L	4

Integrative Science

SME 401 Science Laboratories for Secondary Schools	4
SME 420 Integrative Science Research	3

CREDITS

50 – 54 total

Note: The above set of courses is NOT a stand alone teaching major or teaching minor. Rather, these courses must be completed in combination with an approved teaching major in biology, chemistry, earth science, physics or physical science. In this case, the Integrated Science Endorsement may be substituted for a teaching minor. Also, a certified teacher or a teacher candidate with an approved teaching major outside of the sciences but with an approved science minor may earn an additional endorsement in Integrated Science on top of the completed science minor. See an advisor in the College of Education, 134 Erickson Hall, for more information. . Students must earn an overall GPA of 2.5 for the science courses listed above (including any approved substitute courses) as well as in the teaching science major or science minor courses on which the endorsement is based AND must pass the MTTC subject area test in Integrated Science – Secondary.