

AS 712 - Radiative Processes in Astrophysics
Course Syllabus - Spring 2015
<http://people.bu.edu/philipm/teaching.html>

Meeting Time

TR 9:30 - 10:50, CAS 502

Instructor

Prof. Philip Muirhead

Email: philipm@bu.edu

Office Hours: Mon 10:00-11:20, Tues 11:00-12:20 403 CAS

Required Books

Radiative Processes in Astrophysics by Rybicki & Lightman (R&L). R&L contains chapter problems that we will do in class. All of the solutions are available at the back of the book. However, I strongly encourage students **not** to view at the solutions until we have attempted the problems in class. R&L focuses largely on high-energy astrophysics.

Radiative Transfer in Stellar Atmospheres by Robert J. Rutten, available for free online on ADS:

<http://adsabs.harvard.edu/abs/2003rtsa.book.....R>

Rutten is complementary to R&L, providing more discussion in some places, less in others, with a focus on stellar atmospheres.

Stellar Atmospheres & Radiative Transfer by Alex de Koter available as a PDF here:

https://www.dropbox.com/s/xyqxf16y5xpzr87/de_Koter.pdf?dl=0

Reading Assignments and Homework and (25% of the grade)

We will have reading assignments and homework due at the beginning of class on Tuesdays.

Midterm (10%) and Final (15%)

We will have a midterm and final exam. The midterm will take place during class on **Thursday March 5th**, and will be open book (R&L only).

In Class Problems (25% of the grade)

During class, we will break up into groups to work on R&L problems. Each student will turn in a sheet of paper with their solution, after which we will go over the true solutions in the back of R&L.

Class Project (25% of the grade)

At the middle of the term each student will outline a research project involving radiative transfer. This will involve writing a paper summarizing the state of the field, with references to historical and recent work, and a description of what the student intends to do. The outline is expected to be about 3-5 pages emulateapj format, including figures and references, due **Thursday March 26th**.

At the end of the term, students will turn in another paper describing the results of their investigation, and give a 5 min presentation followed by questions during the last few classes of the term.