

Syllabus for Physics 5072 (1-2 cr):
Best Practices in College Physics Teaching
1:25-2:15 PM Friday, Tate (236A), Fall 2006

I. Instructors:

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II. Course Description

The first semester of Physics 5072 is designed to address teaching issues of first-year teaching assistants (primarily physics graduate students but also select undergraduates). The course focuses on helping you to be prepared for the classes you teach. In addition, it will address teaching methods and classroom problem-solving to help you build more confidence in your teaching ability. Course activities include experimentation with lab equipment for the upcoming week's laboratory problems, with problem-specific peer discussions and occasional instructor-guided discussions of common classroom issues. Participants will be required to complete the pre-lab warm-up questions prior to experimenting with laboratory equipment, and to keep a laboratory notebook of their data and teaching comments. In addition, an instructor will make observations of each participant's discussion and lab sections. These observations are designed to give the TA feedback on teaching methods. If a problem is identified, one of the mentor TA's will work with you to resolve it. However, if the problem is not corrected in a timely manner despite help from a mentor TA, the poor teaching could result in a lower grade for this course (sometimes significantly lower.)

III. Course Materials

All course participants should bring to each class session:

- Lab Notebook (contains your notes, data, and graphs).
- Lab Manual for the course you are teaching
- Instructor's Guide to the Lab Manual for your course

IV. Course Objectives and Goals

Goals for participants:

- Become familiar with laboratory problems for the course you teach
- Practice working with lab equipment
- Develop more confidence in personal teaching ability
- Address difficult teaching situations by discussing them with peers

Specific objectives for participants:

- Recognize and address student misconceptions
- Identify potential teaching opportunities during laboratory session
- Use peers as resources for overcoming teaching challenges

V. Grading Policies

Attendance 25%

WUQ 40%

Lab/Discussion preparation sheets 10%

Data Journal 25%

If you have conflicts and cannot attend the seminar, please notify the instructor in advance.

Note: Below 65% is an F, or “N” if registered as S/N.

Grade
$A \geq 95\%$
$95\% > A- \geq 90\%$
$90\% > B+ \geq 85\%$
$85\% > B \geq 80\%$
$80\% > B- \geq 75\%$
$75\% > C+ \geq 70\%$
$70\% > C \geq 65\%$
...

VI. Assignments

Most assignments are graded out of 3 points. A score of 3 means good, 2 for acceptable, 1 mediocre, and 0 for missing or unacceptable. The grading criteria are such that if you get “2” on the average – acceptable, you will get a C or S. Submit all assignments to the Mentor TA mailbox, located on the 2nd floor of Tate next to room 230.

1) Warm-up Questions & Prediction

- Completely answer WUQs and prediction for lab problems you will teach
- Due on the day of your latest lab for the week (before your students may start asking questions about them.) If you only teach one lab section, this means the Warm-up questions are due a week in advance. List the due date on your assignment when you submit it.
- Returned in 1-2 days

2) Laboratory Notebook

- Must be updated every week with lab data and teaching comments
- Due at least one day before you teach the lab (you should turn in a copy so that you don't have to rely on getting it returned before you teach.)
- Returned in 1-2 days

Laboratory Notebook

The primary purpose of the laboratory notebook is to record your observations (exploration) and data for your assigned lab problems for the following week. It is important for you to experience how to obtain good results and identify and note difficulties your students may have in obtaining good results. In addition, by taking time to critically reflect on the lab problem, you are able to identify opportunities to highlight misconceptions and teach correct physics. You must be prepared in advance to take full advantage of these opportunities.

Include your data output – charts, graphs, a spreadsheet, or whatever the lab calls for. It should be of the same quality that you expect of your students when they print output for their lab reports (except that you may take data points more sparsely than you expect your students to take).

After you have recorded your data, read the lab instructor's guide for the lab problem(s). Add to your notebook brief, useful comments, insights, or teaching suggestions you intend to implement. Also include tips and subtle points you learn from more experienced TA's on your team during the team meetings.