Secondary Teaching in Physics
Teacher Certification Requirements

The Physical Science licensure programs have been designed to prepare exemplary teachers. The experiences candidates are provided will enable them to demonstrate that they meet the Illinois and National Science Teachers Association standards. Individuals completing the programs are sought after as science teachers.

Individuals wishing to receive a license to teach physics at the secondary level have a number of program options. Although a Bachelor of Science Degree in Physics is required to qualify for the program, it is not necessary to complete a degree program at NIU at the same time as completing license requirements. With one or two possible exceptions, it is strongly suggested that all the professional education requirements be completed at NIU. Candidates successfully completing the teacher certification program in physics will earn a secondary license (grades 6-12) with a primary endorsement in physics. An endorsement to teach middle school science is included in the program as well. Students must also qualify for an endorsement in a subject area in addition to physics. The requirements for the second endorsement will vary depending on the subject area.

Admission to the Secondary Science Teacher Licensure Program

Potential candidates must be admitted to NIU to be admitted to the certification program. If they are not admitted to the program, they cannot take the required courses in the program nor can they be recommended by NIU for licensure. Before potential candidates can be officially admitted, they must pass the Illinois Certification Testing System (ICTS) Test of Academic Proficiency (TAP). Information regarding the TAP may be found at the following web site (www.icts.nesinc.com). Potential candidates have the following choices of student classification.

Undergraduate - Choose this option if you do not have a college degree. You should declare to be a physics major but do not have to select the physics teaching emphasis. Approximately half the students becoming licensed in physics are not in an education degree emphasis.

Post-graduate - If you already have an appropriate bachelor degree you may wish to enroll as a post-graduate. Post-graduates are classified as undergraduate students. They may be pursuing a second bachelor's degree or simply be pursuing a teaching license. They do not have the ability to enroll in graduate level courses. Potential candidates may choose to pursue this option if they need to take undergraduate courses to fulfill academic or program deficiencies. It is possible to switch status from post-graduate to either student-at-large or graduate student. You may not switch back once you have done so.

Student-at-Large - Choose this option if you have a bachelor's degree and wish to be able to take some courses for graduate credit. Students pursue this option when they are unsure of whether or not they wish to pursue a Masters Degree or if they don't have time to complete the lengthy application process for admission to a graduate program as a graduate student. Due to recent NIU policies regarding order of registration for classes, this is the least desirable choice. It is always possible to switch status from student-at-large to graduate student.

Graduate student - A graduate student is someone who is pursuing a graduate degree, either masters or doctorate. It is not necessary to complete the degree to complete the teacher license program.
Tests and Checks

In addition to taking courses, you must do the following:

✓ **Basic Competency** - Candidates must pass the Test of Academic Proficiency (TAP) to be eligible for admission to the certification program. You can find information about this test at [Illinois Certification Testing System](http://www.il.nesinc.com/)

In lieu of the TAP test candidates may use their ACT or SAT scores if they meet the following requirements:

1. Composite *ACT Plus Writing* score of at least 22; or a composite (mathematics and critical reading) *SAT* score of 1030. Note that the writing subtest must have been taken for each test; however, the writing score is not included in the composite score requirement for either test.
2. The applicant **cannot have failed the TAP five times**.
3. The *official score cannot be more than ten years old* at the time of this application and submission to ISBE.

✓ **Health Checks** - All candidates must take and pass a TB test prior to visiting schools. TB tests are available for free to NIU students at the NIU Health Center and are good for one year. You will need to prove that you do not have TB before your clinical experiences. Because the typical license program takes two years, most students are able to have just two, one before the first clinical experience and another before the third experience.

✓ **Criminal Background Checks** - See the Secondary Science Teacher Licensure Coordinator.

✓ **ICTS Subject Matter test** - You must successfully pass the ICTS Subject matter test(s) appropriate to your program prior to student teaching. [Illinois Certification Testing System](http://www.il.nesinc.com/)

✓ **Aptitude for Professional Teaching Test (APT)** - You must successfully pass the Aptitude for Professional Teaching test to receive an Illinois License to teach. [Illinois Certification Testing System](http://www.il.nesinc.com/)

✓ **Grade Point Average Requirements** - You must have a cumulative GPA of at least 2.5 if you are a Physics Undergraduate or 3.0 if you are a Graduate student. All coursework individually specified for licensure including content, must have a grade of C or better.
Required Coursework
Emphasis 2: Secondary School Teaching

Completing the following courses should provide you with the evidence necessary to demonstrate that you have met standards. You must complete at least 31-33 hours in physics, 8 hours of chemistry and 12 hours of mathematics to become licensed and these hours must include courses in the following required areas:

**Subject discipline courses:** (You may have some flexibility in your course selection as long as selections meet the requirements for physics teacher certification.)

**REQUIRED PHYSICS COURSES: 31-33 hours total**
- PHYS 253 Fundamentals of Physics 1: Mechanics (4hrs)
- PHYS 273 Fundamentals of Physics 2: Electromagnetism (4hrs)
- PHYS 283 Fundamentals of Physics 3: Quantum Phys. (3) PHYS 284 Lab (1)
- PHYS 300 Analytical Mechanics (3)
- PHYS 320 Thermodynamics and Statistical Physics (3)
- PHYS 367 Waves and Vibrations (3)
- PHYS 370 Electricity and Magnetism (3)
- PHYS 374 Introduction to Experimental Physics (3)
- PHYS 383 Intermediate Quantum Physics (3)
- PHYS 498 Senior Seminar (1) or 499H Senior Project (3)

**REQUIRED CHEMISTRY COURSES: 8 hours total**
- CHEM 210 General Chemistry 1 (3 hrs)
- CHEM 212 General Chemistry I Lab (1 hr)
- CHEM 211 General Chemistry II (3hrs)
- CHEM 213 General Chemistry II Lab (1hr)

**REQUIRED MATH COURSES: 12 hrs total**
- MATH 229 Calculus I (4)
- MATH 230 Calculus II (4)
- MATH 232 Calculus III (4)

**Note:** Detailed course descriptions can be reviewed from the current NIU Course Catalog. Course equivalents from other accredited institutions may be substituted at the discretion of the Certification Advisor.

**GENERAL EDUCATION COURSES MUST INCLUDE:**
- Oral Communication (3 hrs)
- Written Communication (6 hrs)
- Psychology (3)
Professional education courses are usually taken during a student’s last four semesters before certification.

- ILAS 201 Introductory Clinical Experience (1 hrs)
- ILAS 301 Second Clinical Experience (2 hrs)
- PHYS 401 Clinical High School Experience in physics (2 hrs)
- PHYS 493 Interdisciplinary Teaching of Science in Secondary Education (3 hrs)
- PHYS 495 Methods in Teaching Physics (3 hrs)
- PHYS 490 The Nature of Science Across Time and Cultures (2 hrs)
- PHYS 497 Student Teaching (10 hrs)
- PHYS 496 Transition to Professional Science Teaching (2 hrs)
- ETT 402 Technology in the Classroom (3 hrs)
- LTIC 420 Methods and Materials for Teaching English to Speakers of Other Languages in Content Areas (3 hrs)

**Note:** These courses require formal application to enter. Certification candidates must pass all course work with a grade of C or better in order to continue in the program.

**Educational Theory Courses:**
- EPS 406/508 Human Development and Learning, Middle School and High School (3 hrs)
- TLSE 457/557 Integrating Exceptional Students in the Regular Classroom (3 hrs)

The schedule of courses in professional education would usually look as follows.

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<thead>
<tr>
<th>Fall Semester 1</th>
<th>Spring Semester 2</th>
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<tbody>
<tr>
<td>• ILAS 201 (1)</td>
<td>• ILAS 301 (2)</td>
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<td>• PHYS 490 (2)</td>
<td>• EPS 406 (3)</td>
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<td>• ETT 402 (3)</td>
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<td>• PHYS 496 (2)</td>
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<td>• TLSE 457 (3)</td>
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**Note:** Identification of Exceptional Children (typically TLSE 457/557) and Human Development and Learning, Middle School and High School (EPS 406/508) can be taken any time after successfully completing ILAS 201.

**Contact Information**
Dr. Michael Eads, Director of Physics and Chemistry Teacher Preparation meads@niu.edu or (815) 753 6492

**Webpage**
[http://www.niu.edu/sstc/](http://www.niu.edu/sstc/)