PHY 346 – Spring 2008
For Middle Childhood Education Majors Only

PHY 346 4.5 credits T, Th 4:10 – 7:00 PM Fawcett Hall, Room 201
Instructor: Dr. Beth Basista Room 259 Fawcett 775-2954 beth.basista@wright.edu **Office Hours:**
T, Th 3:00 - 4:00 PM, or by appointment
Student Teaching Assistant: TBA Email _____

Pre-requisite: Math 243,244, Physics 246 (Course is for middle childhood science concentration majors only.)

Text: *The Physics of Everyday Phenomena, 4th Edition, by Griffith (from PHY 246)*

Course Description: This course has been designed specifically for pre-service teachers. A small number of important introductory topics are covered in depth, with an emphasis on concept development and the development of reasoning skills necessary to perform scientific inquiry. The topics covered are: Optics, Electric Circuits, and Waves. The textbook is the one used for PHY 246 and it will be used as reference to support concepts taught in class. The lab manual will consist of handouts distributed in class. The lab manual involves hands-on/ minds-on laboratory-based activities, inquiry-oriented instructional strategies, intensive study of a few basic physical concepts, equal emphasis on physics content and scientific process, and addresses common student difficulties and misconceptions.

Goals: The goals of this course are:

a. to develop a sound understanding of basic physical concepts and the scientific reasoning skills necessary to apply these concepts to everyday life
b. to serve as a model for the techniques of inquiry-based instruction and assessment
c. to develop pedagogical content knowledge of how students learn, typical student misconceptions, and structure of the discipline

Attendance/Participation: Due to the nature of this course, attendance is required. To further encourage regular attendance, a portion of the final grade is devoted to this. Students missing more than 4 classes will lose all participation points and may be asked to drop (this will be handled on a case-by-case basis). The class will be divided into cooperative learning groups. The members of the groups will work together to perform experiments and exercises, with each member recording the results and answers to questions in their own lab manual. Assessment of classroom participation will be based on work completed in the manuals and on the checkpoint discussions of the activities with the instructor. In the case of a documented illness or emergency, students may make up a class by arrangement with instructor. Cell phones and text messaging are not permitted to be used in the classroom.

Evaluations: Tests will be scattered throughout the term. The evaluations will be based on scientific reasoning, rather than the memorization of facts and formulas. Pop quizzes may be administered at the discretion of the instructor. These quizzes usually have credit worth approximately one homework grade. Performance activities are designed to assess your abilities, either individually or in a group, to "do" science and will be given twice during the quarter.

Homework: Homework assignments may be assigned each class and will be due the following class period unless a student is absent. Students who are absent must turn in homework when they return to class. Points will be deducted for late homework (half credit if one class late, no credit thereafter).

Weighted Grade Distribution	**Percent**
Attendance/Participation	10%
Group Performance Activities	10%
Homework	20%
Exams 1 and 2	30%
Comprehensive Final	30%

Grading Scale:
A (90% and above)
B (80%-89%)
C (70%-79%)
D (60%-69%)
F (59% and under)

Tentative Course Schedule:
Week 1-4: Intro; Pre-test on optics; Optics; Performance Activity; Posttest Optics
Week 5-7: Pre-test waves; Waves; Posttest Waves
Week 8-10: Pretest Electricity/ Magnetism ; Electricity/Magnetism; Performance Activity; Posttest Electricity/ Magnetism

Comprehensive Final Exam:
TBA

Student Code of Ethics - Please understand the policies of the university. They will be adhered to in this course.

Communication: Please note that although email is convenient, it is NOT a reliable way to communicate with your instructor. Frequently, emails are blocked, take a long time to come through, bounce back to you due to "over quota" situations, or end up in spam, even if you are on the approved list. Please call, stop by during office hours, or communicate during class session.