

First-Year Seminar "Energy for Future Presidents" (Fall 2019)

Instructor: Dr. Klaus Bartschat: 271-3750

klaus.bartschat@drake.edu

Harvey Ingham (18A)

Office Hours: MWF 11 – noon, F 2 – 4 p.m., or by appointment

Time: MW 12:30 – 1:45 p.m. in Olin 212

Text: "Energy for Future Presidents" by Richard A. Muller (ISBN: 978-0-393-34510-0)
[The book is getting old, but it is still the best suitable basis for the course. I will expect you to do additional research. This will be an excellent preparation for you.]

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 Oil Spill in the Gulf of Mexico, Global Climate Change), the "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, 2019):

- 2 PowerPoint (no Prezis!) presentations by 2-person teams (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. [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, your write-ups, and your final exam are **also (not only!)** due in electronic form. ***Until I have all your required material, you will not receive a passing grade for the course!***

The PowerPoint presentations (***no Prezis!***) are supposed to be a ***team effort***. Consequently, I do ***not recommend that you split up the work***. You are responsible (to a reasonable extent, see below) also for your partner's performance. For example, if there are factual or printing/spelling mistakes in the part that your partner presents, your grade may be affected as well.

I recognize, of course, that we are not living in an ideal world. While highly undesirable, it is certainly possible that you end up with a partner who does not perform to your (or my) expectations. Consequently, ***I would like a short email from each of you before(!) your presentation, in which you describe in a few words how your team functioned.*** [This is ***not*** something to put into your summary or share with your partner.] I will then also form my own impression and make appropriate adjustments if any problems appear to be beyond your control.

2) **Due dates:** [We may need to speed-up near the end of the semester, and exceptions will be announced.]

Write-up of presentation and discussion:

See examples below. The idea is to allow feedback and revision at the beginning of the class without being penalized right away. However, I reserve the right to assign immediate penalties, if I get the impression that you did not care about putting in the necessary effort. You will generally have two/one week(s) between your (first/second) talk and handing in the final write-up.

Summaries of chapter:

first version: due date assigned

revised (only for Summary #1) + first version: next meeting after feedback from instructor was received or (for summaries #2 and #3) due date assigned.

Final essay: Thursday, Dec. 12, 2019, 2:00 p.m. CST (that would be the end of the final exam)

Examples: I realize that this may seem complicated, but in order to allow multiple feedback, the turn-around time is long (two weeks) at the beginning. Also, there will be interruptions due to holidays and instructor traveling. Some adjustments will need to be made. Let's try our best to keep each other organized.

a) If your ***first presentation*** is on Monday, Sept. 9, the ***two-week window*** mentioned above means:

- Your first write-up (printed and stapled) is due at the beginning of class on Wednesday, Sept. 11.
- I will give that write-up to one of the other students in the class.
- The other student is supposed to get you her/his comments by 12:30 p.m. on Saturday, Sept. 14. [You and the other student are responsible for making this work.]
- You will give your original version with the other student's comments and your revision (printed and stapled) to me at the beginning of class on Monday, Sept. 16.
- I will give you my feedback by Wednesday, Sept. 18.
- You make an appointment ***NOW(!!!)*** with the Writing Workshop for Sept. 18 – 22.
- You hand in the copy that I marked, plus comments from the Writing Workshop tutor, plus the final version of your write-up (printed and stapled), to me by 12:30 p.m. on Monday, Sept. 23.

b) If your ***first presentation*** is on Wednesday, Sept. 4, the ***two-week window*** mentioned above means:

- You will give your first write-up (printed and stapled) to one of the other students (I will tell you which one) in the class by 12:30 p.m. on Friday, Sept. 6. [You and the other student are responsible for making this work.]
- The other student is supposed to get you her/his comments by 12:30 p.m. on Monday, Sept. 9.
- You will give your original version with the other student's comments and your revision (printed and stapled) to me at the beginning of class on Wednesday, Sept. 11.
- I will give you my feedback by Friday, Sept. 13 (pick-up from my office)
- You make an appointment ***NOW(!!!)*** with the Writing Workshop for Sept. 13 – 17.
- You will hand in the copy that I marked, plus comments from the Writing Workshop tutor, plus the final version of your write-up (printed and stapled) to me by 12:30 p.m. on Wednesday, Sept. 18.

c) If your ***second presentation*** is on Monday, Oct. 21, the ***one-week window*** mentioned above means:

- Your write-up (printed and stapled) is due at the beginning of class on Wednesday, Oct. 23. I will give that write-up to one of the other students in the class for feedback by 12:30 p.m. on Friday, Oct. 25. [You and the other student are responsible for arranging the feedback.]
- You hand in your draft version with the student's comments and your final version (all printed and stapled) by 12:30 p.m. on Monday, Oct. 28. Use of the Writing Workshop is recommended but optional.

d) If your ***second presentation*** is on Wednesday, Oct. 23, the ***one-week window*** mentioned above means:

- Your write-up (printed and stapled) is due by 12:30 p.m. on Friday, Oct. 25 to one of the other students in the class (I will tell you which one) for feedback by 12:30 p.m. on Monday, Oct. 28.
- You hand in your draft version with the student's comments and your final version (all printed and stapled) by 12:30 p.m. on Wednesday, Oct. 30. Use of the Writing Workshop is recommended but optional.

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 $9 - 2$ (20% 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 2012, ...). 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:

| | | |
|-------------------------|-------------|--|
| Presentation | 8% each | A+: > 94%; A: > 90%; A–: > 86% |
| Write-Ups: | 12% each | B+: > 82%; B: > 78%; B–: > 74% |
| Peer Feedback: | 3% each | C+: > 70%; C: > 66%; C–: > 62% |
| Summaries: | 4% each | D+: > 58%; D: > 54%; D–: > 50% |
| Reading Checks | 10% (total) | F: < 50 % |
| Participation in Class: | 15% (total) | |
| Final Essay: | 17% | |

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 Monday, Sept. 9, 2019 without a recorded grade.
- 2) You may drop this course until Monday, Oct. 28, 2019 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. 28, 2019), 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 <https://www.drake.edu/dc/>.

7) Title IX:

Drake University has resources available for students who have experienced sexual or interpersonal misconduct. Please go to <https://www.drake.edu/titleix/> for further information.

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 Sept. 16, 2019.
- 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 slide 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 suggests you did not really care is not acceptable. [I reserve the right of not even reading it to the bitter end.] 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!

a) Title and abstract: Your write-up needs to have a title, your name, and a short (a few lines at most) abstract. Please use fonts that distinguish this part from the rest of your paper.

b) Figures: All figures in your write-up need to be labeled, referenced properly, and have a caption, such as:

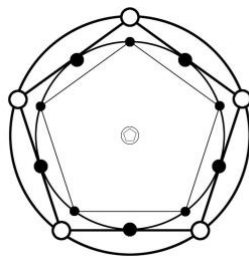


Figure 1: These are circles with pentagons inside or outside [1].

Also, the figures need to be referred to in the text. Example: "Figure 1 shows how circles can be approximated by polygons. I didn't know what exactly this is good for, but I found some explanation in the paper by Author1 and Author2 [2]."

References: At the end of your write-up, there should be a list of references. You do not need to (but may) reference Muller's book. I know that much of your info is from there, but everything else needs to be acknowledged for sure. So, the very end of your write-up should look like this:

References:

[1] Picture taken from <http://scholarlybelgarath.deviantart.com/art/Circle-of-the-Stone-125026641>

[2] Author1 and Author2, Journal of Explanations **19**, 527 (1947).

["Journal of Explanations" is the title of the journal, 19 is the volume, 527 the first page, and 1947 the year.]

3) **Reading Checks:** 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.

4) **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 ...

13) Read your work aloud! You will be amazed how some of your original sentences or paragraphs sound when you do that. Hopefully, you will feel the need to fix them before showing your work to anybody else.

Checklist

Before you give your work to your peer or your instructor, please confirm for yourself (you might want to put a tick mark in front of the item) that you did at least the following:

Write-up #1 before giving it to your peer:

- My paper has a title, my name, and a short abstract in appropriate fonts.
- All my figures are numbered, have captions, and are referred to in the text.
- All my sources have been referenced appropriately.
- I used a spell/grammar checker. If I did not make a suggested change, I can justify my decision.

Write-up #1 before giving it to your instructor:

- I read through my peer's comments. If I did not make a suggested change, I can justify my decision.
- I used a spell/grammar checker. If I did not make a suggested change, I can justify my decision.

Revised version of Write-up #1 before giving it back to your instructor:

- I read through the instructor's comments. If I did not make a suggested change, I can justify my decision.
- I used a spell/grammar checker. If I did not make a suggested change, I can justify my decision.

Write-up #2 before giving it to your peer:

- My paper has a title, my name, and a short abstract in appropriate fonts.
- All my figures are numbered, have captions, and are referred to in the text.
- All my sources have been referenced appropriately.
- I used a spell/grammar checker. If I did not make a suggested change, I can justify my decision.

Write-up #2 before giving it to your instructor:

- I read through my peer's comments. If I did not make a suggested change, I can justify my decision.
- I used a spell/grammar checker. If I did not make a suggested change, I can justify my decision.

Final paper before giving it to your instructor:

- My paper has a title, my name, and a short abstract in appropriate fonts.
- All my figures are numbered, have captions, and are referred to in the text.
- All my sources have been referenced appropriately.
- I used a spell/grammar checker. If I did not make a suggested change, I can justify my decision.