# PHY 1033C: Discovering Physics Fall 2012 Professor Mark W. Meisel

**“*in vivo*”** schedule (**black text: projected and tentative**; **purple text: past**; **blue text: hotlinks**;

**red text important announcements**; **green text: fixed final exam**)

**Note:** revisions will be announced in class and subsequently posted online.

Week 1 Aug 21 No Class.

 Aug 23 Class Starts, Introduction to the Course.

 **Textbook Reading for next class:** Section 2.6.

 **Lab Prep Reading for next class:** [Pinhole Physics Lab 1](http://www.phys.ufl.edu/~meisel/Pinhole-Physics-Lab1.pdf).

Week 2 Aug 28 [Pinhole Physics Lab 1](http://www.phys.ufl.edu/~meisel/Pinhole-Physics-Lab1.pdf) and Section 2.6 in textbook.

 **Textbook Reading for next class:** Chapter 1.

 HITT will be “practice”; points not kept this day.

 Aug 30 Chapter 1.

 **Lab Prep Reading for next class:**

 [Reflections and Images Lab 2](http://www.phys.ufl.edu/~meisel/Reflections-Images.pdf) and [Refraction Lab 3](http://www.phys.ufl.edu/~meisel/Refraction.pdf).

 **HITT will be “live” on this day and all others; points kept!**

Week 3 Sep 04 [Reflections and Images Lab 2](http://www.phys.ufl.edu/~meisel/Reflections-Images.pdf) and [Refraction Lab 3](http://www.phys.ufl.edu/~meisel/Refraction.pdf).

 **Textbook Reading for next class:** Chapter 2.

 Sep 06 Debriefing of Reflections and Images Lab 2 and Refraction Lab 3.

 Discussion of Newton’s Particle Theory of Light (Chapter 2).

 **HITT Question on Chapter 1.**

 **Textbook Reading for next class:** Chapter 3.

 **Bring Sunglasses with you for next class.**

Week 4 Sep 11 Assignment for Sep 18: “Making Models”.

 Time to review Lab 2 and Lab 3.

 Particle vs. Wave Nature of Light: Discussion.

 Waves and wave nature of light: “Discovery” activities.

 [Acoustics and Vibration Animations - Dan Russell, Grad. Prog. Acoustics, Penn State](http://www.acs.psu.edu/drussell/demos.html)

 “Discovery” Lab Activity with polarization (bring sunglasses) and waves.

 **Textbook Reading for next class:** Chapter 4.

 Sep 13 Explanation about [“Observing Assignment”](http://www.phys.ufl.edu/~meisel/PHY1033C-Observing-Assignment.doc).

 **Lab Prep Reading for next class:**

 [Measurement of Wavelengths of Light Lab 4](http://www.phys.ufl.edu/~meisel/Wavelengths-Lab4.pdf).

 **Textbook Reading for next class:** Chapter 4.

Week 5 Sep 18 Due by NOON: “Making Models”. Submit to Turnitin.com.

 Worth 3 points.

 Comment on your impression of “Making Models”.

 Is this process applicable to your own field of study?

 What is your field of study?

 Requirements: 1 page. 1 in all margins. 12 pt “standard” font.

 Line spacing of 1.5 lines.

 [Measurement of Wavelengths of Light Lab 4](http://www.phys.ufl.edu/~meisel/Wavelengths-Lab4.pdf).

 Sep 20 Review Lab 4 and Reading in Ch. 4.

 **Textbook Reading for next class:** Chapter 5 Sections 5.1 and 5.2.

 **Lab Prep Reading for next class:**

 [Electrostatics Lab 5](http://www.phys.ufl.edu/~meisel/PHY1033C-Electrostatics-Lab5.pdf) and the [Amazing Pie Plate](http://www.phys.ufl.edu/~meisel/PHY1033C-Pie-Plate.pdf).

Week 6 Sep 25 [Electrostatics Lab 5](http://www.phys.ufl.edu/~meisel/PHY1033C-Electrostatics-Lab5.pdf) and the [Amazing Pie Plate](http://www.phys.ufl.edu/~meisel/PHY1033C-Pie-Plate.pdf).

 **Textbook Reading for next class:** Chapter 5 Sections 5.3 and 5.4.

 Sep 27 Review Electrostatics, Magnetostatics, and Ch. 5 Sections 5.1 to 5.4.

Week 7 Oct 02 “Problem solving Lab Day”, work problems in small groups.

 “The Problems” are available at:

 <http://www.phys.ufl.edu/~meisel/PHY1033CFall2012-Problem-Lab.pdf>

 Oct 04 Review for Mid-Term Exam, Come prepared to ask Questions.

Week 8 **NO Office Hours for Meisel during this week.**

 Oct 09 **Mid-Term Exam (45 points): Textbook Ch. 1 to Ch. 5 Section 5.4**

 **and all material from labs and lectures. Proctor: Long Zhang.**

 Oct 11 **Observing “Day”: No formal class meeting:** [“Observing Assignment”](http://www.phys.ufl.edu/~meisel/PHY1033C-Observing-Assignment.doc)

 **Textbook Reading for next class:** Chapter 5 Sections 5.3 to 5.4.

 **Lab Prep Reading for next class:** [Magnetic Fields Lab 6](http://www.phys.ufl.edu/~meisel/PHY1033C-Magnetic-Fields-Lab.pdf).

Week 9 Oct 16 [Magnetic Fields Lab 6](http://www.phys.ufl.edu/~meisel/PHY1033C-Magnetic-Fields-Lab.pdf).

 Oct 18 Review Test Results, Chapter 5 (partial) discussion.

 **Reading Assignment: Finish Chapter 5.**

Week 10 Oct 23 [Magnetic Fields Lab 6](http://www.phys.ufl.edu/~meisel/PHY1033C-Magnetic-Fields-Lab.pdf) more time to finish and revise as needed.

 Oct 25 Recap of Lab 6 and Chapter 5 discussion

 **Reading Assignment: Chapter 6.**

Week 11 Oct 30 Visit to Meisel Lab: NPB B133 and Microkelvin Lab. Meet in classroom.

 **Reading Assignment: Chapter 6.**

 Nov 01 Debriefing on Lab exercises and visits. Discussion of Chapter 6.

 **Prepare for “Motor” Lab!**

Week 12 Nov 06 “Motor” Lab! You will make your own motor, and then describe how it

 works within the context of the material that we have covered in class

 lectures, in lab activities, and in readings.

 <http://www.youtube.com/watch?v=it_Z7NdKgmY>

 <http://sci-toys.com/scitoys/scitoys/electro/electro.html#motor>

 <http://hilaroad.com/camp/projects/magnet.html>

 Nov 08 Debriefing of “Motor” Lab, Part 1. Preamble for Chapter 7.

 **Reading Assignment: Chapter 7.**

Week 13 Nov 13 **Viewing Assignment:**

 ***TED Talk:*** “Ramesh Raskar: Imaging at a trillion frames per second”

 (filmed June 2012 and posted July 2012), see:

<http://www.ted.com/talks/ramesh_raskar_a_camera_that_takes_one_trillion_frames_per_second.html>

 “Motor” Lab, Part 2.

 **Reading Assignment: Chapter 7.**

 **Reading Assignment: “Quantum Procrastination” by Seth Lloyd,**

 ***Science* 2 November 2012: Vol. 338 no. 6107 pp. 621-622**

 **(**[**http://www.sciencemag.org/content/338/6107/621.full**](http://www.sciencemag.org/content/338/6107/621.full)**)**

 Nov 15 Discussion and Review of **Chapter 7. Reading Assignment: Chapter 8 and 9.**

 **[Nov 16 Penultimate chance of seeing stars for** [“Observing Assignment”](http://www.phys.ufl.edu/~meisel/PHY1033C-Observing-Assignment.doc)**]**

Week 14 Nov 20 **Reading Assignment: Chapter 8 and 9. Reading, Writing, and**

 **Observing “Day”: No formal class meeting:** [“Observing Assignment”](http://www.phys.ufl.edu/~meisel/PHY1033C-Observing-Assignment.doc)

 Nov 22 **No Class: Thanksgiving Holiday.**

 **Course Evaluations**, “GatorRater” (?), <https://evaluations.ufl.edu/evals/>

 open now and until last day of classes.

 **Extra Credit** of 5 pts to everyone in class if more than 80% of the students respond.

Week 15 Nov 27 Problem Solving Lab 2 Session.

 <http://www.phys.ufl.edu/~meisel/Problem%20Solving%20Lab%202.pdf>

 **Reading Assignment: Chapter 8 and 9.**

 Nov 29 **Special Relativity: The Basics.**

 **[Nov 30 Ultimate chance of seeing stars for** [“Observing Assignment”](http://www.phys.ufl.edu/~meisel/PHY1033C-Observing-Assignment.doc)**,**

 **NOTE: “Starry Night Event” held at FLMNH from 6 pm to 10 pm]**

Week 16 Dec 04 16/20 evaluations recorded to date, so 5 pts Extra Credit for Everyone.

 5 pts added to everyone who took Mid-Term Exam,

 as it was 50 total points and not the originally scored 45 points.

 Last Day of Class. Review of Problem Solving Lab Session and Course.

 [“Observing Assignment”](http://www.phys.ufl.edu/~meisel/PHY1033C-Observing-Assignment.doc) **Due by 3 pm to Turnitin.com (15 points).**

 Dec 06 **No Class: Reading/Review Break.**

**Office Hours during Exam Week:**

Monday, 10 December, and Tuesday, 11 December, 2 pm to 3pm on both days.

Final Exam (Group 14C): Friday, 14 December, 12:30 to 2:30 pm, NPB 1002, and the Final Exam covers material from the entire course.