Laser Physics — Data Sheet
PHY485/1485F  2018

Lecturer: Robin Marjoribanks
Office: MP 1104C
email: marj@physics.utoronto.ca
Office Hours: R 2–3 PM (to be confirmed)
Lectures: M (MP134 – to be confirmed), R 10 (MP606)

Marking Scheme: 60–40 ‘Flip-flop’ weighting between term mark and final exam

Term mark: problems (4) [best 3/4] & group presentation (1)  40%
term test  60%
100%

Final exam: 100%

The course mark is found from: 0.6 * max(Term, Final) + 0.4 * min (Term, Final)

Problem Sets due:
Monday,  1 October
Thursday,  18 October
Monday,  19 November
Monday,  5 December
(note: Faculty rules prohibit extensions beyond last day of term)

Late policy: 20% off per day; no marks possible once solutions are posted
(~3 days after due date)

Term Test: 6-8 pm on Tuesday 23 October (TO BE CONFIRMED)
MP***

Marker: Vijin VENU, vvenu @physics.utoronto.ca

Presentations: 4-6:30pm on Monday 26 November (TO BE CONFIRMED)

Other Dates: (double check these in your Academic Calendar)
http://www.artsci.utoronto.ca/current/course/timetable/1718_fw/2017_fall_dates

September 19 -Last day to add courses with F and Y section codes
October 31 (latest) - Examination timetable for F section code courses posted
November 5 - last day to cancel F section code courses without academic penalty
November 5-9 – Fall Reading Week
December 5 - Classes end
**TEXT:**

*Laser Physics*, Milonni and Eberly  
(Wiley, 2010)

A very good book to be found on shelves of almost anyone working in lasers, it spans nicely our 4th year undergrad + 1st year grad class-makeup. In places, it perhaps does not do enough to signal where it bridges too smoothly over subject material that has more actual depth to it.

**RECOMMENDED PURCHASE:** (in general, also for other courses!)

*A Student's Guide to Fourier Transforms*, J.F. James, a small paperback  
(Cambridge University Press, various printings, different prices, but modest edition updates)

A lovely helper, clear and to the point.

**USEFUL REFERENCES:**

*Optics* 4th ed, Eugene Hecht  

Very clear, deep in examples, colour photographs, applications. It is a well-tested textbook, massaged for errors over a number of years. The book’s approach is by phenomenon and application, and we will be more systematic — this means we’ll move logically and systematically through the physics, but the corresponding sections of Hecht jump around. The level is not the equal of Milonni & Eberly.

*Introduction to Modern Optics*, Grant R. Fowles  
(2nd edition 1975; Dover, reprint 1986)

A clear and easy book, pretty highly rated online by readers, especially for its value (it’s cheap). It’s reprinted because few texts offer as much classical optics in such a straightforward style. It has many errors, though, so be sure to get an erratum sheet from me.

*Modern Optics*, Robert Guenther  
(Wiley, 1990)

This is a good book, as far as it goes. Which in terms of lasers isn’t far enough. If you find Fowles too terse, or too error-prone, you may prefer to find this book somewhere for a ‘second opinion’ or a second explanation of something you’re trying to grasp.

*Lasers*, A.E. Siegman  
(University Science Books, c1986)

We’ll perhaps use this as a minor reference, it’s a reference text at a high level.

(Springer, Berlin; Heidelberg; New York, 2006)

This is a very useful reference for the laboratory, and for engineering; it gives good and pragmatic descriptions of how actually to use and calculate things. Updated to cover ultrafast developments. Might be a reference purchase for lab-use, but not worth the money for this course alone.