This week is all about gravity, and Einstein’s conception of it as embodied in his General Theory of Relativity.

**Voyages Through the Universe**, Chapter 23 *Black Holes and Curved Spacetime*: All sections.

Well, here it is, Einstein’s famous General Theory of Relativity. The text does a good job getting across the basic concepts with a minimum of math; it should provide a good complement to our class discussions this week. Note that the examples provided by the book are sometimes different from the ones given in class – this is on purpose! By being presented a number of different examples that all lead to the same conclusions, I hope you will be able to better grasp the difficult concepts enshrined in the general theory of relativity. This is not easy stuff, to be sure, so pay close attention, and come armed to class on Tuesday with any questions.

**On-Line Material**: Chapter 23 – Take a look at all of the *Active Figures* and *Astronomy Exercises*, as they are all useful. Of particular relevance to this chapter are the *Active Figure* ‘Schwarzschild Radius of a Black Hole’ and the *Astronomy Exercise* ‘Black Hole’. Many of the others are repeats from prior chapters (useful to look at again, but not as crucial). This is difficult material from a conceptual standpoint; hold off on taking the Post-Test for this chapter until next week, after you’ve had a chance to ask questions in class about it on Tuesday.

**Writing Assignment for Tuesday, April 25**

Please answer the following question in the form of a typed essay; you may include diagrams if you wish, as well. This assignment will be collected on April 27, when the 4th and final homework collection will take place (note that the collection date was incorrectly stated to be on May 4 in last week’s reading assignment handout; it will actually occur on April 27, as stated in the syllabus).

1. Einstein’s general theory of relativity made specific predictions about the outcome of several experiments that had not yet been carried out at the time the theory was first published in 1916. Your book describes about half a dozen experiments that have since been carried out and all found to agree with the predictions of general relativity. Describe any three of the experiments, the specific predictions of general relativity that they tested, and how the results have verified the predictions of the theory.

(Karl Schwarzschild (left) meets Ejnar Hertzsprung in front of the Göttingen Observatory building sometime in 1909.)