

BACHELOR OF SCIENCE/BACHELOR OF ARTS IN **PHYSICS**

OVERVIEW

At a time of increasing demand for individuals who are literate in science and technology, Lewis University's physics program has remained strong. Lewis is one of the few smaller universities in the Chicago area that continues to offer an undergraduate degree in physics. Each year the Lewis Physics Department serves 115 - 140 students pursuing degrees in physics, physics education, aviation, as well as pre-engineering, chemistry, biology and mathematics.

CAREER OPTIONS

Physics is the foundation for all of the sciences and has produced the technology behind the recent striking advances in genetics, computer science, and cosmology. In addition to providing the basis for advanced studies in physics, an undergraduate degree in physics opens the door to careers in engineering, computer science, mathematics, radiography, actuarial science, patent law, management, medicine, astronomy, the nuclear industry, and education.

HIGHLIGHTS

Lewis University operates four physics labs that expand students' learning opportunities in the physics program. These labs include:

- Elementary Laboratory Physics - a course designed to introduce students to the underlying structure of the world through a series of experiments in mechanics, heat and light.
- General/College Physics Laboratory - supports the first-year course in physics, allowing students to perform experiments in mechanics, heat, sound, electricity, magnetism, and light.
- Electronics Laboratory - supports the study of analog and digital electronic circuits and the instrumentation used in scientific research.
- Advanced Experimental Physics - provides students with the opportunity to measure some of the fundamental constants in physics while probing the behavior of matter at the atomic level.

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PROGRAM REQUIREMENTS

All Physics majors must earn a grade of C or better in a prerequisite physics course in order to advance to the next course in a sequence. In addition, they must maintain a minimum GPA of 2.0, both within the major and overall in order to complete the degree.

BACHELOR OF SCIENCE/PHYSICS

Total Credit Hours: 128
Major Credit Hours: 62-69

I. Core Courses (52)

13-200 Calculus I (4)
13-201 Calculus II (4)
13-250 Calculus III (4)
13-300 Differential Equations (4)
17-210 General Physics I (4) and 17-211 Lab (1)
17-215 General Physics II (4) and 17-216 Lab (1)
17-240 Introduction to Modern Physics (4)
17-300 Mechanics (4)
17-310 Electricity and Magnetism (4)
17-340 Modern Physics (4)
17-400 Advanced Experimental Physics Lab (4)
70-180 Computer Programming (3)
70-200 Computer Science I: Programming and Algorithm Design (3)

II. Select three from the following:

17-220 Electronic Circuits (4)
17-225 Digital Electronics (4)
17-320 Solid State Physics (3)
17-331 Thermodynamics (3)
17-350 Optics (3)
17-360 An Introduction to Dynamic Meteorology (3)
17-410 Nuclear Physics (3)
17-470 Research (2)
17-475 Research (4)
17-498 Special Topics in Physics (3)
17-499 Independent Study (1-4)

III. Select one from the following:

03-110 General Chemistry I (4) and 03-111 Lab (1)
13-275 Linear Algebra (4)
13-350 Numerical Analysis (4)
13-360 Advanced Calculus I (4)
13-430 Complex Variables (4)

IV. The advanced writing requirement is satisfied for Physics majors by successful completion of Modern Physics (17-340) and Advanced Experimental Physics Lab (17-400).

BACHELOR OF ARTS/PHYSICS

Total Credit Hours: 128
Major Credit Hours: 45-46

I. Core Courses (45-46)

13-200 Calculus I (4)
13-201 Calculus II (4)
13-250 Calculus III (4)
13-300 Differential Equations (4)
17-210 General Physics I (4) and 17-211 Lab (1)
17-215 General Physics II (4) and 17-216 Lab (1)
17-240 Introduction to Modern Physics (4)
17-300 Mechanics (4)
17-310 Electricity and Magnetism (4)
17-340 Modern Physics (4)
17-400 Advanced Experimental Physics Lab (4)
OR
70-180 Computer Programming (3)
OR
70-200 Computer Science I: Programming and Algorithm Design (3)

II. The advanced writing requirement is satisfied for Physics majors by successful completion of Modern Physics (17-340) and Advanced Experimental Physics Lab (17-400).

PHYSICS TRANSFER DEGREE

The Physics Transfer Degree Program offers students the opportunity to transfer from a community college and complete a Bachelor of Science in Physics at Lewis. Requirements include an Associate's Degree in Electronics from an approved community college, or a two-year degree in Non-Destructive Evaluation from Moraine Valley Community College.

BACHELOR OF SCIENCE/PHYSICS TRANSFER DEGREE

Total Credit Hours: 128
Major Credit Hours: 49

I. Core Courses (49)

- 13-200 Calculus I (4)
- 13-201 Calculus II (4)
- 13-250 Calculus III (4)
- 13-300 Differential Equations (4)
- 17-210 General Physics I (4) and 17-211 Lab (1)
- 17-215 General Physics II (4) and 17-216 Lab (1)
- 17-240 Introduction to Modern Physics (4)
- 17-300 Mechanics (4)
- 17-310 Electricity and Magnetism (4)
- 17-340 Modern Physics (4)
- 17-400 Advanced Experimental Physics Lab (4)
- 70-200 Computer Science I: Programming and Algorithm Design (3)

If any of the Calculus or General Physics courses have been completed at the community college, they need not be repeated at Lewis.

II. The advanced writing requirement is satisfied for Physics majors by successful completion of Modern Physics (17-340) and Advanced Experimental Physics Lab (17-400).

III. For General Education requirements for transfer students, see the Chair.

MINOR IN PHYSICS

Minor Credit Hours: 29-30

I. Core Courses (22)

- 13-200 Calculus I (4)
- 13-201 Calculus II (4)
- 17-210 General Physics I (4) and 17-211 Lab (1)
- 17-215 General Physics II (4) and 17-216 Lab (1)
- 17-240 Introduction to Modern Physics (4)

II. Select two from the following: (7-8)

- 17-300 Mechanics (4)
- 17-310 Electricity and Magnetism (4)
- 17-320 Solid State Physics (3)
- 17-331 Thermodynamics (3)
- 17-340 Modern Physics (4)
- 17-350 Optics (3)

LEWIS PHYSICS GRADUATES

Lewis physics graduates conduct internationally significant research at Argonne National Laboratory. Eleven physics graduates (from 1989 - 2001) hold teaching, faculty and administrative positions in area high schools and universities.

LEWIS GRADUATES TALK PHYSICS

"Analytical skills and an ability to 'abstract' - develop simplified, analyzable models that can be used to assist in decision-making, make an individual with a background in physics valuable even in roles normally reserved for those with engineering degrees. A physics graduate can bring a breadth of knowledge and versatility to the design and manufacturing, engineering environments that few can match."

Arvid C. Johnson (B.S. Physics 1985)

LEWIS AT A GLANCE

OUTSTANDING ACADEMIC CHOICES

- Liberal education and professional preparation
- Approximately 65 undergraduate majors and programs of study
- 14 graduate programs
- Certificates of advanced study
- Nationally recognized Scholars Academy honors program

ACCREDITATION

- The Higher Learning Commission and a member of the North Central Association
- National Council for Accreditation of Teacher Education (NCATE)
- Teacher education approved for entitlement by the Illinois State Board of Education in conjunction with the Illinois State Teacher Certification Board
- College of Nursing and Health Professions' basic professional program approved by the State of Illinois Department of Professional Regulation
- Commission on Collegiate Nursing Education full approval
- Federal Aviation Administration approval (FAA)

WELCOMING CAMPUS

- Main campus in Romeoville, Illinois
- Located on a 376-acre picturesque setting
- Ten residence halls within walking distance of classes
- Safe campuses with free parking
- Campuses in Oak Brook, Shorewood, Hickory Hills and Tinley Park
- Universal Internet access

ENROLLMENT

- Nearly 5,000 students including 1,500 graduate students
- International students from 30 different countries, 30 percent minority population
- Approximately 60 percent Roman Catholic

STUDENT LIFE

- More than 40 clubs and organizations
- 18 intercollegiate NCAA Division II athletic teams
- Theatre and performing arts
- Opportunities for volunteerism and Peer Ministry

FINANCIAL AID

- More than 85 percent of new incoming students receive some aid
- Over \$11 million institutional money awarded annually
- Aid based on need, financial merit or academic achievement
- Additional funding from federal, state and private agencies totaling \$30 million

MISSION STATEMENT

Lewis University, guided by its Catholic and Lasallian heritage, provides to a diverse student population programs for a liberal and professional education, grounded in the interaction of knowledge and fidelity in the search for truth. Lewis promotes the development of the complete person through the pursuit of wisdom and justice. Fundamental to its Mission is a spirit of association which fosters community in all teaching, learning and service.



Visit www.lewisu.edu for more information.