## EDUCATION: SCIENCE EDUCATION, PHD

Requirements for Students Matriculating in or before Academic Year 2020-2021. Learn more about Graduate College Academic Regulation 7.0 (http://catalog.okstate.edu/graduate-college/#70).

**Total Hours:** 69 hours (Beyond the Master’s Degree)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCFD 6983</td>
<td>Diversity and Equity Issues in Education</td>
<td>3</td>
</tr>
<tr>
<td>SCFD 6113</td>
<td>Theoretical Foundations of Inquiry</td>
<td>3</td>
</tr>
<tr>
<td>CIED 6503</td>
<td>Doctoral Seminar</td>
<td>3</td>
</tr>
<tr>
<td><strong>Hours Subtotal</strong></td>
<td></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

### Extended Inquiry

At least six of these hours, selected from courses such as those listed below, should be composed of the same type of research method (i.e., quantitative, qualitative, historical, etc.). Students should work with their advisory committee to select the appropriate 12 hours for their program of study.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIED 6073</td>
<td>Advanced Pedagogical Research</td>
<td></td>
</tr>
<tr>
<td>CIED 6253</td>
<td>Designing and Conducting Mixed Methods Research</td>
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</tr>
<tr>
<td>REMS 6003</td>
<td>Analyses of Variance</td>
<td></td>
</tr>
<tr>
<td>REMS 6013</td>
<td>Multiple Regression Analysis in Behavioral Studies</td>
<td></td>
</tr>
<tr>
<td>REMS 6023</td>
<td>Psychometric Theory</td>
<td></td>
</tr>
<tr>
<td>REMS 6033</td>
<td>Factor Analysis in Behavioral Research</td>
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</tr>
<tr>
<td>REMS 6663</td>
<td>Applied Multivariate Research in Behavioral Studies</td>
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</tr>
<tr>
<td>REMS 5963</td>
<td>Computer Applications in Nonparametric Data Analyses</td>
<td></td>
</tr>
<tr>
<td>SCFD 6123</td>
<td>Qualitative Research I</td>
<td></td>
</tr>
<tr>
<td>SCFD 6190</td>
<td>Qualitative Research: Selected Methods</td>
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</tr>
<tr>
<td>SCFD 6193</td>
<td>Qualitative Research II</td>
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</tr>
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<td><strong>Hours Subtotal</strong></td>
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<td><strong>12</strong></td>
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</table>

### Cognate Area

The doctoral advisory committee will work with individual students to select the most appropriate courses to enhance their knowledge within their specializations.

| **Hours Subtotal**                     | **9** |

### Independent Research

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIED 6000</td>
<td>Doctoral Dissertation</td>
<td>15</td>
</tr>
<tr>
<td><strong>Hours Subtotal</strong></td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

### Specialization - Science Education

#### Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMED 6223</td>
<td>Instruction and Learning in Science and Mathematics Education</td>
<td>3</td>
</tr>
<tr>
<td>SMED 6233</td>
<td>Affective Issues in Teaching Mathematics and Sciences</td>
<td>3</td>
</tr>
<tr>
<td>SMED 6753</td>
<td>Research in Mathematics and Science Education</td>
<td>3</td>
</tr>
</tbody>
</table>

### Electives

Select 15 hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIED 5850</td>
<td>Directed Study</td>
</tr>
<tr>
<td>CIED 6910</td>
<td>Practicum</td>
</tr>
<tr>
<td>CIED 6850</td>
<td>Directed Reading</td>
</tr>
<tr>
<td>CIED 5720</td>
<td>Education Workshop</td>
</tr>
<tr>
<td>CIED 5850</td>
<td>Directed Study</td>
</tr>
<tr>
<td>CIED 6850</td>
<td>Directed Reading</td>
</tr>
<tr>
<td>CIED 6910</td>
<td>Practicum</td>
</tr>
<tr>
<td>SMED 5050</td>
<td>Seminar in Integrated Mathematics and Science Applications</td>
</tr>
<tr>
<td>SMED 5193</td>
<td>Inquiry and Problem-Based Learning in Science Education</td>
</tr>
<tr>
<td>SMED 5223</td>
<td>Teaching Science in the Schools</td>
</tr>
<tr>
<td>SMED 5243</td>
<td>Environmental Education in the Curriculum</td>
</tr>
<tr>
<td>SMED 5280</td>
<td>Workshop in Science Education</td>
</tr>
<tr>
<td>SMED 5313</td>
<td>Introduction to K-12 Engineering Education</td>
</tr>
<tr>
<td>SMED 5323</td>
<td>Technology for the K-12 STEM Educator</td>
</tr>
<tr>
<td>SMED 5333</td>
<td>Developing Informal and Formal STEM Programs in Schools</td>
</tr>
<tr>
<td>SMED 5813</td>
<td>Assessment in Science Education</td>
</tr>
<tr>
<td>SMED 6123</td>
<td>Teaching the Nature of Science in Secondary Science Education</td>
</tr>
</tbody>
</table>

**Total Hours:** 69

#### Graduate College Doctor of Philosophy (PhD) Requirements

Learn more about Graduate College 2020-2021 Doctor of Philosophy (PhD) Degree Program Requirements (http://catalog.okstate.edu/graduate-college/). Check the General Graduate College academic regulations for minimal GPA, language proficiency and other general requirements.