

ELEMENTARY INTEGRATED SCIENCE MAJOR

Revised September, 2011

The Integrated Science major for Elementary Certification consists of 38 credits distributed over three areas of emphasis: Life Science, Earth and Space Science, and Physical Science. The courses must include significant laboratory experiences. Candidates for certification in this major must pass the Michigan Test for Teacher Certification (MTTC) in Elementary Integrated Science – DI (Test #93). You must demonstrate your knowledge in the following categories:

| Subarea | Approximate % of Questions on Test |
|--------------------------------------|---|
| 1. Foundations of Scientific Inquiry | 25% |
| 2. Life Science | 25% |
| 3. Earth and Space Science | 25% |
| 4. Physical Science | 25% |

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

In addition, you are encouraged to take Math 205 and 206, Math for the Elementary Teacher, *which may count toward the General Education requirements.*

LIFE SCIENCE COURSES (16 Credits) - Required

| SUBJECT/ COURSE | TITLE | CREDIT HOURS | SEMESTER | GRADE |
|---|--|-----------------|----------|-------|
| HIST 295 OR GEMS 295 (GEMS 295 will become a 4 cr. course in 2010- 2011.) | History of Evolution History of Science (2 cr.) <u>AND</u> Independent Study (2 cr.) with Jonathan Hagood for 2009- 2010. | 4 4 | | |
| Biology 240 OR Gems 161 | Cell Biology and Genetics Biotechnology and You | 4 4 | | |
| Biology 280 OR GEMS 153 | Ecology and Evolution Populations in Changing Environments | 4 4 | | |
| Biology 260 OR GEMS 158 | Organismal Biology Human Biology in Health and Disease | 4 4 | | |

EARTH AND SPACE SCIENCE COURSES (10 Credits) - Required

| SUBJECT/ COURSE | TITLE | CREDIT HOURS | SEMESTER | GRADE |
|---------------------------|---------------------------------------|-----------------|----------|-------|
| GEMS 157 OR GES 100 | The Planet Earth | 4 | | |
| GEMS 152 | The Atmosphere & Environmental Change | 4 | | |
| GEMS 206 | The Night Sky | 2 | | |

PHYSICAL SCIENCE COURSES (12 Credits) - Required

| SUBJECT/ COURSE | TITLE | CREDIT HOURS | SEMESTER | GRADE |
|---|---|---------------------|----------|-------|
| GEMS 151 | Science and Technology of Everyday Life | 4 | | |
| PHYS 105 | College Physics I | 3 | | |
| PHYS 107 | College Physics Lab | 1 | | |
| CHEM 111 & CHEM 113 OR GEMS 160 | General Chemistry I & General Chemistry Lab OR The Chemistry of Our Environment | 3 1 4 | | |

MATH COURSES WHICH WILL STRENGTHEN YOUR INTEGRATED SCIENCE MAJOR

You are encouraged to seriously consider these courses as part of your Liberal Arts Substantive minor.

| SUBJECT/ COURSE | TITLE | CREDIT HOURS | SEMESTER | GRADE |
|--------------------|---------------------------------|-----------------|----------|-------|
| MATH 205 | Math for Elementary Teachers I | 4 | | |
| MATH 206 | Math for Elementary Teachers II | 2 | | |
| MATH 207 | Software Applications | 2 | | |
| MATH 208 | Problem Solving | 2 | | |
| MATH 210 | Introductory Statistics | 4 | | |