**Requirements for a Major in Integrated Science Secondary Education**

GVSU's Integrated Science Secondary Education major is for students seeking certification for teaching science in grades 6-12. Integrated Science Secondary Education Majors that pass the Michigan Department of Education Integrated Science Secondary Test will receive the Integrated Science DI Endorsement, which is in high demand for job placement in the state of Michigan. The endorsement certifies students to teach general science courses at the middle school level, and also discipline-specific courses in Biology, Chemistry, Earth Science and Physics at the high school level. The Integrated Science Secondary Education Major prepares students in both a breadth and depth of science content, as well as in science teaching methods, in order to prepare pre-service teachers for a broad range of teaching opportunities. In order to be certiﬁed students must complete the ISCI Secondary Education major with a 3.0 GPA and have an overall GPA of 2.7.

**Major Requirements (89 credits)**

**1. Biology:**

* BIO 120 – General Biology I Credits: 4
* BIO 121 – General Biology II Credits: 4
* BIO 215 – Ecology Credits: 4
* BIO 210 – Evolutionary Biology Credits: 3
* BIO 375/376 – Genetics/Lab Credits: 4

**2. Chemistry:**

* CHM 115 – Principles of Chemistry I Credits: 4
* CHM 116 – Principles of Chemistry II Credits: 5
* CHM 231 – Introduction to Organic Chemistry Credits: 4
* CHM 221 – Analytical Chemistry Credits: 4
* CHM 351 – Introduction to Physical Chemistry Credits: 3

**3. Earth Science:**

* GEO 111 – Exploring the Earth Credits: 4
* GEO 112 – Earth History Credits: 4
* GEO 203 – Weather for Pre-service Teachers Credits: 3
* GEO 211 – Mineralogy Credits: 4
* GEO 212 - Petrology Credits: 4

**4. Physics:**

* PHY 105 – Descriptive Astronomy Credits: 3
* PHY 230 – Principles of Physics I Credits: 5
* PHY 231 – Principles of Physics II Credits: 5
* PHY 302 – Introduction to Modern Physics Credits: 4

**5. Mathematics**

* MTH 201 – Calculus I Credits: 4
* MTH 202 – Calculus II Credits: 4

**6. Science:**

* SCI 440 – Physical Science in Secondary Education Credits: 3

**7. Capstone:**

* SCI 450 – Earth Science and Biology in Secondary Education Credits: 3

**Suggested Order of Coursework for a Major in Integrated Science**

**First Year**

* [BIO 120 - General Biology I](http://catalog.gvsu.edu/preview_program.php?catoid=40&poid=5458) Credits: 4
* [BIO 121 - General Biology II](http://catalog.gvsu.edu/preview_program.php?catoid=40&poid=5458) Credits: 4
* GEO 111 – Exploring the Earth Credits: 4
* GEO 112 – Earth History Credits: 4

**Second Year**

* CHM 115 – Principles of Chemistry I Credits: 4
* CHM 116 – Principles of Chemistry II Credits: 5
* BIO 215 – Ecology Credits: 4
* BIO 210 – Evolutionary Biology Credits: 3
* MTH 201 – Calculus I Credits: 4
* MTH 202 – Calculus II Credits: 4

**Third Year**

* PHY 230 – Principles of Physics I Credits: 5
* PHY 231 – Principles of Physics II Credits: 5
* CHM 231 – Introduction to Organic Chemistry Credits: 4
* CHM 221 – Analytical Chemistry Credits: 4
* GEO 203 – Weather for Pre-service Teachers Credits: 3
* BIO 375/376 – Genetics Credits: 4

**Fourth Year**

* PHY 302 – Introduction to Modern Physics Credits: 4
* PHY 105 – Descriptive Astronomy Credits: 3
* CHM 351 – Introduction to Physical Chemistry Credits: 3
* GEO 211 – Mineralogy Credits: 4
* GEO 312 - Petrology Credits: 4
* SCI 440 – Physics and Chemistry in Secondary Education Credits: 3
* SCI 450 – Earth and Life Science in Secondary Education Credits: 3