Ildefonso Guilaran (2008). Professor of Physics and Department Chair. B.S., Western Kentucky University; M.S. and Ph.D., Florida State University.

Geoffrey Poore (2010). Professor of Physics. B.A., Wheaton College; M.S. and Ph.D., University of Illinois.

David A. Ward (1992, 1999). Professor of Physics, B.S. and M.A., University of South Florida; Ph.D., North Carolina State University.

Amy Eads (2022). Academic Secretary—Engineering, Physics, Math, and Computer Science.

The programs offered by the Department of Physics are designed to help students understand the physical world by examining the laws which describe the interactions throughout the universe, the methods by which the cosmos can be studied, and the relationship of physics to other aspects of human experience. The department offers courses that effectively serve all students within the institution, recognizing that each student's needs and career goals may be different. The curriculum is designed to provide content of the appropriate level and diversity for students classified as physics majors/minors, non-science majors, engineers, pre-professionals, and those preparing for a teaching career in secondary school. The faculty endeavor to create an atmosphere in which students are challenged to acquire problem-solving skills using advanced mathematics and modern methods in science. Students are encouraged to develop in-depth analytical skills and an attitude of scientific curiosity while maintaining a Christian worldview. In summary, the physics curriculum provides liberal arts students with a working knowledge of science and meets the career needs of students who wish to:

- pursue a teaching career in elementary or secondary school;
- enter engineering, one of the health professions, or an

Major in Physical Science—44 hours

A. CHE 111, 112, 113, 211, 221—15 hours
B. PHY 112, 231-32, 311, 310 or 301—22 hours
C. Upper Level Electives from CHE and PHY—7 hours; maximum 1 hour from 424 and 1 from 498

III. Major in Physics with Discipline-Specific Honors

Students who are pursuing a major in physics have the option of completing an honors program in the discipline. Students who are interested in this Honors program should refer to the general requirements for Discipline-Specific Honors (DSH) as well as the requirements for the program in physics below:

- To apply for admission to PeS TJ EMC /P <</Lang (en-US)/M and a talk which will be evaluated by departmental faculty and must meet high standards of excellence. The department maintains a rubric for evaluating these. The research must be presented at the Union University Scholarship Symposium or its successor. The student must make a good faith effort to present the research at a regional or national meeting.

  – The remaining nine credit hours of upper-division honors contract must be above PHY 311 and have a minimum prerequisite of PHY 232.
  – Honors contract work will consist of writing a review article on a relevant topic, preparing and giving one or more presentations on relevant topics, completing

213-4. Introduction to Physics (4) 213—F, Su; 214—S, Su
Prerequisite: MAT 111 and 112, or 116.
The first semester involves the study of classical mechanics, wave motion, fluid flow, sound, temperature, and heat. The second involves the study of electricity, magnetism, light, optics, and modern physics. Cannot be used as a PHY Elective toward majors/minors. Three lectures, one 3-hour laboratory/week.

231-2. University Physics I, II with Calculus (5) 231—F, S; 232—F, S
Prerequisite to 231: MAT 211. Pre- or Corequisite to 232: MAT 212.
The first semester involves the study of classical mechanics, wave motion, fluid flow and sound. The second involves the study of temperature and heat, electricity, magnetism, light and optics. Four lectures, one laboratory/week.

262. Electrical and Electronic Circuits (4)
Prerequisite: PHY 232 and MAT 212. Reciprocal -M5n -0

430. Experimental Physics Laboratory (3)
Prerequisites: PHY 311 and MAT 213.
Modern experimentation, research, data acquisition and analysis. The theory, practice and reporting of research in a scientific format are demonstrated through experiments in atomic, nuclear, solid state, thermodynamics, and optics. One lecture, 4 lab hours/week.

498. Seminar (1-3) S
Prerequisite: 20 hours of physics and junior/senior standing. Skills in scientific and technical presentations, written and oral, will be polished. To be used at the discretion of the department for majors/minors only.

179-279-379-479. External Domestic Study Programs (1-3) As Needed
All courses and their applications must be defined and approved prior to registering.

179PF-279PF-379PF-479PF. External Domestic Study Programs (Pass/Fail) As Needed
All courses and their applications must be defined and approved prior to registering.

180-280-380-480. Study Abroad Programs (1-4) As Needed
All courses and their application must be defined and approved prior to travel.

180PF-280PF-380PF-480PF. Study Abroad Programs (Pass/Fail) As Needed
All courses and their applications must be defined and approved prior to travel.

195-6-7. Special Studies (1-4) On Demand
295-6-7. Special Studies (1-4) On Demand
Lower-level group studies which do not appear in the regular departmental offerings.

395-6-7. Special Studies (1-4) On Demand
Upper-level group studies which do not appear in the regular departmental offerings.

495-6-7. Independent Study (1-4) On Demand
Individual study under the guidance of a faculty member(s).

498-9. Seminar (1-3) As Needed
To be used at the discretion of the department.