### General Education Area

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Grade</th>
<th>Notes</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1010</td>
<td></td>
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<tr>
<td>ENGL 1020</td>
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<tr>
<td>COMM 2200</td>
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</tbody>
</table>

#### HUMANITIES AND/OR FINE ARTS (9 hours)
Choose one:
- ENGL 2020, 2030, or HUM 2610
- Choose two with different prefixes: ANTH 2210, ART 1030, 1920, DANC 1000, HIST 1010, 1020, 1110, 1120, MUS 1030, PHIL 1030, THEA 1030

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Grade</th>
<th>Notes</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 2020</td>
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<tr>
<td>ENGL 2030</td>
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</table>

#### SOCIAL/BEHAVIORAL SCIENCES (6 hours)
Choose two (different prefixes):

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Grade</th>
<th>Notes</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>AAS 2100</td>
<td></td>
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<tr>
<td>ANTH 2010</td>
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### Major Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Grade</th>
<th>Notes</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>BIOL 1110</td>
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<td></td>
<td></td>
<td>4**</td>
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<tr>
<td>BIOL 1120</td>
<td></td>
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<td></td>
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<tr>
<td>BIOL 2230</td>
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<tr>
<td>BIOL 2231</td>
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</tr>
<tr>
<td>BIOL 3250</td>
<td></td>
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<tr>
<td>BIOL 3261</td>
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<tr>
<td>BIOL 3400</td>
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<tr>
<td>BIOL 4110</td>
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<tr>
<td>BIOL 4111</td>
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<tr>
<td>BIOL 4210</td>
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<tr>
<td>BIOL 4211</td>
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<tr>
<td>BIOL 4500</td>
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<tr>
<td>BIOL 4740</td>
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<td><strong>RECOMMENDED</strong></td>
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<tr>
<td>BIOL 3500</td>
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<tr>
<td>BIOL 4200</td>
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</table>

** If a 4 credit Math course is taken, 3 credits count in General Education and the extra credit counts in Supporting and Elective Courses.

*Hours Toward 120 Required for Graduation (removes duplication of hours between General Education and Major)*

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### Supporting and Elective Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Grade</th>
<th>Notes</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1120 &amp; 1121</td>
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</tr>
<tr>
<td>CHEM 2030 &amp; 2031 or 3010 &amp; 3011</td>
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</tr>
<tr>
<td>MATH 1920, or MATH 2050, or BIOL 4350 &amp; 4351</td>
<td></td>
<td></td>
<td></td>
<td>3-4</td>
</tr>
<tr>
<td>Elective if MATH 2050 is chosen</td>
<td></td>
<td></td>
<td></td>
<td>0-1</td>
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<tr>
<td>Math 1910 (remaining 1 credit from general education)</td>
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<td></td>
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<tr>
<td>PSCI 1030 &amp; 1031</td>
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</tbody>
</table>

**MINOR HOURS REQUIRED** 30

**TOTAL HOURS REQUIRED** 124

Signed:  
Minor Advisor  
_Date_

### Minor Secondary Education

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester</th>
<th>Grade</th>
<th>Notes</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MSE 1010 Inquiry Approaches to Teaching</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
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<tr>
<td>MSE 2010 Inquiry Lesson Design</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>YOED 3520 Knowing and Learning</td>
<td></td>
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<tr>
<td>YOED 3550 Classroom Interactions in Science and Math</td>
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<tr>
<td>PHIL 3120 Perspectives in Math and Science</td>
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<tr>
<td>YOED 4050 Project Based Instruction in Math and Science</td>
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<tr>
<td>YOED 4040 Residency I</td>
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<tr>
<td>YOED 4400 Residency II</td>
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</tbody>
</table>

**MINOR HOURS REQUIRED** 30

**TOTAL HOURS REQUIRED** 124

Signed:  
Minor Advisor  
_Date_

### Optional 2nd Minor

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credit Hours</th>
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<tbody>
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</tbody>
</table>

**Hours Required**

Signed:  
Minor Advisor  
_Date_

1. Degrees require a minimum of 120 semester hours (12 of the last 18 at MTSU) with a 2.0 GPA, a minimum of 42 upper-division hours (30 at MTSU) with a 2.0 GPA, and minimum of 60 senior college hours.

2. Learning Support courses do not count toward the 120-hour requirement or cumulative degree GPA.

Signed:  
Major Advisor  
_Date_

Revised 4.20.2015
Instructions For Upper-Division Forms for Biology

1. This form should be filled out in consultation with your College Advisor three semesters prior to graduation.

2. An Intent to Graduate Form must accompany the Upper Division Form when submitted to the Graduation Analyst in KUC, room 322.

3. In order to graduate, you must complete at least 120 semester hours of which at least 42 must be in upper division (3000/4000 numbered) courses. At least 60 semester hours must have been taken at a senior (4 year) college/university. A minimum 2.00 GPA in the major, overall, in at least 42 hrs of upper division (3000/4000 level) courses, and in most minors, is required for graduation. Course work awarded from a junior college will not count as upper-division credit even if it is credited on your transcript as a 3000 or 4000 level course. At least one minor is required; a natural science such as chemistry is recommended.

4. If the course prefix and number are not shown, be sure to write them in the “Course” column. In the “Grade” column, write the grade that you received if you have already completed the course, or the semester that you plan on taking the course (for example, F14, Sp 15, Su15). In the Notes column, write in the course you are taking instead of choosing from the list, or Advanced Placement credit for the course, or transfer credit for the course, (in which case you should list the original course name and number); otherwise, the Notes column should remain blank. See advisor and catalog for options to fulfill specific requirements. If a course previously taken is accepted as a substitution for a course listed, then a Substitution Form must be filled out and approved by Major Advisor and Department Chair and accompany the Upper Division and Intent to Graduate Forms.

5. See the specified MTSU Undergraduate Catalog and the Student Handbook for further details concerning degree requirements for graduation. You are responsible for understanding and fulfilling all degree requirements.

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**Biology Concentration Lists**

**Organismal Biology and Ecology**

**Choose at least 10 hours from the following list:**

- 3020 (4) Comp. Anat. Vert. (Fall)
- 3030 (4) Non-Flower. Plants (Fall)
- 3040 (4) Entomology (Fall)
- 3050 (3) Parasitology (Spring)
- 4060 (3) Dendrology (Fall)
- 4080 (4) Mycology (Spring, odd years)
- 4120 (4) Flower. Plants (Spring)
- 4140 (4) Invert. Zool. (Spring)
- 4180 (4) Vert. Zool. (Fall)
- 4220 (4) Ichthyology (Fall)
- 4250 (4) Limnology (Spring)
- 4390 (4) Ethology (Spring, odd years)
- 4520 (4) Plant Anatomy (Spring)
- 4570 (3) Principles of Toxicology
- 4590 (4) Principles of Environmental Toxicology
- 4580 (4) Marine Biology (Spring)
- 4700 (3) Plant-Animal interact. (Spring)

**Students may choose to follow one of the track options described to the right instead of choosing from the list above**

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**Genetics & Biotechnology**

**Required:**

- 4550 (3) Biotechnology (Fall & Spring)

**Pick one of the following:**

- 4450 (4) Molecular Genetics (Fall)
- 4460 (3) Human Genetics (Spring)

**Pick one of the following:**

- 4270 (4) Trans. Elec. Microscopy (Spring)
- 4290 (4) Scan. Elec. Microscopy (Fall)
- 4300 (4) Immunology (Fall & Spring)
- 4450 (4) Molecular Genetics (Fall)
- 4460 (3) Human Genetics (Spring)
- 4510 (4) Food/Indust. Micro. (Fall)
- 4570 (3) Prin. Toxicology (Fall)
- 4720 (4) Animal Development (Spring)
- 4750 (4) Plant Biotechnology

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**Microbiology**

**Choose 10 hrs. from the following list**

- 3050 (3) Parasitology (Spring)
- 3210 (3) Environ. Micro. (Spring)
- 4080 (4) Mycology (Fall)
- 4300 (4) Immunology (Fall & Spring)
- 4430 (4) Diagnostic Micro. (Spring)
- 4440 (4) Gen. Virology (Fall)
- 4450 (4) Molec. Genet. (Fall)
- 4510 (4) Food/Indust. Micro. (Fall)
- 4550 (3) Biotechnology (Fall & Spring)
- 4730 (4) Microbial Phys. & Biochem. (Spring)

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**Optional Organismal Biology & Ecology tracks:**

**Botany Track: (10 hours)**

Choose from BIOL 3030, 4060, 4080, 4120, 4520, 4700. Students in this track should take BIOL 4500 (Plant Physiology) as their required Physiology course.

**Zoology Track: (10 hours)**

Choose from BIOL 3020, 3040, 3050, 4140, 4180, 4220, 4390. Students in this track should take BIOL 4110 (General Physiology) as their required Physiology course.

**Ecology Track: (10 hours)**

Choose at least two courses from BIOL 4250, 4580, 4700 and choose one course from among the column to the left (if only two courses are chosen from those listed here).

**General Biology Track: (10 hours)**

Choose one of the following courses: BIOL 3020 or 4180

Choose one of the following courses: BIOL 3030, 4080, or 4120

Choose one of the following courses: BIOL 3040, 3050, or 4140

**"The General Biology Track satisfies Teacher Education Requirements"**

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**Physiology**

**Choose 10 hrs. from the following list**

- 3010 (4) Embryology (Fall)
- 3020 (4) Comp. Anat. Vert. (Fall)
- 4110 (4) Gen. Physiology (Fall & Spring)+
- 4130 (4) Histology (Spring)
- 4170 (3) Endocrinology (Fall)
- 4210 (4) Cell & Molec. (Fall & Spring)+
- 4300 (4) Immunology (Fall & Spring)
- 4440 (4) Gen. Virology (Fall)
- 4500 (4) Plant Physiology (Spring)+
- 4520 (4) Plant Anatomy (Spring)
- 4560 (4) Neurobiology (Fall)
- 4570 (3) Prin. Toxicology (Fall)

*only if not used for core requirement

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**See College Advisor or chair for additional options; other Upper Division Biology courses may be substituted.**

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Revised 4.20.2015