NANO 3301 Introduction to Nanoscience and Nanotechnology

Course Prerequisites
CHEM 1311 General Chemistry I
CHEM 1312 General Chemistry II
MATH 2417 Calculus I
MATH 2419 Calculus II
PHYS 2325/3341 Mechanics and Heat /Physics for Bio Science I
PHYS 2326/3342 Electromagnetism & Waves/Physics for Bio Science II

Course Description
Introduction to the underlying principles and applications of the emerging field of nanotechnology and nanoscience. Intended for a multidisciplinary audience with a variety of backgrounds. Introduces tools and principles relevant at the nanoscale dimension. Discusses current and future nanotechnology applications in engineering, materials, physics, chemistry, biology, electronics and energy.

Student Learning Objectives/Outcomes
The student should be able to:

- Demonstrate a working knowledge of nanotechnology principles and industry applications.
- Explain the nanoscale paradigm in terms of properties at the nanoscale dimension.
- Apply key concepts in materials science, chemistry, physics, biology and engineering to the field of nanotechnology.
- Identify current nanotechnology solutions in design, engineering and manufacturing.
- Search, read and present current nanotechnology literature applied to a particular problem domain.
- Explain the history of nanotechnology and where the field may evolve over the next 10 to 15 years.
- Identify societal and technology issues that may impede the adoption of nanotechnology.
- Identify career paths and requisite knowledge and skills for career change toward nanotechnology.