Atmo 201-504 Midterm 1 study guide

General info
The exam will be multiple-choice, with a (large) scantron required. The distribution of questions will approximately be proportionate to the amount of class time spent on a general topic. Most questions are drawn from the reading, but selected based on what was covered and how it was covered in class. However, coverage of the material in class is the best indicator it may be on the exam. Below, I will indicate specifically which parts of chapters are most (or least) important. I will note review and other questions that will best help you study what I want you to learn. I will note sections as **emphasize** (more likely to result in a question on the exam), **informational** (not likely to independently generate a question, but may be referred to later in the class), or **reference** (majors and other interested parties should read and enjoy). All other sections are of average likeliness to lead to a question (note that “section” includes “focus on …” and pretty much anything written in a chapter.

A good way to study a chapter is to review your notes and/or the posted class slides; look at the review questions briefly; read the chapter; answer the review questions in writing, rereading parts of the chapter as needed; make sure you understand the “key terms” that come from assigned parts of chapters; reread the “brief review” and “summary” sections.

Finally, you may bring one page (one side of a letter-sized piece of paper) of handwritten notes to the exam, and no calculator will be needed or allowed. Any material you have difficulty with should be written there. Another good study technique is to write out a many-page “cheat sheet” while studying, covering all the material; then write a 1-page version with the hardest stuff; only the latter may be used during the actual exam.

Chapter 1
- Questions for review: 1-27
  - Overview of the Earth’s Atmosphere (**emphasize**)
  - A breath of fresh air (**reference**)
  - Vertical structure of the atmosphere (**emphasize**)
  - The atmospheres of other planets (see additional lecture material and Wikipedia references for this material)
  - Radiosonde (**info**)
  - Weather and climate
  - What is a meteorologist (**reference**)

Chapter 2
- Questions for review: 1-19
- Questions for thought: 6, 7, 10-12
  - Energy, temperature and heat
  - Heat transfer in the atmosphere
  - Fate of a sunbeam (**info**)
  - Rising air cools…
  - Radiation (**emphasize**)

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Wave energy, … (reference)
Balancing act
Incoming solar energy (emphasize)—except ‘Solar particles and the aurora’ (info)
Blue skies, …
Characteristics of the Sun (info)

Note also that 3 equations were highlighted in class and may be tested conceptually and/or in simple examples that mimic those used in class. Energy balance and climate for Mars and Venus are included, as discussed in lectures.

Chapter 3
• Questions for review: 1-13, 17-21
• Questions for thought: 1, 11-13
Why the Earth has seasons
Local seasonal variations (info)
Daily temperature variations (emphasize everything before ‘protecting crops from the cold’)
Solar heating and the noonday sun (reference)
Record high temperatures (reference)
Record low temperatures (reference)
The controls of temperature
Air temperature data
When it comes to temperature, what’s normal?
Air temperature and human comfort (info)
A thousand degrees and freezing to death (info)
Measuring air temperature/Should thermometers be read in the shade (reference)

Note also that seasons on planets, especially Uranus, were discussed in lecture.