Laser Physics — Data Sheet
PHY485/1485F 2018

Lecturer:	Robin Marjoribanks
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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
(Addison-Wesley, 4th Edition 2001 – $28; 5th Edition 2015 – $160)

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.

Solid-state Laser Engineering, Walter Koechner, 6th rev.
(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.