

Physics Major: Science Education (Grades 4-12) Concentration - Bachelor of Science (BS)

Major requirements

Completion of the Physics: Science Education Concentration Program and associated benchmark assessments (<http://catalog.uwlax.edu/undergraduate/education/#SOE-program-requirements>) will lead to endorsement for the following Wisconsin teaching license:

- Middle and High School Science, grades 4-12 (2600).

Students in all teacher education programs must satisfy the School of Education (SOE) core requirements (<http://catalog.uwlax.edu/undergraduate/education/#SOE-core>).

Students in all teacher education programs must be admitted to the School of Education (<https://www.uwlax.edu/soe/undergrad/admission-to-soe/>) in order to complete their program requirements and be eligible for endorsement for the appropriate teaching license(s). Students majoring in physics: science education (grades 4-12) must meet specific program admission criteria (<http://catalog.uwlax.edu/undergraduate/education/#STEP>).

Retention and advancement

Teacher candidates may be retained in their teacher education program provided they fulfill the conditions described in the SOE Retention Policy (<http://catalog.uwlax.edu/undergraduate/education/#retention>). Students must complete all course requirements and other benchmarks prior to student teaching as described in the Student Teaching and Internship Policy (<http://catalog.uwlax.edu/undergraduate/education/#student-teaching>). Additional SOE program requirements, including the culminating assessment of pedagogical knowledge, are described on the SOE catalog page (<http://catalog.uwlax.edu/undergraduate/education/>).

Curriculum

The Physics: Science Education Concentration Program is aligned with INTASC Teacher Standards and the National Science Teaching Association (NSTA) Standards.

Required general education courses (21-22 credits)

Besides the courses specified below, physics: science education concentration majors must satisfy additional general education requirements (<http://catalog.uwlax.edu/undergraduate/generaleducation/#generaleducationrequirements>). The General Education Program requires a total of 42 credits.

| Code | Title | Credits |
|---|--|---------|
| EDS 203 | School, Society, and Teachers ^{1,7} | 3 |
| EDS 206 | Multicultural Education ^{2,7} | 3 |
| Select two of the following: ³ | | 8-9 |

| | | |
|---|--|--------------|
| MTH 150 | College Algebra | |
| MTH 151 | Precalculus | |
| MTH 207 | Calculus I ⁴ | |
| MTH 208 | Calculus II ⁴ | |
| GEO 200 | Conservation of Global Environments ⁵ | 3 |
| Select one of the following: ⁶ | | 4 |
| PHY 103 | Fundamental Physics I | |
| PHY 203 | General Physics I | |
| Total Credits | | 21-22 |

- ¹ Counts toward General Education Program requirement: Self and Society (GE Category 6).
- ² Counts toward General Education Program requirement: Minority Cultures or Multiracial Women's Studies (GE Category 3).
- ³ Counts toward the General Education Program requirement: Mathematical/Logical Systems and Modern Languages (GE Category 2).
- ⁴ MTH 207 and MTH 208 may count toward both the General Education Program requirement: Mathematical/Logical Systems and Modern Languages (GE Category 2) and the physics major content requirements.
- ⁵ Counts toward General Education Program requirement: International and Multicultural Studies, Global and Multicultural Studies (GE Category 4-2). Also satisfies both a science education core requirement and a WI statutory requirement for a teaching license in Science (2600).
- ⁶ Counts toward General Education Program requirement: Natural Laboratory Science (GE Category 5). Also satisfies a science education core requirement.

Science education core requirements (55 credits)

| Code | Title | Credits |
|---|--|---------|
| Allied courses not requiring admission to the School of Education | | |
| EDS 309 | Teaching Global Perspectives Across the Curriculum | 3 |
| PSY 212 | Lifespan Development ⁷ | 3 |
| SPE 200 | Foundations of Special Education ⁷ | 3 |
| Content courses not requiring admission to the School of Education | | |
| BIO 105 | General Biology | 4 |
| BIO 203 | Organismal Biology | 4 |
| CHM 103 | General Chemistry I | 5 |
| CHM 104 | General Chemistry II | 5 |
| ESC 101 | Earth Environments | 4 |
| Select one of the following: ⁸ | | 4 |
| PHY 104 | Fundamental Physics II | |
| PHY 204 | General Physics II | |
| Courses requiring admission to the School of Education | | |
| PHY 451 | Curriculum and Content in Science and Mathematics ⁷ | 2 |
| PHY 452 | The Learner and Learning in Science ⁷ | 2 |
| PHY 454 | Field Experience I in Science Education ⁷ | 2 |
| PHY 455 | Field Experience II in Science Education ⁷ | 2 |
| Student teaching semester⁹ | | |
| EDS 492 | Student Teaching Seminar ⁷ | 1 |
| One of the following: ⁷ | | 11 |
| EDS 496 | Student Teaching: Middle/High School Education (4-12) | |

| | | |
|----------------------|---------------------|-----------|
| EDS 495 | Teaching Internship | |
| Total Credits | | 55 |

Physics major content requirements (18-27 credits)

Besides the below, additional courses count toward this requirement. However, they also satisfy other requirements in the program. The relevant courses are marked in those sections.

| Code | Title | Credits |
|--|----------------------------------|--------------|
| Select one of the following: | | 4 |
| PHY 155 | Solar System Astronomy | |
| PHY 160 | Stars, Galaxies and the Universe | |
| PHY 305 | General Physics III | 3 |
| PHY 306 | Modern Physics | 3 |
| PHY 311 | Experimental Physics | 2 |
| Electives | | |
| Select six additional credits from 300/400-level PHY courses ¹⁰ | | 6 |
| Math requirement | | 9 |
| MTH 207 | Calculus I ⁴ | |
| MTH 208 | Calculus II ⁴ | |
| Total Credits | | 18-27 |

⁷ Also satisfies an SOE core requirement.

⁸ Also satisfies a physics major content requirement.

⁹ Must complete all course requirements and other benchmarks prior to student teaching. For more information, please see the Student Teaching and Internship Policy (<http://catalog.uwlax.edu/undergraduate/education/#student-teaching>).

¹⁰ PHY 308, PHY 334, and PHY 453 are strongly recommended.

Additional teacher education requirements are listed on the School of Education (<http://catalog.uwlax.edu/undergraduate/education/>) **catalog page.**

Degree requirements

All teacher education students must complete the general education, School of Education, major/minor, and university degree requirements in order to qualify for a degree. The easiest way to track all of these requirements is to refer to the Advisement Report (AR) found in the Student Information System (WINGS) Student Center. All enrolled students have access to the AR.

- General education (<http://catalog.uwlax.edu/undergraduate/generaleducation/>)
- School of Education requirements (<http://catalog.uwlax.edu/undergraduate/education/>)
- Baccalaureate degree requirements (p. 2)

Baccalaureate degree requirements

Candidates for the Bachelor of Arts or the Bachelor of Science degrees must accomplish the following:

1. Fulfill the general education requirements.
2. Complete at least one ethnic studies (diversity) course.
3. Complete the courses prescribed by the Undergraduate Curriculum Committee for the degree desired in the respective school or college. (No substitutions for graduation may be made in course

requirements for a major or minor after the fourth week of the last semester of the senior year.)

4. Earn a minimum of 120 semester credits with at least a 2.00 cumulative GPA.^{1, 2}
5. At least 40 credits must be earned in 300/400 level courses. Transfer courses earned or transferred at the 300/400 level apply to this requirement.
6. Complete major and minor requirements with at least a 2.00 GPA^{1, 2} in each major and minor (and concentration or emphasis, if selected).
7. A minimum of 30 semester credits in residence at UWL is required for graduation. (See undergraduate resident requirement (<http://catalog.uwlax.edu/undergraduate/academicpolicies/graduation/#undergraduate-residence-requirement>)).
8. Submit an application for graduation via the "Apply for Graduation" link in the WINGS Student Center as soon as the student has registered for his or her final semester or summer term in residence. December and winter intersession graduates should apply by May 1. May and summer graduates should apply by December 1.

¹ Grade point average requirements for some programs will be considerably higher than 2.00. Re-entering students may be required to earn credits in excess of the 120 needed for graduation in any curriculum in order to replace credits earned in courses in which the content has changed substantially in recent years. Each case will be judged on its own merit.

² The grade point average recorded at the time the degree is awarded will not be affected by future enrollment.

No degree will be awarded unless all requirements are fulfilled and recorded within 30 days after the official ending date of each term.

Sample degree plan

Below is a sample degree plan that can be used as a guide to identify courses required to fulfill the major and other requirements needed for degree completion. A student's actual degree plan may differ depending on the course of study selected (second major, minor, etc.). Also, this sample plan assumes readiness for each course and/or major plan, and some courses may not be offered every term. Review the course descriptions or the class timetable (<http://www.uwlax.edu/Records/registration/>) for course offering information.

The sample degree plans represented in this catalog are intended for first-year students entering UWL in the fall term. Students should use the Advisement Report (AR) in WINGS (<https://wings.uwlax.edu/psprod/?cmd=login&languageCd=ENG&>) and work closely with their faculty advisor(s) and college dean's office to ensure declaration and completion of all requirements in a timely manner.

General Education Program

The general education curriculum (Gen Ed) is the common educational experience for all undergraduates at UWL. Sample degree plans include Gen Ed placeholders to ensure completion of the general education requirements. Courses may be rearranged to fit the needs or recommendations of the student's program of study. Gen Ed courses may be taken during winter term (January between the semesters) and summer to reduce the course load during regular terms (fall and spring). Students should consult with their advisor and/or the college academic services director in their college/school for assistance with course and schedule planning. Refer to the general education requirements (<http://catalog.uwlax.edu/undergraduate/generaleducation/>) for more specific details.

At least 40 credits of the 120 credits required must be earned at the 300/400-level.

Note: New students and transfer students with 15 or fewer credits earned are required to take FYS 100 First-Year Seminar (3 cr.) during one of their first two semesters at UWL.

This sample degree plan does not establish a contractual agreement. It identifies the minimum requirements a student must successfully complete, to qualify for a degree, in a format intended to assist the student in planning their academic career. Actual degree plans may differ.

| Year 1 | | | |
|---|-----------|------------------------------------|-----------|
| Fall | Credits | Spring | Credits |
| EDS 203 (Gen Ed Self & Society) | 3 | EDS 206 (Gen Ed Minority Cultures) | 3 |
| FYS 100 (Gen Ed First-Year Seminar) | 3 | CST 110 (Gen Ed Literacy-Oral) | 3 |
| PHY 497 | 1 | PHY 204 or 104 | 4 |
| MTH 207 (Gen Ed Math) | 5 | MTH 208 (Gen Ed Math) | 4 |
| PHY 203 or 103 (Gen Ed Natural Lab Science) | 4 | Gen Ed Arts | 2-3 |
| | 16 | | 16 |

| Year 2 | | | |
|--|-----------|--------------------------------------|-----------|
| Fall | Credits | Spring | Credits |
| PHY 305 | 3 | PSY 212 | 3 |
| EDS 309 | 3 | BIO 105 (Gen Ed Natural Lab Science) | 4 |
| CHM 103 | 5 | PHY 306 | 3 |
| ENG 110 or 112 (Gen Ed Literacy-Written) | 3 | CHM 104 | 5 |
| University Elective | 1 | PHY 497 | 1 |
| | 15 | | 16 |

| Year 3 | | | |
|---|-----------|--|-----------|
| Fall | Credits | Spring | Credits |
| SPE 200 | 3 | PHY 454 | 2 |
| BIO 203 | 4 | PHY 451 | 2 |
| GEO 200 (Gen Ed Global Studies) | 3 | ESC 101 | 4 |
| PHY 311 | 2 | PHY Elective | 3 |
| Gen Ed World History | 3 | Gen Ed Humanistic Studies | 3 |
| Apply for admission to SOE ¹ | | Apply for Field Experience II ² | |
| Apply for Field Experience I ² | | Apply for Student Teaching ³ | |
| | 15 | | 14 |

| Year 4 | | | |
|----------------------------|---------|--|---------|
| Fall | Credits | Spring | Credits |
| PHY 455 | | 2 All course requirements and other benchmarks must be completed prior to student teaching. ⁴ | |
| PHY 452 | 2 | EDS 492 | 1 |
| PHY 155 or 160 | 4 | EDS 496 | 11 |
| Gen Ed Health & Well-Being | 3 | | |
| Gen Ed Arts | 2-3 | | |

| | | |
|--------------|-----------|-----------|
| PHY Elective | 3 | |
| | 16 | 12 |

Total Credits: 120

- See the SOE admissions website (<https://www.uwlax.edu/soe/undergrad/admission-to-soe/>) for complete admission and application details. Students will be required to complete a criminal background check (<http://catalog.uwlax.edu/undergraduate/education/#criminal-background-check>) at the time of application for admission.
- Students applying for field and student teaching placements will be asked to disclose any criminal charges (<http://catalog.uwlax.edu/undergraduate/education/#disclosure-past-offenses>).
- Students must apply for student teaching (<https://www.uwlax.edu/soe/field-and-student-teaching-experience/for-teacher-candidates/>) through the Office of Field Experience one year prior to the student teaching semester.
- For more information, please see the Student Teaching and Internship Policy (<http://catalog.uwlax.edu/undergraduate/education/#student-teaching>).