

Senior Comprehensive Evaluation

Department of Physics
Manchester College

The *Senior Comprehensive Evaluation* for **Physics Majors** will have two parts, a portfolio and an oral/written examination:

1. Portfolio

Each physics major will present a portfolio containing a record of personal achievements. It will contain:

- a) five well organized, neatly written problem solutions selected from five different physics courses to display problem solving skills.
- b) three exemplary physics laboratory reports to represent writing skills.
- c) a personal resume with information to use in applications for physics-related career positions or graduate school programs.
- d) other items chosen by the student, such as a senior honors thesis, a physics course examination, or a physics paper presented at a meeting of the local, regional or national Society of Physics Students, the Natural Science Division Seminar, the American Association of Physics Teachers - Indiana Section, the Indiana Academy of Science, or another appropriate and comparable forum.

American Institute of Physics publications will be used as models of writing styles.

2. Oral/written examination

During the academic year immediately prior to graduation, and not less than one week after the portfolio is received, an examination will be scheduled by the physics faculty at a mutually agreeable time. First, the student will respond orally to questions pertaining to fundamental topics of the physics curriculum and to the portfolio. Afterwards, the student will take a written examination intended to assess his/her problem solving skills in four fundamental areas of physics: Newton's laws and the conservation of energy, the laws of thermodynamics, Maxwell's equations, and modern physics. The oral exam will last about one-half of an hour while the written part will take about one hour to complete. Evaluation will be based on:

- a) clarity of written and oral expression,
- b) ability to answer questions concerning contents of the portfolio, and
- c) proficiency with the basic principles of physics.

The examinations will be graded pass/not pass. Opportunities to retake the exams will come at not less than one month intervals, and will always include additional requirements intended to strengthen the portfolio and problem-solving skills of the student.