

Physics Major with Optics Emphasis - Bachelor of Science (BS)

Major requirements

(All colleges, excluding teacher certification programs)

40 credits (57 total credits including MTH)

Code	Title	Credits
Core		
PHY 203 or PHY 103	General Physics I ¹ Fundamental Physics I	4
PHY 204 or PHY 104	General Physics II ¹ Fundamental Physics II	4
PHY 305	General Physics III	3
PHY 306	Modern Physics	3
PHY 308	Optics	3
PHY 311	Experimental Physics	2
PHY 321	Classical Mechanics	3
PHY 332	Electrodynamics	3
PHY 334	Electrical Circuits	3
PHY 343	Thermodynamics	3
PHY 401	Quantum Mechanics	3
PHY 491	Capstone in Physics	1
PHY 498	Physics and Astronomy Research (with a project in optics)	3
Electives		
Electives in physics at the 300/400-level. PHY 476 is recommended.		2
Total Credits		40

Code	Title	Credits
Prerequisite coursework		
MTH 207	Calculus I	5
MTH 208	Calculus II	4
MTH 308 or MTH 309	Linear Algebra with Differential Equations Linear Algebra	4
MTH 310	Calculus III: Multivariable Calculus	4
Total Credits		17

¹ PHY 203 and PHY 204 preferred.

Degree requirements

All students must complete the general education, college core, 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/>)

- College core (p. 1)
- Baccalaureate degree requirements (p. 1)

College of Science and Health (CSH) Bachelor of Science core requirements

B.S. and B.A. students graduating from the College of Science and Health are required to take two natural laboratory science courses selected from the general education laboratory science category (GE 05) and/or from BIO 203, BIO 304, BIO 210, CHM 104, ESC 221, ESC 222, PHY 104 or PHY 204, and they either must take two mathematics courses or one math course and one computer science course from the math/logical systems category of the general education requirements (GE 02). One of the two science courses must be from a department outside of the student's major department.

Note: Math courses can be pairs, i.e. 150 and 151; MTH/CS majors can use two science courses from same department.

For the Bachelor of Science degree, in addition to all other College of Science and Health core requirements, students from non-exempted programs¹ must complete one of the following options. It is recommended that courses are selected in consultation with students' academic advisor.

1. Complete a second major; or
2. Complete a minor outside the major; or
3. Complete an individualized option, consisting of 18 credits
 - a. At least 12 credits must be earned at the 300/400 level outside the major department.
 - b. The remaining six credits should come from
 - i. 100 level or higher courses outside the major (General education courses may apply provided they are not being used to fulfill minimum general education requirements.); or
 - ii. 300/400 level courses inside major not being used to fulfill major requirements.
 - c. Internship credits may not count toward the individualized option.

¹ The list of exempted CSH programs is below.

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}

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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/psp/csprod/?cmd=logins&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
PHY 203 or 103		4 PHY 204 or 104	4
PHY 497		1 PHY 497	1
MTH 207 (Gen Ed Math)		5 MTH 208 (Gen Ed Math)	4
ENG 110 (Gen Ed Literacy-Written)		3 CST 110 (Gen Ed Literacy-Oral)	3
Gen Ed Arts		2-3 FYS 100 (Gen Ed First-Year Seminar)	3
		15	15

Year 2			
Fall	Credits	Spring	Credits
PHY 305		3 PHY 306	3
Gen Ed Minority Cultures		3 PHY 334	3
MTH 308 or 309		4 MTH 310	4
Gen Ed Self & Society		3 Gen Ed Global Studies	3
Gen Ed Arts		2 University Elective	3
		15	16

Year 3			
Fall	Credits	Spring	Credits
PHY 311		2 PHY 332	3
PHY 321		3 PHY 343	3
PHY 308		3 Gen Ed Humanistic Studies	3
CSH Core (300/400 not PHY) or Minor		3 CSH Core (300/400 not PHY) or Minor	3
Gen Ed Health & Well-Being		3 University Elective	3
		14	15

Year 4			
Fall	Credits	Spring	Credits
PHY 401		3 PHY 491	1
PHY 498 (Optics project 3 cr total)		1-3 PHY 498 (Optics project 3 cr total)	1-3
PHY 476 (or 300/400-level PHY elective)		3 CSH Core or Minor ¹	3
Gen Ed Natural Lab Science (not PHY)		4 University Elective	3
CSH Core or Minor ¹		3 University Elective	4
		Gen Ed World History	3
		15	15

Total Credits: 120

¹ See CSH BS Core Requirements (<http://catalog.uwlax.edu/undergraduate/scienceandhealth/#Core>) for information on completing the individualized option. 300/400 requirements for graduation may be impacted.