### Required Cores in the Program of Studies

**Science Education Major within the Curriculum and Instruction Ph.D. Program**

<table>
<thead>
<tr>
<th>Requirements for the Doctorate in Curriculum and Instruction (Minimum 65 SCH)</th>
<th>Doctorate in Curriculum and Instruction with a Major in Science Education (78 SCH)</th>
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</thead>
</table>
| **Interdepartmental Core (9 SCH)**  
- Curriculum Theory (3)  
- Learning Theory (3)  
- Policy Studies (3) | **Interdepartmental Core (9 SCH)**  
- Curriculum Theory (3) - EDG 6221: Curriculum Theory (3)  
- Learning Theory (3) - SCE 5147: Perspectives on Learning in Science Education or EDG 5216: Theories of Learning  
- Policy Studies (3) - SSE 5937: Impact of Policy on Teaching and Teacher Education |
| **Seminars (min. of 2; 2 SCH)** | **Seminars (4 SCH)**  
- SCE 5946r: Supervised Teaching I (1) – required  
- SCE 5946r: Supervised Teaching II (1) – required  
- EDG 6008: Academic and Professional Identity  
- EDG 6369: Critiquing Educational Research |
| **Research Methods Core (15 SCH)** | **Research Methods Core (20 SCH from the following)**  
- SCE 5910r: Supervised Research I (1) – required (research rotation)  
- SCE 5910r: Supervised Research II (1) – required (research rotation)  
- EDF 5400: Descriptive and Inferential Statistics (4)  
- EDF 5401: General Linear Modeling Applications (4)  
- EDF 5402: Advanced Topics in Analysis of Variance (3)  
- EDF 5410: Nonparametric Analysis Applications (3)  
- EDF 6937: Seminar in Advanced Research Problems - HLM (3)  
- EDF 6475: Qualitative Methods in Educational Research (3)  
- EDF 6479: Qualitative Data Analysis (3)  
- SCE 6761: Classroom Based Research  
- MAE 6939: Research in Mathematics Education |
| **Major (15 SCH)** | **Major (21 SCH)**  
- SCE 5336: Instructional Strategies in Science Education (3)  
- SCE 6761: Research, recent developments, and current issues (Modeling the Mind) (3)  
- SCE 5895: Disciplinary Engagement in Science (3)  
- EDF 6547: Philosophical foundations of educational research  
- SCE 5545: Policy, equity, and instruction in science learning  
- SCE 6395: Teacher Learning and Professional Development  
- MAE 6939: Seminar in Mathematics Teacher Education |
| **Dissertation Research (24 SCH)**  
Includes satisfactory completion of a comprehensive exam, dissertation, and oral defense of the dissertation. | **Dissertation Research (24 SCH)**  
- SCE 8964 Preliminary Doctoral Examination (0)  
- SCE 6980 Doctoral Dissertation (24)  
- SCE 8985 Dissertation Defense (0) |