Course structure items

1. Syllabi
   - Course activities
   - Grading

2. Calendar
   - Who goes first? Decision process?
   - Plasticity (visiting scientists?)

3. Career items (BS vs. Ph.D.) Dr. J. Lever?
Science, pseudoscience, & fantasy

0. The scientific method

a) observation
b) hypothesis (explanation/model/???????)
c) test
d) if necessary (it usually is) refine hypothesis
e) test again
f) repeat d) & e) as often as appropriate
g) Under some circumstances, the hypothesis may become a theory. A theory is “as good as it gets.”
1. How does science fit in with society as a whole? Why is science a good thing? It allows us to have more control over the physical (as opposed to spiritual) aspects of our lives.

   a) increased life expectancy  \textit{Medicine is the cruncher.}
   b) decreased infant mortality
   c) improvements in nutrition
   d) others (cell phones)
2. Has science sometimes been applied to hurt people? Yes!

a) weapons
b) pollution
c) many others
3. Do scientific results sometimes come into conflict with other aspects of society? Yes!

a) Technology examples:
   I) Astronomy: helio vs. geocentrism (Galileo) *(Cassini mission)*
   http://saturn.jpl.nasa.gov/
   ii) Bleeding (leeches, *etc.*.) isn’t vs. is a good treatment for ...
   *(George Washington’s demise)*
   http://www.earlyamerica.com/review/2005_winter_spring/washingtons_death.htm
   iii) vaccination does not vs. does cause autism
   iv) global warming/anthropogenic global warming
   Mike’s Nature trick

Some aspects of science are difficult to understand, explain, complicated, *etc.*. This can make it easy to fool people who are not experts in the field being discussed.
b) Education (Comment on also technology, but.....)

I) Geology/cosmology: earth age $\sim 4.5 \times 10^9$ vs. $\sim 6 \times 10^3$ yrs

http://www.evcforum.net/RefLib/RadiometricDatingEvo3.html

ii) biology: evolution vs. intelligent design

Too many to count.

Michael Shermer video on the baloney detection kit:
http://richarreddawkins.net/videos/3986-rdf-tv-the-baloney-detection-kit