MASTERS OF SCIENCE-EDUCATION: PHYSICS
ALTERNATIVE CERTIFICATION: TRANSITIONAL B CERTIFICATE

This program is designed to fulfill SED regulation 52.21(b)(3)(xvii). This is an alternative teacher certification program that will allow the participant to teach with a transitional B certificate in Physics 7-12 while finishing the requirements for initial certification in Physics 7-12 and General Science 7-12.

Admissions Requirements:
1. Bachelor’s degree in physics or related area from an accredited four-year institution.
2. Cumulative undergraduate GPA of 3.0 (on a 4 point scale) or approval of the department chair.
3. A minimum total of 18 credit hours in two sciences other than physics (may be completed during the program if not met at time of admission).
4. One year of college study or two years of high school study of a language other than English (may be completed during the program if not met at time of admission).
5. Passing scores on two New York State examinations: Liberal Arts and Science Test (LAST) and the Physics Content Specialty Test (CST).
6. An application packet including a personal statement and three letters of reference. Interview may be required.
(Note: these admission requirements are mandated in the Transitional B regulations)

Exceptional Education and Educational Foundations (6 cr)

EXE 633 Adapting Content Area Instruction for Children and Adolescents With Disabilities
EDF 529 Adolescent Psychology

Literacy (6 cr)

Choose one of the following two courses:
   EDU 416 Teaching Literacy in Middle and Secondary Schools
   EDU 609 Improving reading in the content areas

Required:
   EDU 417 Adolescent Literacy

Physics Teaching Methods (6 cr)

PHY 510 (Revised) Process Skills in Physics Teaching (6 cr)
(with 40 hours field experience in physics classrooms grade 7-12)

Physics Content with Model Pedagogy (12 cr)

PHY 620 (new) Powerful Ideas And Quantitative Modeling: Force, Motion and Energy (6cr)
PHY 622 (new) Powerful Ideas And Quantitative Modeling: Electricity and Magnetism (6cr)
Electives (6 cr)

PHY 518  (revised) Wave Phenomena and Optics
PHY 520  (revised) Modern Physics
PHY 525  Nuclear and Particle Physics
PHY 616  Advanced Dynamics
PHY 618  Advanced Electricity and Magnetism I
SCI 527  Current Topics in Science
SCI 685  Evaluation in Science Education
SCI 632  Curricular Trends in Science Teaching in the Secondary School
SCI 664  Teaching Science with Media
Or other courses by advisement

Seminar (3 cr)

PHY 500 (revised) Physics Education Research Seminar

Mentored Physics Teaching

The alternative certification B students will be supervised by a college supervisor a minimum of once a month while they are teaching as required by NYSED regulation 52.21(b)(3)(xvii). This supervision will include observations, meetings with the school mentor and school supervisor, and planning.

Project (3 cr)

PHY 690 Research Project

Total required credits: 42 cr
This table specifies how the NY SED regulations for initial teacher certification

<table>
<thead>
<tr>
<th>Specific Requirement from SED</th>
<th>Program Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical Knowledge, understanding, and skills</td>
<td></td>
</tr>
<tr>
<td>Human Development</td>
<td>EDF 529</td>
</tr>
<tr>
<td>Learning Processes Motivation, Communication, and Classroom management</td>
<td>PHY 510, PHY 620, PHY 622</td>
</tr>
<tr>
<td>The nature of students within the full range of disabilities and special health</td>
<td>EXE 633</td>
</tr>
<tr>
<td>Language acquisition and literacy development</td>
<td>EDU 416, EDU 609</td>
</tr>
<tr>
<td>Instructional Strategies</td>
<td>PHY 510, PHY 620, PHY 622</td>
</tr>
<tr>
<td>Technology</td>
<td>PHY 510, PHY 620, PHY 622</td>
</tr>
<tr>
<td>Assessing students learning and ones own teaching</td>
<td>PHY 510, PHY 500, PHY 690</td>
</tr>
<tr>
<td>History, Philosophy, role of Education</td>
<td>PHY 510, PHY 500, EDF 529</td>
</tr>
<tr>
<td>Means to update skills</td>
<td>PHY 500, PHY 690</td>
</tr>
<tr>
<td>Child abuse, Violence, SAFE, …</td>
<td>Seminars</td>
</tr>
<tr>
<td>30 credit hours of physics.</td>
<td>PHY 510 (6 cr), PHY 620 (6 cr), PHY 622 (6 cr)</td>
</tr>
<tr>
<td>Field Experiences: Practica and student teaching</td>
<td>PHY 512, PHY 520, PHY 518, PHY 616, PHY 618</td>
</tr>
<tr>
<td></td>
<td>Supervised field placement</td>
</tr>
</tbody>
</table>