MISSOURI DEPARTMENT OF ELEMENTARY AND SECONDARY EDUCATION
OFFICE OF EDUCATOR QUALITY – EDUCATOR PREPARATION

PHYSICS, GRADES 9-12

INSTRUCTIONS

Please complete Educator Preparation Program (EPP) Name & EPP Code above.

Certification Requirements:

- **Course Number** – List the course number(s) for the course(s) or groups of competencies that align with the specific section of the requirements. It is possible to have more than one course or group listed.
- **Course Title** – List the course title(s) for the course(s) or groups of competencies that align with the specific section of the requirements. It is possible to have more than one course or group listed.
- **Semester Hours** – List the number of semester hours for each specific section. It is possible to use decimals (to the nearest tenth) to indicate partial use of a course to meet a requirement. The total number of semester hours must meet or exceed the minimum required number of semester hours.

Email the completed cover sheet, curriculum matrix, and advising/program information to [DESE.MoSPETransition@dese.mo.gov](mailto:DESE.MoSPETransition@dese.mo.gov) on or before the date established in the Transition Plan.

QUESTIONS: Contact Educator Preparation, 573-751-1668 or [DESE.MoSPETransition@dese.mo.gov](mailto:DESE.MoSPETransition@dese.mo.gov)

### A. Professional Requirements (Minimum of 26 semester hours)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEC302</td>
<td>General Methods of Instruction in the Middle and Secondary Schools</td>
<td>1(3)</td>
</tr>
<tr>
<td>SCI314</td>
<td>Techniques and Technology in Science Laboratory Teaching</td>
<td>1(3)</td>
</tr>
<tr>
<td>SCI414</td>
<td>Teaching of Secondary School Natural Science</td>
<td>1(3)</td>
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<tr>
<td>SCI414</td>
<td>Teaching of Secondary School Natural Science</td>
<td>0(3)</td>
</tr>
<tr>
<td>RDG474 or RDG710</td>
<td>Reading and Writing in the Content Fields, Content Area Literacy</td>
<td>0(3)</td>
</tr>
<tr>
<td>SEC302</td>
<td>General Methods of Instruction in the Middle and Secondary Schools</td>
<td>.5(3)</td>
</tr>
<tr>
<td>EDC350</td>
<td>Requirements and Writing in the Content Fields, Content Area Literacy</td>
<td>1.5(3)</td>
</tr>
<tr>
<td>RDG474 or RDG710</td>
<td>Reading and Writing in the Content Fields, Content Area Literacy</td>
<td>0(3)</td>
</tr>
<tr>
<td>RDG574 or RDG640</td>
<td>Analysis and Correction of Difficulties in Literacy</td>
<td>0(3)</td>
</tr>
</tbody>
</table>

### 2. Individual Student Needs

<table>
<thead>
<tr>
<th>Course Number</th>
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<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY360 or PSY710</td>
<td>Educational Psychology, Psychology of Education</td>
<td>1.5(3)</td>
</tr>
<tr>
<td>SPE340 or SPE715</td>
<td>Educational Alternatives for Exceptional Students, Foundations in Special Education</td>
<td>2-3</td>
</tr>
<tr>
<td>SEC302</td>
<td>General Methods of Instruction in the Middle and Secondary Schools</td>
<td>.5(3)</td>
</tr>
<tr>
<td>RDG474 or RDG710</td>
<td>Reading and Writing in the Content Fields, Content Area Literacy</td>
<td>0(3)</td>
</tr>
<tr>
<td>RDG574 or RDG640</td>
<td>Analysis and Correction of Difficulties in Literacy</td>
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<tr>
<td>SCI314</td>
<td>Techniques and Technology in Science Laboratory Teaching</td>
<td>1(3)</td>
</tr>
<tr>
<td>SCI414</td>
<td>Teaching of Secondary School Natural Science</td>
<td>1(3)</td>
</tr>
<tr>
<td>EDC345</td>
<td>Introduction to Multicultural Education and Diversity</td>
<td>3</td>
</tr>
<tr>
<td>PSY360 or PSY710</td>
<td>Educational Psychology, Psychology of Education</td>
<td>1.5(3)</td>
</tr>
</tbody>
</table>

### 3. Schools and the Teaching Profession
### a. Consultation and Collaboration
RDG474 or RDG710  
Reading and Writing in the Content Fields, Content Area Literacy  
0(3)

### b. Legal/Ethical Aspects of Teaching
EDC350  
SCI493  
SCI494  
School and Society  
Supervised Teaching  
Supervised Teaching  
1.5(3), 1(6), 1(6)

### 4. Secondary Literacy (Minimum of six semester hours)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Reading and Writing in the Content Area</td>
<td>RDG474 or RDG710</td>
<td>3</td>
</tr>
<tr>
<td>b. Instructional Interventions for Students with Reading Deficits</td>
<td>RDG574 or RDG640</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Professional Requirements - Total Semester Hours 26-27

### B. Field and Clinical Experiences (Minimum of ten semester hours)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
</table>
| 1. Early Field Experiences (Minimum of one semester hour with a minimum of 30 clock hours) | SEC302  
General Methods of Instruction in the Middle and Secondary Schools | 1(3) |
| 2. Mid-Level Field Experiences (Minimum of one semester hour with a minimum of 45 clock hours) | SCI314  
Techniques and Technology in Science Laboratory Teaching  
SCI414  
Teaching of Secondary School Natural Science | 0(3), 1(3) |
| 3. Culminating Clinical Experiences (Minimum of eight semester hours with a minimum of 12 weeks in one placement) | SCI493  
SCI494 | 5(6), 5(6) |

Field and Clinical Experiences - Total Semester Hours 12

### C. Physics Content Knowledge Area (Minimum of 35 semester hours)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
</table>
| 1. History/Philosophy of Science and Technology (three semester hours) | SCI505  
Intellectual Foundations of Science and Technology | 3 |
| 2. Physics Coursework – Minimum of 20 semester hours which must include: | | |
| a. Mechanics | PHY100  
PHY203  
Survey of Physics with Lab  
Foundations of Physics I | 2(4), 5 |
| b. Electricity and Magnetism | PHY100  
PHY204  
Survey of Physics with Lab  
Foundations of Physics II | 1(4), 2.5(5) |
| c. Heat, Sound, and Light | PHY100  
PHY204 | 1(4), 2.5(5) |
| d. Atomic or Modern Physics | PHY375  
PHY385  
Modern Physics  
Experiments in Modern Physics | 3, 2 |
| e. Physics Electives | PHY509  
Choose eight hours from the following  
PHY291  
Intermediate Mechanics  
PHY333  
Circuits, Signals and Controls  
PHY343  
Thermal Physics  
PHY351  
Electricity and Magnetism  
PHY353  
Undergraduate Research I  
PHY391  
Mathematics for Science and Engineering I  
PHY392  
Mathematics for Science and Engineering II  
PHY409  
Selected Topics in Physics  
PHY476  
Introduction to Nuclear and Particle Physics  
PHY486  
Undergraduate Research II | 3, 3, 3, 3, 1, 3, 3, 1-5, 3, 1 |

### Additional Science Coursework – Minimum of 12 semester hours which must include:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
</table>
| a. Chemistry | CHM160  
General Chemistry I | 4 |
| b. Biology | BIO121  
General Biology I | 4 |
| c. Earth Science | AST115  
Basic Astronomy | 4 |
| d. Environmental Science | GRY108  
Principles of Sustainability | 3 |

Content Knowledge Area - Total Semester Hours BSED/PB=48