

# PHYSICS (PHYS)

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## **PHYS 52100 Quantum Mechanics (LA)**

Advanced study of the nature of quantum theory and how it differs from classical ideas. Topics include the uncertainty principle, the Schrödinger equation and solutions to various potentials, perturbation theory, and the one-electron atom. Prerequisite: Graduate student in good standing or permission of instructor. (IRR)

3 Credits

## **PHYS 54000 Inquiry and the Nature of Science for the Science Teacher**

Considers issues pertaining to the nature and practice of science, especially as they relate to science education. Explores aspects that distinguish scientific inquiry from other forms of inquiry. Examines safety issues of teaching science in a classroom, and teaching science in the context of the community. Cross-listed with BIO 54000, CHEM 54000, and ENVS 54000. Students can receive credit for only one of: BIOL 54000, CHEM 54000, ENVS 54000, and PHYS 54000. Prerequisites: Graduate student in good standing. (IRR)

3 Credits

## **PHYS 54100 Science Topics Every Science Teacher Should Know (LA)**

Review of the major science topics all science teachers should know as recommended by the National Science Teachers Association. Cross-listed with BIOL 54100, CHEM 54100, and ENVS 54100. Students can receive credit for only one of: BIOL 54100, CHEM 54100, ENVS 54100, PHYS 54100. Prerequisite: Graduate student in good standing. (F, Y)

3 Credits

## **PHYS 55100 Advanced Experimental Laboratory (LA)**

Graduate students are expected to gain a thorough understanding of several experiments carried out during the term rather than to complete a large number of small projects. Emphasis is placed on independent work. Available experiments include nuclear techniques, gamma ray spectroscopy, and the Mossbauer effect. Prerequisite: Graduate student in good standing or permission of instructor. (S,E)

3 Credits

## **PHYS 57000 ST: Advanced Physics (LA)**

Advanced study of topics chosen based on faculty and student interests; topics may include advanced astronomy, environmental science, geophysics, and physics topics such as atomic, condensed matter, nuclear, and optical physics. This course may be repeated for credit for selected topics on different subjects. Prerequisite: Graduate student in good standing or permission of instructor. (IRR)

3 Credits

## **PHYS 69600 Independent Study in Physics**

One-semester course in which a student may pursue a topic of interest in physics, supervised by a member of the department. Offered on demand only. May be repeated for credit, up to a maximum of 6 credits. Prerequisite: Permission of instructor. (IRR)

3-6 Credits

## **PHYS 69800 Education Research for the Science Teacher (LA)**

Original research participation with a science education faculty member. Designed to strengthen student understanding of science education research methodology and the science education research literature. Cross-listed with BIOL 69800, CHEM 69800, and ENVS 69800. Students can receive credit for only one of: BIOL 69800, CHEM 69800, ENVS 69800, PHYS 69800. Offered on demand only. Prerequisite: Graduate student in good standing. (SU, IRR)

3 Credits

## **PHYS 69900 Independent Research in Physics**

Original research participation with a faculty member in a specialized field. Designed to strengthen the student's understanding of the nature of science, science research methodology, and the scientific literature. Course may be repeated for credit, up to a maximum of 6 credits. Offered on demand only. Prerequisite: Permission of instructor. (IRR)

3-6 Credits