First-Year Seminar "Energy for Future Presidents" (Fall 2013)

Instructor: Dr. Klaus Bartschat: 271-3750
klaus.bartschat@drake.edu
Harvey Ingham (18A)
Office Hours: MWF 10 – 11 a.m., F 2 – 4 p.m., or by appointment

Time: MW 12:30 – 1:45 p.m.

Text: "Energy for Future Presidents" by Richard A. Muller (ISBN: 978-0-393-34510-0)

Summary: We will discuss the book "Energy for Future Presidents: The Science Behind the Headlines" by Richard A. Muller. The author deals with the major topics of "Energy Catastrophes" (Fukushima, the recent Oil Spill in the Gulf of Mexico, Global Climate Change), the current "Energy Landscape" (oil and coal, natural gas, energy conservation, recycling, feel-good measures that do or do not really work), and "Alternative Energy" (solar, wind, nuclear, biofuel, hydrogen, geothermal, etc.) The book and the seminar are meant for the non-scientist, i.e., most American Presidents and other powerful politicians and lawmakers. These people need some "common sense" in order to distinguish facts from fiction, to think critically about the arguments being brought forward, and to realize how positions can be vastly exaggerated. We will see how public opinion and politics can influence, and often get in the way of, making critical decisions that seem "obvious" from a purely scientific perspective.

"Rules of the Game":

1) Work for Credit (detailed schedule to follow after the organizational meeting on Aug. 26, 2013):
   2 PowerPoint presentations as a 2-person team (15-20 minutes; both team members present)
   2 Write-ups of these presentations and discussions (2000 - 2500 words; + figures; individual work)
   2 Peer reviews of write-ups (marked comments and suggestions on drafts of your classmates)
   3 Summaries of a chapter (400–600 words; no figures; when assigned)
   20 very short, in-class essays to check your reading assignment
   1 Take-home final essay (2500 - 3500 words; + figures) about a "big picture topic"

The write-ups, summaries, and the final exam will need to be submitted on paper. Please ensure that you are able to print a legible version of your work on time for the due date. [Please do not leave things to the last minute, only to find out that there is a paper jam, missing toner, network problem, etc.] The Powerpoint presentations and your final exam are also (not only) due in electronic form. You can email them, provide them to me on a memory stick, or use the Dropbox folder that I will set up with each of you. Until I have all your required material, you will not receive a passing grade for the course!

2) Due dates: [We will need some speed-up near the end of the semester – exceptions will be announced.]

   Write-up of presentation and discussion:
      first version: next meeting after the talk was presented
      second + first version: one meeting after feedback from peer review was received
      revised + second + first version: next meeting after feedback from instructor was received

   Summaries of chapter:
      first version: due date assigned
      revised (only for summaries 1 and 2) + first version: next meeting after feedback from instructor was received or (for summary 3) due date assigned

   Final essay: Thursday, Dec. 12, 2013, 5:00 p.m. CST (no revision possible)
3) **Penalties:** If a due date is missed, every working day late will result in a 20% deduction of the maximum possible number of points; for example, if your work is worth 9 points out of a maximum of 10 points but handed in two days late, you will only be credited 5 points because of $9 - 2 \times (20\%\text{ of } 10) = 5$. In rare cases and special circumstances, the instructor – if given proper **advanced** notice – may grant exceptions.

4) **Cell phones and other distractions (texting, facebook, email, twitter, etc.):** It is very impolite towards the other students (especially the presenters) and the instructor to demonstrate that these distractions are possibly more important to you than what your classmates and/or the instructor may have to say. Consequently, the **use of cell phones and computers is not permitted during class time** – unless it contributes positively to the learning environment, for example, if we want to quickly find some relevant information (e.g., the number of cancer deaths in the US in the past decade, recent weather patterns in Iceland or Hawaii, electricity use per capita in India since 2002, ...). By default, I will ask all of you to put your cell phone into “airplane mode” and your computer to sleep at the beginning of the class. **Ignoring this policy will result in you being dismissed from class with an unexcused absence for that day.**

5) **Attendance** is required at all meetings! If you think you can miss a meeting, check with the instructor before you do it! There may be excuses for documented illness and Drake-related absences. **If you miss more than one meeting without an accepted excuse, this will be reflected (negatively) in your grade, to the extent that you may receive an F for the course.** [See also 4).]

6) **Grading** will be based on the following scheme:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation</td>
<td>8% each</td>
<td>A: &gt; 85%</td>
</tr>
<tr>
<td>Write-Ups:</td>
<td>12% each</td>
<td>B: &gt; 75%</td>
</tr>
<tr>
<td>Peer Feedback:</td>
<td>3% each</td>
<td>C: &gt; 65%</td>
</tr>
<tr>
<td>Summaries:</td>
<td>4% each</td>
<td>D: &gt; 50%</td>
</tr>
<tr>
<td>Reading Checks</td>
<td>10% (total)</td>
<td>F: &lt; 50%</td>
</tr>
<tr>
<td>Participation in Class:</td>
<td>15% (total)</td>
<td></td>
</tr>
<tr>
<td>Final Essay</td>
<td>17%</td>
<td></td>
</tr>
</tbody>
</table>

**Academic honesty:**

The work you submit for this class has to be your own. If you use information from resources other than the book, you need to properly identify the source and give credit to it. You certainly may not copy significant portions of other people's work and claim it as your own. Attempts to break these rules and/or to copy from another student's paper will result in a failing grade for the item, and the incident will be reported to the corresponding authorities at Drake University.

**Dropping/Withdrawal Policy:**

1) You may drop this course until Friday, Sept. 9, 2013 without a recorded grade.

2) You may drop this course until Friday, Oct. 18, 2013 with a grade of W.

3) Although there are exceptions in place for students to drop classes with a grade of W after the midpoint of a course (here Oct. 18, 2013), being granted such a drop is difficult to achieve.

4) Remember that **you need to pass an FYS to graduate from Drake University.**

**Outcomes of the FYS and the Drake Curriculum:**

The First Year Seminar is the very beginning of your journey through the Drake Curriculum. The general goal and outcomes can be found at [http://www.drake.edu/dc/](http://www.drake.edu/dc/)
Resources:

1) The most important immediate resource for you is the book "Energy for Future Presidents", which is the basis for this course.

2) You may also want to search for supplementary information elsewhere, in particular the Internet. Be aware, however, that most of that information has not been checked and, hence, may be unreliable.

3) Cowles Library offers a Library Instruction for all FYS. We will use that service on Oct. 2, 2013.

4) Check out the link http://researchguides.drake.edu/content.php?pid=211325 for FYS resources at Drake. In particular, note the Writing Workshop that you can use to get help with your written assignments.

5) Any physics, math, or chemistry question: Start with your instructor!

Recommendations:

1) Presentations:
   a) Organization: Include one transparency for the content and one for the summary.
   b) Slides: Make sure they are readable for everybody. Check the size of the letters – and your spelling and grammar. Take advantage of the visual enhancements electronic presentations offer. [You might want to search the internet/library for supplemental info.]
   c) Practice: Practice your presentation with friends (certainly with your team partner). Typically, a presentation becomes longer than expected. Do not read your talk or learn it by heart! Good slides will help you to keep on track.

2) Writing and Reading Assignments:
In all assignments, watch your spelling and grammar. You might lose points if a mistake could have been picked up with a standard spell/grammar checker! This may already happen in a draft that can be revised later, since there is no excuse for not doing a careful job on these technical items right away. Handing in a version of your work that strongly suggest you didn't really care is not acceptable. Remember, however, that spell-checkers will usually not detect missing/extra words or grammatical errors. Also, while "dig" and "dog" are both words of the English language, often at most one of them (or none) will make sense in a particular context. Proof-read!

   For the short reading tests, you will receive 2 points if there is no doubt that you read the chapter and know the content well, 1 point if there is some indication that you took a good look without really going into all the details, and 0 if there is no convincing evidence that you looked at the assignment for more than a few minutes.

3) Discussion: Please participate actively in the discussion. This is not a regular physics/chemistry course with (usually) right or wrong answers. You will not be penalized by asking questions about the science or by defending a particular point of view. In fact, controversial statements will likely help to make this course interesting. For most class periods (exceptions will be announced), you will receive 2 points if you made really valuable contributions, 1 point if you contributed to some extent, and 0 if we could just as well have done without you. Note that the quality of your contribution is more important than the quantity. One really good comment could give you 2 points.
Common Writing Problems and More Recommendations

1) Chemistry is when it stinks.
   Better: Many reactions in Chemistry result in a smell.

2) The result is that physicists don't like Chemistry.
   Better: As a result, physicists do not like Chemistry.

3) This fact is of greater importance. Greater than WHAT?

4) there — their; then — than; effect — affect; it's — its

5) Singular — Plural; the "s" in something works.

6) There is only one first, biggest, smallest, ...

7) Write in the 3rd person (generally no "you", "your", "I", "me", etc.)

8) Simplify your sentences! ("What I did was to use ..." ??? Better: "I used ...")

9) Use complete sentences of finite length!

10) Find alternatives for "use" and "do"!

11) If you use additional info not in the book, add a list of references.

12) Spell-check and proof-read! Over, and over, and over again ...