TA Orientation – Schedule and Syllabus
Fall 2010

Physics Graduate Student Orientation: August 23 – September 3
TA Orientation is August 26-September 3

This TA orientation is the first step in preparing you for your role as a TA. The goals of this course are to:

- Introduce you to some of the current research in learning and teaching;
- Show how we apply this research to classroom instruction at UMn;
- Help you develop some of the skills necessary for a successful experience as a teaching assistant in the introductory physics courses.
- Introduce you to ethics in research and coursework
- Provide information on resources available at the U for you and your students

Texts and Reading Materials

- Book: Teaching Physics with the Physics Suite by Redish
- Selected Readings –
- Lab Problems (LP) -
- Instructor's Handbook (IH) –
- Notebook of Activities
- Introductory Physics Text Book
- The Competent Problem Solver

Please remember to bring these materials to each TA orientation session.

Please note that your contribution to the teaching mission of the department is very important. You are expected to hand in the writing assignments described below. There will be short quizzes on the reading at the start of each session. The School of Physics and Astronomy requires that you successfully complete the TA orientation to continue as a TA.

2010 Schedule and Syllabus (continued)

Date	Orientation Topic	Readings & Homework (DUE on the date listed)
Mon 8/23	**Morning: Welcome Afternoon: Goals discussion;reception**	
Tuesday 8/24	**Morning: GWE Afternoon: Meet advisor**	Short written report on your first year goals and expectations of your adviser.
Wed 8/25	**Morning: GWE Afternoon: Safety training**	
Thurs 8/26	Prof. Yuichi Kubota **Morning:** Introduction to Being a TA **Afternoon:** Rationale for UMn Model for Teaching discussion sections and labs. Force Concept Inventory	**Reading**: ♦ Martinez, "Problem Solving" in the booklet, Selected Readings. ♦ Heller&Heller – What is Cooperative Problem Solving? (5.5 pages). Selected Readings. ♦ Book (Redish) Chapter 1 ♦ Instructor's Handbook: Introduction, Chap. 1 and Chap. 2 **Write:** (1) Three ideas from Redish that are new to you (2) Paragraph on cooperative group problem solving and your experiences with group work (3) What are you most concerned about in the TA duties? Activity #1
Fri 8/27	**Prof. C. Cattell**& mentor TAs **Morning:** What difficulties do students have learning the concepts and principles of physics? Why? **Afternoon:** Competent problem solving frameworks for students How do we teach labs (modeled by mentor TAs) and video clips	**Readings:** Selected Readings (Alternative Conceptions) • Wandersee, Mintzes, & Novak – Research on alternative conceptions in science, 177-183 & 185-191 • McDermott – Research on Conceptual Understanding in Mechanics • Hughes-How I misunderstood Newton's Third Law Book (Redish) • Chapter 2, 3 IH- Chap. 3 Activity #3&4

2010 Schedule and Syllabus (continued)

Date	Orientation Topic	Readings & Homework (DUE on the date listed)
Mon 8/30	**Morning:** **Ethics** (**Prof. Kapusta & Prof. Goldman**) **Afternoon:** **Prof. Mueller** &mentor TAs Expert and novice problem solving Modeling of discussion section by mentor TAs (GWE problem, 1301 problem)	**Readings:** Book (Redish) • Chapter 7 • Chapter 8 pg. 156-161 Selected Readings • Standards of Student Conduct – sections IV and V • Brown, Collins, & Duguid – Situated Cognition and the Culture of Learning, pages 32 & 37-42 (7 pages) • Heller&Heller – How do beginning students solve problems? Instructor's Handbook : Chap. 4 Activity #2

Date	Orientation Topic	Readings & Homework (DUE on the date listed)
Tues 8/31	**Morning:** Presentations on conflict resolution, counseling, health services **Afternoon:** Practice teaching Labs & Discussion	**Readings:** Instructor's Handbook : Chap. 5, sections I&III Selected Readings : • Heller,Keith and Anderson • Heller&Hollabaugh **Homework :** Prelab warm-ups/predictions, preparation for labs; preparation for peer teaching Activity 5&6
Wed 9/1	**Morning:** EO presentation **Afternoon:** Practice teaching of Labs & Discussion.	**Readings:** Selected Readings (Sexual Harassment, diversity) • Equal Opportunity Brochure • Shymansky & Penick: Do TAs exhibit sex bias? • Seymour – Gender differences in attrition rates • Article from Minnesota Daily

2010 Schedule and Syllabus (continued)

		Homework : Prelab warm-ups/predictions, preparation for labs
Thurs 9/2	**Morning:** Modeling of office hour coaching (mentor TAs) Practice teaching of Labs & Discussion. **Afternoon:** Practice teaching of Labs & Discussion.	**Readings:** Book (Redish) • Chapter 6 **Homework:** *Methods Questions* and *Predictions* and preparations for Peer Teaching **Activity 7**
Date	**Orientation Topic**	**Readings & Homework (DUE on the date listed)**
Fri 9/3	**Morning:** Team Meeting with Faculty	**Reading:** Instructor's Handbook : Chap. 5 Sections II, IV, VII. **Write**: Questions for your instructor on how he/she plans implementation of labs and discussion sections; problem solving requirements; other questions you have