

ATMO 612: Atmospheric Physics II
Spring 2008

Instructor: Prof. S. Nasiri, 903A Eller O&M Bldg., 845-8076, snasiri@tamu.edu.

Course web page: <http://www.met.tamu.edu/class/ATMO612/>

Class time and location: 4:10 - 5:25 MW, 203 Eller O&M Building. This schedule may be adjusted to make up for classes missed due to travel.

Office hours: I have an open door policy, within reason.

Required Text: Grant Petty, *A First Course in Atmospheric Radiation, 2nd Ed.*, Sundog Publishing, Madison, WI, 2006. ISBN 0-9729033-1-3.

Reference Books: Should be available in Evans Library under Course Reserves

- C. F. Bohren and E. E. Clothiaux, *Fundamentals of Atmospheric Radiation*
- R. M. Goody and Y. L. Yung, *Atmospheric Radiation*
- K.-N. Liou, *An Introduction to Atmospheric Radiation*
- I. M. Vardavas and F. W. Taylor, *Radiation and Climate*

Grading: Grades are based on homework, weekly quizzes, 1 mid-semester exam, and a final exam. I reserve the right to make all or part of the final exam be take-home. An absence from an exam will result in a zero for that exam, unless the instructor approves the absence. An absence from a quiz will result in a zero, unless prior arrangements are made with the instructor. Late assignments will not receive full credit.

Quizzes	10%	weekly
Assignments	20%	regularly
Midterm	30%	Week of Mar. 5-9 or 19-23
Final Exam	40%	May 9, 10:30-12:30

Assignments: Homework assignments are 20% of your grade. While I encourage you to consult with your fellow students on the homework problems, each student must hand in his or her own work, unless an assignment is designated a partner or group assignment. Assignments must be neat. Some assignments may be blind peer-graded.

Programming: Computer programming is necessary for this class. There are extensive Matlab, IDL, and FORTRAN tutorials available on the web. See me immediately if you do not have scientific programming experience and we will get you started on a tutorial. Computer programs must be the work of the individual student or designated group.

Outline:

1. General concepts
2. Spectral bands

3. General optics review
4. Fundamental radiation laws
5. Spectral absorption by atmospheric constituents
6. Atmospheric transmission
7. Atmospheric emission
8. Broadband fluxes and heating rates
9. Radiative transfer with scattering
10. Multiple scattering
11. Radiative properties of clouds
12. Earth radiation budget

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For additional information please visit: <http://www.tamu.edu/aggiehonor/> .