**Applied Physics Courses**

**APPLIED PHYSICS**

L.MAT-150: Calculus of One Variable I-FM
A study of the basic concepts and techniques of analytic geometry, differential and integral calculus of functions of one variable, and applications to calculus-based models.

**Prerequisite:** Demonstrated competency in L.MAT-117 or equivalent or placement into L.MAT 150. 4 credits.

L.MAT-160: Calculus of One Variable II
Further study of the integral calculus of functions of one variable and an introduction to sequences, series, and differential equations.

**Prerequisite:** L.MAT-150 or equivalent. 4 credits.

L.PHY-208: Astronomy-AH
This course engages students in an exploration of the utility of scientific models in interpreting the vast complexity in the observable universe. The scientific models are developed through student-centered observations and explorations. The objectives of this course are to promote quantitative as well as qualitative skills in the study of celestial observations and motions, the analysis of astrophysical spectra, comparative planetary geology, and the structure of stars and galaxies as well as their genesis and evolution.

**Prerequisites:** L.LIB-100, L.LIB-105, L.LIB-110, and a Mathematical Modeling (-FM) course. 4 credits.

L.PHY-223: Physics for Scientists & Engineers I-QR
Introductory calculus-based physics that satisfies requirements for programs in the mathematical, engineering, chemical and physical sciences. Topics include mechanics, heat, and sound. Four class periods and one three-hour laboratory period per week.

**Prerequisite:** L.MAT-150 (co-requisite optional), L.MAT-160. Corequisite: L.PHY-290. 5 credits.

L.PHY-224: Physics for Scientists & Engineers II
A continuation of L.PHY-223. Introductory calculus-based physics that satisfies requirements for programs in the mathematical, engineering, chemical and physical sciences. Topics include electricity, magnetism and optics, as well as introductory quantum, atomic and nuclear physics. **Prerequisites:** L.PHY-223; L.MAT-160. Corequisite: L.PHY-291. Four class periods and one three-hour laboratory period per week. 5 credits.

L.PHY-290: Physics Lab I-QR
Three-hour laboratory course to accompany L.PHY-210 and L.PHY-223. Students work in groups to conduct experiments designed to help understanding of lecture material. Must be taken with concurrently with the lecture class.

**Corequisite:** L.PHY-210 or L.PHY-223. 0 credits.

L.PHY-291: Physics Lab II-QR
Three-hour laboratory course to accompany L.PHY-211 and L.PHY-224. Students work in groups to conduct experiments designed to help understanding of lecture material. Must be taken concurrently with the lecture class.

**Corequisite:** L.PHY-211 or L.PHY-224. 0 credits.

L.PHY-331: Modern Physics
A discussion of the modern knowledge of the nature and properties of electrons, photons, atoms and molecules. Topics include the fundamental experiments of quantum physics, atomic spectra and structure, special relativity, and an introduction to quantum mechanics.

**Prerequisites:** L.PHY-224 and L.MAT-260. 3 credits.
L.MAT-260: Analytic Geometry & Calculus III
A study of partial differentiation and multiple integration, elementary vector analysis and applications of these concepts. **Prerequisite:** L.MAT-160 or placement into L.MAT-260. 4 credits.

*Continue to next page for minor requirement*
Loras College Applied Physics Degree Requirements:

L.PHY-223-L.PHY-224 or equivalent is a prerequisite for all courses numbered 300 or higher.

Requirements for the minor in Applied Physics:

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<td>L.MAT-150: Calculus of One Variable I</td>
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<td>L.MAT-160: Calculus of One Variable II</td>
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<td>L.MAT-260: Analytic Geometry and Calculus III</td>
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29 total required credits